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Kindergarten Assessments as a Predictor for a Student's Need for Intervention

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by

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ABSTRACT

KINDERGARTEN ASSESSMENTS AS A PREDICTOR FOR A STUDENT'S NEED FOR INTERVENTION

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The purpose of this study was to determine if the kindergarten assessment results from the three windows in reading, written communication, and mathematics were a valid predictor of a student's need for intervention up until the conclusion of second grade. Reynolds (1992) suggested that a student's overall school success is reflective of the approach taken early in kindergarten. With the demands of the No Child Left Behind Act (2001), districts have set in place strategies to meet the standard of all students reading on grade level at the conclusion of the third grade. If districts are to rise to the standards set forth by NCLB and to avoid the strict consequences brought on by failing to do so, they must start early in identifying at-risk students (Bishop, 2003). By determining the link between the targeted district's kindergarten assessment and a student's need for intervention, early identification and prevention can begin in kindergarten and extend throughout elementary school with later elementary success in mind.

The kindergarten assessment was compared to the results from AIMSweb benchmarking and the Mississippi Curriculum Test Second Edition assessment, semester and final grades in reading, language arts, and mathematics from the first and second grades, and failure status to determine a student's need for

intervention. A student's intervention status, whether or not he or she received intervention at any point from kindergarten until the conclusion of second grade, was determined by reviewing cumulative records.

Data were analyzed using chi square statistical tests to determine if a significant relationship existed between the kindergarten assessment results and a student's need for intervention by the end of the second grade. Sections of the kindergarten assessment were found to be predictive of a student's need for intervention.

Kindergarten teachers completed a survey indicating their beliefs about the predictability of the kindergarten assessment and each component of the instrument in regards to a student's need for intervention. Through further analysis it was determined that teachers were able to conclude which particular sections of the instrument were a predictor of the need for intervention.

DEDICATION

You said I would be someone, and I am.

You believed in me enough for the both of us.

You knew I could when I did not think I was able.

I have led the way, now follow.

CDKJNW

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CHAPTER I

INTRODUCTION

With the demands of the No Child Left Behind Act (NCLB, 2001), districts have set in place strategies to meet the expectation that all students will read on grade level by the conclusion of the third grade. From early assessment to intervention strategies, districts have worked diligently to raise the achievement of students to meet these expectations. If districts are to rise to the standards set forth by NCLB and avoid the strict consequences brought on by failing to do so, they must start early in identifying at-risk students (Bishop, 2003).

The targeted district is made up of a large number of socioeconomically challenged students. Of the two schools in which data were collected, one has a high free/reduced lunch status, 83.07%, whereas the other has a moderate number of the same, 63.56%. Cavanaugh, Kim, Wanzek, and Vaughn (2004) reported that low socioeconomic status (SES) is one of the most common factors determining if a student is at-risk. Of children who fail at reading, the largest numbers of them come from poverty, even more so when they are of color (Musti-Rao & Cartledge, 2007). Because 71% of the district population fits the poverty criteria and 57% of the students are from minority groups, it is especially important for the district to act as soon as a problem presents itself. If the targeted district's kindergarten assessment could be determined as a predictor of a student's need for intervention and the results were used as fuel for earlier intervention, the barriers set forth by low socioeconomic status could possibly be diminished.

Mississippi state board policy states that the Response to Intervention (RTI) process must include progress monitoring to determine if students are making adequate progress, to identify students as soon as they begin to fall behind, and to modify instruction so that every students' needs are being met (Mississippi State Department of Education, 2005a). Additionally, according to Mississippi board policy, the monitoring should be an ongoing process that measures benchmarks on both large-scale and classroom assessments (MSDE, 2005a). The district uses AIMSweb to meet this requirement. Students are monitored through AIMSweb benchmark probes, which are administered in three windows: fall, winter, and spring. The results are entered into the AIMSweb computer program, and students who fall in the bottom 10% in each grade are considered for intervention.

Central to a child's success in school is his or her reading ability. The National Assessment of Education Progress reported that students who struggle in reading early in their education could possibly continue to struggle in high school (as cited in Juel, 1988). Early identification of students who have difficulties in reading is paramount if disabilities in reading are to be avoided. Specifically, as reported by Juel (1988), kindergarten is an optimal time for identification of at-risk students as well as the precise time intervention should occur. In addition to the identification of at-risk students, students determined in later elementary school to be gifted could be identified earlier and could be provided with an appropriate education based on the results. By determining the link between the assessment and a student's success at the conclusion of the

second grade, early identification and intervention can begin in kindergarten and extend throughout elementary school with future academic success in mind.

Research by Foorman, Francis, Shaywitz, Shaywitz, and Fletcher (1997) indicated that early intervention produces promising results for at-risk students who receive early intervention before the third grade; however, when severe reading disabilities are discovered after age 8, the disabilities are unaffected by treatment (Foorman et al., 1997). Keeney and Keeney (1968) reported that 82% of students identified as remedial can recover whereas only 46% of students with reading disabilities who receive intervention in the third through fifth grades recover. Only 10%-15% of students recover as they move beyond the fifth grade (Keeney & Keeney, 1968). In support of early intervention, Juel (1988) reported that finding solutions for weaknesses in decoding must be addressed promptly since it “appears to lead to additional problems in reading and writing” (p. 444).

Statement of the Problem

This study sought to answer the following question: Is the kindergarten assessment a predictor for a child’s need for intervention?

Purpose of the Study

The purpose of this study was to determine if the kindergarten assessment results from the three windows in language arts, mathematics, and motor skills are a valid predictor of a student’s need for intervention. The study sought to determine if a student’s need for intervention could be discovered early resulting in earlier intervention. Determining the need for intervention for students

who were considered at-risk as well as those considered gifted or above grade level could result in more prescriptive educational decisions.

As set forth by the Mississippi State Department of Education *State Board Policy 4300* (2005b), districts are required to monitor students' progress, to identify at-risk students as soon as possible, and, as based on the findings, prescribe appropriate instruction for all Mississippi students. *The Teacher Support Team (TST) Manual* (2005) published by the Mississippi Department of Education outlines a scientific plan to help students with the following steps: Define the problem, develop a plan, implement the plan, and evaluate.

Hypotheses

H1: There is no relationship between the results of the kindergarten assessment and reading ability as measured by AIMSweb benchmark probes from first and second grades.

H2: There is no relationship between the results of the kindergarten assessment and mathematical ability as measured by AIMSweb benchmark probes in first and second grades.

H3: There is no relationship between the results on the kindergarten assessment and a student's need for intervention determined by failing criteria set by the district in first and second grades.

H4: There is no relationship between the results on the kindergarten assessment and a student's need for intervention determined by a student's grades in first and second grades.

H5: There is no relationship between the results on the kindergarten assessment and a student's intervention status in first and second grades.

Definition of Terms

The following terms are provided for the purpose of clarification of the vocabulary used in this study:

AIMSweb - curriculum-based assessment materials including a software component used to monitor student progress and determine the need for interventions based on the Three Tier Process.

Assessment - tools used to monitor students' progress.

At-risk - students who have a higher than normal chance for academic failure.

Benchmarking - periodic assessments that are scored and entered into a computer software program in order to determine student progress and the need for intervention.

Kindergarten assessment - the generic name for the kindergarten assessment used by the targeted district.

Poverty - the socioeconomic status of students who qualify for free or reduced food programs.

Response to intervention - the process by which educators attack students' educational deficits by implementing interventions and monitoring progress.

Teacher Support Team (TST) - the team in place at each of the targeted schools that determines a student's need for intervention as well as designs and monitors interventions.

Three Tier Process - the process by which Mississippi performs response to intervention.

Window One - administered in August; information is used to guide instruction and to place children in classrooms that best fit their needs.

Window Two - administered in January; skills assessed but not mastered in Window One will be reassessed; assessment for new, more advanced skills.

Window Three - administered in May; skills assessed but not mastered in Windows One and Two will be reassessed; assessment for new, more advanced skills.

Delimitations

Delimitations associated with this study included:

Selection of students was limited to two elementary schools in the targeted district. Only students who attended kindergarten in the district during the 2005-2006 and 2006-2007 school years who were assessed using the district's kindergarten assessment and who were in constant attendance at schools within the district until the conclusion of the second grade were selected for the study. Additionally, students must have completed all three windows of the kindergarten assessment in order to be included in the study.

Justification of the Study

The number of students expected to fail in 2005 significantly determined the importance of the implementation of the TST process. As a requirement of the No Child Left Behind Act, the percentage of students at risk of failure was estimated. It was estimated that 20% to 30% of the schools' population in 2005 was at risk of failure. When considering 12% to 14% of these students who were at risk were currently identified as special education, an astounding 15% to 18% of the general population was at risk of failure (MSDE, 2005b). Such a large proportion of students at risk of failure made it imperative that schools assess students on a large scale in order to identify these students. Through school-wide benchmarking students are assessed and it is determined if intervention is needed. Another full-scale assessment, the district's kindergarten assessment, sets out to do the same, just earlier.

Research by Foorman, Francis, Shaywitz, Shaywitz, and Fletcher (as cited in Bishop, 2003) indicated that early intervention produces promising results for at-risk students who receive early intervention before the third grade. Determining a link in kindergarten assessment results and how well a student will perform and acting to intervene as soon as possible supports their research. Intervening early can have dramatic outcomes. Eighty-two percent of students identified as remedial and placed on an intervention before the third grade can recover whereas only 46% of students who receive intervention in the third through fifth grades recover (Foorman et al., as cited in Bishop, 2003). Only 10% to 15% of students recover as they move beyond the fifth grade. Good, Simmons, and Smith (1998) supported the need for early identification of at-risk

students in their study, which indicated that a Matthew Effect existed. In their study, good readers had twice as much reading practice than poor readers because the children who could read better did it faster and developed a desire to do so. The gap between the two groups continued to widen over time with the poor readers falling further and further behind. This study set out to discover if a relationship between a student's success in kindergarten and later need for intervention could shave years off of the intervention process. Consequently, many students could be saved from failure as supported by the research.

In support of early intervention, Juel (1988) reported that finding solutions for weaknesses in decoding must be addressed promptly since it "appears to lead to additional problems in reading and writing" (p. 444). Skills necessary for decoding begin being taught in kindergarten.

Early identification of students who have difficulties in reading is paramount to avoiding disabilities in reading (Juel, 1988). Specifically, as reported by Juel, kindergarten is an optimal time for identification of at-risk students as well as the precise time intervention should occur (Juel, 1998). In addition to the identification of at-risk students, students determined in later elementary school to be gifted or above grade level could be identified earlier and provided with an appropriate education based on the results. By determining the link between the kindergarten assessment and a student's need for intervention, early identification and prevention can begin in kindergarten and extend throughout elementary school with later academic success in mind.

CHAPTER II

REVIEW OF RELATED LITERATURE

As students enter their formal education in kindergarten, they should be guided by teachers who are able to determine students' abilities as well as the instructional needs of each child. This chapter serves as an explanation of information on the history of kindergarten, student diversity, early assessment, and intervention including a history of special education identification and the movement to response to intervention.

Students arrive at school with an array of abilities and diverse schemata but have the same objective: to learn. Schools have the responsibility to recognize what each child needs and, to the best of their ability, provide appropriate programming to meet those needs. This programming should include a component to identify struggling students and strategies to help students as soon as they begin to struggle.

History of Kindergarten

Friedrich Froebal, the father of kindergarten, implemented a program during the 1830s that focused on a child's spiritual development. Teachers who displayed motherly characteristics attended to this development by teaching students through play instead of what is thought of today in terms of instruction (Dombkowski, 2001). It was not for another 20 years that kindergarten made its way to the United States. At that time, the movement was not mainstream. Around the 1850s, the kindergarten movement was more profound, and by the 1890s it was implemented into public schools.

Although it had become a part of public school systems, the idea of learning through play was intact. However, around the middle of the 20th century, a shift occurred to incorporate a more academically driven approach. Kindergarten began to take on characteristics of the public school while maintaining the original kindergarten philosophy (Dombkowski, 2001). Tension inevitably developed because the two entities, public school and kindergarten, operated on different theoretical bases. Kindergarten programs experienced difficulty as it searched for its place in the public schools. Public schools were not very welcoming because the kindergarten program required a large fiscal responsibility due to the specialized training and resources kindergarten teachers required (Root, 1996). Nevertheless, as kindergarten programs transitioned from partial day to whole day instruction and a more academically rooted approach evolved, public schools began to accept kindergarten as a true part of a child's education (Chmelynski, 1998).

While the kindergarten movement made an impact on public education, it did not take on the challenge of serving all kindergarten-aged children until the 1950s (Dombkowski, 2001). Even after 10 years of this approach, 30% of public schools were not providing kindergarten. The year 1964 brought a greater focus on early education with President Lyndon B. Johnson's War on Poverty. At that time, the largest education program to date, Head Start, was established.

School Readiness

Society, parents, and educators all want an educational experience that will prepare their children for successful adulthood, teaching them to be

productive, contributing members of society and self-sufficient (Wright, Denner, & Kay, 2000). Preparation for formal education, as Cody (1993) suggested, consists of more than being able to identify letters and numbers but also being in good health, having some degree of curiosity, some development socially and emotionally, the ability to use language, and overall knowledge gained from experiences.

In 1990, President George H. W. Bush, along with the National Education Goals Panel (NEGP), implemented educational goals based on the belief that all children can learn. Governors from all 50 states participated in the creation and implementation of strategies to achieve the goals. According to the NEGP (1999), the first goal stated that all students entering school would be prepared for formal instruction by the year 2000. Being ready for school has been the topic of much debate as stakeholders determine what defines a child as ready. Providing counsel to NEGP, the Resource and Technical Planning Groups suggested early assessment should occur to determine a student's readiness for school. Cody (1993) also suggested that schools should be ready for students by having tools in place to determine what academic programming a student requires.

Socioeconomic Differences

Not new to the debate on why students struggle in school is the difference in students' socioeconomic status (SES). Of all the arguments about what causes students to struggle, SES is consistently to blame. One report, in particular, where the academic performance of the schools was based on the

success of fourth and eighth grade students, determined that a 1% increase in the number of fourth graders from low SES brought a 6% decrease in the chance a school will be high-performing (Tajalli & Opheim, 2004). A 1% increase in the number of eighth graders from low SES decreased the school's chance of being a high-performing school by 8%. For 10th grade students, a part of the same study, a positive correlation between the number of White students and the success of the school was indicated. Okpala, Okpala, and Smith (2001) reported that students participating in the free and reduced lunch assistance programs scored lower on mathematics achievement assessments than students who were ineligible for the program.

When introduced to formal instruction in kindergarten, Tajalli and Opheim (2004) reported that all students begin to progress academically—rapidly in the case of students raised in poverty. Because the difference in achievement of students from disparate socioeconomic backgrounds exists, the remedy must be dramatic. Significant strides must be made to close the gap in achievement between students from high SES and students from low SES even though both groups acquire about the same gain in kindergarten (U.S. Department of Education, 2001). It is the original gap due to lack of experiences of students from low SES that requires a steadfast approach to provide time and quality learning experiences.

Early Identification of At-risk Students

The skill level of students entering kindergarten is an important indicator of what the students need in order to be successful. Assessment in kindergarten

determines the skills a student entering kindergarten possesses and, consequently, what degree of preparation for school by parents and/or preschool educators has occurred.

According to the National Association for the Education of Young Children (NAEYC) (1991), there are three functions of assessment. They are to make decisions about instruction and to inform parents, to identify a child's specific need for particular services, and to gain insight into how well the educational system is working. The targeted district uses a computer-based monitoring program called AIMSweb to manage the results of school-wide assessments that begin in kindergarten.

Early identification of students as at risk in reading is essential in early childhood to plan and initiate efforts that will substantially tackle the problem of illiteracy (NCLB, 2001). The ease at which students acquire early reading skills, like letter identification and phonemic awareness, predicts a child's reading success (Adams, 1990). In order to make the appropriate remediation decisions for students who are identified as at risk, these students must be identified early (Adams, 1990; Juel, 1988). Further, to tackle the deficiencies of the at-risk children, not only is it necessary to identify them early but those students who are truly at risk must also be correctly identified (Torgesen & Burgess, 1998). Therefore, early identification of at-risk students during the beginning of the kindergarten school year provides the best opportunity for implementation of interventions (Bishop, 2003).

A child's reading ability is central to his or her success in school. The National Assessment of Education Progress (1985) reported that students who struggle in reading early in their education could possibly continue to struggle in high school. According to Glazzard (1980), reading readiness prediction assessments are successful in predicting reading ability for up to 4 years. Early identification of students who have difficulties in reading is paramount to avoiding disabilities in reading (Juel, 1988). Specifically, as reported by Juel, kindergarten is an optimal time for identification of at-risk students as well as the precise time intervention should begin. Particular reading difficulties presented by disorders such as dyslexia benefit significantly from an early diagnosis. According to Keeney and Keeney (1968), 82% of children diagnosed with the disorder and provided intervention in early elementary grades were able to perform on grade level. Conversely, when diagnosed in the third grade, only 46% of children with the disorder were able to work on grade level. Only 10%-15% of children diagnosed with dyslexia in grades 5 through 7 were able to work on grade level. In addition to the identification of at-risk students, students determined in later elementary school to be gifted or above grade level could be identified earlier and could be provided with an appropriate education based on the results.

Through the work of Juel (1988) it is known that the need to identify poor readers early is essential as schools work to eliminate further struggles in reading and writing. Decoding difficulties of at-risk students are attributable to decreased experiences with words compared to students with adequate decoding skills. Clay's (1967) findings that, on average, students who struggle

with decoding read 5,000-10,000 fewer words by the end of first grade supported this belief. Juel (1988) reported that students who struggled with reading have read almost half as many words as good readers at the conclusion of first grade and more than half as many at the end of the fourth grade. The importance of early intervention remains constant throughout all of these studies. Juel's (1988) study indicated that the gap between the number of words read by good readers versus poor readers continued to widen as students progressed through grades.

Early Intervention

Reynolds (1992) suggested that a student's overall school success is reflective of the approach taken early in kindergarten and even before in the home. With the demands of the No Child Left Behind Act (2001), districts have set in place strategies to meet the standard of all students reading on grade level at the conclusion of the third grade. If districts are to rise to the standards set forth by NCLB and to avoid the strict consequences brought on by failing to do so, they must start early in identifying at-risk students (Bishop, 2003).

The need for earlier intervention is apparent, as reported by Kameenui (1996), who indicated that more than one in six children experiences difficulty reading in the first through third grades. By determining the link between the targeted district's kindergarten assessment and a student's need for intervention, early identification and prevention can begin in kindergarten and extend throughout elementary school with later elementary success in mind.

Research by Foorman et al. (1997) indicated that early intervention produces promising results for at-risk students who receive intervention before

the third grade. Foorman et al. reported that 82% of students identified as remedial, if placed on an intervention before the third grade, could recover whereas only 46% of students who receive intervention in the third through fifth grades recover. Only 10%-15% of students recover as they move beyond the fifth grade. In support of early intervention, Juel (1988) reported that finding solutions for weaknesses in decoding must be addressed promptly since it "appears to lead to additional problems in reading and writing" (p. 444).

AIMSweb

AIMSweb is a computer-based program that manages students' results on probes, which are given school-wide. The program generates the probes to be given by the probing team. Students are given the assessment three times per year. This is referred to as benchmarking. The results are entered into the AIMSweb program where it is determined which students perform in the bottom 10% for each assessment. The Teacher Support Team (TST) considers these students for intervention. Students complete the following probes throughout the year:

- Comprehension - first grade twice a year, second through fifth grades three times per year
- Maze - third through fifth grades three times per year
- Number identification - kindergarten twice a year, first grade three times per year
- Early numeracy - kindergarten twice a year, first grade three times per year

- Oral counting - kindergarten twice a year, first grade three times per year
- Computation - first through fifth grades three times per year
- Letter identification - kindergarten twice a year, first grade three times per year
- Letter sounds - kindergarten twice a year, first grade three times per year

As students receive the intervention prescribed by the intervention specialist, they are also assessed to determine any academic gains. This process is called progress monitoring. Depending on the level of intervention, called tiers, the intervention specialists monitor a student's progress once or biweekly. Before the intervention begins, the TST determines a gains goal for each child based on literature provided by the AIMSweb program in addition to a formula based on the number of weeks the student will remain in intervention status. Each week the TST enters the assessment scores into AIMSweb to monitor a student's progress. Additional prescriptions are made by the TST based on the results produced through progress monitoring.

Legislation

In December 2004, President George W. Bush signed into law a Reauthorization of the Individuals with Disabilities Education Act (IDEA). One of the revisions of the IDEA was in the area of special education specific to the identification process. Historically, students going through the special education identification process were assessed through the Intelligence Quotient (IQ)

achievement discrepancy model. In other words, students were identified according to a comparison of their IQ and their level of achievement. The IDEA revision stated that a Response to Intervention (RTI) could be used in the place of the IQ-achievement discrepancy model. The Reauthorization suggests that RTI can be used to determine students' academic reaction to research-based interventions. Also included in the revision was the allowance of 15% of special education dollars to be spent on RTI (Fuchs & Fuchs, 2006).

Long before the IDEA reauthorization, problems with the identification of special education students were evident. According to Kovaleski (2003), the problem with the process began as far back as the inception of the Education for All Handicapped Children Act (EHA), the predecessor to the IDEA, which was written in 1975. After only 6 years under the regulations of the act, identification problems began to surface. However, the act did a good job with initiating child find for the purpose of identifying students who were not succeeding in school because their learning disabilities had not been identified (IDEA, 2004). The regulations stated that a team could identify a student as learning disabled if he or she did not function at the achievement level of peers. Further, the identification could be made if "a severe discrepancy between achievement and ability" existed (EHA, 1977, p. 118). Overall, the EHA alluded that the students' lack of achievement was a result of a learning disability, not of students failing to receive adequate, appropriate instruction. Therefore, in 1997, the IDEA was revised to include information allowing that students not achieving do not

necessarily have learning disabilities, but rather may not be receiving appropriate instruction. Consequently, the RTI approach was incepted into IDEA.

IQ-Achievement Discrepancy Model

The IQ-achievement discrepancy model is a classification tool originally outlined in the 1970s. It compares students' performance on achievement tests and their IQ. When students' level of success measures significantly lower than their IQ, they were identified as learning disabled (Bailey, 2003). The model is characterized by four assumptions: the tests measure intelligence, both intelligence and achievement are independent, therefore IQ scores will not be affected by a disability, an IQ score is a predictor of ability in reading and math, and students "with reading disabilities of different IQ levels have different cognitive processes and information processing skills" (Siegel, 1989, p. 469).

Problems with IQ-Achievement Discrepancy Model

Even though modifications to the IQ-achievement discrepancy model have taken place, several significant problems still existed. Siegel (1989) cited one of the significant problems with the IQ-discrepancy model as the Matthew Effect. Good readers learn more from their environment and consequently have higher IQs, which Siegel described as inflated results because their IQ would likely be higher, which may not be a true indication of ability. Poor readers' IQs are underestimated. This approach can be explained with the "richer get richer, and the poorer get poorer" belief (Siegel, 1989, p. 4). The IQ-achievement discrepancy model places weight on IQ, which could be obtained from experiences and not necessarily a measure of students' ability.

As a result of several studies conducted throughout the 1990s, when comparing poor readers with and without IQ-achievement discrepancies, few differences were discovered (Fletcher et al., 1994; Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1996; Stanovich & Siegel, 1994). The authors suggested that the results of the studies invalidated the use of the achievement discrepancy model as a diagnostic tool, thus illuminating the need for new identification processes.

Response to Intervention

RTI is a multi-tiered problem-solving approach that "provides support to struggling learners, within the general education classroom or through supplemental instruction" (Hollenbeck, 2007, p. 137). Struggling learners progress through leveled tiers, with each tier increasing in intensity. All of the students in a school are evaluated three times a year. Those students recognized as at risk will begin the process. The RTI team will set progress goals and monitor with on-going assessments.

RTI exists around the premise that struggling learners are sometimes unsuccessful because of factors they cannot control; for example, poor instruction. This is why the model begins as a class-wide initiative to raise achievement for all students. Included in the initial class-wide tier is a screening process that identifies students who are at risk of failing. According to Vaughan and Fuchs (2003), eliminating the "wait to fail" approach increases earlier identification, is a more defined screening process, and decreases false negatives.

Because literature on RTI is limited and considered as evolving, benefits have not been established with certainty and should be considered as potential. Currently, although testing of the model has not received extensive attention, the proposed benefits include accountability (Fuchs, Mock, Morgan, & Young, 2003), availability to all learners, elimination of poor instruction (Fuchs & Fuchs, 2006), elimination of the use of the IQ-achievement discrepancy which speeds up the process (not waiting for a discrepancy to occur) (Fuchs & Fuchs, 2006), decrease in the number of students identified as learning disabled (Hollenbeck, 2007), reduction in costs (due to decrease enrollment in special education services), implementation of a more comprehensive approach to Individualized Education Programs (by offering a thorough diagnostic process), and increased cooperation and collaboration among faculty by integrating school services (among general and special education staff) (Vaughn & Fuchs, 2003; Troia, 2005). Overall, RTI identifies struggling learners early and provides a more accurate identification method.

With the possible benefits of RTI based on the new literature, potential problems occur. According to Troia (2005), several possible shortcomings exist. The complete elimination of the IQ-achievement discrepancy model may cause trouble when trying to “differentiate unpredicted reading problems from poor reading attributable to recognizable causes such as mental retardation” (Troia, 2005, p. 112). The RTI model lacks concentration on domains other than reading, thus making it difficult to identify students with learning disabilities in areas other than reading (Troia, 2005; Vaughn & Fuchs, 2003). In addition, little

attention has been focused on determining the affect of curricula changes on students (Troia, 2005). In other words, how often and how long should a student remain in the tier process (for example, when curriculum increases in intensity and a student begins to struggle again). Additionally, the lack of long-term outcomes has not been evaluated. Vaughn and Fuchs (2003) stated that another problem with the RTI model is that the primary focus is on the environment. The potential problem most directly associated with this study is the lack of support personnel within the RTI model. Personnel must be able to "implement validated instruction protocol" and to conduct and interpret progress monitoring (Vaughn & Fuchs, 2003, p. 144). School-wide training in special education identification needs to take place in schools making the shift to the RTI model. The implementation of RTI models has occurred mostly thus far by people highly trained on the model; therefore, to make the model work in schools, professional development related to RTI must be provided (Vaughn & Fuchs, 2003).

Although testing of the model has not received extensive attention, the proposed benefits include: improves accountability (Fuchs et al., 2003), provides availability to all learners, eliminates poor instruction (Fuchs & Fuchs, 2006), eliminates the use of the IQ-achievement discrepancy which speeds up the process (not waiting for a discrepancy to occur) (Fuchs & Fuchs, 2006), decreases the number of students identified as learning disabled (Holleneck, 2007), reduces costs (due to decreased enrollment in special education services), implements a more comprehensive approach to Individualized Education Programs (by offering a thorough diagnostic process), and increases

cooperation and collaboration among faculty by integrating school services (among general and special education staff) (Vaughn & Fuchs, 2003; Troia, 2005). Overall, RTI identifies struggling learners early and provides a more accurate identification method.

Response to Intervention and Mississippi

The number of students expected to fail in 2005 significantly determined the importance of the implementation of the Teacher Support Team (TST) process, which is a three-tiered problem-solving process designed for the implementation of responsible interventions.

As a requirement of the No Child Left Behind Act (NCLB), estimates of the percentage of students at risk of failure were determined. It was estimated that 20%-30% of the schools' population in 2005 were at risk of failure. When considering that 12%-14% of these students identified as at risk were identified as special education, an astounding 15%-18% of the general population was at risk of failure (MSDE, 2005b). As a result of the data, "Mississippi has initiated an educational service delivery model that ensures that all children are successful by implementing an intervention system that requires baseline data and progress monitoring data to ensure student success" (MSDE, 2005b, p. 5). The Mississippi State Board of Education approved the use of the Teacher Support Team (TST) on January 21, 2005. Each school within the state must have a team to conduct the process as outlined by the Mississippi Department of Education.

Mississippi state board policy states that the RTI process must include progress monitoring to determine if students are making adequate progress, to identify students as soon as they begin to fall behind, and to modify instruction so that every student's needs are addressed. Additionally, according to Mississippi board policy, the monitoring should be an ongoing process that measures benchmarks and both large-scale and classroom assessments (MSDE, 2005b).

According to the *TST Manual* (2005), students who are referred to the TST for entry into the process are those who are in grades 1-3 and have failed one year, are in grades 4-12 and have failed 2 years or failed either of the two previous years, and those students who were suspended or expelled for more than 20 days during the previous year. Student performance at the minimal level on the Mississippi Curriculum Test Second Edition qualifies a student for placement into intervention. Student referrals must be submitted to the TST by the 20th day of school in order to meet the criteria set by the state.

Another form of referral also exists. All students are probed three times a year to monitor progress and for early identification of at-risk students. Upon the collection of data from the assessments, students at risk of failure are referred to the TST. These students are placed into tier I where quality classroom instruction for individual students is documented. Through progress monitoring each week, the TST determines, based on goals set by the TST, if further intervention is required. If needed, students move to tier II where a specific, more intensive plan is put into place. Again, through weekly monitoring, if progress is not evident,

transition into tier III occurs. Students who find success in tier III are released from the process. It is not until after success is not evident at the third tier that students are considered for special education testing.

The early identification of at-risk students is the primary function of the TST process. According to the MDE, the TST three-tier process is comprised of the following tiers:

Tier I - quality classroom instruction

Tier II - focused supplemental instruction

Tier III - intensive interventions to meet the needs of the student

Each tier is characterized by MDE as stated below:

- Tier I includes quality classroom instruction that is based on the Mississippi state curriculum. The instructional strategies teachers employed to deliver the curriculum are research based. Students are assessed constantly to determine growth and needs of students. Teachers are provided quality professional development to ensure that they have the tools needed to carry out high quality instruction. Tier I is designed to meet the needs of all of the students within the school through grouping, assessment, and skill targeting.
- Tier II is in place to provide more intensive instruction than outlined in tier I. According to the MDE, 20%-30% of students will need to be placed into tier II because the classroom instruction provided in tier I is not sufficient to their needs. In this tier, tutoring, small

grouping, and technological tools will be employed (*TST Manual*, 2005).

- Tier III is more intensive than the preceding tier. The instruction specifically targets deficiencies of individual students. The difference between tier II and tier III is the frequency, duration, and increased progress monitoring. The MDE estimates that 5%-10% of students will need to be placed into tier III (*TST Manual*, 2005).

Research Question

This study set out to answer the question: Is the targeted district's kindergarten assessment a predictor for a child's need for intervention?

CHAPTER III

METHODOLOGY

Study Sample

Kindergarten assessment records for 100 students from two elementary schools from a coastal Mississippi school district were randomly selected. These students were in kindergarten and were assessed using the district kindergarten assessment during the 2005-2006 or the 2006-2007 school years.

The two schools selected are similar in average enrollment. During the 2005-2006 and 2006-2007 school years, the enrollment was 455 and 406 for school 1 and 389 and 465 for school 2, respectively. The socioeconomic status of the students at the schools contrast, with one having 83% free and reduced lunch status as compared to 63% at the other school. Minority groups represented 30% to 38% of school 1's population over the 2 years whereas school 2's minority population represented 63% to 65% of the population over the 2-year period. These two schools were selected in order to provide a diverse sample. Both schools are located inside the city limits of a rural area with an approximate population of 11,681.

Data Collection

Permission was sought and granted from the superintendent of the district to conduct the study using data from the two schools in the district (see Appendix A). Additionally, permission to collect student data from the following was granted: the kindergarten assessment, TST folders, and cumulative records. Data collected included kindergarten assessment results from each subsection

and raw scores, intervention status according to the TST process, and grades. Permission from the administrators of each of the schools was sought and granted (see Appendix B). Upon notification of permission to conduct the study in the district by the superintendent and the administrators of each school, permission was sought and granted by the Human Subjects Protection Review Committee of The University of Southern Mississippi (see Appendix C).

Only cumulative records of students who attended kindergarten in the targeted district during the 2005-2006 and 2006-2007 school years and who remained in constant attendance within the district were reviewed. The kindergarten assessment was compared to the results from AIMSweb benchmarking and the Mississippi Curriculum Test Second Edition assessment, semester and final grades in reading, language arts, and math from the first and second grades, and failure status to determine a student's need for intervention. A student's intervention status, whether he or she received intervention through the Teacher Support Team at any point from kindergarten until the conclusion of second grade, was determined by reviewing cumulative records and TST folders.

Compiled data were analyzed using chi square statistical tests to determine if a significant relationship exists between the kindergarten assessment results and a student's need for intervention by the end of the second grade.

Kindergarten teachers were asked to complete a survey indicating their beliefs about the predictable nature of the kindergarten assessment and each component of the instrument concerning a student's need for intervention. Data

were compiled to determine if a particular section of the instrument is a predictor of the need for intervention. These results were compared to the results from the cumulative data to determine if teachers are able to predict which students will need intervention by the end of the second grade.

Instrumentation

Kindergarten Assessment

The kindergarten assessment is administered in three windows: fall, winter, and spring. The following is the knowledge assessed and the schedule in which it is administered:

Window One

- Administered in August
- Used as a pretest
- Students arrived at school for a half day during the first week of school to be assessed
- Information is used to guide instruction and to place children in classrooms that best fit their needs
- Movement to Window Two is permissible if a student shows mastery of the skills in Window One

Window Two

- Administered in January
- Skills assessed but not mastered in Window One will be reassessed
- Administration for new, more advanced skills

- Window Three may be administered if skills in Windows One and Two have been successfully mastered

Window Three

- Administered in May
- Skills assessed but not mastered in Windows One and Two will be reassessed
- Administration for new, more advanced skills

Teachers are trained to administer the assessment and do so according to a script to ensure consistency. All kindergarten students in the district are given the assessment, which is used to analyze and prescribe the needs of each student. The kindergarten assessment results become a part of a student's permanent cumulative record.

AIMSweb

AIMSweb is a computer-based program that manages students' results on probes, which are given school wide. The program generates the probes given by the probing team. Students are given the assessment three times per year. This is referred to as benchmarking. The results are entered into the AIMSweb program where it is determined which students perform in the bottom 10% for each assessment. These students are considered for intervention by the Teacher Support Team. Students complete the following probes throughout the year:

- Reading Curriculum-Based Measurement (R-CMB) - grades 1-5

- Maze Curriculum-Based Measurement (Maze-CRM) - grades 2-5
- Test of Early Literacy (TEL) - grade 1
- Test of Early Numeracy (TEN) - grade 1
- Mathematics Curriculum-Based Measurement (M-CBM) - grades 1-5

R-CMB requires each student to read three passages that are on grade level. Students are allowed one minute per passage. M-CRB, commonly referred to as a maze passage, is a supplemental assessment tool used with R-CBM to obtain a more complete picture of a child's reading ability. The maze passage, missing every seventh word excluding the initial word of each sentence, is particularly valuable when the reader is suspected of struggling with comprehension. The missing word is replaced with three word choices. The child makes a choice based on context.

The TEL and TEN assessments are used for first grade students. The components of the TEL assess students in the following areas: letter naming, letter sound, phoneme segmentation, and nonsense words. TEN includes oral counting, missing number, number identification, and quantity discrimination. These areas of assessment are used for younger children who are not ready for R-CMB and M-CMB, which does not usually occur until sometime during the second half of first grade.

When students are placed on intervention status based on benchmarking results, failure of the preceding year, or failure during the present year, intervention specialists regularly assess them to determine the success of the

intervention measured by academic progress. This process is referred to as progress monitoring. Depending on the level of intervention, called tiers, the intervention specialists monitor a student's progress weekly or biweekly. Before the intervention specialist begins the prescribed intervention, the TST determines a gains goal for each child based on literature provided by the AIMSweb program in addition to a formula based on the number of weeks the student will remain in intervention status. Each week the TST enters the assessment scores into AIMSweb to monitor a student's progress. Additional or alternative intervention prescriptions are made by the TST based on the results produced through progress monitoring.

Instrument Development

District Kindergarten Assessment

The kindergarten assessment was designed in 2001 after a search for a diagnostic assessment tool for use with kindergarten students was unsuccessful. It measures a student's development in the following areas: language arts, mathematics, writing and communication, and gross motor development. The assessment was developed by the kindergarten curriculum council under the direction of two elementary curriculum specialists from the district's curriculum center along with contributions from speech/language pathologists from the district. Before the development team created the assessment, they reviewed Mississippi State Department of Education Frameworks, Kindergarten Benchmarks, and the associated district objectives as well as assessment models that have been approved by the Mississippi State Department of

Education. A particular resource used in the development of the assessment was the Building Blocks Literacy Model designed by Hall and Williams (2000) and published by Carson-Dellosa Publishing Company. This model was particularly useful since the teachers of the district had received professional development conducted by one of the authors. Each year during the summer months, the curriculum council evaluates the assessment and needed adjustments are made.

Teacher Questionnaire

The researcher designed a survey instrument (Appendix D) that was used to determine if kindergarten teachers believe that the kindergarten assessment is a predictor for a student's need for intervention by the conclusion of second grade. Questions were designed to determine if a particular window, subject area, or skill is a predictor for a student's need for intervention.

Intended Use

District Kindergarten Assessment

The kindergarten assessment is used as a pretest. Kindergarten teachers use the results to determine the best placement for the child by considering all of the students placed into a class and their specific needs. Additionally, it is used as a tool to monitor growth.

Window One is specifically a preassessment that analyzes and prescribes what a child needs as he or she enters kindergarten. Window Two continues with the purpose of Window One by continuing to assess skills that children struggled with in the primary stage as well as continuing to assess skills that kindergarten

students are capable of having acquired at this stage in their kindergarten year. Window Three assesses skills a child struggled on in each of the previous windows. Additionally, the results serve as a tool for placement in first grade. Again, students' specific needs are considered when determining a placement. The results from the third window are used to gain insight into a child's preparedness for first grade. Results from the three windows are kept in a student's cumulative folder where first grade teachers are encouraged to look to gain knowledge about their students.

AIMSweb

AIMSweb is a computerized program that manages the assessment scores that are produced from both benchmarking and progress monitoring. The program uses the scores to rank students according to their benchmark performance. Students who are identified to be in need of intervention by the program are further evaluated by the TST team to determine if they will be placed on an intervention. Students placed on interventions by decisions of the TST team are progress monitored either weekly or biweekly as determined by the child's needs. These results are entered into the program that compares the child's performance with the goal set in place and imputed into the program by the TST team.

Types of Scores Produced

Kindergarten Assessment

Each component of the kindergarten assessment yields a score of outstanding, satisfactory, needs improvement, or unsatisfactory. A score of

outstanding indicates mastery of the skill, satisfactory indicates considerable knowledge of the skill, needs improvement indicates improvement is needed with the skill, and unsatisfactory indicates that little to no knowledge of the skill is evident.

AIMSweb

AIMSweb R-CBM and TEL assessment probes measure a student's reading ability. A student's level of comprehension is measured by R-CBM assessments designed by AIMSweb by producing a correct over errors score. Each student is given one minute to read three passages. Each passage is scored by the test administer recording the difference in words read and the number of errors made. The median of both words read and errors of the three passages are recoded into the program. Comprehension is also measured using Maze-CBM. Students complete three passages and are scored by counting the number of correct answers and the number of errors. The median of the three passages is recorded into AIMSweb. The reading ability of students in kindergarten and first grade is measured using TEL. Each of the four areas of the TEL is assessed one-on-one and each receives a number correct score. All assessment results are entered into AIMSweb.

Analysis of Data

The results from the kindergarten assessment were analyzed using chi square statistical tests to determine if a significant relationship exists between the kindergarten assessment results and a student's need for intervention by the end of the second grade. Each assessment window, subject area, and skill was

entered individually for each child. Kindergarten assessment results were recoded into two groups, mastery and no mastery, where outstanding and satisfactory scores refer to mastery and needs improvement and unsatisfactory refer to no mastery. Students' intervention status was recoded into two categories: needed intervention and did not need intervention. Further, the researcher sought to determine if a relationship exists between a teacher's predictions of a student's need for intervention based on the kindergarten assessment results and the child's intervention status at the conclusion of the second grade.

CHAPTER IV

ANALYSIS OF DATA

This chapter includes characteristics of the sample in addition to the results of statistical testing. Analysis of data collected was used to attend to stated hypotheses. Data included that collected from students' cumulative folders as well as analysis of questionnaires that were completed by kindergarten teachers.

Sample Characteristics

The study sample represented in this investigation was 100 students who completed the district's kindergarten assessment during the 2005-2006 and 2006-2007 school years. These students remained enrolled in the district beginning in kindergarten and remained current at the time of this study.

The two schools from which students were selected are from the same coastal Mississippi public school district. The two schools selected are similar in average enrollment. During the 2005-2006 and 2006-2007 school years the enrollment was 455 and 406 for school 1 and 389 and 465 for school 2, respectively. The socioeconomic status of the students at the schools contrasts with one having 83% free and reduced lunch status as compared to 63% at the other school. Minority groups represented 30% to 38% of school 1's population over the 2 years, whereas school 2's minority population represented 63% to 65% of the population over the 2-year period. These two schools were selected in order to provide a diverse sample. Both schools are located inside the city limits of a rural area with an approximate population of 11,681.

Kindergarten Assessment and AIMSweb Benchmarking

H1: There is no relationship between the results of the kindergarten assessment and reading ability as measured by AIMSweb benchmark probes from first and second grades.

Reading Achievement

In order to determine if a relationship existed between each of the three kindergarten assessment windows and the AIMSweb benchmarking probes given in first and second grade, data were analyzed using Chi square statistical testing. The reading and written communications sections of each of the three windows were considered independently of one another and individually in regards to each of the two AIMSweb benchmarking periods, first and second grade.

First grade. The relationship between reading ability measured by the kindergarten assessment and AIMSweb benchmarking in grades 1 and 2 was examined to test Hypothesis 1, that there is no relationship between the results of the kindergarten assessment and reading ability as measured by AIMSweb benchmark probes from first and second grades. The relationship between Window One reading and AIMSweb first grade benchmarking was not significant, χ^2(N = 52, *df* = 1) = .203, *p* = .653 *NS* (Table 1). The relationship between Window One written communications and the AIMSweb first grade benchmarking was significant, χ^2(N = 51, *df* = 1) = 7.289, *p* = .007 *sig*. Students who mastered the written communication assessment in Window One were more likely to master the first grade AIMSweb reading benchmark. Eighty-seven

percent of the students who mastered the written communication assessment in Window One also mastered the first grade AIMSweb reading benchmark. Additionally, 50% of the students who did not master the written communication assessment in Window One also did not master the first grade AIMSweb reading benchmark (Table 2). The relationship between Window Two reading and AIMSweb first grade was not significant, χ^2(N = 52, *df* = 1) = 1.536, *p* = .215 *NS* (Table 3). The relationship between Window Two written communication and the AIMSweb first grade benchmarking was not significant, χ^2(N =49, *df* = 1) = .703, *p* = .402 *NS* (Table 4). The relationship between Window Three reading and AIMSweb first grade was significant, χ^2(N = 52, *df* = 1) = 14.189, *p* < .001 *sig*. (Table 5). Almost 89% of the students who mastered the reading assessment in Window Three also mastered the first grade AIMSweb reading benchmark. Seventy-one percent of the students who did not master the reading assessment in Window Three also did not master the first grade AIMSweb reading benchmark. The relationship between Window Three written communication and the AIMSweb first grade benchmarking was not significant, χ^2(N = 48, *df* = 1) = .738, *p* = .390 *NS* (Table 6).

Based on these results, the following reading and written communication sections of the kindergarten assessment were found to be predictors of a student's performance on the AIMSweb benchmarking in the first grade: Window Three Reading and Window One Written Communication. Therefore, in regards to these variables, Hypothesis 1 was rejected. Chi square statistical analysis

determined that no relationship existed between reading Windows One and Two or written communication Windows Two and Three and the AIMSweb first grade

Table 1

Relationship of Reading Window One and First Grade AIMSweb

Reading Scores Window One		AIMSweb Grade 1 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	2	6	8
	% Within	25.0%	75.0%	100.0%
No Mastery	Count	8	36	44
	% Within	18.2%	81.8%	100.0%
Total	Count	10	42	52
	% Within	19.2%	80.8%	100.0%

Table 2

Relationship Between Written Communication Window One and First Grade AIMSweb

Written Communication Scores Window One		AIMSweb Grade 1 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	5	5	10
	% Within	50.0%	50.0%	100.0%
No Mastery	Count	5	36	41
	% Within	12.2%	87.8%	100.0%
Total	Count	10	41	51
	% Within	19.6%	80.4%	100.0%

Table 3

Relationship of Reading Window Two and First Grade AIMSweb

Reading Scores Window Two		AIMSweb Grade 2 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	2	6	8
	% Within	25.0%	75.0%	100.0%
No Mastery	Count	27	64	91
	% Within	29.7%	70.3%	100.0%
Total	Count	29	70	99
	% Within	29.3%	70.7%	100.0%

Table 4

Relationship Between Written Communication Window Two and First Grade AIMSweb

Written Communication Scores Window Two		AIMSweb Grade 1 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	2	4	6
	% Within	33.3%	66.7%	100.0%
No Mastery	Count	8	35	43
	% Within	18.6%	81.4%	100.0%
Total	Count	10	39	49
	% Within	20.4%	79.6%	100.0%

Table 5

Relationship Between Reading Window Three and First Grade AIMSweb

Reading Scores Window Three		AIMSweb Grade 2 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	6	7	13
	% Within	46.2%	53.8%	100.0%
No Mastery	Count	23	63	86
	% Within	26.7%	73.3%	100.0%
Total	Count	29	70	99
	% Within	29.3%	70.7%	100.0%

Table 6

Relationship Between Written Communication Window Three and First Grade AIMSweb

Written Communication Scores Window Three		AIMSweb Grade 1 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	0	3	3
	% Within	0%	100.0%	100.0%
No Mastery	Count	9	36	45
	% Within	20.0%	80.0%	100.0%
Total	Count	9	39	48
	% Within	18.8%	81.3%	100.0%

benchmarking. Therefore, in regards to these variables, Hypothesis 1 was accepted.

Second grade. The relationship between Window One reading and AIMSweb second grade was significant, χ^2(N = 99, *df* = 1) = 9.981, *p* = .002 *sig*. (Table 7). Seventy-eight percent of the students who mastered the reading assessment in Window One also mastered the second grade AIMSweb reading benchmark. Additionally, 57% of the students who did not master the reading assessment in Window One also did not master the second grade AIMSweb reading benchmark. The relationship between Window One written communication and the AIMSweb second grade benchmarking was significant, χ^2(N = 95, *df* = 1) = 11.142, *p* = .001 *sig*. Fifty-five percent of the students who did not master the written communication assessment in Window One also did not master the second grade AIMSweb benchmarking (Table 8).

The relationship between Window Two reading and AIMSweb second grade was not significant, χ^2(N = 99, *df* = 1) = .077, *p* = .78 *NS* (Table 9). The relationship between Window Two written communication and the AIMSweb second grade benchmarking was not significant, χ^2(N = 83, *df* = 1) = .000, *p* = .993 *NS* (Table 10).

The relationship between Window Three reading and AIMSweb second grade was not significant, χ^2(N = 99, *df* = 1) = 2.054, *p* = .52 *NS* (Table 11). The relationship between Window Three written communication and the AIMSweb second grade benchmarking was not significant, χ^2(N = 86, *df* = 1) = 1.930, *p* =

.165 *NS* (Table 12). Therefore, concerning these variables, Hypothesis 1 was accepted.

Table 7

Relationship Between Reading Window One and Second Grade AIMSweb

		AIMSweb Grade 2 Mastery		
Reading Scores Window One		Mastery	No Mastery	Total
Mastery	Count	12	9	21
	% Within	57.1%	42.9%	100.0%
No Mastery	Count	17	61	78
	% Within	21.8%	78.2%	100.0%
Total	Count	29	70	99
	% Within	29.3%	70.7%	100.0%

Table 8

Relationship Between Written Communication Window One and Second Grade AIMSweb

		AIMSweb Grade 2 Mastery		
Written Communication Scores Window One		Mastery	No Mastery	Total
Mastery	Count	15	12	27
	% Within	55.6%	44.4%	100.0%
No Mastery	Count	14	54	68
	% Within	20.6%	79.4%	100.0%
Total	Count	29	66	95
	% Within	30.5%	69.5%	100.0%

Table 9

Relationship Between Reading Window Two and Second Grade AIMSweb

Reading Scores Window Two		AIMSweb Grade 2 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	2	6	8
	% Within	25.0%	75.0%	100.0%
No Mastery	Count	27	64	91
	% Within	29.7%	70.3%	100.0%
Total	Count	29	70	99
	% Within	29.3%	70.7%	100.0%

Table 10

Relationship Between Written Communication Window Two and Second Grade AIMSweb

Written Communication Scores Window Two		AIMSweb Grade 2 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	3	7	10
	% Within	30.0%	70.0%	100.0%
No Mastery	Count	22	51	73
	% Within	30.1%	69.9%	100.0%
Total	Count	25	58	83
	% Within	30.1%	69.9%	100.0%

Table 11

Relationship Between Reading Window Three and Second Grade AIMSweb

		AIMSweb Grade 2 Mastery		
Reading Scores Window Three		Mastery	No Mastery	Total
Mastery	Count	6	7	13
	% Within	46.2%	53.8%	100.0%
No Mastery	Count	23	63	86
	% Within	26.7%	73.3%	100.0%
Total	Count	29	70	99
	% Within	29.3%	70.7%	100.0%

Table 12

Relationship Between Written Communication Window Three and Second Grade AIMSweb

		AIMSweb Grade 2 Mastery		
Written Communication Scores Window Three		Mastery	No Mastery	Total
Mastery	Count	5	6	11
	% Within	45.5%	54.4%	100.0%
No Mastery	Count	19	56	75
	% Within	25.3%	74.7%	100.0%
Total	Count	24	62	86
	% Within	27.9%	72.1%	100.0%

Based on these results, the following reading and written communications sections of the kindergarten assessment were found to be predictors of a student's performance on the AIMSweb benchmarking in the second grade: Window One Reading and Window One Written Communication. Therefore, in regards to these variables, Hypothesis 1 was rejected.

Math Achievement

H2: There is no relationship between the results of the kindergarten assessment and mathematical ability as measured by AIMSweb benchmark probes in first and second grades.

In order to determine if a relationship existed between each of the three kindergarten assessment windows and the AIMSweb benchmarking probes given in first and second grade, data were analyzed using Chi square statistical testing. The math section of each of the three windows was considered independently of one another in regards to each of the two AIMSweb benchmarking periods, first and second grade.

The relationship between reading ability as measured by the kindergarten assessment and AIMSweb benchmarking in grades 1 and 2 was examined to test Hypothesis 2, that there is no relationship between the results of the kindergarten assessment and mathematical ability as measured by AIMSweb benchmark probes from first and second grades.

First grade. The relationship between Window One math and AIMSweb first grade benchmarking was not significant, χ^2(N = 52, *df* = 1) = .968, *p* = .325 *NS* (Table 13). Also found to be significant was the relationship between Window

Two and AIMSweb first grade benchmarking, χ^2(N = 51, *df* = 1) = .556, *p* = .456 *NS* (Table 14). Therefore, based on these variables, Hypothesis 2 was accepted. A relationship was found to exist between Window Three and the first grade AIMSweb benchmarking, χ^2(N = 52, *df* = 1) = 7.533, *p* = .006 *sig*. Eighty-three percent of the students who mastered the math assessment in Window Three also mastered the first grade AIMSweb math benchmark. Seventy-five percent of the students who did not master the math assessment in Window Three also did not master the first grade AIMSweb math benchmark (Table 15). Therefore, in regards to these variables, Hypothesis 2 was rejected.

Based on these results, math Window Three of the kindergarten assessment was found to be a predictor of a student's performance on the AIMSweb benchmarking in the first grade.

Second grade. The relationship between Window One math and AIMSweb second grade benchmarking was significant, χ^2(N = 99, *df* = 1) = 7.543, *p* = .006 *sig*. Seventy-nine percent of the students who mastered the math assessment in Window One also mastered the second grade AIMSweb math benchmark. Fifty-two percent of the students who did not master the math assessment in Window One also did not master the second grade AIMSweb math benchmark (Table 16). Therefore, when regarding these variables, Hypothesis 2 was rejected. Also found to be significant was the relationship between Window Two and AIMSweb second grade benchmarking, χ^2(N = 98, *df* = 1) = 7.215, *p* = .007 *sig*. Seventy-nine percent of the students who mastered the math assessment in Window Two also mastered the second grade AIMSweb

math benchmark. Fifty-three percent of the students who did not master the math assessment in Window Two also did not master the second grade

Table 13

Relationship Between Math Window One and First Grade AIMSweb

Math Scores Window One		AIMSweb Grade 1 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	3	6	9
	% Within	33.3%	66.7%	100.0%
No Mastery	Count	8	35	43
	% Within	18.6%	81.4%	100.0%
Total	Count	11	41	52
	% Within	21.2%	78.8%	100.0%

Table 14

Relationship Between Math Window Two and First Grade AIMSweb

Math Scores Window Two		AIMSweb Grade 1 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	2	4	6
	% Within	33.3%	66.7%	100.0%
No Mastery	Count	9	36	45
	% Within	20.0%	80.0%	100.0%
Total	Count	11	40	51
	% Within	21.6%	78.4%	100.0%

Table 15

Relationship Between Math Window Three and First Grade AIMSweb

Math Scores Window Three		AIMSweb Grade 1 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	3	1	4
	% Within	75.0%	25.0%	100.0%
No Mastery	Count	8	40	48
	% Within	16.7%	83.3%	100.0%
Total	Count	11	41	52
	% Within	21.2%	78.8%	100.0%

AIMSweb math benchmark (Table 17). Therefore, regarding these variables, Hypothesis 2 was rejected. Conversely, in the relationship between Window Three and the AIMSweb second grade benchmarking was found not to be significant, χ^2(N = 98, *df* = 1) = 3.684, *p* = .055 *NS* (Table 18). Hypothesis 2, in regards to these variables, was accepted.

Based on these results, the math Windows One and Two of the kindergarten assessment were found to be predictors of a student's performance on the AIMSweb benchmarking in the second grade.

Kindergarten Assessment and Retention

H3: There is no relationship between the results on the kindergarten assessment and a student's need for intervention determined by failing criteria set by the district in first and second grades.

In order to determine if a relationship existed between each of the three kindergarten assessment windows and retention in first and second grade, data were analyzed using Chi square statistical testing. The reading, written communications, and math sections of each of the three windows were considered independently of one another to examine the predictable nature of the kindergarten assessment in terms of a student's need for intervention based on failure status.

The relationship between reading, writing, and mathematical ability measured by the kindergarten assessment and students' failure status from kindergarten until the conclusion of the second grade was examined to test Hypothesis 3, that there is no relationship between the results on the

Table 16

Relationship Between Math Window One and Second Grade AIMSweb

Math Scores Window One		AIMSweb Grade 2 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	9	8	17
	% Within	52.9%	47.1%	100.0%
No Mastery	Count	17	65	82
	% Within	20.7%	79.3%	100.0%
Total	Count	26	73	99
	% Within	26.3%	73.7%	100.0%

Table 17

Relationship Between Math Window Two and Second Grade AIMSweb

Math Scores Window Two		AIMSweb Grade 2 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	8	7	15
	% Within	53.3%	46.7%	100.0%
No Mastery	Count	17	66	83
	% Within	20.5%	79.5%	100.0%
Total	Count	25	73	98
	% Within	25.5%	74.5%	100.0%

Table 18

Relationship Between Math Window Three and Second Grade AIMSweb

Math Scores Window Three		AIMSweb Grade 2 Mastery		
		Mastery	No Mastery	Total
Mastery	Count	7	8	15
	% Within	46.7%	53.3%	100.0%
No Mastery	Count	19	64	88
	% Within	22.9%	77.1%	100.0%
Total	Count	26	72	98
	% Within	26.5%	73.5%	100.0%

kindergarten assessment and a student's need for intervention determined by failing criteria set by the district in first and second grades.

Reading

The relationship between the reading Window One and retention was found to be significant, χ^2(N = 100, *df* = 1) = 3.973, *p* = .046 *sig.* Ninety-four percent of the students who mastered the reading assessment in Window One were not retained (Table 19). Reading Window Two's relationship to retention was also significant, χ^2(N = 100, *df* = 1) = 8.624, *p* = .003 *sig*. Ninety-four percent of the students who mastered the reading assessment in Window Two did not experience retention (Table 20). The relationship between Window Three and retention status was also significant, χ^2(N = 100, *df* = 1) = 4.615, *p* = .032 *sig*. Ninety-four percent of the students who mastered the reading assessment in Window Three were not retained (Table 21). Regarding these variables, Hypothesis 3 was rejected.

Written Communication

The relationship between the Written Communication's Window One and retention was found not to be significant, χ^2(N = 96, *df* = 1) = .379, *p* = .538 *NS* (Table 22). Written Communication's Window Two's relationship to retention was also found insignificant, χ^2(N = 84, *df* = 1) = 2.829, *p* = .093 *NS* (Table 23). In regards to these variables, Hypothesis 3 was accepted. The relationship between Window Three and retention status was significant, χ^2(N = 87, *df* = 1) = 12.031, *p* = .001 *sig*. Ninety-six percent of the students who mastered the written

communication assessment were not retained (Table 24). Therefore, in regards to these variables, Hypothesis 3 was rejected.

Table 19

Relationship Between Reading Window One and Retention

Reading Scores Window One		Retention Retained	Not Retained	Total
Mastery	Count	4	18	22
	% Within	18.2%	81.8%	100.0%
No Mastery	Count	4	74	78
	% Within	5.1%	94.9%	100.0%
Total	Count	8	92	100
	% Within	8.0%	92.0%	100.0%

Table 20

Relationship Between Reading Window Two and Retention

Reading Scores Window Two		Retention Retained	Not Retained	Total
Mastery	Count	3	6	9
	% Within	33.3%	66.7%	100.0%
No Mastery	Count	5	86	91
	% Within	5.5%	94.5%	100.0%
Total	Count	8	92	100
	% Within	8.0%	92.0%	100.0%

Table 21

Relationship Between Reading Window Three and Retention

Reading Scores Window Three		Retention: Retained	Retention: Not Retained	Total
Mastery	Count	3	10	13
	% Within	23.1%	76.9%	100.0%
No Mastery	Count	5	82	87
	% Within	5.7%	94.3%	100.0%
Total	Count	8	92	100
	% Within	8.0%	92.0%	100.0%

Table 22

Relationship Between Written Communication Window One and Retention

Written Communication Scores Window One		Retention: Retained	Retention: Not Retained	Total
Mastery	Count	3	24	27
	% Within	11.1%	88.9%	100.0%
No Mastery	Count	5	64	69
	% Within	7.2%	92.8%	100.0%
Total	Count	8	88	96
	% Within	8.3%	91.7%	100.0%

Table 23

Relationship Between Written Communication Window Two and Retention

Written Communication Scores Window Two		Retention: Retained	Retention: Not Retained	Total
Mastery	Count	2	8	10
	% Within	20.0%	80.0%	100.0%
No Mastery	Count	4	70	74
	% Within	5.4%	94.6%	100.0%
Total	Count	6	78	84
	% Within	7.1%	92.9%	100.0%

Table 24

Relationship Between Written Communication Window Three and Retention

Written Communication Scores Window Three		Retention: Retained	Retention: Not Retained	Total
Mastery	Count	4	8	12
	% Within	33.3%	66.7%	100.0%
No Mastery	Count	3	72	75
	% Within	4.0%	96.0%	100.0%
Total	Count	7	80	87
	% Within	8.0%	92.0%	100.0%

Mathematics

The relationship between math Window One and retention was found not to be significant, χ^2(N = 100, *df* = 1) = 2.240, *p* = .134 *NS* (Table 25). The math section's Window Two's relationship to retention was also found insignificant, χ^2(N = 99, *df* = 1) = 3.381, *p* = .066 *NS* (Table 26). In regards to these variables, Hypothesis 3 was accepted. The relationship between Window Three and retention status was significant, χ^2(N = 99, *df* = 1) = 15.177, *p* = < .001 *sig*. Ninety-six percent of the students who mastered the Window Three math assessment were not retained (Table 27). Therefore, in regards to these variables, Hypothesis 3 was rejected.

Based on these results, the window with the best predictability of a student's need for intervention based on failure in kindergarten through the conclusion of second grade was Window Three. Additionally, Reading Windows One and Two were also found to predict a student's need for intervention based on retention status.

Kindergarten Assessment and Student's Need for Intervention

H4: There is no relationship between the results on the kindergarten assessment and a student's need for intervention determined by a student's grades in first and second grades.

In order to determine if a relationship existed between each of three kindergarten assessment windows and a student's need for intervention in first and second grade, data were analyzed using Chi square statistical testing. The

reading, written communications, and mathematical sections of each of the three windows were considered independently of one another to test Hypothesis 4,

Table 25

Relationship Between Math Window One and Retention

Math Scores Window One		Retention: Retained	Retention: Not Retained	Total
Mastery	Count	3	15	18
	% Within	16.7%	83.3%	100.0%
No Mastery	Count	5	77	82
	% Within	6.1%	93.9%	100.0%
Total	Count	8	92	100
	% Within	8.0%	92.0%	100.0%

Table 26

Relationship Between Math Window Two and Retention

Math Scores Window Two		Retention: Retained	Retention: Not Retained	Total
Mastery	Count	3	12	15
	% Within	20.0%	80.0%	100.0%
No Mastery	Count	5	79	84
	% Within	6.0%	94.0%	100.0%
Total	Count	8	91	99
	% Within	8.1%	91.9%	100.0%

Table 27

Relationship Between Math Window Three and Retention

Math Scores Window Three		Retention		
		Retained	Not Retained	Total
Mastery	Count	5	10	15
	% Within	33.3%	66.7%	100.0%
No Mastery	Count	3	81	84
	% Within	3.6%	96.4%	100.0%
Total	Count	8	92	99
	% Within	8.1%	91.9%	100.0%

that there is no relationship between the results on the kindergarten assessment and a student's need for intervention determined by a student's grades in first and second grades.

Reading

The relationship between the reading Window One and a student's need for intervention was found to be significant, χ^2(N = 100, *df* = 1) = 15.341, *p* = .001 *sig* (Table 28). Seventy-seven percent of the students who did not master the Window One reading assessment were in need of intervention. Therefore, considering these variables, Hypothesis 4 was rejected. Reading Window Two's relationship to a student's need for intervention was also significant, χ^2(N = 100, *df* = 1) = 9.376, *p* = .002 *sig*. Eighty-eight percent of the students who did not master Window Two's reading assessment were in need of intervention (Table 29). Hypothesis 4 was rejected when considering these variables. The relationship between Window Three and a student's need for intervention was also significant, χ^2(N = 100, *df* = 1) = 11.751, *p* = .001*sig*. Eighty-four percent of the students who did not master the reading assessment in Window Three were in need of intervention (Table 30). In regards to these variables, Hypothesis 4 was rejected.

Written Communication

The relationship between a student's need for intervention and the Written Communication's Window One was found to be significant, χ^2(N = 96, *df* = 1) = 27.424, *p* = < .001 *sig*. Seventy-four percent of the students who did not master

the written communication assessment in Window One were in need of intervention (Table 31). Hypothesis 4, when considering these variables, was

Table 28

Relationship Between Reading Window One and Need for Intervention

Reading Scores Window One		Intervention Needed Yes	No	Total
Mastery	Count	17	5	22
	% Within	77.3%	22.7%	100.0%
No Mastery	Count	24	54	78
	% Within	30.8%	69.2%	100.0%
Total	Count	41	59	
	% Within	41.0%	59.0%	100
				100.0%

Table 29

Relationship Between Reading Window Two and Need for Intervention

Reading Scores Window Two		Intervention Needed Yes	No	Total
Mastery	Count	8	1	9
	% Within	88.9%	11.1%	100.0%
No Mastery	Count	33	58	91
	% Within	36.3%	63.7%	100.0%
Total	Count	41	59	100
	% Within	41.0%	59.0%	100.0%

Table 30

Relationship Between Reading Window Three and Need for Intervention

Reading Scores Window Three		Intervention Needed Yes	No	Total
Mastery	Count	11	2	13
	% Within	84.6%	15.4%	100.0%
No Mastery	Count	30	57	87
	% Within	34.5%	65.5%	100.0%
Total	Count	41	59	100
	% Within	41.0%	59.0%	100.0%

rejected. Written Communication's Window Two's relationship to the need for intervention was found to be insignificant, χ^2(N = 84, *df* = 1) = 2.042, *p* = .153 *NS* (Table 32). Therefore, considering these variables, Hypothesis 4 was accepted. The relationship between Window Three and a student's need for intervention was significant, χ^2(N = 87, *df* = 1) = 12.188, *p* = < .001 *sig*. Eighty-three percent of the students who did not master the Window Three written communication assessment were in need of intervention (Table 33). Regarding these variables, Hypothesis 4 was rejected.

Mathematics

The relationship between math Window One and whether a student needed intervention was found to be significant, χ^2(N = 100, *df* = 1) = 8.846, *p* = .003 *sig*. Seventy-two percent of the students who did not master the math assessment in Window One were in need of intervention (Table 34). The math section Window Two's relationship was also found to be significant, χ^2(N = 99, *df* = 1) = 11.511, *p* = .001 *sig*. Of the students who did not master the math assessment in Window Two, 80% were found to be in need of intervention (Table 35). Also found to have a significant relationship was Window Three and a student's need for intervention, χ^2(N = 99, *df* = 1) = 10.848, *p* = .001 *sig*. Eighty percent of the students who did not master the math assessment in Window Three were in need of intervention (Table 36).

Based on these results, Windows One and Three had the best predictability of a student's need for intervention. Additionally, Window Two was

found to be predictable in the areas of reading and math but not written communications. Hypothesis 4, when considering these variables, was rejected.

Table 31

Relationship Between Written Communication Window One and Need for Intervention

Written Communication Scores Window One		Intervention Needed Yes	No	Total
Mastery	Count	20	7	27
	% Within	74.1%	25.9%	100.0%
No Mastery	Count	19	50	69
	% Within	27.5%	72.5%	100.0%
Total	Count	39	57	
	% Within	40.6%	59.4%	96
				100.0%

Table 32

Relationship Between Written Communication Window Two and Need for Intervention

Written Communication Scores Window Two		Intervention Needed Yes	No	Total
Mastery	Count	6	4	10
	% Within	60.0%	40.0%	100.0%
No Mastery	Count	27	47	74
	% Within	36.5%	63.5%	100.0%
Total	Count	33	51	84
	% Within	39.3%	60.7%	100.0%

Table 33

Relationship Between Written Communication Window Three and Need for Intervention

		Intervention Needed		
Written Communication Scores Window Three		Yes	No	Total
Mastery	Count	10	2	12
	% Within	83.3%	16.7%	100.0%
No Mastery	Count	23	52	75
	% Within	30.7%	69.3%	100.0%
Total	Count	33	54	87
	% Within	37.9%	62.1%	100.0%

Table 34

Relationship Between Math Window One and Need for Intervention

		Intervention Needed		
Math Scores Window One		Yes	No	Total
Mastery	Count	13	5	18
	% Within	72.2%	27.8%	100.0%
No Mastery	Count	28	54	82
	% Within	34.1%	65.9%	100.0%
Total	Count	41	59	100
	% Within	41.0%	59.0%	100.0%

Table 35

Relationship Between Math Window Two and Need for Intervention

Math Scores Window Two		Intervention Needed Yes	No	Total
Mastery	Count	12	3	15
	% Within	80.0%	20.0%	100.0%
No Mastery	Count	28	56	84
	% Within	33.3%	66.7%	100.0%
Total	Count	40	59	99
	% Within	40.4%	59.6%	100.0%

Table 36

Relationship Between Math Window Three and Need for Intervention

Math Scores Window Three		Intervention Needed Yes	No	Total
Mastery	Count	12	3	15
	% Within	80.0%	20.0%	100.0%
No Mastery	Count	29	55	84
	% Within	34.5%	65.2%	100.0%
Total	Count	41	58	99
	% Within	41.4%	58.6%	100.0%

Kindergarten Assessment and Intervention Status

H5: There is no relationship between the results on the kindergarten assessment and a student's intervention status in first and second grades.

In order to determine if a relationship existed between each of the three kindergarten assessment windows and a student's intervention status in first and second grade, data were analyzed using Chi square statistical testing. The reading, written communications, and mathematical sections of each of the three windows were considered independently of one another to test Hypothesis 5, that there is no relationship between the results on the kindergarten assessment and a student's intervention status in first and second grades.

Reading

The relationship between the reading Window One and a student's intervention status was found to be significant, χ^2(N = 100, *df* = 1) =21.030, *p* = < .001 *sig*. Sixty-eight percent of the students who did not master the Window One reading assessment were placed into intervention (Table 37). Reading Window Two's relationship to whether a student was placed on intervention was also significant, χ^2(N = 100, *df* = 1) = 6.815, *p* = .009 *sig*. Sixty-six percent of the students who did not master the reading assessment in Window Two were placed into intervention (Table 38). The relationship between Window Three and a student's intervention status was also significant, χ^2(N = 100, *df* = 1) = 7.684, *p*

= .006 *sig*. Sixty-one percent of the students who mastered the reading assessment in Window Three were placed into intervention (Table 39).

Table 37

Relationship Between Reading Window One and Intervention Status

Reading Scores Window One		Intervention Status: Intervention	No Intervention	Total
Mastery	Count	15	7	22
	% Within	68.2%	31.8%	100.0%
No Mastery	Count	14	64	78
	% Within	17.9%	82.1%	100.0%
Total	Count	29	71	100
	% Within	29.0%	71.0%	100.0%

Table 38

Relationship Between Reading Window Two and Intervention Status

Reading Scores Window Two		Intervention Status: Intervention	No Intervention	Total
Mastery	Count	6	3	9
	% Within	66.7%	33.3%	100.0%
No Mastery	Count	23	68	91
	% Within	25.3%	74.7%	100.0%
Total	Count	29	71	100
	% Within	29.0%	71.0%	100.0%

Table 39

Relationship Between Reading Window Three and Intervention Status

Reading Scores Window Three		Intervention Status: Intervention	Intervention Status: No Intervention	Total
Mastery	Count	8	5	13
	% Within	61.5%	38.5%	100.0%
No Mastery	Count	21	66	87
	% Within	24.1%	75.9%	100.0%
Total	Count	29	71	100
	% Within	29.0%	71.0%	100.0%

Written Communication

The relationship between a student's intervention status and the Written Communication's Window One was found to be significant, χ^2(N = 96, *df* = 1) = 4.244, *p* = .039 *sig*. While only forty-four percent of students who did not master the written communication assessment in Window One were placed into intervention, 76% of the students who did master this section were not placed into intervention (Table 40). Written Communication's Window Two's relationship to intervention status was found to be significant, χ^2(N = 84, *df* = 1) = 4.965, *p* = .026 *sig*. Sixty percent of students who did not master the written communication assessment in Window Two were placed into intervention (Table 41). The relationship between Window Three and a student's placement into intervention was significant, χ^2(N = 87, *df* = 1) = 23.909, *p* = < .001 *sig*. Of the students who did not master the third window's written communication assessment, 91% of them were placed into intervention (Table 42).

Mathematics

The relationship between math Window One and whether a student received intervention was found to be significant, χ^2(N = 100, *df* = 1) = 4.702, *p* = .030 *sig*. Half of the students who did not master the math section of Window One were placed into intervention (Table 43). The math section's Window Two's relationship to intervention status was also found to be significant, χ^2(N = 99, *df* = 1) = 8.048, *p* = .005 *sig*. Sixty percent of the students who did not master the math assessment in Window Two were placed into intervention (Table 44). Also

found to have a significant relationship was Window Three and a student's intervention status, χ^2(N = 99, *df* = 1) = 11.922, *p* = .001 *sig*. Of the students

Table 40

Relationship Between Written Communication Window One and Intervention Status

Written Communication Scores Window One		Intervention Status: Intervention	No Intervention	Total
Mastery	Count	12	15	27
	% Within	44.4%	55.6%	100.0%
No Mastery	Count	16	53	69
	% Within	23.2%	76.8%	100.0%
Total	Count	28	68	96
	% Within	29.2%	70.8%	100.0%

Table 41

Relationship Between Written Communication Window Two and Intervention Status

Written Communication Scores Window Two		Intervention Status: Intervention	No Intervention	Total
Mastery	Count	6	4	10
	% Within	60.0%	40.0%	100.0%
No Mastery	Count	19	55	74
	% Within	25.7%	74.3%	100.0%
Total	Count	25	59	84
	% Within	29.8%	70.2%	100.0%

Table 42

Relationship Between Written Communication Window Three and Intervention Status

Written Communication Scores Window Three		Intervention Status: Intervention	Intervention Status: No Intervention	Total
Mastery	Count	11	1	12
	% Within	91.7%	8.3%	100.0%
No Mastery	Count	16	59	75
	% Within	21.3%	78.7%	100.0%
Total	Count	27	60	87
	% Within	31.0%	69.0%	100.0%

who did not master the math section of Window Three, 66.7% were placed into intervention (Table 45).

Based on these results, all three sections of each of the windows showed predictability of a student's placement into intervention. Therefore, the following null hypothesis regarding the relationship between kindergarten assessments and a student's placement into intervention was rejected:

H5: There is no relationship between the results on the kindergarten assessment and a student's intervention status in first and second grades.

Teachers' Perception of the Predictability of the Kindergarten Assessment

The kindergarten teachers of the participating schools were surveyed to determine their perception of the predictability of the kindergarten assessment. The results of the survey indicated that as the windows increased in difficulty the teachers believed it to be more predictable of a student's future need for intervention. Thirty-seven percent of the teachers polled believed Windows One and Two were predictable while 62% believed Window Three was predictable for a student's future need for intervention. The data analysis indicated that when considering the relationship between the assessment and retention the predictability Window Three was predictable across all sections. When considering each of the three sections of the assessment—reading, written communications, and math—the majority of the teachers believed the reading sections to be most predictable at 12.5% for Window One and 37.5% for both Windows Two and Three.

Table 43

Relationship Between Math Window One and Intervention Status

Math Scores Window One		Intervention Status: Intervention	No Intervention	Total
Mastery	Count	9	9	18
	% Within	50.0%	50.0%	100.0%
No Mastery	Count	20	62	82
	% Within	24.4%	75.6%	100.0%
Total	Count	29	71	100
	% Within	29.0%	71.0%	100.0%

Table 44

Relationship Between Math Window Two and Intervention Status

Math Scores Window Two		Intervention Status: Intervention	No Intervention	Total
Mastery	Count	9	6	15
	% Within	60.0%	40.0%	100.0%
No Mastery	Count	20	64	84
	% Within	23.8%	76.2%	100.0%
Total	Count	29	70	90
	% Within	29.3%	70.7%	100.0%

Table 45

Relationship Between Math Window Three and Intervention Status

Math Scores Window Three		Intervention Status: Intervention	Intervention Status: No Intervention	Total
Mastery	Count	10	5	15
	% Within	66.7%	33.3%	100.0%
No Mastery	Count	29	65	84
	% Within	22.6%	77.4%	100.0%
Total	Count	29	70	90
	% Within	29.3%	70.7%	100.0%

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summary, conclusions, and recommendations based on the findings of the study. Included in the chapter are sections addressing the purpose, population and procedures, summary of findings, discussion, and recommendations.

Purpose

The purpose of this study was to determine if the kindergarten assessment results from the three windows in language arts, mathematics, and motor skills were valid predictors of a student's need for intervention. The study sought to determine if a student's need for intervention could be discovered early resulting in earlier intervention. This study also sought to determine if more prescriptive educational decisions can be made based on its findings.

Population/Procedure

The study sample represented in this investigation was 100 students who completed the district's kindergarten assessment during the 2005-2006 and 2006-2007 school years. These students remained enrolled in the district beginning in kindergarten and remained current at the time of this study.

The two schools from which students were selected are from the same coastal Mississippi public school district. The two schools selected are similar in average enrollment. During the 2005-2006 and 2006-2007 school years, the enrollment was 455 and 406 for school 1 and 389 and 465 for school 2, respectively. The socioeconomic status of the students at the schools contrasts

with one having 83% free and reduced lunch status as compared to 63% at the other school. Minority groups represented 30% to 38% of school 1's population over the 23 years whereas school 2's minority population represented 63% to 65% of the population over the 2-year period. These two schools were selected in order to provide a diverse sample. Both schools are located inside city limits of a rural area with an approximately population of 11,681.

Permission was sought and granted from the superintendent of the district to conduct the study using data from the two schools in the district. Permission from the administrators of each of the schools was sought and granted. Upon notification of permission to conduct the study in the district by the superintendent and the administrators of each school, permission was sought and granted by the Human Subjects Protection Review Committee of The University of Southern Mississippi.

Only cumulative records of students who attended kindergarten in the targeted district during the 2005-2006 and 2006-2007 school years and who remained in constant attendance within the district were reviewed. Student records are secured at each of the two schools within the vault. The kindergarten assessment scores for each of the three windows were recorded and recoded to represent mastery or no mastery for the language arts, written communications, mathematics, and motor skills sections. An average for each section of each window was determined to determine mastery of the section. The scores produced for each in each of the sections of the three windows—the results from the Mississippi Curriculum Test Second Edition assessment, first and second

semester grades in reading, language arts, and math from the first and second grades, and failure status—were collected from cumulative records. Students' performance in AIMSweb in grades 1 and 2 were recorded from the AIMSweb program. These results were recoded into two categories: intervention needed and intervention not needed. A student's intervention status, whether or not he or she received intervention through the Teacher Support Team at any point from kindergarten until the end of second grade, was determined by reviewing cumulative records and TST folders. To ensure students' privacy, no identifying information was collected.

Summary of Findings

The hypotheses were tested using Chi square statistical testing using an alpha level of .05. Kindergarten results from each window were recoded into mastery and not mastery categories. Also recoded into mastery and not mastery categories were AIMSweb results in reading and math for grades 1 and 2. A student's need for intervention was determined and recoded into intervention needed and no intervention needed categories. Finally, a student's intervention status was recoded into two categories indicating placement into intervention and no placement into intervention.

Each of the hypotheses was tested using Chi square. The results from both the reading and written communications from each window were analyzed to test Hypothesis 1. The results from the math section of each window were analyzed to test Hypothesis 2. Each section of the three windows was analyzed separately to test Hypotheses 3, 4, and 5. A statistical analysis summary follows.

H1: There is no relationship between the results of the kindergarten assessment and reading ability as measured by AIMSweb benchmark probes from first and second grades.

Chi square statistical analysis determined that no relationship existed between reading Windows One and Two or written communication Windows Two and Three and the AIMSweb first grade benchmarking. Therefore, in regards to these variables, Hypothesis 1 was accepted.

The statistical analysis of the reading section of Window Three and written communication Window One and AIMSweb first grade benchmarking determined a relationship. Almost 89% of the students who mastered the reading assessment in Window Three also mastered the first grade AIMSweb reading benchmark. Seventy-one percent of the students who did not master the reading assessment in Window Three also did not master the first grade AIMSweb reading benchmark. Eighty-seven percent of the students who mastered the written communication assessment in Window One also mastered the first grade AIMSweb reading benchmark. Additionally, 50% of the students who did not master the written communication assessment in Window One also did not master the first grade AIMSweb reading benchmark. In regards to these variables, Hypothesis 1 was rejected.

Chi square statistical analysis determined that no relationship existed between the AIMSweb second grade benchmarking and Windows Two and Three of both the reading and written communication sections of the assessment. Therefore, in regards to these variables, Hypothesis 1 was

accepted. The statistical analysis of the reading and written communications sections of Window One and AIMSweb second grade benchmarking determined a relationship. Seventy-eight percent of the students who mastered the reading assessment in Window One also mastered the second grade AIMSweb reading benchmark. Additionally, 57% of the students who did not master the written communication assessment in Window One also did not master the second grade AIMSweb reading benchmark. The relationship between Window One written communications and the AIMSweb second grade benchmarking was significant. Fifty-five percent of the students who did not master the written communication assessment in Window One also did not master the second grade AIMSweb benchmarking. In regards to these variables, Hypothesis 1 was rejected.

H2: There is no relationship between the results of the kindergarten assessment and mathematical ability as measured by AIMSweb benchmark probes in first and second grades.

Statistical analysis determined no relationship between math Windows One and Two and the AIMSweb first grade benchmarking. Therefore, Hypothesis 2 in regard to the variable was accepted. Analysis determined a relationship existed between math Window Three and the first grade AIMSweb benchmarking. Eighty-three percent of the students who mastered the math assessment in Window Three also mastered the first grade AIMSweb math benchmark. Seventy-five percent of the students who did not master the math

assessment in Window Three also did not master the first grade AIMSweb math benchmark. Regarding these variables, Hypothesis 2 was rejected.

Statistical analysis determined that a relationship existed between math Windows One and Two and second grade AIMSweb benchmarking. Seventy-nine percent of the students who mastered the math assessment in Window One also mastered the second grade AIMSweb math benchmark. Fifty–two percent of the students who mastered the math assessment in Window Two also mastered the second grade AIMSweb math benchmark. Fifty-three percent of the students who did not master the math assessment in Window Two also did not master the second grade AIMSweb math benchmark. Considering these variables, Hypothesis 2 was rejected. Window Three math and second grade AIMSweb benchmarking produced no relationship when analyzed. Hypothesis 2 was accepted in regard to these variables.

H3: There is no relationship between the results on the kindergarten assessment and a student's need for intervention determined by failing criteria set by the district in first and second grades.

Statistical analysis indicated a relationship existed between reading Windows One, Two, and Three results and retention. Ninety-four percent of the students who mastered the reading assessment in Window One were not retained. Ninety-four percent of the students who mastered the reading assessment in Window Two did not experience retention. Ninety-four percent of the students who mastered the reading assessment in Window Three were not retained. Therefore, in regard to reading, Hypothesis 3 was rejected.

Written communication results from Windows One and Two had no relationship to retention; therefore, regarding these variables, Hypothesis 3 was accepted. A relationship between written communication Window Three and retention existed. Ninety-six percent of the students who mastered the written communication assessment were not retained. Therefore, in regards to these variables, Hypothesis 3 was rejected.

H4: There is no relationship between the results on the kindergarten assessment and a student's need for intervention determined by a student's grades in first and second grades.

Statistical analysis indicated a relationship between all windows in both reading and math and a student's need for intervention. Seventy-seven percent of the students who did not master the Window One reading assessment were in need of intervention. Eighty-eight percent of the students who did not master Window Two's reading assessment were in need of intervention. Eighty-four percent of the students who did not master the reading assessment in Window Three were in need of intervention. In regard to math, 72% of the students who did not master the math assessment in Window One were in need of intervention. Of the students who did not master the math assessment in Window Two, 80% were found to be in need of intervention. Eighty percent of the students who did not master the math assessment in Window Three were in need of intervention. Regarding these variables, Hypothesis 4 was rejected.

A relationship was found between both Windows One and Three of the written communication section and a student's need for intervention. Seventy-

four percent of students who did not master the written communications assessment in Window One were in need of intervention. Eighty-three percent of the students who did not master the Window Three written communications assessment were in need of intervention. Hypothesis 4 regarding these variables was rejected. In contrast, no relationship was indicated between Window Two written communication and a student's need for intervention, therefore resulting in the acceptance of Hypothesis 4 in regard to these variables.

H5: There is no relationship between the results on the kindergarten assessment and a student's intervention status in first and second grades.

Statistical analysis determined a relationship between students' intervention status and all sections of each of the three windows. Sixty-eight percent of the students who did not master the Window One reading assessment were placed into intervention. Sixty-six percent of the students who did not master the reading assessment in Window Two were placed into intervention. Sixty-one percent of the students who mastered the reading assessment in Window Three were placed into intervention. Therefore, Hypothesis 5 was rejected.

Discussion

With the current responsibility placed onto school districts by NCLB, districts are even more aware that strides must be made if they are to maintain the level of growth and achievement set forth by the act. While high stakes testing areas have recently moved beyond early elementary into intermediate

and upper elementary, it is still the priority of the stakeholders to ascertain resources to initiate and maintain growth of younger elementary students. Research by Bishop (2003) supported the belief that intervention for struggling learners is best received during the primary grades, specifically kindergarten. Juel's (1988) research also agreed that optimal results occur when intervention is initiated in kindergarten. Most dramatic is the research by Keeney and Keeney (1968) which indicated that 82% of children diagnosed with the disorders such as dyslexia who are provided intervention in early elementary grades were able to perform on grade level. Conversely, only 10%-15% of children diagnosed with dyslexia in grades 5 through 7 were able to work on grade level. The results of this study are being employed to assist educators in making informed educational decisions that could result in avoiding a student's need for intervention in later elementary school by providing evidence that at-risk students should be attended to as soon as problems present themselves. The purpose of this study was to determine if the earliest assessment used within the district was able to predict which students needed additional support. Portions of the kindergarten assessment were found to be predictors of a student's need for intervention; therefore, intervention can begin, as research indicates, as soon as a problem presents itself. Mississippi State Board Policy 4300 supports the need for early intervention that the kindergarten assessment may be able to identify, stating that the RTI process must include components to identify students as soon as they begin to fall behind and to modify instruction so that every student's needs are addressed.

Most dramatic were the results the study presented through analysis to determine the relationship between the kindergarten assessment and retention, the need for interventions, and intervention status. All areas of the kindergarten assessment were predictive in determining which students would be placed into intervention. Further, two sections of the assessment, reading and math, both were determined to be predictive in regard to determining which students would eventually need intervention services. Finally, the reading section of the assessment was determined to be a predictor of retention, which would qualify a student for intervention.

These results further elucidate the point made by Reynolds (1992) who suggested that a student's overall school success is reflective of the approach taken early in kindergarten and even before in the home. The results of the study make more lucid the need for earlier intervention, thus supporting Kameenui (1996), who indicated that more than one in six children experience difficulty reading in the first through third grades. If districts are to rise to the standard of all students reading on grade level at the conclusion of the third grade set forth by NCLB and to avoid the strict consequences brought on by failing to do so, they must start early in identifying at-risk students (Bishop, 2003). By determining the link between the targeted district's kindergarten assessment and a student's need for intervention, early identification and prevention can begin in kindergarten and extend throughout elementary school with later elementary success in mind.

In regard to the results of the questionnaire completed by kindergarten teachers to determine their perception of the kindergarten assessment's ability to predict the need for intervention, it was found that teachers were able to identify the components that will provide the best predictive results. The majority of the teachers believed that as the assessment sections increased in difficulty they became more predictive. The data analysis indicated that when considering the relationship between the assessment and retention, the predictability was better at Window Three across all sections. Teachers also indicated that the reading section was the best predictor. In fact, the data analysis indicated that this was true when considering the relationship between reading achievement and retention, the need for intervention, and intervention status. Conclusively, kindergarten teachers may have the ability through the use of assessment results to predict which students will need intervention later in elementary school.

Based on the results of this study, the targeted district should consider using the results of the kindergarten assessments they currently use to identify and target struggling students, therefore possibly decreasing or eliminating, in some cases, the need for intervention later during the elementary years. Additionally, considering students' performance on these early assessments and acting upon the results through early intervention may significantly impact the retention rate across the district.

Limitations

The following limitations are associated with this study. The research was conducted within a singular school district. Additionally, while other districts may

use assessments similar to the kindergarten assessment employed with the targeted district, the results of this study are based upon a single particular assessment. The transient nature of the targeted school district limits the number of participants due to incomplete kindergarten assessment results which could possibly skew the results.

Recommendations for Future Study

With intervention at the forefront of the education world, ways in which teachers intervene will continue to be a helpful area to research. A potential direction would be to further investigate the stage at which intervention occurs as it relates to the effect it has on students' achievement. Another form of intervention, ability grouping, which the targeted district has launched since the start of this study, would be an interesting extension to the research. The impact that summer programs and after-school tutoring have on performance of students who are identified in kindergarten as at risk would be an avenue of additional research. The future additions of preschool programs to public schools within the district could have an impact on the rate at which students learn, therefore impacting the intervention process and providing an avenue to further research on the implications of pre-kindergarten education as it relates to the need for intervention. Finally, a more in-depth look at the impact the placement of students who are discovered to be at risk in kindergarten with teachers of varying levels of ability has on their need for intervention would be potentially rewarding research.

APPENDIX A

SUPERINTENDENT'S PERMISSION TO CONDUCT THE STUDY

October 5, 2009

To Whom It May Concern:

Ms. Victoria Hoover has my permission to conduct her research project entitled *Kindergarten Assessments as a Predictor of a Student's Need for Intervention* in the District. This includes obtaining information from student's cumulative records and surveying kindergarten teachers from the above-mentioned schools.

Sincerely,

Superintendent

APPENDIX B

ADMINISTRATORS' PERMISSION TO CONDUCT STUDY

October 5, 2009

To Whom It May Concern:

Victoria Hoover has my permission to conduct her research project entitled *Kindergarten Assessments as a Predictor of a Student's Need for Intervention*. This includes obtaining information from student's cumulative records and surveying kindergarten teachers from the above-mentioned school.

Sincerely,

Principal, M Elementary

APPENDIX C

HUMAN SUBJECTS REVIEW COMMITTEE APPROVAL

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
www.usm.edu/irb

HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **29101205**
PROJECT TITLE: **Kindergarten Assessments as a Predictor for a Student's Need for Intervention**
PROPOSED PROJECT DATES: **01/01/09 to 04/01/10**
PROJECT TYPE: **Dissertation or Thesis**
PRINCIPAL INVESTIGATORS: **Victoria E. Hoover**
COLLEGE/DIVISION: **College of Education & Psychology**
DEPARTMENT: **Educational Leadership & Research**
FUNDING AGENCY: **N/A**
HSPRC COMMITTEE ACTION: **Expedited Review**
PERIOD OF APPROVAL: **12/14/09 to 12/13/10**

Lawrence A. Hosman

Lawrence A. Hosman, Ph.D.
HSPRC Chair

1-6-10
Date

APPENDIX D

SURVEY INSTRUMENT

1. Please indicate your school:

- ☐ School One
- ☐ School Two

2. Indicate your years of kindergarten experience:

- ☐ 0-3
- ☐ 2-5
- ☐ 6-9
- ☐ 10-13
- ☐ 14 +

page 2

3. The assessment has the ability to predict a student's need for intervention in first grade. (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

4. The assessment has the ability to predict a student's need for intervention in the second grade. (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

page 3

5. The assessment's Window One language arts assessment predicts a student need for intervention by the conclusion of the second grade? (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

6. The assessment's Window One Written Communication assessment has the ability to predict a student's need for intervention from the conclusion of kindergarten until the conclusion of the second grade. (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

7. The assessment's Window One Math assessment has the ability to predict a student's need for intervention from the conclusion of kindergarten until the conclusion of the second grade. (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

page 4

8. The assessment's Window Two language arts assessment has the ability to predict a student's need for intervention from the conclusion of kindergarten until the conclusion of the second grade. (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

9. The assessment's Window Two written communication assessment has the ability to predict a student's need for intervention from the conclusion of kindergarten until the conclusion of the second grade. (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

10. The assessment's Window Two math assessment has the ability to predict a student's need for intervention from the conclusion of kindergarten until the conclusion of the second grade. (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

page 5

11. The assessment's Window Three language arts assessment has the ability to predict a student's need for intervention from the conclusion of kindergarten until the conclusion of the second grade. (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

12. The assessment's Window Three written communication assessment has the ability to predict a student's need for intervention from the conclusion of kindergarten until the conclusion of the second grade. (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

13. The assessment's Window Three math assessment has the ability to predict a student's need for intervention from the conclusion of kindergarten until the conclusion of the second grade. (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

page 6

14. Window One has the ability to predict a student's need for intervention from the conclusion of kindergarten until the conclusion of the second grade. (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

15. Window Two has the ability to predict a student's need for intervention from the conclusion of kindergarten until the conclusion of the second grade. (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

16. Window Three has the ability to predict a student's need for intervention from the conclusion of kindergarten until the conclusion of the second grade. (Select one option)

- ☐ strongly disagree
- ☐ disagree
- ☐ neither agree or disagree
- ☐ agree
- ☐ strongly agree

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