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The Effectiveness of Transitional First Grade Programs on Increasing the Academic Success of Students Through Third Grade

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THE EFFECTIVENESS OF TRANSITIONAL FIRST GRADE PROGRAMS ON INCREASING THE ACADEMIC SUCCESS OF STUDENTS THROUGH THIRD GRADE

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This research focused on the effectiveness of transitional first grade programs as an intervention to improve the academic success of students through third grade. This study investigated two groups of students, students who attended a transitional first grade program and students who were regularly promoted. Several limitations were present in this study that may have influenced the validity of the results.

The results of this research indicated age, and not academic readiness scores, was the only significant predictor of participation in transitional first grade. This suggests that the targeted school may not be referring the appropriate students to positively affect the district's annual yearly progress towards state standards. Since academically at-risk students were not the target of the investigated program, the results were inconclusive regarding the effectiveness of the transitional first grade program as an academic intervention. The final significant finding of this study was that second grade oral reading fluency scores successfully predicted students' scores on the third grade reading and math subtests of the Pennsylvania System of School Assessments.

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CHAPTER I

AN INTRODUCTION

The passing of legislation such as the *No Child Left Behind Act* (NCLB) of 2001 has made accountability and educational standards buzz words in education today (Picklo & Christenson, 2005). NCLB is designed to hold schools responsible for providing all students with basic academic skills according to established standards (Picklo & Christenson). To ensure that schools are teaching these standards to all students, states are mandating assessments called high-stakes tests (Picklo & Christenson,).

Accountability legislation has led to school districts being assessed based on student performance on these high-stakes tests. As a result, discussions have ensued regarding students who do not meet the standards and who do not pass the assessments. Some states mandate that students be retained if they are unable to demonstrate mastery of the standards (Gleason, Kwok, & Hughes, 2007; Picklo & Christenson, 2005).

This use of standards-based education linked with high-stakes testing has reversed declining trends in retention and transitional programs (Burkam, LoGerfo, Ready, & Lee, 2007; Frey, 2005; Hong & Yu, 2008; Picklo & Christenson, 2005). Educators believe these options are viable ways to assist at-risk students in meeting standards (Burkam et al.; Frey; Hong & Yu; Picklo & Christenson). With increasing political pressure for every student to meet rigid standards within specific timeframes, the use of nonpromotion practices is reaching a disturbing level (Frey; Jimerson, Woehr, & Kaufman, 2007; Jimerson, Pletcher, & Kerr, 2005). Some individuals believe this practice of nonpromotion gives students the "gift of time."

This generous "gift of time" through retention or transitional grade programs is thought to allow a student time to mature emotionally, physically, and intellectually, as well as provide an opportunity to learn without experiencing failure (Bredekamp, 1990; Mantzicopoulos, 2003; May & Kundert, 1993; Wang & Johnstone, 1997; Uphoff, 1990). However, this seemingly innocent gift may have unintended negative consequences.

Transitional first grade, also called developmental first grade, junior first grade, or pre-first grade, is an extra year of school between kindergarten and first grade assigned to students who are not yet ready for first grade (Mantzicopoulos, 2003). This extra year is thought to make the transition into first grade easier for students who are immature or late in developing school readiness skills (Mantzicopoulos, 2003; Gredler, 1992).

Several theories have given rise to the "common sense" benefits of transitional first grade programs (Brewer, 1990; Gredler, 1992). This logic argues that these programs allow students to catch up with their peers, to become ready for the academic demands of the early curriculum, to avoid academic failure, and to succeed in areas other than academics (Brewer, 1990; Bredekamp, 1990; Gredler, 2000; Mantzicopoulos, 2003; May & Kundert, 1993; Southard & May, 1996; Uphoff, 1990; Wang & Johnston, 1997). In many locales, transitional first grade programs are viewed favorably by both professionals and parents. However, not everyone agrees with the "common sense" benefits of these programs. The limited amount of research that focuses specifically on transitional first grades reports their ineffectiveness (Boettger, 1994; Brewer, 1990; Ferguson, 1996; Mantzicopoulos, 2003; Southard & May, 1996; Wang & Johnstone, 1997). In fact, one research

article notes these programs may have negative effects on students (Southard & May, 1996).

Due to the minimal amount of research that focuses specifically on transitional programs, data from retention studies is often used to argue for or against the programs. This is based on the assumption that when a student attends a transitional first grade, the process is equivalent to retention. However, many argue against this assumption. They assert that retaining a student for a second year in a kindergarten or a first grade classroom is not the same as placing him or her in a classroom specially designed for students considered to be at-risk (Bedekamp & Shepard, 1989). It is, therefore, unclear whether or not research on retention is valid when applied to transitional first grade programs.

Because of the educational trends of accountability, high-stakes testing, and standards-based education, districts need to begin developing and implementing research based programs to meet students' needs (Mantzicopoulos, 2003; Picklo & Christenson, 2005). For that reason, transitional first grade programs need a clear research base that investigates them specifically. Districts then will be able to make a determination regarding the effectiveness of transitional programs as an intervention to enable at-risk students to meet the standards.

The Problem

The popularity of transitional first grade programs has fluctuated over time (May & Kundert, 1993). As the appeal of these programs changes, debates continue to surface in the literature regarding their effectiveness. The purpose of this study was to specifically investigate transitional first grade programs and their

effectiveness. In order to explore the effectiveness of these programs, three groups of students were identified based on their advancement level: (1) students who attended transitional first grade; (2) students who were recommended for transitional first grade but did not attend; and (3) students who were regularly promoted. The major variables investigated were subtests of the Dynamic Indicators of Basic Early Literacy Skills (DIBELS), the third grade reading subtest of the Pennsylvania System of School Assessments (PSSA; Reading Level-3), and the third grade math subtest of the Pennsylvania System of School Assessments (PSSA; Math Level-3). Other variables explored were the year the student began kindergarten (historical impact), sex, and the student's age in days at the beginning of kindergarten (developmental status).

Research Questions

With the emphasis on statewide high-stakes assessments, districts need to begin to develop programs for at-risk students which assist them in meeting the standards and performing well on these tests (Mantzicopoulos, 2003; Picklo & Christenson, 2005). This research attempted to determine if transitional first grade programs are effective for these at-risk students. For the purpose of this study, the research questions investigated were:

1) Do historical impact, sex, developmental status, and Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Phoneme Segmentation Fluency (PSF)–Kindergarten Level (K) predict advancement level?

2) Do historical impact, sex, developmental status, DIBELS PSF-K, and advancement level predict DIBELS PSF–1st Grade Level (1)?

3) Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, and DIBELS PSF-1 predict DIBELS Oral Reading Fluency (ORF)-1st Grade Level (1)?

4) Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, DIBELS PSF-1, and DIBELS ORF-1 predict DIBELS ORF-2nd Grade Level (2)?

5) Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Reading Level-3?

6) Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Math Level-3?

7) Is there a difference in the student's rate of learning based on advancement level?

Hypotheses

This research focused primarily on academic success as an indicator of the effectiveness of transitional first grade programs. The minimal amount of research based specifically on transitional first grade programs indicates that they may not provide the desired positive academic effects (Boettger, 1994; Ferguson, 1996; Southard & May, 1996; Mantzicopoulos, 2003; Wang & Johnston, 1997). Additionally, retention research indicates transitional first grade programs may be harmful (Burkham et al., 2007; Canter & Carey, 1998; Canter, Carey, & Dawson, 1998; Gleason et al., 2007; Meisels & Liaw, 1993; Picklo & Christenson, 2005; Owing & Magliano, 1998; Southard & May, 1996). Therefore, the following groups of hypotheses are presented for this research, all corresponding to the research questions above.

1) No hypothesis was tenable for historical impact and advancement level. Males would be more representative in the transitional first grade and the recommended-but-did-not-attend groups. Younger students would be more representative in the transitional first grade and the recommended-but-did-not-attend groups. Lower DIBELS PSF-K scores will be more representative in the transitional first grade and the recommended-but-did-not-attend groups.

2) No hypothesis was tenable for historical impact and DIBELS PSF-1 scores. Males would have lower DIBELS PSF-1 scores. Younger students would have lower DIBELS PSF-1 scores. Students with lower DIBELS PSF-K scores would have lower DIBELS PSF-1 scores. No difference would be seen in advancement level.

3) No hypothesis was tenable for historical impact and DIBELS ORF-1 scores. Males would have lower DIBELS ORF-1 scores. Younger students would have lower DIBELS ORF-1 scores. Students with lower DIBELS PSF-K scores and students with lower DIBELS PSF-1 scores would have lower DIBELS ORF-1 scores. No difference would be seen in advancement level.

4) No hypothesis was tenable for historical impact and DIBELS ORF-2 scores. Males would have lower DIBELS ORF-2 scores. Younger students would have lower DIBELS ORF-2 scores. Students with lower DIBELS PSF-K scores, students with lower DIBELS PSF-1 scores, and students with lower DIBELS ORF-1 scores would have lower DIBELS ORF-2 scores. No difference would be seen in advancement level.

5) No hypothesis was tenable for historical impact and Reading Level-3 scores. Males would have lower Reading Level-3 scores. Younger students would have lower Reading Level-3 scores.

Students with lower DIBELS PSF-K scores, students with lower DIBELS PSF-1 scores, students with lower DIBELS ORF-1 scores, and students with lower DIBELS ORF-2 scores would have lower Reading Level-3 scores. Students in the transitional first grade group would have lower Reading Level-3 scores than the recommended-but-did-not-attend and the regularly promoted groups.

6) No hypothesis was tenable for historical impact and Math Level-3 scores. No sex difference would be seen on Math Level-3 scores. Younger students would have lower Math Level-3 scores. No hypothesis was tenable for DIBELS PSF-K, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 scores and Math Level-3 scores. Students in the transitional first grade group would have lower Math Level-3 scores than the recommended-but-did-not-attend and the regularly promoted groups.

7) Students in the regularly promoted group would have a faster rate of learning than the students in the recommended-but-did-not-attend and the transitional first groups. Students in the recommended-but-did-not-attend group would have a faster rate of learning than the students in the transitional first grade group.

Problem Significance

One of the primary goals of any educational institution is to provide students with the best education possible. With the passage of accountability legislation such as *No Child Left Behind* in 2001, which measures success by test scores, it has become of the utmost importance for schools to provide their students with educational opportunities that are based on sound research (Picklo & Christenson, 2005). These opportunities should allow the students to maximize their learning

while obtaining higher standardized test scores. In order to achieve this, schools must use research to drive their practices and programs.

When investigating research-based programs and interventions, school districts frequently look to the school psychologist for insight. School psychologists are often viewed as experts in research, assessment, and intervention in the public education setting. When students are not meeting standards, it is important that school psychologists provide their districts with valid and evidence-based information on program interventions like transitional first grade.

Definitions

For the foundation of this research, two critical terms are retention and transitional first grade. Retention can be defined as having a student who has completed a full year of school at a specific grade level repeat that same grade level for a second full year. Transitional first grade can be defined as inserting an extra year of education between a student's kindergarten year and his or her first grade year. Transitional first grade differs from a traditional kindergarten and/or first grade in several key characteristics including: developmentally appropriate curriculum, child-centered classrooms, increased parental involvement, and a small student-to-teacher ratio (Brewer, 1990; Uphoff, 1990).

Further definitions help identify the three main groups in this study. The first group of students was the regularly promoted group. These were students who, at the end of their kindergarten year, were not recommended for the transitional first grade program but students were promoted directly from kindergarten to first grade. The second group of students was the students who were recommended for the transitional first grade program, but instead went directly on to first

grade. This group was designated the recommended-but-did-not-attend group. The final group of students was those who were recommended for the transitional first grade program and attended the program; these students were labeled the transitional first grade group.

Several reading readiness skills must be developed before a student can become a successful reader. In this study, the skill investigated was phonemic awareness—that is, a student's ability to segment a verbally presented word into phonemes, the individual units of sounds in words. This ability was measured using the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) subtest of Phoneme Segmentation Fluency (PSF), which provides a score based on the number of correct phonemes a student is able to produce in a one-minute segment. Assessment for this study was based on the DIBELS PSF scores obtained in the spring of kindergarten and the fall of first grade.

For the purpose of this study, "reading achievement" was defined in two modes. The first was how fluently a student could read a grade-appropriate passage. This skill was measured using the DIBELS subtest of Oral Reading Fluency (ORF). The results indicate the number of words read correctly in one minute from a grade-appropriate passage. In this study, DIBELS ORF assessments administered in the spring to first, second, and third grade students were used. The second operationalization of "reading achievement" was defined as how well a student was able to meet third grade standards as outlined by the Pennsylvania Department of Education (DOE). To measure this skill, the Pennsylvania System of School Assessments (PSSA) reading subtest given in the third grade was used. This measure of the student reading achievement, based on Pennsylvania DOE standards, yields a standard score ranging from 1000-2100, with a standard score of 1235 or above

considered proficient or better (Pennsylvania Department of Education, 2009).

Also relevant to this study, "mathematics achievement" was defined as how well a student could meet third grade standards as outlined by the Pennsylvania DOE. The PSSA mathematics subtest given in the third grade was the basis for analysis; it measures a student's mathematic achievement based on the Pennsylvania DOE standards and yields a standard score ranging from 750-2100, with a standard score of 1044 or above considered proficient or better (Pennsylvania Department of Education, 2009).

Two final variables, historical impact and developmental status, also require definition. Historical impact refers to the year a student started kindergarten, and developmental status is used to indicate a student's age in days when he or she began kindergarten.

Assumptions

An underlying assumption when providing interventions such as transitional first grade programs is that they improve a student's deficit or delay. Educators intend that students who attend transitional first grade programs will avoid needing future interventions, minimizing or correcting the student's deficits. Logically, an assumption of transitional first grade is that it will be beneficial to referred students and will remedy deficits.

Limitations

Two limitations inherent to the design of this study cannot be avoided. Therefore, it is important to acknowledge them at the onset; their impact can be discussed later.

The first limitation is that the groups used in this study were not matched on characteristics such as intelligence, socioeconomic status, and initial academic skills. Although these characteristics can influence a student's achievement, their effects were not taken into account. This information was not available since the data collected was archival. However, program referral requirements state that a student must be thought to have average cognitive ability and to have significant delays. Since there were generalized criteria for recommendation to this program, these students could be expected to have similar cognitive abilities and skills.

The second limitation of this research was the restricted sample size. The sample came from a mid-sized rural school district with a low socioeconomic status in south-central Pennsylvania. Because this sample had specific demographics, the results of this study could be difficult to apply to schools without similar demographic characteristics.

Despite these limitations, this study is meant to add to the limited research on the subject matter and, hopefully, provide the impetus for future studies.

Summary

With the push towards high-stakes assessments and accountability in education, there is a significant need for schools to use research-based interventions (Picklo & Christenson, 2005). However, when considering transitional first grade programs as interventions, there exists only a limited body of research on which to base decisions. Most of the research used to support or refute these programs is based on retention in the same grade and not on transitional grade programs (Brewer, 1990). For this reason, it is important to undertake research that focuses specifically on transitional programs.

This study can begin to fill the existing void in the literature by looking at the effectiveness of these programs in predicting academic success as measured by subtests DIBELS and subtests of the PSSA. This research also takes into account the variables of age at kindergarten entrance, sex, and year of kindergarten entrance. While limitations exist, this study can add to the relevant research and provide evidence on which to make reasonable decisions about meeting the needs of at-risk students.

CHAPTER II

A REVIEW OF THE LITERATURE

A review of existing literature provides a theoretical framework for this study. As background, studies investigating the influence of sex on achievement as well as the influence of sex and age on remediation are examined. Literature on the educational reform forces of educational standards, accountability, and high-stakes assessments is reviewed, and studies of both curriculum-based measurements and the importance of early intervention are detailed.

Extant research on the philosophies that govern transitional first grade programs and their characteristics are reviewed. Arguments for these programs and research that investigates these programs are detailed.

Finally, literature on the history and effectiveness of retention is reviewed. Research providing explanations for the continued used of retention, the effectivenss of retention, and alternatives to this practice is presented. A brief diagram of this chapter is given in Figure 1.

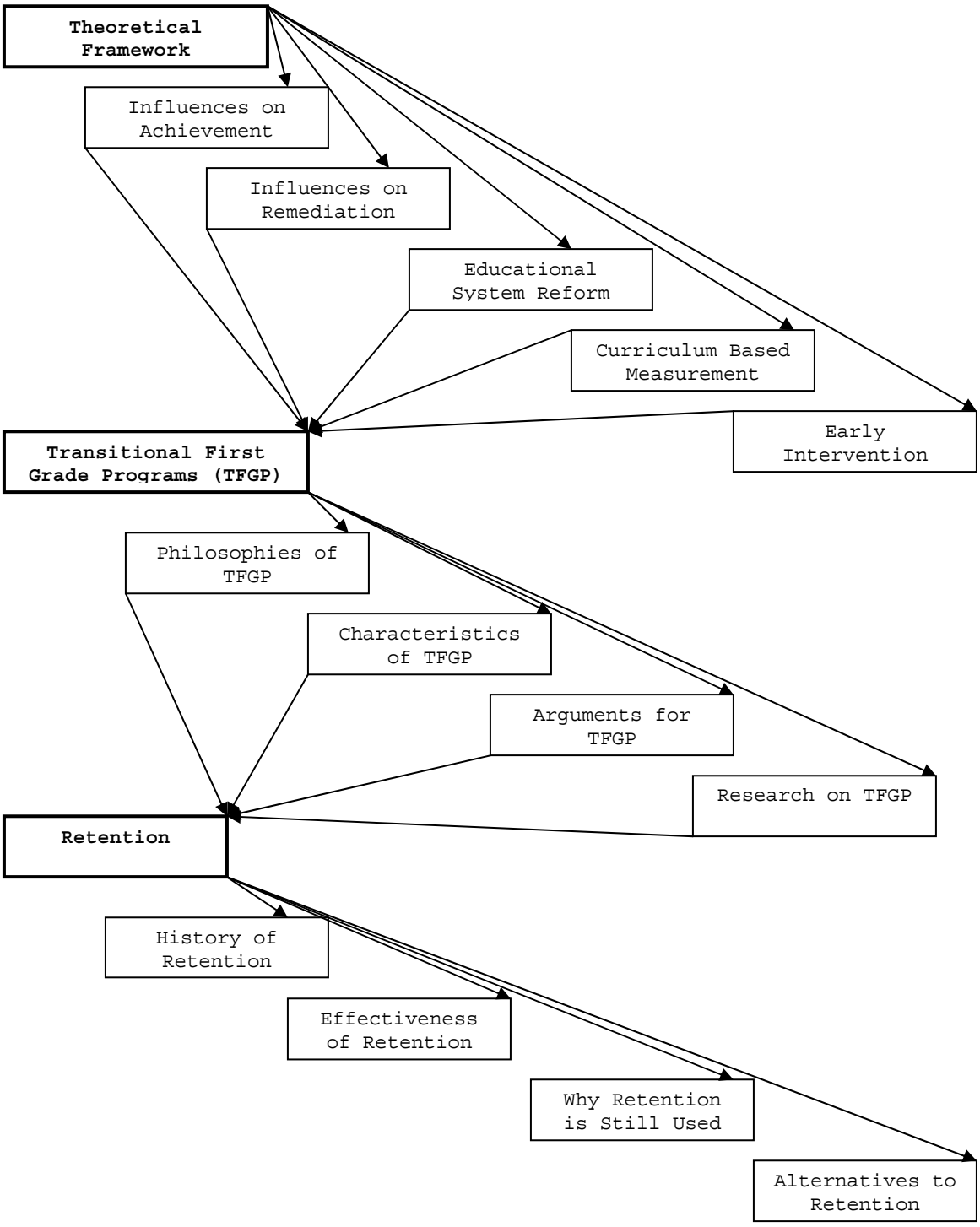

Figure 1. Overview of the review of literature.

Theoretical Framework

Influences on Achievement

Enabling students to be academically successful is one of the primary goals of education; consequently, there is a significant body of research that investigates how variables can influence achievement. This research has examined factors such as sex, socioeconomic status, mother's educational level, readiness scores, ethnicity, motivation, and cognitive ability (Chatterji, 2006; Downey, von Hippel, & Broh, 2004; Hyde, Fennema, & Lamon, 1990; Jacobson, 2002; Kurdek & Sinclair, 2001; Leahey & Guo, 2001; Nowell & Hedges, 1998; Van de gaer, Pustjens, Van Damme, & Munter, 2008; Wasonga, Christman, & Kilmer, 2003). This research focuses on the effects of sex on achievement.

When examining the relationship between sex and achievement, it is critical to segregate math and reading achievement. Research indicates that in elementary school, there is no sex gap present in math achievement (Hyde et al., 1990; Jacobson, 2002; Leahey & Guo, 2001; Nowell & Hedges, 1998; Van de gaer et al., 2008). Additional research indicates that males eventually outperform females in math achievement; however, the age at which this gap becomes apparent is not clear (Hyde et al.; Jacobson; Leahey & Guo; Nowell & Hedges; Van de gaer et al.). Although some studies indicate this gap may start to appear in elementary school, the consensus of the research indicates this sex gap does not become significant until later secondary school (Hyde et al.; Leahey & Guo; Van de gaer et al.).

However, on reading achievement measures, females score higher than males (Chatterji, 2006; Jacobson, 2002; Leahey & Guo, 2001). According to Chatterji, Harper & Pettetier (2008), Moss (2000) and Nowell and Hedges (1998), females outperform males starting early in elementary school. This reading gap appears to become larger as

students progress through school (Moss; Harper & Pelletier; Chatterji; Nowell & Hedges). While sex gaps in both math and reading achievement are well documented, there has been no significant evidence regarding the cause (Harper & Pelletier). While sex certainly influences a student's achievement, it also has been shown to affect the likelihood of a student's recommendation for remedial services.

Influences on Remediation

Within the traditional school setting there are several types of remedial programs offered to struggling students. These programs may include special education, tutoring, retention, transitional first grade programs, vocational instruction, or classroom adaptations. In this research, the remedial strategies of retention and transitional first grade will be examined—specifically, the effects of sex and age on the likelihood of referral to these programs.

Research on retention and transitional first grade appears to converge on the effect of a student's sex to the referral process. Overwhelmingly, male students were retained and placed in transitional first grade programs more frequently than female students were (Boettger, 1994; Burkam et al., 2007; Ferguson, 1996; Frederick & Hauser, 2008; Frey, 2005; Mantzicopoulos & Neuharth-Pritchett, 1998; Meisels & Liaw, 1993). There are a few transitional first grade studies that indicate no significant gender difference; however, the results could be inaccurate due to study limitations (Boettger, 1994; Ferguson, 1996).

With regard to age, students who are younger than their same-grade peers tend to be retained or recommended for transitional first grade more frequently (Burkam et al., 2007; Ferguson, 1996; Frederick & Hauser, 2008; Mantzicopoulos, 2003; Mantzicopoulos & Neuharth-Pritchett, 1998). Due to age guidelines that govern kindergarten

registration, the difference, while significant, is typically only a few months (Burkam et al.; Ferguson; Frederick & Hauser; Mantzicopoulos; Mantzicopoulos & Neuharth-Pritchett).

Regarding the remedial strategies of retention and transitional first grade, their relationship to sex and age appears to be clear (Boettger, 1994; Burkam et al., 2007; Ferguson, 1996; Frey, 2005; Frederick & Hauser, 2008; Mantzicopoulos, 2003; Mantzicopoulos & Neuharth-Pritchett, 1998; Meisels & Liaw, 1993). Male students and younger students are referred for these programs more often than their counterparts (Boettger; Burkam et al.; Ferguson; Frey; Frederick & Hauser; Mantzicopoulos; Mantzicopoulos & Neuharth-Pritchett; Meisels & Liaw).

Educational System Reform

Because research and laws are constantly changing, the educational system is in a constant state of restructuring itself. Several current initiatives have been the topic of much discussion. Two heavily debated reforms are the *No Child Left Behind* Act (NCLB) and standards-based reform (Smyth, 2008; Vanderwood & Power, 2002). Coupled together, these two movements have led to the implementation of nationwide high-stakes assessments (Nichols & Berliner, 2008).

In 2001, then-President George W. Bush signed the NCLB Act, a bill designed to hold schools accountable for ensuring that all students are able to read at grade level and are highly competent in mathematics (Smyth, 2008). Another mandate of the NCLB Act was that all schools demonstrate annual yearly progress of their students towards obtaining these outlined academic skills (Smyth). The Act was intended to ensure that all students would be provided with a quality education and be able to demonstrate appropriate academic skills (Smyth).

Along with the NCLB Act, there has been a push for standards-based education (Hiebert & Person, 2000; Vanderwood & Power, 2002). Standards-based education refers to setting specific content area goals that students should achieve at each grade level (Picklo & Christenson, 2005). While this is a federal initiative, each state has developed standards for its own students (Vanderwood & Power). Since national standards are not defined, there is tremendous variance between states (Hiebert & Person). These state-developed standards are used to determine if students are making appropriate progress as required by the NCLB Act (Vanderwood & Powers).

The passing of the NCLB Act and the movement towards standards-based education has prompted the implementation of high-stakes assessments. Schools are required to ensure their students are meeting achievement standards or, at a minimum, making adequate progress towards them (Nichols & Berliner, 2008) In order to demonstrate this, states have developed and mandated standards-based, high-stakes assessments (Nichols & Berliner; Smyth, 2008). High-stakes testing is a term given to assessments that provide penalties or incentives which directly effect professionals and/or students (Braden, 2002; Nichols & Berliner). These assessments can affect a school's funding and/or its ability to operate independently. They are directly linked to the NCLB Act in that they measure the outlined mandates of student competency and adequate yearly progress.

These high-stakes state assessments drive many educational decisions and usually begin in third or fourth grade (McGlinchey & Hixson, 2004). However, with the increasing demands of the NCLB Act, struggling students must be identified before these high-stakes assessments are administered (McGlinchey & Hixson; Missal et al., 2007). Curriculum-based measurement can play an important role

assisting in the earlier identification of these students (Deno, 2003; Shinn, 2002).

Curriculum-Based Measurement

Curriculum-based measurement is a critical data collection tool, but is sometimes confused with curriculum-based assessment. Curriculum-based assessment (CBA) is a broad category of informal assessments linked to the curriculum (Deno, 2003; Shinn, 2002). CBA can include informal reading inventories, chapter tests, homework, and local assessments (Shinn). Curriculum-based measurement (CBM) is a subset of CBA and is comprised of formalized testing (Deno; Shinn). CBM has also been called Dynamic Indicators of Basic Skills (DIBS) by some professionals (Shinn).

CBM/DIBS is a fluency measure that is governed by standardized directions and uses curriculum materials to assess the basic skills of reading, writing, and mathematics (Shinn, 2002). For example, Shinn notes that a reading CBM might entail having a student read aloud for one minute from a classroom text. A math CBM might entail having a student complete a series of mathematical computations, pulled from class work, within a two-minute period (Shinn).

CBM plays a major role in education today for several reasons. It is a valid and efficient measure available at minimal or no cost (Clarke & Shinn, 2004; Graney & Shinn, 2005; McGlinchey & Hixson, 2004; Shapiro et al., 2004). Additionally, this repeatable measure is also quick to administer and score (Deno, 2003; Shinn, 2002).

CBM is an ideal assessment for use during this current period of system reform. It can be administered to children younger than third grade and is a good predictor of a student's future performance on some high-stakes assessments (Barger, 2003; Buck & Torgesen, 2006; Clarke & Shinn, 2004; McGlinchey & Hixson, 2004; Wilson, 2005; Vander Meer et

al., 2005). CBM benchmark assessments as low as kindergarten have been correlated to high-stakes third grade assessments (Barger; Buck & Torgesen; McGlinchey & Hixson; Vander Meer, Lentz, Stollar; Wilson). The use of CBM gives districts the opportunity to identify struggling students early, before high-stakes assessments are administered (McGlinchey & Hixson; Missal et al., 2007).

The repeatability and sensitivity of CBM also makes it ideal for use during this reform period (Clarke & Shinn, 2004; Deno, 2003; McGlinchey & Hixson, 2004; Shinn, 2002). CBM can provide professionals with a rate of learning that is sensitive to a child's development even on a weekly basis (Fuchs, 2004). Thus CBM can be used to evaluate the effectiveness of interventions, programs, and curricula (Graney & Shinn, 2005). This enables districts to determine the effectiveness of interventions quickly and make changes, as needed, so that students are making adequate progress.

Overall, CBM is a quick, effective, valid, low-cost measure that is easily administered and scored (Clarke & Shinn, 2004; Shinn, 2002). Some of the most significant advantages of CBM are that it can be administered to young students, it can predict performance on several high-stakes assessments, and it is sensitive to change (Barger, 2003; Buck & Torgesen, 2006; Clarke & Shinn; McGlinchey & Hixson, 2004; Shinn; Vander Meer et al., 2005; Wilson, 2005). These features, when coupled with the current system reforms, are the driving force behind the increased use of CBM, especially in the practice of school psychology (Shapiro et al., 2004). As noted, CBM allows students to be identified early, so that struggling students can be provided with interventions and support earlier. This early identification and intervention is critical for long-term improvement.

Early Intervention

Waiting until the administration of high-stakes assessments to identify struggling students makes it difficult to provide them with meaningful interventions; hence concentrating on early intervention is key to successful education (Clarke & Shinn, 2004; Paris & Hoffman, 2004; Stahl & Yaden, 2004). Some researchers are even bold enough to argue that these early intervention services should occur before students start their formal schooling (Stahl & Yaden). Waiting for high-stakes assessments to target students who have struggled since kindergarten only allows the achievement gap to widen (Ardoin et al., 2004). Early intervention is highlighted by educators and parents alike and is needed across all academic content areas (Ardoin et al.; Clarke & Shinn; Stahl & Yaden).

When discussing interventions, one must also discuss prevention. Preventing significant academic problems and delays should be the focus of good educational practices (Good et al., 2002). Prevention is more cost effective and beneficial than remediating struggling students (Ardoin & Christ, 2008). If resources are focused early enough, significant gaps between and among students would not occur and the need for intervention would be reduced (Clarke & Shinn, 2004). While prevention is ideal, early intervention is needed if students do begin to struggle.

The need for early intervention is supported by developmental theories. Research indicates that the development of good academic skills in reading and math begins early in a child's development (Good et al., 2002). Based on the sequential nature of reading and math skills, waiting until third grade or later to intervene is too late because this time, basic initial developmental skills need to have already been learned (Berninger, 2002; Good et al.). If students do not

learn these initial basic skills they struggle to acquire more complex skills (Berninger). Therefore, solidifying these basic skills must be the focus of building the foundation for later success.

The core academic subjects of reading, writing, and mathematics are typically the focus of early intervention discussions. These skills are some of the most significant skills students learn in the school setting (Clarke & Shinn, 2004; Missal et al., 2007). These core academic skills are essential in daily functioning as well as in other academic subjects and pursuits.

In order to ensure the success of all students in these core subjects, it is important to intervene early with students who are experiencing difficulties (Good et al., 2002; Stahl & Yaden, 2004). This enables students to develop a good foundation of basic skills and helps to support future success (Berninger, 2002). Several types of early intervention can be offered to students; one such intervention is transitional first grade programs.

Transitional First Grade Programs

Philosophies of Transitional First Grade Programs

Currently, there are three main developmental philosophies that drive the use of and instruction in most transitional first grade programs: maturationist, behaviorist, and cognitive interactionist (Brewer, 1990; Gredler, 2000).

The maturationist philosophy was the dominant view within the educational system from the 1930s to the 1980s (Gredler, 2000). This philosophy holds that a student's readiness for learning is directly linked to his/her biological maturation (Gredler). According to Gredler, it was theorized that there is a key point in a student's physical development after which he or she is able to successfully learn academics; therefore, it is only after the student has matured

enough biologically and physically that he or she can experience academic success. Using this philosophy, transitional first grade programs are viewed as an extra year for students to mature, develop, and reach that key biological point (Brewer, 1990). Based on this theory, Brewer observed, the curriculum concentrates on physical activities and development with the goal of assisting the student's physical maturation to lead to academic readiness. Additionally, Brewer noted, maturationists believe the link between biological development and academic readiness indicates that providing struggling students with an extra year to mature will lead to academic success.

The maturationist philosophy began to fade from favor and gave way to the behaviorist philosophy (Gredler, 2000). The behaviorist philosophy is based on Robert Gagne's work and is very structured in nature. According to Gredler, this philosophy holds that children develop skills according to a specific sequence; therefore, academic skills are taught in sequences and one skill is mastered before moving to the next. When applied to learning in transitional first grade programs, the maturationist philosophy guides instruction to focus on a set of measurable tasks that build toward the final task, ensuring that each task is mastered before moving to the next, and sequencing the component tasks to ensure optimal transfer to the final task (Gredler). Using this philosophy, students are placed in transitional first grade programs to remediate a specific skill deficit and then learn the remaining sequences (Brewer, 1990). This type of classroom also usually has a smaller class size and employs a very structured reward system (Brewer; Phelp, Dowdell, & Wilczenski, 1992).

The third philosophy, the cognitive interactionist philosophy, suggests that children must reach a specific point in cognitive and social development before they are able to learn readily in a school

setting (Brewer, 1990; Gredler, 2000). Transitional first grade programs employing this philosophy believe that referred students need time for cognitive and social development before entering first grade (Brewer; Gredler). Brewer and Gredler note that these classrooms do not target specific academic skills, but instead use activities that target improving cognitive and social development. The curriculum used in these transitional first grade classrooms is child-centered and employs exploration and discovery learning (Brewer). These classrooms also focus on providing students with interactive social experiences (Gredler).

These three main philosophies are used in varying degrees to guide the structure and the curriculum in most transitional first grade programs (Brewer, 1990; Gredler, 2000). The theories in all provide the basis for the development and use of these programs. However, regardless of the governing philosophy, there are several characteristics and instructional strategies that are present in effective transitional first grade programs.

Characteristics of Transitional First Grade Programs

Although there has not been a significant amount of research compiled, there are several characteristics which distinguish transitional first grade programs from typical classrooms (Brewer, 1990; Uphoff, 1990). These characteristics include several aspects of the classroom and instruction (Brewer; Uphoff).

One of the cornerstones of transitional first grade programs is developmentally appropriate content (Brewer, 1990; Uphoff, 1990). When content is presented above a student's development level, the student may struggle and become frustrated (Brewer; Uphoff). To increase success and reduce frustration, transitional first grade programs provide developmentally appropriate curriculum (Brewer; Uphoff). Dunn

& Kontos (1997) reviewed several research studies that examined developmentally appropriate practices in early education and concluded that developmental inappropriate practices may be detrimental to students.

Child-centered classrooms are also a focus of transitional first grade programs (Brewer, 1990; Uphoff, 1990). Brewer (1990) showed that when children can plan, organize, implement, record, and/or evaluate their own work, there is an increased likelihood of involvement, and therefore, success. Transitional first grade programs that allow for student-directed activities, Brewer noted, have been acknowledged as more successful programs. A study by Stipek et al. (1995) investigated the effect of child-centered versus didactic programs on achievement and motivation outcomes at the preschool and kindergarten level. The results indicated that students in didactic programs viewed their abilities as lower, had lower expectations of academic success, and were more dependent on adults (Stipek et al.).

Transitional first grade programs also strive to maximize parental involvement (Brewer, 1990; Uphoff, 1990). Parents should be actively involved in the placement decision, as well as, decisions made throughout the program (Uphoff). Furthermore, Uphoff indicated that communication regarding the student's progress can help to promote parental involvement and is linked to student success (Uphoff). A meta-analysis completed by Fan & Chen (2001) examined the effects of parental involvement across several educational levels while using numerous definitions for achievement. The results indicated a positive relationship between parental involvement and students' achievement (Fan & Chen).

Finally, transitional first grade programs are non-tracking and flexible (Uphoff, 1990). Clear individual expectations and goals that

include specific exit criteria should be provided for students (Uphoff). To individualize these goals and their instructional link, small student-to-teacher ratios exist in transitional first grade classrooms (Gredler, 1992; Phelps, Dowdell, & Wilczenski, 1992; Uphoff).

Argument for Transitional First Grade Programs

The effectiveness of transitional first grade programs as an academic intervention has been the center of debate over the past several decades and supporters use common sense logic to argue their benefits (Boettger, 1994; Brewer, 1990; Ferguson, 1996; Gredler, 2000; Mantzicopoulos, 2003). They argue that these programs allow students to catch up with their peers, to become ready for the academic demands of the early curriculum, to avoid academic failure, and to succeed in areas other than academics (Brewer; Gredler, 1992, 2000; Mantzicopoulos; May & Kundert, 1993; Southard & May, 1996; Uphoff, 1990).

The purpose of transitional first grade programs is to provide students not yet academically ready for first grade with an extra year of school (Gredler, 2000; Mantzicopoulos, 2003; Southard & May, 1996). This extra year is viewed by many as an opportunity for a delayed student to catch up and develop appropriate readiness skills (Southard & May). With this extra year of development, students are better able to manage the demands of first grade (Gredler, 1992; Southard & May; Uphoff, 1990). Transitional first grade provides an alternative to retaining students who are not mature enough for first grade (Gredler; Southard & May; Uphoff).

Another argument for these programs is linked to academic goals that have been pushed into lower grades. The curriculum that was taught in first grade several years ago is now being taught in

kindergarten (May & Kundert, 1993). Because these earlier academic expectations tend to not be developmentally appropriate, students are not always able to be successful (Brewer, 1990; Southard & May, 1996). Since the educational system is slow to acknowledge this inappropriate match between student and curriculum, advocates argue that transitional first grade programs are needed while waiting for reform of these early grade expectations (Southard & May; Uphoff, 1990).

Avoiding the feeling of failure that is associated with traditional retention is another argument used to support transitional first grade programs (Bredekamp, 1990; May & Kundert, 1993; Mantzicopoulos, 2003; Uphoff, 1990; Wang & Johnstone, 1997). Previously, students who were not ready for first grade were retained in kindergarten. With the alternative of transitional first grade programs, students can avoid repeating the same grade and the negative feelings associated with that experience (Bredekamp; Gredler, 1992; May & Kundert; Uphoff).

Finally, supporters of transitional first grade programs argue that these programs allow students to develop in areas that are not academically related (Brewer, 1990; Gredler, 1992). This extra year gives a student the opportunity to mature behaviorally and emotionally, as well as develop organizational and social skills (Brewer; Gredler). With these attributes fully developed, students have a more positive experience in first grade (Brewer; Gredler).

Research on Transitional First Grade Programs

Research that specifically investigates transitional first grade programs is sparse. However, some studies have been done that focus on several variables including reading achievement, math achievement, social skills, aggression, special education referrals, behavior

problems, and parental involvement (Boettger, 1994; Ferguson, 1996; Mantzicopoulos, 2003; Southard & May, 1996; Wang & Johnstone, 1997).

Mantzicopoulos (2003) compared students who attended a transitional first grade program to students who were recommended but did not attend. The dependent variables were investigated through third grade and included social skills, problem behaviors, parental involvement, and academic achievement. A teacher's rating scale was utilized to assess social skills, problem behaviors, parental involvement and perceived academic achievement. Additionally, a standardized achievement test was used to measure academic achievement. It is important to note the students were compared based on their grade placement and not their age. Therefore, students who attended the transitional first grade program may have been a year older in each succeeding grade than the students who were recommended but did not attend. Additionally, transitional first grade students had an extra year of school experience.

Comparing these two groups, Mantzicopoulos found that the students who attended transitional first grade were rated higher on cooperation in second and third grade. Additionally, these students were rated higher on the assertion subscale in first and second grade but not in third grade. In first and third grade, students who attended transitional first grade were rated as less "behaviorally troubled". At each grade level, teachers rated students who attended transitional first grade as more academically competent. The investigator argued that the teachers' ratings of the students may have been biased due to the fact the teacher likely knew which students refused the school's recommendation of the transitional first grade program. Using a standardized measure of academic achievement, transitional first grade attendees outperformed students who were

recommended but did not attend at the end of first grade. However, this difference decreased each year until third grade when there was no significant difference between the two groups (Mantzicopoulos, 2003). In summary, Mantzicopoulos found students who attended transitional first grade programs did better behaviorally and socially based on teachers' ratings over three years when compared to students who were recommended but did not attend. However, academically these students did better only initially with the benefits fading by third grade.

Wang and Johnstone (1997) investigated transitional first grade students focusing on several factors. Initially, they correlated demographic variables such as ethnicity, age, and sex with the recommendation of transitional first grade. The results indicated that younger students, male students, and Hispanic American students were highly associated with recommendations. The researchers then compared students who attended the transitional first grade program to students who were recommended for the program but did not attend. These results showed that the transitional first grade students were retained more. Additionally, more transitional first grade students were eventually placed in special education and fewer transitional first grade students passed the state's high-stakes assessments.

Next Wang and Johnstone compared transitional first grade students to students who were regularly promoted. The results indicated that more transitional first grade students were retained and placed in special education and fewer passed the state's high-stakes assessments. Finally, the researchers compared the students who were recommended-but-did-not-attend to the regularly prompted group. Here the results indicated that the recommended-but-did-not-attend students were retained more and placed in special education more than the regularly promoted student. Additionally, the recommended-but-did-not-

attend students performed more poorly on the state's high-stakes assessments. Overall, the regularly promoted group was more successful than the transitional first grade and recommended-but-did-not-attend groups. Attending the transitional first grade program did not appear to significantly benefit the students when compared to the recommended-but-did-not-attend group.

In another study, Southard & May (1996) compared four groups of students: (a)regularly promoted students; (b) students who attended transitional first grade; (c) students who entered kindergarten the year the transitional first grade group went to transitional first; and (d) students who began kindergarten with the transitional first grade group and were later retained in first grade. The primary focus of this study was to determine the effect of transitional first grade on student's academic achievement. The California Achievement Test (CAT) and the Iowa Test of Basic Skills (ITBS) were used to measure academic skills in listening, math, and reading comprehension. The study assessed students in grades one, two, four, and five. Southard and May found that transitional first grade placement did not have a significant effect, either short-term or long term, on reading achievement. In math, no significant differences were found in grades two, four, or five. However, in first grade, the transitional first grade group scored higher than the regularly promoted and year-younger classmates. Although there were some initial positive effects in math, these differences were only temporary. When examined in second grade and subsequent years, these positive effects in math disappeared.

Ferguson (1996) investigated five groups of students: (a) students who attended a transitional first grade program; (b) students who were recommended for the transitional first grade program but did not attend; (c) students who were retained in kindergarten, first, or

second grade; (d) students who were regularly promoted; and (e) students who were held out an extra year before starting kindergarten. These groups were compared through eighth grade on the following measures: Brigance Screening, Gesell Readiness Tests, Metropolitan Readiness Tests, teacher ratings, parent surveys, Standford Achievement Test, grade point average, date of birth, school records of related services, kindergarten report cards, and transitional first grade report cards.

Ferguson's study had several key findings. From second grade through eighth grade, the students who attended the transitional first grade program achieved below the regularly promoted students on all measures and did not out perform students that were recommended for the program but did not attend. This indicated that attending the transitional first grade program did not significantly benefit students academically. Special education referral and placement rates were the same for students who attended transitional first grade programs and for students who were retained. When looking at the interactive effects, transitional first grade students rated as aggressive had lower achievement scores than transitional first grades students rated as nonaggressive. Students who were recommended for the transitional first grade but did not attend and students that were "held out" a year before kindergarten were referred to and placed in special education at a significantly higher rate than the regularly promoted group. Additional findings indicated that initial kindergarten behavioral and parental factors, such as student aggression and mother's level of education, were better predictors of second grade achievement than were readiness measures. Increased age and distinct aggression were early risk factors for low achievement in students who attended the transitional first grade program. Students who were successful after

attending the transitional first grade program tended to have higher initial achievement scores and mothers with higher levels of education. Overall, Ferguson demonstrated results that were not favorable regarding the use of transitional first grade as an intervention technique.

A study by Boettger (1994) identified four groups of students: (a) students who attended a transitional first grade program; (b) students who were recommended for the transitional first grade program but did not attend; (c) students who were regularly promoted; and (d) students who were "borderline" but placed into first grade. Beottger used fourteen variables to compare these groups: sex, birth month, retention, absence, lunch status, class placement in mathematics, grade point average in mathematics, mathematics total on the California Achievement Test (CAT), category of achievement in mathematics in the Michigan Educational Assessment Program (MEAP), class placement in reading, grade point average in reading, reading total on the CAT, category of achievement in reading on the MEAP, and self-concept of academic ability. The students who attended the transitional first grade program differed negatively with regard to retention in subsequent grades, hot lunch needy status, placement in low mathematics class, low mathematics totals on the CAT, low placement in reading class, low reading grade point average, low reading totals on the CAT, and low self-concept of academic ability. Overall, Boettger demonstrated that attending transitional first grade programs was determined not to be a successful intervention.

The limited quantity of research completed on transitional first grade programs has been highly scrutinized. Its lack of an ideal control group has led to much criticism (Southward and May, 1996). Research is further scrutinized due to the lack of long-term studies,

since current research does not look beyond the primary elementary grades (Mantzicopoulos, 2003; Southard & May, 1996; Uphoff, 1990). Because of the small and highly criticized body of research on transitional first grade programs and concerns over its validity, professionals looking for research to guide practice and decision making are forced to use research on retention. Therefore, it is important to understand this body of research as well.

Retention

History of Retention

The practice of retention dates back to the early 19th century (Frey, 2005; Owings & Magliano, 1998; Schwager et al., 1992). It was at this time when compulsory education began in the United States (Frey; Schwager et al). Due to the increased number of students being serviced, schools started to organize their students into "grades" (Frey; Owings & Magliaro). As a result of organizing the schools in such a way, curriculum had to be delineated for each grade (Frey; Larsen & Akmal, 2007; Owings & Magliaro). Mastery of this curriculum then determined whether a student would be promoted or retained (Owings & Magliaro).

By the 1930s, research on retention indicated that the practice was not improving students' school performance (Burkam et al., 2007; Owings & Magliaro, 1998). Even though research demonstrated retention's ineffectiveness, alternatives were not readily available and the practice continued to be used as the intervention of choice (Burkam et al., 2007; Frey, 2005; Owings & Magliaro, 1998).

Around the middle of the 20th century, retention research began to influence educational practice (Burkam et al., 2007; Owings & Magliaro, 1998). The use of social promotion, tracking, and homogeneous grouping began to gain momentum in the educational setting (Frey, 2005; Owings &

Magliaro, 1998). These alternative interventions caused the use of retention to decline through the early 1960s (Owings & Magliaro).

At that time the principle of minimum competency testing began to peak (Frey, 2005; Hong & Yu, 2008; Owings & Magliaro, 1998; Roderick, 1995; Stone & Engel, 2007). There was a push for states to assess students to ensure they were meeting basic standards for each grade (Frey; Hong & Yu; Owings & Magliaro; Roderick; Stone & Engel). Retention began to regain popularity as a recommendation for students who were not passing these examinations (Burkam et al, 2007; Frey; Jimerson, Woehr, Kaufman, 2007; Owings & Magliaro; Roderick; Stone & Engle). Some states even mandated retention for students who did not pass these exams (Burkam et al.; Stone & Engel). With the passing of *No Child Left Behind*, the use of retention continues to increase (Frey; Jimerson et al., 2007; Picklo & Christenson, 2005).

Currently, retention is typically recommended during early elementary school (Burkam et al., 2007; Fredrick & Hughes, 2008; Roderick, 1995). The reasons for recommending retention vary greatly: difficulty keeping up academically, failing to meet standards, smaller stature than other students, "immaturity," having a late birthday, or high absenteeism (Burkam et al., 2007; Canter & Carey, 1998; David, 2008; Frey, 2005; Gay, 2002; Jimerson et al., 2007). The variation in referral criteria is due to the lack of research-based guidelines to consult when making referrals (Larsen & Akmal, 2007). One reason research does not address referral criteria is that there is a significant body of research demonstrating retention is an ineffective practice (Burkam et al., 2007; David, 2008; Fredrick & Hauser, 2008; Frey, 2005; Gay, 2002; Gleason et al., 2007; Hong & Yu, 2008; Jimerson, Pletcher, Kerr, 2005; Larsen & Akmal, 2007; Meisels & Liaw, 1993; Mohl & Slifer, 2005; Natale, 1991; Owings & Magliaro, 1998).

Effectiveness of Retention

Research on retention is extensive and has spanned almost a century (Burkham et al., 2007; David, 2008; Fredrick & Hauser, 2008; Frey, 2005; Gay, 2002; Gleason et al., 2007; Hong & Yu, 2008; Jimerson et al., 2005; Larsen & Akmal, 2007; Meisels & Liaw, 1993; Mohl & Slifer, 2005; Natale, 1991; Owings & Magliaro, 1998). It indicates that the practice of retention is ineffective, at best, and in some cases could be harmful (Burkham et al.; Canter & Carey, 1998; Canter, Carey, & Dawson, 1998; David; Fredrick & Hauser; Frey; Gay; Gleason et al.; Hong & Yu; Jimerson et al., 2007; Larsen & Akmal; Meisels & Liaw; Mohl & Slifer; Natale; Owings & Magliaro; Picklo & Christenson, 2005). This body of research has not merely investigated academic achievement but has also explored emotional and behavior adjustment, social adjustment, and school drop out rates (Burkham et al.; David; Fredrick & Hauser; Frey; Gay; Gleason et al.; Hong & Yu; Jimerson et al., 2005; Larsen & Akmal; Meisels & Liaw; Mohl & Slifer; Natale; Owings & Magliaro).

For students who struggle academically, the practice of retention does not appear to be a successful long-term intervention (Burkham et al., 2007; Canter & Carey, 1998; Canter et al., 1998; Frey, 2005; Jimerson et al., 2005; Martinez & Vandergrift, 1991; Meisels & Liaw, 1993; Picklo & Christenson, 2005). In a few studies, slight initial gains in academics were seen; however, these disappeared within two to three years (Burkam et al; Canter et al.; Frey; Jimerson, Pletcher, & Kerr; Meisels & Liaw). Another illustration of the ineffectiveness of retention in remediating academic deficits is the increased number of retained students, who are still referred for remedial help or special education later in their educational career (Canter & Carey, 1998; Frey, 2005; Gay, 2002). Overall, research on the academic impact of

retention indicated it lacks long-term successfulness (Burkam et al; Canter & Carey; Canter et al., 1998; Frey; Gay; Jimerson et al., 2005; Martinez & Vandergrift, 1991; Meisels & Liaw, 1993; Picklo & Christenson, 2005).

As for the social and behavioral effects of retention, research indicates negative emotional and behavioral impact (Burkham et al., 2007; Canter & Carey, 1998; Frey, 2005; Jimerson et al., 2007; Jimerson et al., 2005). Documented negative social and behavioral effects of retention can include getting into trouble, disliking school, and having poor self-esteem (Canter & Carey; Jimerson et al., 2005; Jimerson et al., 2007; Natale, 1991). Retained students also have a higher likelihood of displaying problem behaviors (Jimerson et al., 2005; Martinez & Vandergrift, 1991). Retained students report feeling distressed and saddened more often than their non-retained peers (House, 1991; Jimerson et al., 2007). In one study, a positive view of academic competency was expressed by retained students the year after their retention due to their familiarity with class routines and expectations (Hong & Yu). However, this study did not continue investigation beyond the repeated year (Hong & Yu, 2005). Overall, research on the practice of retention indicates negative emotional and behavioral consequences when viewed over a student's educational career (Burkam et al; Canter & Carey; Frey; House; Jimerson et al., 2007; Jimerson et al., 2005; Natale; Martinez & Vandergrift).

Socially, research indicates that retention leads to poor peer relations (Jimerson et al., 2005; Jimerson et al., 2007). In a few studies, some positive peer status was seen the first year after a retention but was not demonstrated over an extended period (Gleason et al., 2007; Hong & Yu, 2008). Retained students reported being teased

by their peers regarding this experience, as well as feeling ashamed (House, 1991; Martinez & Vandergrift, 1991).

The final negative impact of retention is that students who have been retained have a significantly increased likelihood of dropping out of school (Burkham et al., 2007; Canter & Carey, 1998; Frey, 2005; Jimerson et al., 2007; Jimerson et al., 2005). While the research cannot specify the reason for this correlation, it is consistently significant over several investigations (Burkham et al.; Canter & Carey; Frey; Jimerson et al., 2007; Jimerson et al., 2005). This outcome is further intensified when minority students and students from low socioeconomic status homes are retained (House, 1991; Martinez & Vandergrift, 1991; Owings & Magliaro, 1998).

Overall, research has indicated that retention is not successful in increasing academic achievement (Burkam et al., 2007; Canter & Carey, 1998; Canter et al., 1998; Frey, 2005; Gay, 2002; Jimerson et al., 2005; Martinez & Vandergrift, 1991; Meisels & Liaw, 1993; Picklo & Christenson, 2005). It has also demonstrated that students who are retained are more likely to have difficulty adjusting and developing emotionally, behaviorally, and socially (Burkam et al.; Canter & Carey; Frey; House, 1991; Jimerson et al., 2007; Jimerson at al., 2005; Natale, 1991; House, 1991; Martinez & Vandergrift). Finally, research shows that students who were retained have a significantly increased likelihood of dropping out of school (Burkam et al.; Canter & Carey; Frey; Jimerson et al., 2007; Jimerson et al., 2005). Although the research is clear regarding its ineffectiveness, the practice of retention continues to be widely used.

Why Retention is Still Used

Even though research is not supportive, perceptions of retention continue to be positive (Burkham et al., 2007; House, 1991). Arguments

that support retention appear to be based on logic and political pressure (Burkam et al.; Frey, 2005; Jimerson et al., 2007; Martinez & Vandergrift, 1991; Owings & Magliaro, 1998; Roderick, 1995; Stone & Engle, 2007). With the current political climate, some professionals believe that continuing the practice of retention helps to hold schools accountable for ensuring students meet standards (Burkam et al.; Stone & Engel). Some also believe that the extra year provides the student time for personal adjustment, maturation, and skill development, while others believe retention is needed to motivate students (Frey; Gay, 2002; Hong & Yu, 2008; Jimerson et al., 2007; Larsen & Akmal, 2007; Martinez & Vandergrift; Picklo & Christenson, 2005).

Another common belief is that the practice of retention keeps schools from promoting students who lack basic skills (Frey, 2005; Gleason et al., 2007; Martinez & Vandergrift, 1991). If students have not developed these minimum grade competencies, an extra year in that grade is thought to provide them with an opportunity to catch up on those skills (Burkam et al, 2007; Fredrick & Hauser, 2008; Gleason et al.; Hong & Yu, 2008; Jimerson et al., 2007; Stone & Engel, 2007). This view suggests that the practice of retention as a remediation strategy for students who perform poorly academically is not effective (David, 2008; Frey; Hong & Yu; Roderick, 1995). Consequently, some schools continue to use retention when students have not developed basic competencies.

Other individuals believe that the fear of retention helps to motivate students (Larsen & Akmal, 2007; Martinez & Vandergrift, 1991; Picklo & Christenson, 2005). If students do not have retention as a consequence, they would not perform to the best of their ability (Anderson & West, 1992; Gay, 2002; Larsen & Akmal). Therefore, these individuals believe it is necessary to continue the use retention as a

motivation technique (Larsen & Akmal; Martinez & Vandergrift; Picklo & Christenson).

Clearly the research does not support the effectiveness of retention (Anderson & West, 1992; Burkam et al., 2007; David, 2008; Fredrick & Hauser, 2008; Frey, 2005; Gay, 2002; Gleason et al., 2007; Hong & Yu, 2008; Jimerson et al., 2005; Larsen & Akmal, 2007; Meisels & Liaw, 1993; Mohl & Slifer, 2005; Natale, 1991; Owings & Magliaro, 1998). And, while retention may be ineffective, simply promoting struggling students to the next grade is not an effective practice either (Canter & Carey, 1998; Frederick & Hauser; Frey; Jimerson et al., 2007; Jimerson et al., 2005). Educators, parents, and researchers alike express serious concern over this practice of "social promotion" (Frederick & Hauser; Frey; Martinez & Vandergrift, 1991). Therefore, employing viable alternatives to retention is imperative so that simple social promotion is avoided.

Alternatives to Retention

The number of alternatives to retaining students is significant. Some individuals advocate for the use of transitional first grade programs, while other promising options are adaptations to the curriculum or teaching style (Boettger, 1994; Brewer, 1990; Canter et al., 1998; Jimerson et al., 2005; Jimerson et al., 2007; Southard & May, 1996; Uphoff, 1990). Parental involvement and early intervention services can also benefit struggling students who might otherwise be retained (Jimerson et al., 2005; Jimerson et al., 2007; Picklo & Christenson, 2005; Southard & May; Uphoff). Finally, individualizing instruction has been offered as an alternative to retaining students (Jimerson et al., 2007; Martinez & Vandergrift, 1991; Natale, 1991; Picklo & Christenson).

Transitional first grade programs have been used in several school districts as an alternative for kindergarten retention (Southard & May, 1996; Uphoff, 1990). It is argued that these programs provide students with remediation in a specially designed classroom while allowing them to avoid the negative affects of retention (Bredekamp, 1990; May & Kundert, 1993; Wang & Johnstone, 1997; Uphoff).

Mantzicopoulos (2003), Southard and May (1996), Uphoff (1990) and others found that providing developmentally appropriate curriculum in the primary grades is essential to avoid the need for retention (Jimerson et al., 2005; Jimerson et al., 2007). With standards-based education, the academic content of the curriculum is pushed into the primary grades; however, some younger students are not developmentally ready to learn this level of information (Jimerson et al., 2005; Jimerson et al., 2007; Mantzicopoulos; Southard & May; Uphoff). Thus, providing appropriate curriculum will lessen young students' frustration and increase their success (Jimerson et al., 2005; Jimerson et al., 2007; Mantzicopoulos; Southard & May; Uphoff). A study completed by Neuharth-Pritchett (2001) targeted 22 kindergarten teachers in a rural Georgia school district. The study examined the relationship between the developmental appropriateness of the classroom and the student's likelihood of being recommended for retention. Neuharth-Pritchett concluded that students who attended developmentally appropriate classrooms were less likely to be recommended for retention.

Varying teaching styles and strategies can assist students who may otherwise have been recommended for retention (Canter et al., 1998; Jimerson et al., 2005; Jimerson et al., 2007). Two such highly successful strategies are mastery learning, where skills are retaught until the student has reached a level of mastery, and direct

instruction, where students are taught a specific predetermined set of skills (Canter et al., 1998; Jimerson et al., 2005; Jimerson et al., 2007). According to these studies, team teaching—that is, bringing teachers from multiple disciplines together to teach a lesson—has also been found to be beneficial for struggling students (Canter et al., 1998; Jimerson et al., 2005; Jimerson et al., 2007). Peer tutoring (using proficient students in the classroom to tutor delayed peers) and cooperative learning (having students participate in group learning activities) are two additional teaching strategies that maximize student learning and decrease the likelihood of retention (Canter et al., 1998; Jimerson et al., 2005; Jimerson et al., 2007; Picklo & Christenson, 2005). The use of curriculum-based assessment, when paired with a flexible teaching style, can benefit students (Deno, 2003; Shinn, 2002). These assessments enable teachers to progress monitor students and appropriately alter teaching, when needed (Deno; Shinn). Maximizing students' learning through these varying teaching strategies can be effective alternatives to retention (Canter et al., 1998; Jimerson et al., 2005; Jimerson et al., 2007).

Maximizing parental involvement is yet another means to promote student success at all levels and to decrease retention (Canter et al., 1998; Esler, Godber & Christenson, 2002; Jimerson et al., 2005; Jimerson et al., 2007). Classrooms should be welcoming to parents and provide motivation for parents to make a difference in their students' school lives (Canter et al., 1998; Esler et al., 2002; Jimerson et al., 2005; Jimerson et al., 2007). Parents observing instruction to learn about assignments and to raise expectations for success can help increase success both at home and in the classroom (Canter et al., 1998; Jimerson et al., 2005; Jimerson et al., 2007). When parents participate meaningfully within the classroom, student achievement is

positively affected (Esler et al., 2002). A study by Akmal and Larsen (2004) examined the relationship between parental involvement and retention through qualitative analysis of interviews at the middle school level. The research concluded that early communication with parents and a targeted intervention plan were likely to increase students' academic success.

Early intervention programs are also beneficial in reducing retention rates (David, 2008; Jimerson et al., 2005; Jimerson et al., 2007; Martinez & Vandergrift, 1991). These programs could include full-day kindergarten, extended school-day programs, before and after school tutoring, smaller classes, reduced student-adult ratio, enrichment classes, preschool classes, and summer programs (David; Jimerson et al., 2005; Jimerson et al., 2007; Martinez & Vandergrift; Natale, 1991;). According to Jimerson et al. (2005, 2007), the key to these programs is that they are offered early and assist the student before retention is considered. A study completed by Gormley et al. (2005) examined the implementation of a universal pre-kindergarten program in Oklahoma. Attending the pre-kindergarten program increased the student's readiness scores on several key indicators. With these readiness skills solidly developed, students may be better able to profit from kindergarten instruction, and therefore, may not be referred for retention at a later time.

Finally, individualizing student instruction by providing students with additional instructional time and giving students more one-on-one instruction can increase student achievement (Jimerson et al., 2005; Jimerson et al., 2007; Martinez & Vandergrift, 1991; Natale, 1991; Picklo & Christenson, 2005). With this approach, teachers acknowledge each student's individual learning characteristics and incorporate those into a plan for the individual student (Jimerson et

al., 2005; Jimerson et al., 2007; Martinez & Vandergrift, 1991; Natale, 1991; Picklo & Christenson, 2005; Southard & May, 1996). While time consuming, this strategy truly optimizes each student's potential.

Numerous strategies and interventions can be implemented that have been shown to be beneficial as alternatives to retention (Brewer, 1990; Jimerson et al., 2005; Jimerson et al., 2007; Martinez & Vandergrift, 1991; Natale, 1991; Picklo & Christenson, 2005; Southard & May, 1996; Uphoff, 1990). It is important to consider these in light of the negative research that has clearly dominated the literature regarding retention (Burkam et al., 2007; David, 2008; Fredrick & Hauser, 2008; Frey, 2005; Gay, 2002; Gleason et al., 2007; Hong & Yu, 2008; Jimerson et al., 2005; Jimerson et al., 2007; Larsen & Akmal, 2007; Mohl & Slifer, 2005; Meisels & Liaw, 1993; Natale; Owings & Magliaro, 1998; Picklo & Christenson).

Summary

With the passage of accountability legislation like NCLB, it has become critical for educational establishments to provide their students with educational opportunities based on sound research (Picklo & Christenson, 2005). To achieve this, schools must use research to drive their use of intervention techniques. Curriculum-based measurements offer schools the data needed to make decisions regarding interventions (Deno, 2003; Shinn, 2002). Research indicates these interventions should be provided early to capitalize on their benefit (Stahl & Yaden, 2004; Paris & Hoffman, 2004; Clarke & Shinn, 2004).

Transitional first grade is a program offered to at-risk students, giving them an extra year of school between kindergarten and first grade (Mantzicopoulos, 2003). These programs are governed by different philosophies, but specific characteristics are consistently observed in a typical transitional first grade (Brewer, 1990; Gredler,

2000; Uphoff, 1990). The existing minimal research on transitional first grade programs indicates that they may not be effective intervention techniques (Boettger, 1994; Brewer; Ferguson, 1996; Mantzicopoulos; Southard & May, 1996; Wang & Johnstone, 1997).

Research on retention indicates that it is an ineffective practice; however, it continues to be used due to the push for minimum competency standards and the need for consequences when students do not master the necessary skills (Burkam et al., 2007; Canter & Carey, 1998; Canter et al., 1998; David, 2008; Fredrick & Hauser, 2008; Frey, 2005; Gay, 2002; Gleason et al., 2007; Hong & Yu, 2008; Jimerson et al., 2005; Larsen & Akmal, 2007; Martinez & Vandergrift, 1991; Mohl & Slifer, 2005; Meisels & Liaw, 1993; Natale, 1991; Owings & Magliaro, 1998; Picklo & Christenson, 2005). Schools should be implementing alternatives to retention (Boettger, 1994; Brewer, 1990; Canter et al., 1998; Jimerson et al., 2005; Jimerson et al., 2007; Martinez & Vandergrift, 1991; Natale, 1991; Picklo & Christenson, 2005; Southard & May, 1996; Uphoff, 1990). One alternative requiring more extensive research is transitional first grade.

CHAPTER III

RESEARCH METHODS

The purpose of this study was to add to the limited body of research investigating transitional first grade programs. Specifically, the following research questions were investigated: 1) Do historical impact, sex, developmental status, and Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Phoneme Segmentation Fluency (PSF)–Kindergarten Level (K) predict advancement level, 2) Do historical impact, sex, developmental status, DIBELS PSF-K, and advancement level predict DIBELS PSF–1st Grade Level (1), 3) Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, and DIBELS PSF-1 predict DIBELS Oral Reading Fluency (ORF)–1st Grade Level (1), 4) Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, DIBELS PSF-1, and DIBELS ORF-1 predict DIBELS ORF-2nd Grade Level (2), 5) Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Reading Level-3, 6) Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Math Level-3, and 7) Is there a difference in the rate of learning based on advancement level?

To investigate these research questions, permission was obtained to use a sample from a mid-sized, lower socioeconomic status school district in south-central Pennsylvania. This district was selected because it used a transitional first grade program as an intervention to service its at-risk population for many years. However, the program was discontinued in 2006. The student data required for this study was archival and gathered by the special education coordinator. It was provided to the researcher via coded format. The data collected

included subtest DIBELS scores as well as subtest scores from the third grade Pennsylvania System of School Assessments (PSSA). Collected demographic information included date of birth, year of kindergarten entrance, sex, and advancement level (whether a student attended transitional first grade, was recommended-but-did-not-attend, or was regularly promoted). Multiple regressions were performed to help answer Questions 1-6, while a t-test was used to answer Question 7.

To determine treatment integrity, attempts were made to survey the teachers who taught in the transitional first grade classrooms, using consent and interview forms [see Appendix A and Appendix B]. The researcher anticipated that descriptive statistics generated from this data could be used to determine the implementation of key transitional first grade characteristics in the program. However, no completed surveys were returned; instead, a qualitative analysis of the district's guidelines and a parent pamphlet served the purpose.

Design

To investigate the proposed research questions, this research employed a static group comparison pre-experimental design and a correlational design. More specially, the dependent variables were academic achievement in reading and mathematics, operationalized by using specific subtests from DIBELS and the PSSA. The predictor variables included historical impact, sex, developmental status, advancement level, and DIBELS scores. Historical impact was defined as the year the student entered kindergarten, while developmental status was defined as the student's age in days upon kindergarten entrance. Advancement level was defined by the three groups proposed for investigation in this study: (a) transitional first grade students; (b) recommended-but-did-not-attend students; and (c) regularly promoted students. To explore several of the research questions, academic

achievement and advancement level were used as a predictor variable. For the final research question, rate of learning was defined as the slope obtained from correlating a student's DIBELS ORF administered in first, second, and third grade. Please refer to Figure 2 for a pictorial presentation of the study's design. For the purpose of this figure, reliability (R) and validity (V) information is discussed in broad terms as poor (P), adequate (A), good (G), and excellent (E).

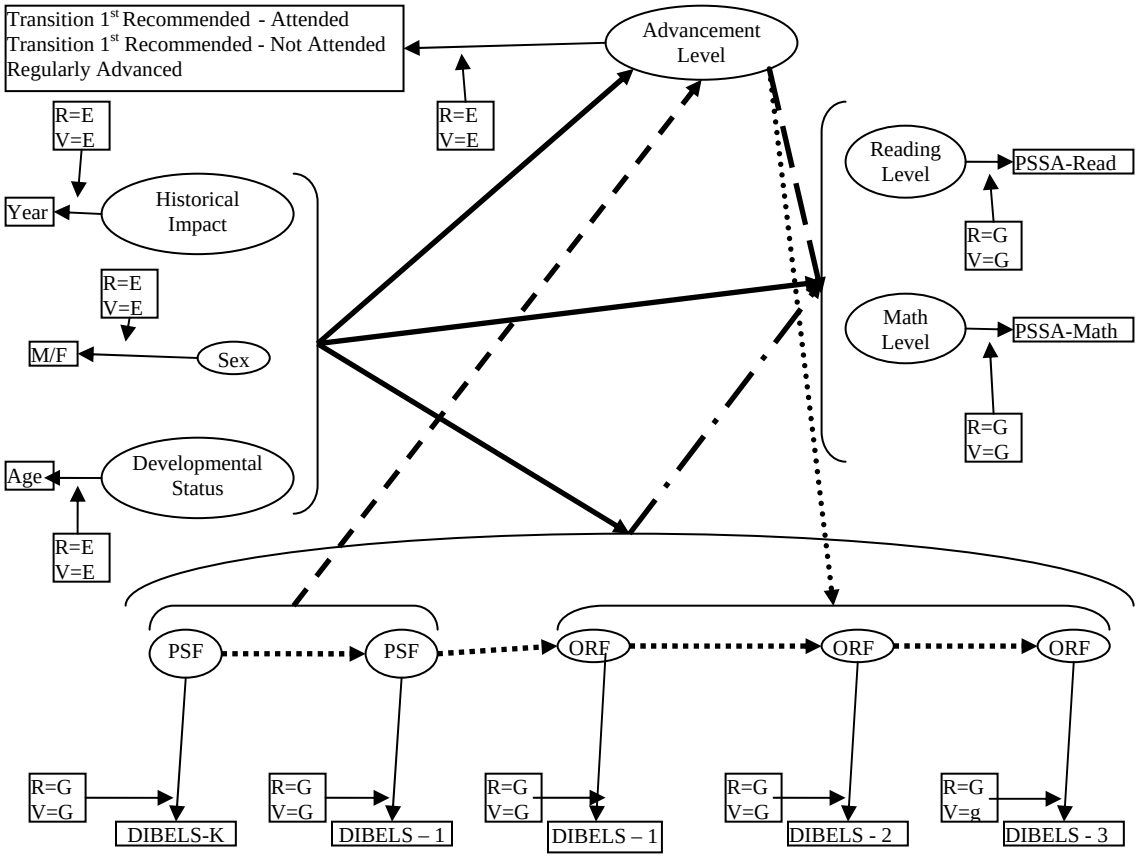

Figure 2. Structure of research.

Population

The study population comprised students from a rural, low socioeconomic status school district. A sample was selected according to the year the student was enrolled in kindergarten.

Sample

The sample for this study was students from a rural school district in south-central Pennsylvania that educates a predominately lower socioeconomic status, Caucasian population. The sample was originally defined as students who entered kindergarten from 2000 through 2005. This timeframe was selected because it aligned with the years the district administered the assessments and referred students to the transitional first grade program. Students who entered kindergarten with an Individual Education Program (IEP) were excluded from this study because district policy made them ineligible for it. Students who were retained in any grade were also excluded from this study, as were students who started school in the rural school district but transferred to another district and students who started school in another district but transferred to the rural school district. Originally, 1,251 student files were reviewed.

Of these, 816 students were eligible for inclusion in the study. When the three pre-defined groups were segregated, only 12 students were recommended for transitional first grade but did not attend. Due to the limited size of this sample, all were excluded from the study. Further data analysis showed that students who began kindergarten in 2004 and 2005 represented only the regularly promoted group; therefore, the population sample for these two years was excluded from the study. These determinations left 502 students for inclusion. Unfortunately, due to poor record maintenance and the lack of all students having the necessary data, not all 502 could be used for this research. Since the

data needed for each research question varied, the sample used for each question fluctuated. To help explain this, the demographics for individual research questions were generated and are summarized separately in Tables 1 through 6.

Assignment

Because of the difficulty in gathering data from the available population, only two groups were used for this study. These groups were (a) students who attended transitional first grade and (b) students who were regularly promoted. The group assignment was based on the makeup of each group.

The first group investigated comprised those students who attended the transitional first grade program. According to district policy, a referred student must be identified as developmentally unable to handle the demands of first grade and be thought to have average or above-average ability. The kindergarten teachers recommended students whom they believed met these criteria; however, parental permission was needed before a student could be placed in the program. As shown in Tables 1-6, the numbers of students in this group ranged from 11 to 17.

Students who were regularly promoted from kindergarten to first grade comprised the second group. For them, the transitional first grade program was never recommended. These students entered kindergarten in the same year as the transitional first grade group. Figures for this group ranged from 50 to 96 students (see Tables 1-6).

Table 1

Research Question #1 - Do Historical Impact, Sex, Developmental Status, and Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Phoneme Segmentation Fluency (PSF)-Kindergarten Level (K) predict Advancement Level?: Description of Students

Variable	n	Frequency	Percent	Mean	S.D.	Range
Sex	113					
Male		59	52.2			
Female		54	47.8			
Advancement Level	113					
Regularly Promoted		96	85.0			
Transitional First		17	15.0			
Age in days	113			2001.8	125.0	1789-2362
Kindergarten Year	113					
2001		2	1.8			
2002		39	34.5			
2003		72	63.7			
DIBELS PSF-K	113			24.6	17.1	0-67

Table 2

Research Question #2 - Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, and Advancement Level predict DIBELS PSF-1st Grade Level (1)?: Description of Students

Variable	n	Frequency	Percent	Mean	S.D.	Range
Sex	110					
Male		58	52.7			
Female		52	47.3			
Advancement Level	110					
Regularly Promoted		93	84.5			
Transitional First		17	15.5			
Age in days	110			1999.6	125.2	1789-2362
Kindergarten Year	110					
2001		2	1.8			
2002		38	34.5			
2003		70	63.6			
DIBELS PSF-K	110			24.5	17.3	0-67
DIBELS PSF-1	110			29.8	16.6	0-63

Table 3

Research Question #3 - Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, and DIBELS PSF-1 predict DIBELS Oral Reading Fluency (ORF)-1st Grade Level (1)?: Description of Students

Variable	n	Frequency	Percent	Mean	S.D.	Range
Sex	108					
Male		57	52.8			
Female		51	47.2			
Advancement Level	108					
Regularly Promoted		92	85.2			
Transitional First		16	14.8			
Age in days	108			2001.1	125.9	1789-2362
Kindergarten Year	108					
2001		1	.9			
2002		38	35.2			
2003		69	63.9			
DIBELS PSF-K	108			24.4	29.9	0-67
DIBELS PSF-1	108			29.9	17.4	0-63
DIBELS ORF-1	108			49.4	25.3	11-145

Table 4

Research Question #4 - Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, DIBELS PSF-1, and DIBELS ORF-1 predict DIBELS ORF-2nd Grade Level (2)?: Description of Students

Variable	n	Frequency	Percent	Mean	S.D.	Range
Sex	102					
Male		54	52.9			
Female		48	47.1			
Advancement Level	102					
Regularly Promoted		86	84.3			
Transitional First		16	15.7			
Age in days	102			1998.8	126.4	1789-2362
Kindergarten Year	102					
2001		1	1.0			
2002		33	32.4			
2003		68	66.7			
DIBELS PSF-K	102			24.3	17.7	0-67
DIBELS PSF-1	102			29.4	17.7	0-63
DIBELS ORF-1	102			50.2	25.7	11-145
DIBELS ORF-2	102			89.2	34.5	22-194

Table 5

Research Question #5 - Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Reading Level-3? and Research Question #6 - Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Math Level-3?: Description of Students

Variable	n	Frequency	Percent	Mean	S.D.	Range
Sex	99					
Male		52	52.5			
Female		47	47.5			
Advancement Level	99					
Regularly Promoted		84	84.8			
Transitional First		15	15.2			
Age in days	99			2002.9	125.3	1827-2362
Kindergarten Year	99					
2001		1	1.0			
2002		32	32.3			
2003		66	66.7			
DIBELS PSF-K	99			24.3	17.8	0-67
DIBELS PSF-1	99			29.4	16.8	0-63
DIBELS ORF-1	99			50.8	25.7	11-145
DIBELS ORF-2	99			90.1	34.3	24-194
RL-3	99			1292.0	160.7	919-1872
ML-3	99			1258.8	146.6	945-1692

Table 6

Research Question #7 - Is there a Difference in the Rate of Learning based on Advancement Level?: Description of Students

Variable	n	Frequency	Percent	Mean	S.D.	Range
Sex	61					
Male		35	57.4			
Female		26	42.6			
Advancement Level	61					
Regularly Promoted		50	82.0			
Transitional First		11	18.0			
Age in days	61			1989.0	101.9	1830-2212
Kindergarten Year	61					
2000		9	14.8			
2001		33	54.1			
2002		19	31.1			
DIBELS ORF-1	61			50.5	25.7	9-145
DIBELS ORF-2	61			86.5	28.9	38-160
DIBELS ORF-3	61			88.3	26.2	36-174
Rate of Learning	61			18.9	10.3	-13-44

Treatment Integrity Survey

As noted previously, attempts were made to survey the transitional first grade teachers. This sample consisted of two teachers. A consent form (see Appendix A) was developed to obtain permission from the teachers to participate and have their information used in this study.

Additionally, a survey form (see Appendix B) was developed to determine the treatment integrity of the transitional first grade program. To create the survey, research that identified key characteristics of transitional first grade programs was reviewed. Questions were then developed that related to each characteristic. While no formal analysis of validity or reliability was completed, this

form had an anticipated high level of face validity since the questions were directly linked to the identified characteristics.

Measurement

Reading readiness/achievement and math achievement were the measurements analyzed in this study. The archival data collected was derived from the Phoneme Segmentation Fluency (PSF) subtest of the DIBELS, the Oral Reading Fluency (ORF) subtest of the DIBELS, the reading subtest of the third grade PSSA, and the mathematics subtest of the third grade PSSA.

Reading readiness and achievement were measured using three subtests from two assessments. The first two measurements were subtests of DIBELS. These were administered in the targeted district during the spring, winter, and fall of 2001, 2002, 2003, 2004, 2005, 2006, and 2007.

Phoneme Segmentation Fluency (PSF) is a measure of phoneme awareness, a reading readiness skill. This subtest measures a student's ability to segment a verbally presented word into its individual phonemes. The score is obtained using a one-minute timeframe, and every phoneme segment provided (short of the whole word) receives a point. In this study, the spring kindergarten benchmark DIBELS PSF score and the fall first grade benchmark DIBELS PSF score were used. Kaminski and Good (1996) reported good reliability and validity for this measure. The alternate-form reliability ranged from .88 to .79 over one-week and one-month periods respectively. The DIBELS PSF demonstrated concurrent, criterion validity of .54 with the Woodcock-Johnson Psycho-Educational Battery Readiness Cluster; and, the predictive validity of the DIBELS PSF with first grade achievement tests (i.e., DIBELS Nonsense Word Fluency, Woodcock-Johnson Psycho-

Educational Battery Total Reading Cluster, and Curriculum Based Measurement Oral Reading Fluency) ranged from .62 to .68.

The second DIBELS subtest used was Oral Reading Fluency (ORF). The ORF score is the number of correct words read aloud in one minute. Words that are omitted or substituted as well as hesitations of more than three seconds are scored as errors. Words that are self-corrected within three seconds are scored as accurate. For this study, the spring first grade benchmark score, the spring second grade benchmark score, and the spring third grade benchmark score of the DIBELS ORF subtest were used. Several studies have been conducted to investigate the reliability and validity of the DIBELS ORF, including research work done for the states of Arizona, North Carolina, Oregon, Florida, Colorado, and Ohio in relation to their standardized assessment programs. In 2002, researchers at the University of Oregon found that the test-retest reliability ranged from .92 to .97, while the alternate form reliability ranged from .89 to .94. Additionally, the criterion-related validity ranged from .52 to .91 (University of Oregon). The predictive validity coefficients ranged from .61 to .74 (Barger, 2003; Vander Meer, Lentz, & Stollar, 2005; Buck & Torgesen, 2006; Wilson, 2005).

The final measure of reading achievement was the third grade reading subtest of the PSSA, which is administered to all third grade students in the Commonwealth of Pennsylvania. This test measures achievement based upon standards determined by the commonwealth. Standard scores range from 1000-2100. For this study, the assessments analyzed were given in the spring of 2005, 2006, 2007, and 2008. Studies have been completed to determine the reliability and validity of this reading subtest. A study completed by CTB McGraw-Hill (2006) reported internal consistency that ranged from .91 to .92. For open-

ended questions, an intraclass correlation was performed and correlation coefficients ranged from .81 to .90 (CTB McGraw-Hill). In 2008 a study by Data Recognition Corporation (DRC) found the internal consistency of the PSSA reading subtest to be .91. To investigate construct-related evidence of validity, the DRC correlated sub-classes of the reading. Correlation coefficients ranged from .79 to .98. Thacker, Dickinson, and Koger's study (2004) correlated the reading subtest of the PSSA to reading subtests of several frequently used assessments, including Terra Nova, the Stanford Achievement Test, the California Achievement Test, Northwest Evaluation Association, and the New Standard Reference Exam. The reading subtest of the PSSA demonstrated positive and significant correlation with these assessments, indicating good validity (Thacker, 2004).

To measure the dependent variable of mathematics achievement, the researcher used the third grade mathematics subtest of the PSSA. Administered to all third grade students in the Commonwealth of Pennsylvania, the test is designed to assess the student's achievement based upon standards determined by the commonwealth. It produces a standard score ranging from 750-2100. For this study, the assessments completed in the spring of 2005, 2006, 2007, and 2008 were used. Several studies have investigated the reliability and validity of the PSSA mathematics subtest. A study by CTB McGraw-Hill (2006) reported internal consistency that ranged from .92 to .93. For open-ended questions, an intraclass correlation was performed and correlation coefficients ranged from .90 to .98 (CTB McGraw-Hill). A 2008 study by Data Recognition Corporation found the internal consistency of the PSSA mathematics subtest to be .91. To investigate construct-related evidence of validity, sub-classes of the math subtest were correlated (Data Recognition Corporation). Correlation coefficients ranged from

.47 to .96 (Data Recognition Corporation). To investigate validity, Thacker, Dickinson, and Koger's study (2004) correlated the mathematics subtest of the PSSA to mathematics subtests of several frequently used assessments, including Terra Nova, the Stanford Achievement Test, the California Achievement Test, Northwest Evaluation Association, and the New Standard Reference Exam. The mathematics subtest of the PSSA demonstrated positive and significant correlation with these assessments, demonstrating good validity (Thacker, 2004). The convergent validity was also high and approximately .80 on the mathematics subtest (Thacker).

Procedures

Once the proposal for this research was approved by the Institutional Review Board (IRB) and permission was obtained from the rural school district, the study subjects were identified. The district's special education coordinator reviewed all student files, recorded the relevant data in a coded format, and forwarded the data to the researcher.

A consent form (Appendix A) and the treatment integrity survey form (Appendix B) were mailed to the two transitional first grade teachers on November 24, 2008. When neither survey was returned, a second packet was mailed on December 8, 2008. One teacher returned both packets with a note declining to participate. The second teacher did not respond.

Power and Sample Size

A power analysis was conducted to determine if the sample size of this study could yield valid results. To conduct power analyses in behavioral sciences, Cohen (1988) recommended using alpha set at .05, power set at .80, and a medium effect size. For the purpose of this study, any alpha less than or equal to .05 will be considered

significant. The sample size needed is determined by the number of predictors in the research question. Therefore, the needed sample size fluctuated in this research based on the research question. The recommended sample size and the obtained sample sizes for each question are outlined in Table 7. This analysis indicated that sample size requirements were met for all questions, with the exception of research questions #5 and #6. For these two questions, a sample size of 108 was needed for a medium effect size. The samples used for these two questions, which were comprised of 99 students, appear to be closely aligned with the medium effect size requirement but should be viewed with some caution.

Table 7

Recommended Sample Sizes and Obtained Sample Sizes

	Recommended Sample Size	Obtained Sample Size
Research Question #1	84	113
Research Question #2	91	110
Research Question #3	97	108
Research Question #4	102	102
Research Question #5	108	99
Research Question #6	108	99

Statistical Analyses

The data for this research study was analyzed to provide descriptive statistics for the sample. The hypotheses, variables, statistical analyses, and statistical assumptions for each research question are presented in Table 8. The following research questions were investigated.

Research Question # 1: Do Historical Impact, Sex, Developmental Status, and DIBELS PSF-K predict Advancement Level?

The following hypotheses were provided for this research question. No hypothesis was tenable for historical impact and advancement level. Males would be more representative in the transitional first grade and the recommended-but-did-not-attend groups. Younger students would be more representative in the transitional first grade and the recommended-but-did-not-attend groups. Lower DIBELS PSF-K would be more representative in the transitional first grade and recommended-but-did-not-attend groups. A multiple regression was run using school year, sex, age, and DIBELS PSF-K as predictor variables. For interpretation of this research question, alpha was set at less than or equal to .05 and multicollinearity was investigated when observed at the .9 level or above. Interval or ratio data, residual normality, residuals with equal variance, and linearity were assumed.

Research Question # 2: Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, and Advancement Level predict DIBELS PSF-1?

The following hypotheses were provided for this research question. No hypothesis was tenable for historical impact and DIBELS PSF-1. Males would have lower DIBELS PSF-1 scores. Younger students would have lower DIBELS PSF-1 scores. Students with lower DIBELS PSF-K would have lower DIBELS PSF-1 scores. No difference would be seen in advancement level. A multiple regression was run using school year,

sex, age, DIBELS PSF-K, and advancement level as predictor variables. For interpretation of this research question, alpha was set at less than or equal to .05 and multicollinearity was investigated when observed at the .9 level or above. Interval or ratio data, residual normality, residuals with equal variance, and linearity were assumed.

Research Question # 3: Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, and DIBELS PSF-1 predict DIBELS ORF-1?

The following hypotheses were provided for this research question. No hypothesis was tenable for historical impact and DIBELS ORF-1. Males would have lower DIBELS ORF-1 scores. Younger students would have lower DIBELS ORF-1 scores. Students with lower DIBELS PSF-K scores and student with lower DIBELS PSF-1 scores would have lower DIBELS ORF-1 scores. No difference would be seen in advancement level. A multiple regression was run using school year, sex, age, DIBELS PSF-K, advancement level, and DIBELS PSF-1 as predictor variables. For interpretation of this research question, alpha was set at less than or equal to .05 and multicollinearity was investigated when observed at the .9 level or above. Interval or ratio data, residual normality, residuals with equal variance, and linearity were assumed.

Research Question # 4: Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, DIBELS PSF-1, and DIBELS ORF-1 predict DIBELS ORF-2?

The following hypotheses were provided for this research question. No hypothesis was tenable for historical impact and DIBELS ORF-2. Males would have lower DIBELS ORF-2 scores. Younger students would have lower DIBELS ORF-2 scores. Students with lower DIBELS PSF-K scores, students with lower DIBELS PSF-1 scores, and students with lower DIBELS ORF-1 scores would have lower DIBELS ORF-2 scores. No

difference would be seen in advancement level. A multiple regression was run using school year, sex, age, DIBELS PSF-K, advancement level, DIBELS PSF-1, and DIBELS ORF-1 as predictor variables. For interpretation of this research question, alpha was set at less than or equal to .05 and multicollinearity was investigated when observed at the .9 level or above. Interval or ratio data, residual normality, residuals with equal variance, and linearity were assumed.

Research Question # 5: Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Reading Level-3?

The following hypotheses were provided for this research question. No hypothesis was tenable for historical impact and Reading Level-3. Males would have lower Reading Level-3 scores. Younger students would have lower Reading Level-3 scores. Students with lower DIBELS PSF-K scores, students with lower DIBELS PSF-1 scores, students with lower DIBELS ORF-1 scores, and students with lower DIBELS ORF-2 scores would have lower Reading Level-3 scores. Students in the transitional first grade group would have lower Reading Level-3 scores than the recommended-but-did-not-attend and the regularly promoted groups. A multiple regression was run using school year, sex, age, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 as predictor variables. For interpretation of this research question, alpha was set at less than or equal to .05 and multicollinearity was investigated when observed at the .9 level or above. Interval or ratio data, residual normality, residuals with equal variance, and linearity were assumed.

Research Question # 6: Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Math Level-3?

The following hypotheses were provided for this research question. No hypothesis was tenable for historical impact and Math Level-3. No sex difference would be seen on Math Level-3 scores. Younger students would have lower Math Level-3 scores. No hypothesis was tenable for DIBELS PSF-K, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 scores and Math Level-3 scores. Students in the transitional first grade group would have lower Math Level-3 scores than recommended-but did-not-attend and the regularly promoted groups. A multiple regression was run using school year, sex, age, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 as predictor variables. For interpretation of this research question, alpha was set at less than or equal to .05 and multicollinearity was investigated when observed at the .9 level or above. Interval or ratio data, residual normality, residuals with equal variance, and linearity were assumed.

Research Question # 7: Is there a Difference in the Rate of Learning based on Advancement Level?

It was hypothesized the students in the regularly promoted group would have a faster rate of learning than the students in the recommended-but-did-not-attend and the transitional first grade groups. It was also hypothesized that students in the recommended-but-did-not-attend group would have a faster rate of learning than the students in the transitional first grade group. An independent t-test was run to compare the rate of learning based on advancement level. Interval or ratio data, normality for each group, equal variance for groups, and adequate sample size were assumed.

Table 8

Research Questions, Hypotheses, Variables, Statistical Analyses, and Statistical Assumptions for the Transitional First Grade Program Study

Research Questions	Hypotheses	Variables	Statistic	Assumptions	Assumptions Appropriateness
1. Do historical impact, sex, developmental status, and DIBELS PSF-K predict advancement level?	No hypothesis was tenable for historical impact and advancement level. Males would be more representative in the TFG and RDA groups. Younger students would be more representative in the TFG and RDA group. Lower DIBELS PSF-K would be more representative in the TFG and RDA group.	School year, sex, age, DIBELS PSF-K, and advancement level	Multiple Regression	1. Interval or ratio data 2. Residual normality 3. Residuals equal variance 4. Linearity	1. Examine the instrument 2. Examine a plot of residuals 3. Visual inspection of a scattergram 4. Visual inspection of scattergram
2. Do historical impact, sex, developmental status, DIBELS PSF-K, and advancement level predict DIBELS PSF-1?	No hypothesis was tenable for historical impact and DIBELS PSF-1. Males would have lower DIBELS PSF-1 scores. Younger students would have lower DIBELS PSF-1 scores. Students with lower DIBELS PSF-K would have lower DIBELS PSF-1 scores. No difference would be seen in advancement level.	School year, sex, age, DIBELS PSF-K, advancement level, DIBELS PSF-1	Multiple Regression	1. Interval or ratio data 2. Residual normality 3. Residuals equal variance 4. Linearity	1. Examine the instrument 2. Examine a plot of residuals 3. Visual inspection of a scattergram 4. Visual inspection of scattergram

Research Questions	Hypotheses	Variables	Statistic	Assumptions	Assumptions Appropriateness
3. Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, and DIBELS PSF-1 predict DIBELS ORF-1?	No hypothesis was tenable for historical impact and DIBELS ORF-1. Males would have lower DIBELS ORF-1 scores. Younger students would have lower DIBELS ORF-1 scores. Students with lower DIBELS PSF-K scores and student with lower DIBELS PSF-1 scores would have lower DIBELS ORF-1 scores. No difference would be seen in advancement level.	School year, sex, age, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1	Multiple Regression	1. Interval or ratio data 2. Residual normality 3. Residuals equal variance 4. Linearity	1. Examine the instrument 2. Examine a plot of residuals 3. Visual inspection of a scattergram 4. Visual inspection of scattergram
4. Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, DIBELS PSF-1, and DIBELS ORF-1 predict DIBELS ORF-2?	No hypothesis was tenable for historical impact and DIBELS ORF-2. Males would have lower DIBELS ORF-2 scores. Younger students would have lower DIBELS ORF-2 scores. Students with lower DIBELS PSF-K scores, students with lower DIBELS PSF-1 scores, and students with lower DIBELS ORF-1 scores would have lower DIBELS ORF-2 scores. No difference would be seen in advancement level.	School year, sex, age, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1, DIBELS ORF-2	Multiple Regression	1. Interval or ratio data 2. Residual normality 3. Residuals equal variance 4. Linearity	1. Examine the instrument 2. Examine a plot of residuals 3. Visual inspection of a scattergram 4. Visual inspection of scattergram

Research Questions	Hypotheses	Variables	Statistic	Assumptions	Assumptions Appropriateness
5. Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Reading Level-3?	No hypothesis was tenable for historical impact and Reading Level-3. Males would have lower Reading Level-3 scores. Younger students would have lower Reading Level-3 scores. Students with lower DIBELS PSF-K scores, students with lower DIBELS PSF-1 scores, students with lower DIBELS ORF-1 scores, and students with lower DIBELS ORF-2 scores would have lower Reading Level-3 scores. Students in the TF group would have lower Reading Level-3 scores than RDA and RP groups.	School year, sex, age, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1, DIBELS ORF-2, Reading Level-3	Multiple Regression	1. Interval or ratio data 2. Residual normality 3. Residuals equal variance 4. Linearity	1. Examine the instrument 2. Examine a plot of residuals 3. Visual inspection of a scattergram 4. Visual inspection of scattergram
6. Do historical impact, sex, developmental status, DIBELS PSF-K, Advancement level, DIBELS ORF-1, and DIBELS ORF-2 predict Math Level-3?	No hypothesis was tenable for historical impact and Math Level-3. No sex difference would be seen on Math Level-3 scores. Younger students would have lower Math Level-3 scores. No hypothesis was tenable for DIBELS PSF-K, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 scores and Math Level-3 scores. Students in the TF group would have lower Math Level-3 scores than RDA and RP groups.	School year, sex, age, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1, DIBELS ORF-2, Math Level-3	Multiple Regression	1. Interval or ratio data 2. Residual normality 3. Residuals equal variance 4. Linearity	1. Examine the instrument 2. Examine a plot of residuals 3. Visual inspection of a scattergram 4. Visual inspection of scattergram

Research Questions	Hypotheses	Variables	Statistic	Assumptions	Assumptions Appropriateness
7. Is there a difference in the rate of learning based on advancement level?	Students in the RP group would have a faster rate of learning than the students in the RDA and the TF groups. Students in the RDA group would have a faster rate of learning than the students in the TF group.	Correlation of DIBELS ORF-1, -2, and -3, advancement level	t-test	1. Interval or ratio data 2. Normality for each group 3. Equal variance for groups 4. Adequate sample size	1. Examine the instrument 2. Histogram with a normal curve 3. Descriptive statistics 4. "Rules of Thumb"

Summary

The methods described in this chapter facilitated the analysis of the data regarding the effectiveness of transitional first grade programs on improving students' achievement in reading and mathematics. The sample was comprised of students at a mid-sized, rural school district in south-central Pennsylvania with low socioeconomic status. The assessments used to measure the students' reading and mathematics achievement were the DIBELS PSF, the DIBELS ORF, and the PSSA third grade reading and math subtests.

Descriptive statistics were obtained and multiple regressions were used to investigate the following questions: 1) Do historical impact, sex, developmental status, and Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Phoneme Segmentation Fluency (PSF)–Kindergarten Level (K) predict advancement level, 2) Do historical impact, sex, developmental status, DIBELS PSF-K, and advancement level, predict DIBELS PSF–1st Level (1), 3) Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, and DIBELS PSF-1 predict DIBELS Oral Reading Fluency (ORF)–1st Grade Level (1), 4) Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, DIBELS PSF-1, and DIBELS ORF-1 predict DIBELS ORF-2nd Grade Level (2), 5) Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Reading Level-3, and 6) Do historical impact, sex, developmental status, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Math Level-3? For the final question, a t-test was completed to investigate if there was a difference in the rate of learning based on advancement level.

CHAPTER IV

RESULTS OF THE STUDY

This chapter focuses on three elements related to the statistical analysis of the data. Initially, the survey that was developed to investigate the treatment integrity of the targeted program is examined. Then, the predictive nature of several variables is analyzed using multiple regression analysis. Finally, differences in the rate of learning between regularly promoted students and transitional first grade students are discussed.

Complications

Two main complications were encountered during this investigation. The first occurred with the treatment integrity survey, and the second (actually a series of complications) was encountered during the collection of the students' data.

The response rate for the treatment integrity survey was significantly flawed. The survey population consisted of only two transitional first grade teachers as only two taught the program during the relevant time period. When neither teacher responded to the first mailing, a second survey was mailed. One teacher did not respond to either mailing, while the second returned the survey declining participation. Since neither survey was completed, this survey could not establish treatment integrity.

A series of complications was encountered during the collection of the students' data. Originally, the sample was defined as students who began kindergarten between 2000 and 2005. Using these years, 1,251 student files were reviewed. Of these students, 435 met the exclusionary criteria set forth in this investigation leaving 816 students to be included. When the predefined groups were analyzed, only 12 students met the criteria for the recommended-but-did-not-

attend group. Due to the limited size of this group, it was dropped from this study. Further investigation indicated students who began kindergarten in 2004 and 2005 fell within only the regularly promoted group; therefore, students from these two years were not included. With the remaining 502 students, several issues arose regarding record maintenance. The majority of the student's files did not contain a complete set of data needed for this study. Approximately 100 students had all the required data; this number fluctuated minimally depending on the research question. While a significant percentage of students originally proposed for inclusion in this study had to be excluded, there was still enough data to run reliable statistics.

Computer Program

Statistical analysis for this research was conducted using the Statistical Program for Social Science 16.0 computer program.

Analyses

Treatment Integrity

In order to establish treatment integrity of the transitional first grade program, a survey was developed and mailed to the program's teachers. However, as discussed earlier, no completed surveys were returned. Since this data could not be used, the district guidelines and a parent pamphlet for the program were reviewed (see Appendix C and Appendix D for replications of these sources). District guidelines indicated that class size for this program was ideally set at 12 students but not to exceed 15 students.

The guidelines further indicated that placement in the program was based on an intelligence quotient thought to be 90 or greater with delays in one of the following areas: social skills, knowing directions, auditory comprehension, spoken language, and motor skills.

According to the parent pamphlet, the following students qualified for the program:

- Children who have struggled to grasp basic early reading or math skills in kindergarten
- Children who need more time to acquire a 'readiness' to learn simply as a function of maturity (or age)
- Children who lack the confidence to interact with their peers or their teacher in social or academic situations
- Children who have difficulty working independently
- Children who have been frequently absent from kindergarten
- Children who are at risk for reading difficulties as identified by the DIBELS assessment
- Children needing more teacher attention and scaffolding

Additionally, district guidelines indicated placement into the program needed prior approval from the building principal. Parents were involved in the decision-making and were able to refuse the program. The guidelines specified placement could occur up to September 30th of each year, while returning to a typical classroom setting was considered upon completion of the full year program.

Finally, the district guidelines provided the following as the general objectives of the program:

1. Establish and foster a strong teacher-pupil rapport through low student per teacher ratio.
2. Design lessons to insure that each child achieves some degree of success, develop skills in thinking, listening, following directions, oral expression, visual discrimination and auditory perception.
3. Help the child work effectively within a group.
4. Encourage the child to work independently.
5. To have the group ready to enter a regular first grade at the end of one year.

The following detailed description was provided in the parent pamphlet:

> Not all children grow or learn at the same pace. At this early age, children undergo major changes physically and cognitively. At this age, it is possible that learning difficulties are simply a result of child development and can be addressed by providing the child with extra time to grow and develop. Developmental [Transitional] First aims to provide your child with success, confidence, and a developmentally appropriate curriculum matched to your child's needs. This extra year of preparation provides a solid foundation for success in first grade where the curriculum becomes more demanding both socially and academically.

The information reviewed was then compared to characteristics observed in transitional first grade programs. Based on review of the literature, six main characteristics of transitional first grade programs were established. These characteristics were: (a) an extra year program; (b) developmentally appropriate curriculum; (c) child centered classroom; (d) maximum parental involvement; (e) flexibility; and (f) individualization. Of these, the targeted program possessed four, or 67%. This relationship is depicted in Table 9. While the treatment integrity surveys were not completed, treatment integrity was established through the review of this information.

TABLE 9

Treatment Integrity Checklist

Characteristics of transitional first grade programs	Present in targeted district
Extra year program	**YES**
Developmentally appropriate curriculum	**YES**
Child centered classroom	NO
Maximum parental involvement	**YES**
Flexibility	NO
Individualized	**YES**

Analysis of Research Questions

Research Question #1 - Do Historical Impact, Sex, Developmental Status, and Dynamic Indicators of Basic Early Literacy Skills Phoneme Segmentation Fluency–Kindergarten Level (DIBELS PSF-K) predict Advancement Level?

To investigate this question a multiple regression analysis was completed; the results are summarized in Table 10. A review of the residuals indicated normality and equal variance. Linearity was confirmed through scattergrams. Advancement level was significantly predicted by the combination of kindergarten year, sex, age, and DIBELS PSF-K ($F=3.054$, $p=.020$). However, $R^2_{Adj.}$ was .068, indicating that the variables only accounted for approximately 7% of the variance in this model. While the combination was significant, the only individual predictor was age ($t = -2.89$, $p=.005$). This relationship illustrates that younger students were more likely to attend transitional first grade programs. With the other variables controlled, kindergarten year, sex, and DIBELS PSF-K were not predictive of participation in transitional first grade.

Research Question #2 - Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, and Advancement Level predict DIBELS PSF-1st Grade (1) Level?

For this question, a review of the residuals indicated normality and equal variance. Linearity was confirmed through scattergrams. As illustrated in Table 11, the multiple regression analysis for this question indicated that this model was a significant predictor of DIBELS PSF-1 scores ($F=13.579$, $p<.001$). However, $R^2_{Adj.}$ was .366, indicating that the variables accounted for approximately 37% of the

variance in this model. When controlling for each variable, DIBELS PSF-K scores ($t=6.460$, $p<.001$), advancement level ($t=4.660$, $p<.001$), and sex ($t=1.96$, $p=.05$) were individually significant predictors of DIBELS PSF-1 scores. There was a positive relationship between DIBELS PSF-K scores and DIBELS PSF-1 scores. Additionally, attending transitional first grade and being female were individually predictive of higher DIBELS PSF-1 scores.

TABLE 10

Multiple Regression predicting Advancement Level (AL) from School Year (SY), Sex, Age in days, DIBELS PSF-K (PSF-K)

DESCRIPTIVE STATISTICS

Variable	n	Mean	S.D.	Range
AL	113	.15	.36	0 - 1
SY	113	2002.62	.52	2001 - 2003
Sex	113	.48	.50	0 - 1
Age in days	113	2001.84	125.05	1789 - 2362
PSF-K	113	24.60	17.11	0 - 67

CORRELATION MATRIX

	AL	SY	Sex	Age	PSF-K
AL	1.00	-.07	-.01	-.28	-.18
SY		1.00	-.12	.10	.21
Sex			1.00	-.19	.16
Age				1.00	.11
PSF-K					1.00

MULTIPLE LINEAR REGRESSION

Model Fit	R^2	$R^2_{Adj.}$
F [4, 108] =3.054; p=.020	.102	.068

Variable(s) in Equation

	B	SE B	b	t	p
SY	-.02	.07	-.02	-.24	.82
Sex	-.03	.07	-.04	-.40	.69
Age	<.01	.00	-.27	-2.89	.01
PSF-K	>-.01	.00	-.00	-1.40	.16

TABLE 11

Multiple Regression predicting DIBELS PSF-1 (PSF-1) from School Year (SY), Sex, Age in days, DIBELS PSF-K (PSF-K), Advancement Level (AL)

DESCRIPTIVE STATISTICS

Variable	n	Mean	S.D.	Range
PSF-1	110	29.82	16.56	0 - 63
SY	110	2002.62	.52	2001 - 2003
Sex	110	.47	.50	0 - 1
Age in days	110	1999.64	125.20	1789 - 2362
PSF-K	110	24.53	17.33	0 - 67
AL	110	.15	.36	0 - 1

CORRELATION MATRIX

	PSF-1	SY	Sex	Age	PSF-K	AL
PSF-1	1.00	.098	.219	.029	.499	.253
SY		1.00	-.110	.097	.216	-.073
Sex			1.00	-.184	.162	-.002
Age				1.00	.109	-.278
PSF-K					1.00	-.173
AL						1.00

MULTIPLE LINEAR REGRESSION

Model Fit	R^2	$R^2_{Adj.}$
F [5, 104] =13.579; p<.001	.395	.366

Variable(s) in Equation

	B	SE B	b	t	*p*
SY	.60	2.50	.02	.24	.81
Sex	5.16	2.63	.16	1.96	.05
Age	.01	.01	.10	1.27	.21
PSF-K	.50	.08	.52	6.46	<.01
AL	17.07	3.66	.37	4.66	<.01

Research Question #3 - Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, and DIBELS PSF-1 predict DIBELS Oral Reading Fluency-1st Grade (ORF-1)?

A review of the residuals indicated normality and equal variance. Linearity was confirmed through scattergrams. The model that incorporated kindergarten year, sex, age, DIBELS PSF-K, advancement level, and DIBELS PSF-1 as independent variables was not a significant predictor of DIBELS ORF-1 (F=1.732, p=.121). $R^2_{Adj.}$ was .039, indicating that the variables only accounted for approximately 3% of the variance in this model. When the individual variables were analyzed, no independent variable had a significant relationship with DIBELS ORF-1, as summarized in Table 12.

Research Question #4 - Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, DIBELS PSF-1, and DIBELS ORF-1 predict DIBELS ORF-2nd Grade Level (2)?

For this research question, a review of the residuals indicated normality and equal variance. Linearity was confirmed through scattergrams. As illustrated in Table 13, DIBELS ORF-2 was significantly predicted by the model that included historical impact, sex, developmental status, DIBELS PSF-K, advancement level, DIBELS PSF-1, and DIBELS ORF-1 (F=19.254, p<.001). $R^2_{Adj.}$ was .559, indicating that the variables accounted for approximately 56% of the variance in this model. However, individually, DIBELS ORF-1 was the only variable that made a significant contribution to the model (t=10.563; p<.001). These results indicate that there was a significant positive relationship between a student's first grade DIBELS ORF score and his or her DIBELS ORF score in second grade.

TABLE 12

Multiple Regression predicting DIBELS ORF-1 (ORF-1) from School Year (SY), Sex, Age in days, DIBELS PSF-K (PSF-K), Advancement Level (AL), DIBELS PSF-1 (PSF-1)

DESCRIPTIVE STATISTICS

Variable	n	Mean	S.D.	Range
ORF-1	108	49.44	25.31	11 - 145
SY	108	2002.63	.50	2001 - 2003
Sex	108	.47	.50	0 - 1
Age in days	108	2001.06	125.89	1789 - 2362
PSF-K	108	29.85	16.71	0 - 67
AL	108	.15	.36	0 - 1
PSF-1	108	29.85	16.71	0 - 63

CORRELATION MATRIX

	ORF-1	SY	Sex	Age	PSF-K	AL	PSF-1
ORF-1	1.00	-.081	.069	.129	.192	-.217	.022
SY		1.00	-.078	.082	.211	-.004	.102
Sex			1.00	-.183	.179	-.029	.220
Age				1.00	.113	-.271	.028
PSF-K					1.00	-.168	.505
AL						1.00	.261
PSF-1							1.00

MULTIPLE LINEAR REGRESSION

Model Fit	R^2	$R^2_{Adj.}$
F [6, 101] =1.732; p=.121	.093	.039

TABLE 13

Multiple Regression predicting DIBELS ORF-2 (ORF-2) from School Year (SY), Sex, Age in days, DIBELS PSF-K (PSF-K), Advancement Level (AL), DIBELS PSF-1 (PSF-1), DIBELS ORF-1 (ORF-1)

DESCRIPTIVE STATISTICS

Variable	n	Mean	S.D.	Range
ORF-2	102	89.22	34.48	22 - 194
SY	102	2002.66	.50	2001 - 2003
Sex	102	.47	.50	0 - 1
Age in days	102	1998.77	126.38	1789 - 2362
PSF-K	102	29.85	16.71	0 - 67
AL	102	.16	.37	0 - 1
PSF-1	102	29.44	16.83	0 - 63
ORF-1	102	50.21	25.66	11 - 145

CORRELATION MATRIX

	ORF-2	SY	Sex	Age	PSF-K	AL	PSF-1	ORF-1
ORF-2	1.00	-.014	.032	.129	.224	-.231	.102	.755
SY		1.00	-.061	.098	.209	-.028	.134	-.110
Sex			1.00	-.175	.173	-.029	.206	.058
Age				1.00	.125	-.271	.057	.159
PSF-K					1.00	-.169	.507	.194
AL						1.00	.278	-.235
PSF-1							1.00	.025
ORF-1								1.00

MULTIPLE LINEAR REGRESSION -

Model Fit	R^2	$R^2_{Adj.}$
F [7, 94] =19.254; p<.001	.589	.559

Variable(s) in Equation

	B	SE B	b	t	*p*
SY	3.40	4.79	.05	.71	.48
Sex	-2.76	4.82	-.04	-.57	.57
Age	-.01	.02	-.03	-.47	.64
PSF-K	.02	.17	.01	.12	.90
AL	-8.91	7.45	-.09	-1.20	.23
PSF-1	.22	.18	.11	1.24	.22
ORF-1	1.00	.09	.74	10.56	<.01

Research Question #5 - Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Reading Level-3?

A review of the residuals indicated normality and equal variance. Linearity was confirmed through scattergrams. Reading Level-3, as measured by the PSSA third grade reading subtest, was significantly predicted by this model. However, $R^2_{Adj.}$ was .316, indicating that the variables only accounted for approximately 32% of the variance in this model. DIBELS ORF-2 was the only significant contributor (t=4.17, $p<.001$). This analysis indicated that a student's second grade DIBELS ORF score had a positive predictive relationship with his or her score on the PSSA 3rd grade reading subtest. The other variables in this model did not significantly contribute to the overall model as outlined in Table 14.

Research Question #6 - Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Math Level-3?

A review of the residuals indicated normality and equal variance. Linearity was confirmed through scattergrams. As previously defined, Math Level-3 was the standard score from the PSSA third grade mathematics subtest. The model using this combination of variables was a significant predictor of Math Level-3 (F=13.093, $p<.001$). $R^2_{Adj.}$ was .497, indicating that the variables accounted for approximately 50% of the variance in this model. When the variables were controlled, only DIBELS ORF-2 was a significant individual contributor (t=5.80, $p<.001$). This revealed that a significant positive relationship existed between a student's second grade DIBELS ORF score and his or her score on the

PSSA third grade mathematics subtest. No other variables in this model significantly contributed to the overall model as outlined in Table 15.

TABLE 14

Multiple Regression predicting Reading Level-3 (RL3) from School Year (SY), Sex, Age in days, DIBELS PSF-K (PSF-K), Advancement Level (AL), DIBELS PSF-1 (PSF-1), DIBELS ORF-1 (ORF-1), DIBELS ORF-2 (ORF-2)

DESCRIPTIVE STATISTICS

Variable	n	Mean	S.D.	Range
RL3	99	1258.80	146.59	945 - 1692
SY	99	2002.66	.50	2001 - 2003
Sex	99	.47	.50	0 - 1
Age in days	99	2002.88	125.32	1827 - 2362
PSF-K	99	24.32	17.75	0 - 67
AL	99	.15	.36	0 - 1
PSF-1	99	29.35	16.84	0 - 63
ORF-1	99	50.84	25.74	11 - 145
ORF-2	99	90.08	34.26	24 - 194

CORRELATION MATRIX

	RL3	SY	Sex	Age	PSF-K	AL	PSF-1	ORF-1	ORF-2
RL3	1.00	-.007	.070	.082	.229	-.220	.120	.456	.589
SY		1.00	-.035	.097	.202	-.048	.120	-.105	-.010
Sex			1.00	-.186	.190	-.007	.231	.045	.023
Age				1.00	.113	-.252	.048	.134	.092
PSF-K					1.00	-.159	.496	.196	.214
AL						1.00	.302	-.218	-.199
PSF-1							1.00	.029	.093
ORF-1								1.00	.753
ORF-2									1.00

MULTIPLE LINEAR REGRESSION -

Model Fit	R^2	$R^2_{Adj.}$
F [8, 90] =6.657; p<.001	.372	.316

Variable(s) in Equation

	B	SE B	b	t	*p*
SY	-7.68	25.66	-.03	-.30	.77
Sex	7.76	26.07	.03	.30	.77
Age	-.00	.15	-.00	-.03	.98
PSF-K	.43	.88	.05	.49	.63
AL	-52.53	40.74	-.13	-1.29	.20
PSF-1	.70	.97	.08	.72	.47
ORF-1	.04	.74	.01	.05	.96
ORF-2	2.31	.55	.54	4.17	<.01

TABLE 15

Multiple Regression predicting Math Level-3 (ML3) from School Year (SY), Sex, Age in days, DIBELS PSF-K (PSF-K), Advancement Level (AL), DIBELS PSF-1 (PSF-1), DIBELS ORF-1 (ORF-1), DIBELS ORF-2 (ORF-2)

DESCRIPTIVE STATISTICS

Variable	n	Mean	S.D.	Range
ML3	99	1291.99	160.73	919 - 1872
SY	99	2002.66	.50	2001 - 2003
Sex	99	.47	.50	0 - 1
Age in days	99	2002.88	125.32	1827 - 2362
PSF-K	99	24.32	17.75	0 - 67
AL	99	.15	.36	0 - 1
PSF-1	99	29.35	16.84	0 - 63
ORF-1	99	50.84	25.74	11 - 145
ORF-2	99	90.08	34.26	24 - 194

CORRELATION MATRIX

	RL3	SY	Sex	Age	PSF-K	AL	PSF-1	ORF-1	ORF-2
ML3	1.00	.124	.129	.151	.341	-.182	.251	.507	.682
SY		1.00	-.035	.097	.202	-.048	.120	-.105	-.010
Sex			1.00	-.186	.190	-.007	.231	.045	.023
Age				1.00	.113	-.252	.048	.134	.092
PSF-K					1.00	-.159	.496	.196	.214
AL						1.00	.302	-.218	-.199
PSF-1							1.00	.029	.093
ORF-1								1.00	.753
ORF-2									1.00

MULTIPLE LINEAR REGRESSION -

Model Fit	R^2	$R^2_{Adj.}$
F [8, 90] =13.093; p<.001	.538	.497

Variable(s) in Equation

	B	SE B	b	t	*p*
SY	28.49	24.13	.09	1.18	.24
Sex	26.49	24.51	.08	1.08	.28
Age	.09	.10	.07	.89	.38
PSF-K	.81	.83	.09	.98	.33
AL	-27.77	38.31	-.06	-.73	.47
PSF-1	1.28	.91	.13	1.41	.16
ORF-1	-.09	.70	-.02	-.13	.90
ORF-2	3.01	.52	.64	5.80	<.01

Research Question #7 - Is there a Difference in the Rate of Learning based on Advancement Level?

The data was reviewed, and normality and equal variance for each group was confirmed. To determine each student's rate of learning, a correlation was completed between DIBELS ORF scores from first, second, and third grade and the grade of each assessment. Within each student's correlation, the B weight yielded the rate of learning or change over time. This rate of learning for each student was then compared for regularly promoted versus transitional first grade students. There was not a significant difference between the rate of learning for each group as summarized in Table 15.

Table 16

Rate of Learning for Transitional First Grade Students versus Regularly Promoted Students

Group	n	Mean	s	Range	t	*p*
Transitional First Grade	11	19.1	9.9	-1.5 – 28.0	-.095	.82
Regularly Promoted	50	10.4	10.4	-13.5 – 43.5		

Summary

The results of the statistical analysis are outlined in this chapter. Initially to determine treatment integrity, a teacher survey was to be attempted; however, the return rate was 0%. Therefore, the district's guidelines and a parent information pamphlet were reviewed to establish treatment integrity. This information indicated that several characteristics of a typical transitional first grade program were present, including a developmentally appropriate curriculum, an extra year of school for development, a small student-to-teacher ratio, and individualized goals and instruction.

The research questions investigated by this study used archival data. Data for approximately 100 students were included. Based on the analysis results, several research questions yielded statistically significant results. In particular, the model that employed school year, sex, age, and DIBELS PSF-K to predict advancement level was significant at the p=.020 level. Within this model, age was found to be a significant contributor to the overall model, younger students were more likely to attend a transitional first grade program. DIBELS PSF-1 was significantly predicted by the model that combined school year, sex, age, DIBELS PSF-K and advancement level ($p<.001$). With the other variables controlled, DIBELS PSF-K scores, advancement level, and sex were significant predictors of DIBELS PSF-1 scores. DIBELS PSF-K scores had a significant positive relationship with DIBELS PSF-1 scores. Additionally, transitional first grade attendees and females were individually more likely to score higher on the DIBELS PSF-1 subtest.

The model using school year, sex, age, DIBELS PSF-K, advancement level, and DIBELS PSF-1 was not a significant predictor of DIBELS ORF-1. Within this model, no individual variables were significant predictors. DIBELS ORF-2 was significantly predicted by the combination of school year, sex, age, DIBELS PSF-K, advancement level, DIBELS PSF-1, and DIBELS ORF-1 at the $p<.001$ level. DIBELS ORF-1 was the only significant contributor to the overall model, with a positive relationship to DIBELS ORF-2. Both PSSA third grade reading and mathematics subtest scores were significantly predicted by the model combining school year, sex, age, DIBELS PSF-K, advancement level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 at the $p<.001$. With both the reading and the math subtests, the only significant contributor to the overall model was DIBELS ORF-2. DIBELS ORF-2 scores had a

significant positive relationship to both the PSSA third grade reading and math subtest scores. The final research question results showed no significant difference in rate of learning between regularly promoted students and students who attended a transitional first grade program.

CHAPTER V

DISCUSSION

This research investigated seven main research questions as previously detailed. Initially, several demographic variables and one reading readiness measure were used to predict a student's likelihood of participating in a transitional first grade program. Then, a series of regressions was completed using these variables to predict a student's achievement on several achievement indicators. Finally, differences in rate of learning were investigated for transitional first grade students versus regularly promoted students.

While several of the research questions were found to be statistically significant, the variables accounted for only a limited percentage of the variance. Additionally, several limitations were present that may have influenced the validity of this research. Because of this, the results of this research are extremely difficulty to generalize to other samples. Therefore, the results will be presented as they pertain to the targeted district.

Discussion of Research Questions and Hypotheses

Research Question #1: Do Historical Impact, Sex, Developmental Status, and Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Phoneme Segmentation Fluency (PSF)–Kindergarten Level (K) predict Advancement Level?

To evaluate this research question a multiple regression was used. No prior research was available to develop a hypothesis regarding effects of historical impact, defined as kindergarten year. The results of this research indicated historical impact had no

significant impact on advancement level, defined as attending transitional first grade or being regularly promoted.

Past studies indicated that males were more likely to be placed in transitional first grade; however, this research indicated that there was no difference between sexes (Burkam et al, 2007; Boettger, 1994; Ferguson, 1996; Frederick & Hauser, 2008; Frey, 2005; Mantzicopoulos, 2003; Mantzicopoulos & Neuharth-Pritchett, 1998; Meisels & Liaw, 1993). The reason a statistically significant difference was not observed could be due to the small sample size used in this study.

The next part of the research question explored the relationship between developmental status, defined as the age at which the student entered kindergarten, and the likelihood of participating in a transitional first grade program. This research supported past research denoting that younger students were more likely to participate in these programs (Burkam et al, 2007; Ferguson, 1996; Frederick & Hauser, 2008; Mantzicopoulos, 2003; Mantzicopoulos & Neuharth-Pritchett, 1998). To support this trend, research has cited the educational belief that an extra year allows younger students time to mature and develop (Brewer, 1990). This additional time is intended or believed to prepare students for the demands of first grade, as suggested by the maturationist philosophy (Brewer; Gredler, 2000).

Students who were enrolled in the transitional first grade program did not perform lower on the DIBELS PSF-K as was hypothesized. Previous research indicated that school readiness skills play a role in placement decisions, indicating that schools use skill assessments to identify at-risk students who would benefit from the remediation provided in these programs (Uphoff, 1990; Brewer, 1990). This decision process is based on the behaviorist philosophy, which states

transitional first grade programs are intended to remediate specific skills (Gredler, 2000). However, the targeted program appeared to have been governed by an underlying maturationist philosophy. With this orientation, age rather than reading readiness was more critical in determining placement. This would explain why students with low DIBELS PSF-K scores were not more prominently represented in the transitional first grade group.

Research Question #2: Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, and Advancement Level predict DIBELS PSF-1st Grade Level (1)?

The multiple regression used to evaluate this question indicated no predictive relationship between historical impact, kindergarten year, and DIBELS PSF-1. Since no past research was available, no original hypothesis was given for this relationship.

Regarding sex, previous research indicated that in early elementary school males score lower than females on reading assessments (Chatterji, 2006; Harper & Pelletier, 2008; Nowell & Hedges, 1998; Moss, 2000). In this study, sex was predictive of DIBELS PSF-1 scores, with males obtaining lower scores than females, confirming previous research.

This study hypothesized that younger students would have lower DIBELS PSF-1 scores; however, this hypothesis was not supported by the current research. A statistically significant difference may not have been evident due to the range of ages, which spanned 573 days, or possibly due to the restricted sample size.

Past research conducted on the DIBELS indicated that DIBELS PSF-K scores were predictive of DIBELS PSF-1 scores (Kaminski & Good, 1996). The current research study hypothesized that there would be no

difference between transitional first grade students and regularly promoted students on DIBELS PSF-1; the study did not confirm this. The hypothesis was based on past research that indicated small, initial, positive academic gains for students who attended transitional first grade (Mantzicopoulos, 2003). It was originally assumed that transitional first grade students would perform at lower levels than their regularly promoted peers prior to transitional first grade. Thus, a small, positive gain would show transitional first grade students performing equally well compared to regularly promoted students. This rationale led to the hypothesis that transitional first grade students would "catch up" to their regularly promoted peers, and therefore, no differences would be seen on the DIBELS PSF-1. However, this research study indicated that the transitional first grade students scored higher on the DIBELS PSF-1 than their regularly promoted peers. While the hypothesis was disproved, the rationale behind it was confirmed. Because there were no pre-program differences, a small, positive gain for the transitional first grade students led them to surpass their regularly promoted peers in performance.

Research Question #3: Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, and DIBELS PSF-1 predict DIBELS Oral Reading Fluency (ORF)-1st Grade Level (1)?

To evaluate this research question a multiple regression was employed. A hypothesis was not developed for historical impact and DIBELS ORF-1 since no previous research was available. This research indicated that historical impact, defined as kindergarten entrance year, was not able to significantly predict DIBELS ORF-1 scores.

The hypothesis that no differences would be seen in DIBELS ORF-1 scores based on advancement level (attending transitional first grade or being regularly promoted) was supported by this research. This hypothesis was rendered according to previous research indicating small, initial, positive gains for students who attended a transitional first grade program (Mantzicopoulos, 2003). No difference between the groups would have indicated that transitional first grade students "caught up" and were performing equally to their regularly promoted peers at the end of first grade. Although the original hypothesis was supported by the current research, the rationale is not consistent. Before transitional first grade, the students in both groups were performing equally on reading readiness assessments. At the beginning of first grade, transitional first grade students performed better than their regularly promoted peers; however, by the end of first grade the students were again performing equally. This indicates any initial, positive academic gains that were seen at the beginning of first grade were already gone by the end of first grade.

Regarding the relationship between sex and DIBELS ORF-1, several research studies indicated that females outperformed males on assessments of early reading skills (Chatterji, 2006; Harper & Pelletier, 2008; Nowell & Hedges, 1998; Moss, 2000). However, the current research did not find any sex differences. This conflict with previous research may have been due to the small sample size employed for this study.

It was hypothesized that younger students would have lower DIBELS ORF-1 scores. However, a significant difference was not observed in this study. A statistically significant difference may not have been evident due to the significant range of ages (which spanned 573 days) or due to the limited sample size.

Measurement statistics completed on the DIBELS indicated that DIBELS PSF-K scores and DIBELS PSF-1 scores were predictive of DIBELS ORF-1 (Kaminski & Good, 1996). However, this relationship was not found to be significant in this study. The reason for this inconsistency is not clear but could be due to the restricted sample size investigated.

Research Question #4: Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, DIBELS PSF-1, and DIBELS ORF-1 predict DIBELS ORF-2nd Grade Level (2)?

To evaluate this question, a multiple regression was completed. No hypothesis was tenable for the relationship between historical impact, kindergarten year, and DIBELS ORF-2 scores. This research indicated that kindergarten year was not predictive of DIBELS ORF-2 scores.

Previous research completed on the DIBELS indicated that DIBELS ORF-1 was an accurate predictor of DIBELS ORF-2 (University of Oregon, 2002). This research was consistent with past research and found a significant positive relationship between first grade DIBELS ORF scores and second grade DIBELS ORF scores.

The current research also supports the hypothesis that transitional first grade students and regularly promoted students did not differ in regard to their DIBELS ORF-2 scores. This hypothesis was formulated in line with previous research that indicated initial, small, positive gains for students who attended a transitional first grade program (Mantzicopoulos, 2003). This would have enabled transitional first grade students to "catch up" and perform equally to their regularly promoted peers. However, the transitional first grade students did not need to "catch up" since before transitional first

grade, the students in both groups were performing equally on reading readiness assessments. At the beginning of first grade, transitional first grade students performed better than their regularly promoted peers, but by the end of first grade the students were performing at levels equal to their pre-program relationship. This pre-program relationship continued through second grade, indicating that any initial, positive gains seen at the beginning of first grade had disappeared by the end of first grade and continued to be absent throughout second grade.

Based on previous research, it was hypothesized that males would have lower DIBELS ORF-2 scores than females did (Chatterji, 2006; Harper & Pelletier, 2008; Nowell & Hedges, 1998; Moss, 2000). The current research did not support that hypothesis. It is possible that due to the small sample size, a statistically significant difference was not observable.

This research also hypothesized that the younger students would score lower on the DIBELS ORF-2. This hypothesis was not confirmed by the results of this study. It is possible that younger students did not score lower due to the 573-day range of ages in the sample, or due to the restricted sample size.

Based on DIBELS validity research, it was hypothesized that DIBELS PSF-K scores and DIBELS PSF-1 scores would be predictive of DIBELS ORF-2 scores; however, neither relationship was supported by the current study (Kaminski & Good, 1996; Good & Kaminski, 2002). It is unclear why this hypothesis was not confirmed but could be due to the restricted sample size.

Research Question #5: Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Reading Level-3?

A multiple regression was used to investigate this hypothesis. For this hypothesis, Reading Level-3 was defined as a standard score from the third grade reading subtest of the PSSA. The current research indicated no relationship between historical impact, kindergarten year, and third grade reading PSSA scores.

Previous research indicated that DIBELS ORF-2 was predictive of a student's performance on several high-stakes reading assessments (Barger, 2003; Buck & Torgesen, 2006; Vander Meer, Lentz, & Stollar, 2005; Wilson, 2005). Therefore, it was hypothesized that DIBELS ORF-2 would be predictive of third grade reading PSSA scores. The current research supported this hypothesis.

The current research did not support previous research that males score lower than females on elementary reading assessments (Chatterji, 2006; Harper & Pelletier, 2008; Nowell & Hedges, 1998; Moss, 2000). The restricted sample size may have led to the results being inconsistent with the hypothesis.

It was hypothesized that younger students would score lower than older students on the third grade reading PSSA. However, this was not seen in the current research. This could be due to the 535-day age range present or the restricted sample size.

Past research indicated that DIBELS PSF-K scores, DIBELS PSF-1 scores, and DIBELS ORF-1 scores were predictive of a student's achievement on high-stakes reading assessments (Barger, 2003; Buck & Torgesen, 2006; Kaminski & Good, 1996; Vander Meer, Lentz, & Stollar, 2005; Wilson, 2005). However, the current research did not support

these findings. The reason for this disagreement was unclear but could have been due to the limited sample size used for this study.

Originally, it was hypothesized that regularly promoted students would perform better than transitional first grade students on the third grade reading subtest of the PSSA. This hypothesis evolved from previous research that indicated any initial, positive gains for students who attended a transitional first grade program were not evident for prolonged periods (Mantzicopoulos, 2003). With the assumption that prior to transitional first grade, transitional first grade students were performing lower than their regularly promoted peers, it was hypothesized that by third grade this relationship would have returned. By third grade, any initial, positive gains would have dissipated, and transitional first grade students would once again be performing lower than the regularly promoted students. Of interest, the rationale behind the initial hypothesis was supported, in that the two groups returned to their pre-program relationship. However, the initial assumption that there would be pre-program differences was incorrect. This led to the disproval of the hypothesis that regularly promoted students would outperform transitional first grade students on the third grade reading PSSA.

Research Question #6: Do Historical Impact, Sex, Developmental Status, DIBELS PSF-K, Advancement Level, DIBELS PSF-1, DIBELS ORF-1, and DIBELS ORF-2 predict Math Level-3?

A multiple regression was completed to investigate this research question. Math Level-3 was defined as the standard score on the third grade mathematics subtest of the PSSA. Regarding the first part of the analysis, no relationship was evident between historical impact, year of kindergarten, and third grade math PSSA scores.

Previous research indicated that males and females performed equally on math assessments during early elementary school (Hyde et al., 1990; Leahey & Guo, 2001; Van de geer et al, 2008). This research supported the findings of the past research.

It was hypothesized that younger students would score lower on the third grade math PSSA. However, a significant difference was not observed in this study. This could be due to the significant range of ages or the restricted sample size.

No hypotheses were made regarding the predictive nature of DIBELS PSF-K scores, DIBELS PSF-1 scores, DIBELS ORF-1 scores, DIBELS ORF-2 scores in regards to third grade math PSSA scores. The current research indicated DIBELS PSF-K scores, DIBELS PSF-1 scores, and DIBELS ORF-1 scores were not predictive of 3rd grade math PSSA scores. The results did, however, show evidence that DIBELS ORF-2 scores were predictive of third grade math PSSA scores. This could be due to the fact high DIBELS ORF-2 scores identified good students and not just good readers. This would indicate that they may excel in other academic areas, such as math.

Originally, it was hypothesized that regularly promoted students would perform better than transitional first grade students on the third grade math subtest of the PSSA. This hypothesis was developed given previous research that indicated initial positive gains for transitional first grade students were not evident for prolonged periods (Mantzicopoulos, 2003). With the assumption that prior to transitional first grade, transitional first grade students would be performing lower than their regularly promoted peers, the hypothesis was developed that the students would return to this pre-program relationship. Therefore, the rationale behind the initial hypothesis was supported except the initial assumption that there would be pre-

program differences was incorrect. This led to a contradiction of the hypothesis that regularly promoted students would outperform transitional first grade students on the third grade math PSSA.

Research #7: Is there a Difference in the Student's Rate of Learning based on Advancement Level?

In order to investigate this research question, a t-test was run with the grouping variable of advancement level and the dependent variable of the student's rate of learning. The student's rate of learning was obtained using the DIBELS ORF scores in first, second, and third grade. It was hypothesized that transitional first grade students would have slower rates of learning than their regularly promoted peers. However, this difference was not evident in this study. The hypothesis was based on the assumption that the program would be governed by a behaviorist philosophy and used to remediate students struggling academically. Thus, academically challenged students would be more likely to attend the program. However, there were no initial reading readiness differences between the two groups, indicating academically at-risk students may not have been the target of this program. It appears that the placement decision was made based on age, a maturationist philosophy, and not on school readiness skills. This would explain why no rate of learning differences were seen between the two groups.

Limitations

While this research provided several significant results, there were some limitations that could affect the validity of the findings. These restrictions include trouble obtaining an adequate control group. Additionally, subject selection may have been problematic since some originally obtained subjects had to be dropped due to lack of necessary

data. Finally, the ability to generalize the results may be hindered by the restricted sample size.

A critical limitation of this research was due to the inability to secure an appropriate control group. For this study, no information was available in the archival data to match transitional first grade students with students who did not attend the program. Therefore, it was initially proposed that the control group consist of students who were recommended for the program but did not participate. Since both groups would have been recommended for the program, there was an assumption that their characteristics would be similar. However, a limited number of students in the sample were recommended for the program but did not attend. Since the number of subjects in this group was so small, they could not be used as a control group. Thus, regularly promoted peers were used as a comparison group. Several concerns arise from this condition. One concern is that developmental factors may have influenced results since the transitional first grade students were a year older than regularly promoted students when the assessments were administered (Mantzicopoulos, 2003). Additionally, the transitional first grade students would have received an extra year of formal schooling beyond the regularly promoted first, second, and third graders (Mantzicopoulos, 2003). Finally, there are concerns that the groups may have differed on other factors that were not documented such as, behavioral characteristics, family involvement, and/or emotional adjustment.

Subject selection might also have affected the validity of the current findings. Originally, 816 students were to be included in this study; however, only about 100 students had all the data necessary for inclusion. In other words, only 12% of the originally proposed group was included in the study. While no selection bias is apparent, it is

impossible to verify that a specific subset of students was not identified through this process. For example, it is possible that students with attendance issues or students with behavioral issues may not have had all the needed data. Therefore, it is impossible to completely prove that the students included in this study did not comprise a specific subset, i.e. students with good attendance or students with good behavior.

The ability to generalize the results is the final limitation of this study. The sample used for this research was taken from a single, rural, low socioeconomic location. Since the sample demographics are restricted, the ability to generalize the results is limited to those schools with similar demographics. These same results may not be evident in an urban school district or in a district with middle or upper socioeconomic status. However, it is also important to note there are numerous school districts that do fit the specific demographics of the targeted group, and the results could be easily generalized to them.

While several limitations may restrict the validity of this study, the purpose of this research was to add to the very limited body of transitional first grade research. Consequently, even with these limitations, the overall goal was accomplished. Several valuable results were gained from this study that have varying implications in an educational setting.

Implications of the Study

The results of this research have many practical implications for the educational setting. To begin with, the emphasis of age over school readiness skills indicates that the targeted school should examine how and why transitional first grade placement decisions are made. Since the referral criteria for the targeted transitional first

grade program was not based on academic need, it is difficult to determine the effectiveness of this program in assisting struggling students. Moreover, the effectiveness of second grade oral reading fluency in predicting success on third grade PSSA, in both reading and math, suggests that schools should use these scores to target at-risk students for intervention.

The results of this study indicate that age rather than reading readiness is a significant predictor of participation in the targeted transitional first grade program. The emphasis on age for placement decisions indicates that the program decisions are based on a maturationist philosophy. This theory indicates that age is a significant factor in a student's readiness for academic success (Brewer, 1990; Gredler, 2000). By allowing young students an extra year to develop, they will be more ready for, and more successful with, the academic demands of first grade (Brewer; Gredler). However, if the goal is simply to provide students with an extra year, then these programs are being used in the same way as retention or academic red-shirting, which have both been proven to be harmful (Frey, 2005). Supporters for transitional first grade argue that these programs are specially designed intervention programs that can give struggling students an opportunity to "catch up" with their peers (Burkam et al., 2007; Frederick & Hauser, 2008; Mantzicopoulos & Neuharth-Pritchett, 1998). However, since the referral criteria of the targeted district indicated academic readiness is not a predictor of referral, then this district is not using the program to intervene with struggling students. This is in keeping with patterns seen in retention research (Burkam et al.; Frederick & Hauser; Mantzicopoulos & Neuharth-Pritchett). While transitional first grade supporters argue that this program is specialized and not simply mimicking retention, it appears

that the targeted district is approaching their transitional first grade as a form of retention. Therefore, referral criteria as it relates to the goal of the program needs to be further investigated.

While the main purpose of this research was to determine the effectiveness of transitional first grade programs on remediating academically at-risk students, no definite results were generated by this study. The targeted district appeared to have very lax referral criteria for its program. The program appeared to target young students and not those who were academically at risk. Therefore, it is impossible to determine if this program was effective since it did not appear to target the appropriate students.

This research supports previous findings that second grade oral reading fluency is an effective predictor of student performance on high-stakes assessments in reading (Barger, 2003; Buck & Torgesen, 2006; Vander Meer et al., 2005; Wilson, 2005). It further indicates that second grade oral reading fluency is predictive of performance on high-stakes assessments in math. With this information, school districts could use oral reading fluency scores to target at-risk students before high-stakes assessments are administered. With districts struggling to make annual yearly progress, using oral reading fluency to drive instruction could enable districts to optimize student growth. It is a quick, efficient, and accurate way to target at-risk students in order to provide them with early intervention. This research also helps to solidify the link between oral reading fluency and PSSA results. With this direct link, more Pennsylvania districts and teachers may be apt to utilize this information.

The results of this study have several implications for the educational setting. These inferences are valid ideas to assist districts in better serving their students, not only through

transitional first grade but with the use of instruction driven by oral reading fluency assessments. While these findings are valuable, several recommendations can be made for future researchers intending to (more validly) investigate transitional first grade programs.

Recommendations for Future Research

The pressure continues for schools to intervene early with at-risk students prior to the administration of high-stakes assessments. The use of retention and transitional programs has risen in an apparent attempt to address the needs of students who may not have the skills to pass these high-stakes assessments (Burkam et al, 2007; Frey, 2005; Hong & Yu, 2008; Picklo & Christenson, 2005). The need to effectively investigate these programs is imperative so that districts can efficiently use their funding and resources to address the need to make annual yearly progress. Therefore, further research in this area should continue with several recommendations for improvement.

One flaw of the current research and several other studies on this topic is the use of a restricted sample size (Mantzicopoulos, 2003; Southard & May, 1996). To improve on this, future research into transitional first grade programs should employ a larger, more representative sample size. This would enable the results to be more easily generalized while increasing the overall validity. Since the use of these programs is increasing, more subjects should start to become available. However, even if large sample sizes cannot be obtained, future researchers using smaller samples should not be discouraged. If multiple, smaller studies are conducted, a meta-analysis of these could provide the desired ability to generalize as well as increased validity.

In the future, there should be attempts made to obtain a more appropriate control group. Much transitional first grade research

discusses the difficulties of identifying and obtaining an appropriate control group (Mantzicopoulos, 2003). Ideally, matching students on all important variables and randomly assigning them to be promoted or placed in transitional first grade would provide the most valid results. However, this is impossible in an educational setting. Therefore, using students who are matched on these variables without random assignment would effectively obtain an appropriate control group. An alternative would be to use a group of students that were recommended for the program but did not attend, as was initially proposed by the current research. By identifying a group of students that educators have recommended for the program, specific characteristics would be matched based on referral criteria. This would also provide future investigators with an appropriate control group.

Additionally, future research should investigate the referral criteria of transitional first grade programs. While supporters argue that these are specially designed programs which enable struggling students to "catch-up" with their peers, the referral criteria often used does not support that (Gredler, 2000; Mantzicopoulos, 2003; Southard & May, 1996; Uphoff, 1990). Research should be performed that examines referral criteria as it relates to the underlying goal of transitional first grade programs: future educational success.

Finally, future research into areas beyond academics should be explored. Research on retention indicates significant negative effects in areas such as self-esteem, behavioral difficulties, and attendance (Burkam et al., 2007; Canter & Carey, 1998; Canter et al., 1998; David, 2008; Fredrick & Hauser, 2008; Frey, 2005;Gay, 2002; Gleason et al., 2007; Hong & Yu, 2008; Jimerson et al., 2005; Larsen & Akmal, 2007; Meisels & Liaw, 1993; Mohl & Slifer, 2005; Natale, 1991; Owings &

Magliano, 1998; Picklo & Christenson, 2005). Therefore, it is imperative that the relationship between these factors and transitional first grade programs be investigated to rule out any possible negative effects so that responsible decisions can be made.

Overall, future research should take steps to obtain a more representative sample, use a better control group, investigate referral criteria and investigate emotional and behavioral factors. If these steps are taken, the information gained will assist in determining the effectiveness of transitional first grade programs. Then, schools can make conscientious decisions based on sound research regarding the most effective way to meet students' needs.

Summary

This chapter detailed the results of the current study and provided implications of these findings. The results indicated that transitional first grade referrals may be based too heavily on age, and therefore not targeting academically at-risk students. This research is inconclusive regarding the effectiveness of transitional first grade programs on remediating academically at-risk students. Significantly, findings indicated that second grade oral reading fluency predicts third grade PSSA reading and math scores. Finally, limitations of this study were discussed and directions for future research were offered.

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Appendix A: Consent Form for Treatment Integrity Survey

Tuscarora School District
118 East Seminary Street
Mercersburg, Pennsylvania 17236

Dear Teacher:

I am currently a doctoral student in the school psychology program at Indiana University of Pennsylvania(IUP). As part of the doctoral program, I am completing a dissertation entitled "The Effectiveness of Transitional First Grade Programs on Increasing the Academic Success of Students Through Third Grade." I will be using data collected at the Tuscarora School District during the time the Developmental First Grade Program was in operation. The goal of my research is to begin to build a body of research that looks specifically at Transitional First Grade Programs, in order to eliminate the reliance on retention research to determine the programs effectiveness. In order to achieve this, I need to substantiate the underlying assumption that Transitional First Grade Programs are specialized programs and differ from traditional or typical classrooms. Therefore, I would like to collect data from the teachers of the Tuscarora School District's Developmental First Grade Program to determine how these classrooms differed from other classrooms. The information you are required to give for participation in this study is detailed on the attached questionnaire. This questionnaire can be completed during an interview session or, if you prefer, it can be completed independently.

I need your permission to use the results of this attached form in my research. No information that identifies you, your school, your school district, or your students will be used in this study or shared with school district personnel or administration. IUP supports the practice of protection of human subjects participating in research. The research has been approved by the IUP Institutional Review Board for the Protection of Human Subject (Phone: 724-357-7730). This research has also been approved by the Tuscarora School District. There are no known risks or discomforts associated with completing this form. Although your participation is requested, it is strictly voluntary. If you choose not to participate, you do not need to do anything. If you are willing to complete the form (via interview or independently) and will allow me to use the information you provide in my research, please indicate that in the appropriate box, sign the permission at the end of this

letter, and return it in the enclosed envelope. I will then be in contact with you via phone to discuss collecting the information and/or an appropriate meeting date and time.

Thank you for all the work you have done to help students achieve to their fullest potential. I realize as a fellow member of the public education system that your time is limited and valuable. Your cooperation and input in this research is extremely appreciated. If you have any questions please contact me at 814-766-2946 or my Committee Chairperson, Dr. Lynanne Black, at 724-357-4757.

Sincerely,

Megan Lynn Buchner

☐Yes, you may use the information provided in the attached form in your research study.

_____ _____

Signature Date

Appendix B: Treatment Integrity Survey

Please circle YES or NO to the following questions.

1. Did your transitional first grade classroom incorporated more student directed activities than a traditional classroom?

YES NO

2. Did your transitional first grade classroom have more parental involvement than a traditional classroom?

YES NO

3. Were parents involved in the decision to place their child in your transitional first grade classroom?

YES NO

4. Did your transitional first grade classroom provide a welcoming environment to the students' parents?

YES NO

5. Was the content of your transitional first grade classroom developmentally appropriate?

YES NO

6. Did your transitional first grade classroom have a smaller student to teacher ratio than traditional classroom?

YES NO

7. Were there clear expectations and goals established when the students started in your transitional first grade classroom?

YES NO

8. Were there clear criteria established for students to exit your transitional first grade classroom?

YES NO

~~~~~~

Please mark the box that indicates the frequency that is appropriate for each question.

	Less than once a week	Once a week	Two or three times a week	Once a day	Two or more times a day
On average, how often did your students plan, organize, implement, record and/or evaluate their own work?					
On average, how often were your students actively involved in the classroom environment?					
On average, how often did your students receive individualized instruction?					
On average, how often were your students instructed at differentiated levels?					
On average, how often were your students allowed to progress at their own rates?					
~~~~~~

	Once every nine week	Once a month	Once a week	Two to three times a week	Once or more daily
On average, how often did you communicate with the parents of the students in your classroom (letters, calls, conferences, etc)?					
On average, how often did you inform the students' parents of classroom content?					
On average, how often were parents invited to participate in classroom activities?					

~~~~~~

How long did you teach transitional first grade? _____

In what ways did your transitional first grade classroom differ from other traditional or typical classrooms?

_____

_____

_____

_____

_____

_____

_____

_____

_____

What was the primary objective of having students attend your transitional first grade classroom? _____

_____

_____

_____

_____

Which philosophy best described your transitional first grade program (circle one)?

a. Maturationist philosophy
   - belief that student's readiness for learning is directly linked to his/her biological maturation
   - your classroom was viewed as an extra year for students to mature to reach the "key point" at which time they are ready to learn

b. Behaviorist philosophy
   - belief that students develop specific skills according to specific sequences
   - your classroom was very structured and remediated students on specific skill deficits

c. Cognitive interactionist philosophy
   - belief that students must reach a specific point in cognitive development before they are able to learn readily in a school setting
   - your classroom had activities and instruction to enhance and improve cognitive development and not specific academic skills

Teacher's Name: _____
~~~~~~

Appendix C: Targeted District's Transitional First Grade Parent Pamphlet

School
District

DEVELOPMENTAL
FIRST PROGRAM

Developmental First is a program designed to provide an additional year of growth for students not yet ready for First Grade.

Providing time to grow

Tele:

WHO QUALIFIES FOR DEVELOPMENTAL FIRST?

Not all children grow or learn at the same pace. At this early age, children undergo major changes physically and cognitively. At this age, it is possible that learning difficulties are simply a result of child development and can be addressed by providing the child with extra time to grow and develop. Developmental First aims to provide your child with success, confidence, and a developmentally appropriate curriculum matched to your child's needs. This extra year of preparation provides a solid foundation for success in first grade where the curriculum becomes more demanding both socially and academically.

- Children who have struggled to grasp basic early reading or math skills in kindergarten
- Children who need more time to acquire a "readiness" to learn simply as a function of maturity (or age)
- Children who lack the confidence to interact with their with peers or their teacher in social or academic situations
- Children who have difficulty working independently.
- Children who have been frequently absent from kindergarten
- Children who are at risk for reading difficulties as identified by the DIBELS Assessment.
- Children needing more teacher attention and scaffolding

School District

DEVELOPMENTAL FIRST PROGRAM

The Developmental First Advantage

Our teachers motivate each student to thrive and grow. Self image and self esteem are developed through achievement in an atmosphere of respect, cooperation, collaboration, kindness, independence and the acceptance of responsibilities.

To enhance beginning reading skills and to give the children a solid academic foundation, reading, writing, and math experiences are incorporated into much of the day.

Concepts and skills are continually practiced and expanded. Students are challenged through a multi-sensory approach to learning that gradually gives way to more abstract ways of learning.

Observations and questions are welcome! If you would like to see a Developmental First grade class in action, please call the numbers listed on this brochure.

Pre-First Grade Guidelines

1. Class Size – Because of the unique nature of this program we believe that an ideal class size is 12 children. However, since it may not be possible to limit enrollment to this number, we recommend that developmental first grade classes not exceed 15.
2. Entrance to Program –
    A. Placement in the program is based on these criteria:
        1. Students with an IQ of 90+
        2. Students who are lagging in one or more of the following areas:
            a. social skills
            b. knowing directions
            c. auditory comprehension
            d. spoken language
            e. motor skills
        3. Placements must have prior building principal approval
    B. Fall Deadline – In the first month of school it sometimes becomes apparent that a change from a regular classroom to a pre first is beneficial for the child. We recommend that no internal changes be made into a pre first grade classroom after September 30 of each school year.
    C. New Enrollees – We believe that any child who is in a pre first classroom prior to enrolling in [District] should able to be placed in our pre first grade classrooms at any time during the school year.
    D. Any child who is new to our district for whom placement in a pre first appears to be appropriate shall be referred to the building principal. The principal shall

seek the guidance of the school psychologist, counselor, and other professional staff members prior to making placement.

E. Return to Regular Program - All children in our pre first grade program will be placed in regular first grade classroom following the pre first grade placement unless enrollment in a special education program is warranted.

3. General Objectives of the Program -

A. Establish and foster a strong teacher-pupil rapport through low student per teacher ratio.

B. Design lessons to insure that each child achieves some degree of success.

C. Develop skills in thinking, listening, following directions, oral expression, visual discrimination and auditory perception.

D. Help the child work effectively within a group.

E. Encourage the child to work independently.

F. To have the group ready to enter a regular first grade at the end of one year.