Running Head: RTI in NYC

Investigating the Effects of a Response to Intervention Framework in New York City

Katherine A. Dougherty Stahl
Annette Keane
Rose Vukovic
New York University
Contact: kay.stahl@nyu.edu

Citation:

Abstract

This paper investigates the pilot implementation of a Response to Intervention framework in an urban setting. The participants were 112 first graders in a treatment condition and 51 first graders in a comparison condition. Repeated measures analysis of variance indicated that there were no statistically significant differences between English Only students and English language Learners in the gains on DIBELS Phoneme Segmentation Fluency (PSF), Correct Letter Sound Fluency (CLSF) or Oral Reading Fluency (ORF). In both conditions, the percentage of children in the highest risk category was reduced from fall to spring as indicated by PSF and CLSF. The rate of improvement for the treatment condition was statistically significant on CLSF and statistically significant for the comparison group on the PSF. Evidence indicates that the treatment schools had success implementing the phonics program, but the application of a tiered intervention process for effectively meeting individual student needs was less effective.
The Individuals with Disabilities Education Improvement Act of 2004 (IDEA, 2004) provided school districts with a new alternative for the identification of children with learning disabilities. Previously, districts had been encouraged to use an IQ-achievement discrepancy model to identify students requiring special education services for reading difficulties. States now have the option of discontinuing the IQ-achievement discrepancy model and using a Response to Intervention (RTI) process in determining eligibility for special education services. The new law allows districts to use 15% of their Special Education funds to provide intervention services to the general education population.

The purpose of RTI is twofold: (1) to provide early intervention for students who are at risk for reading failure and (2) to develop a more valid procedure for identifying students with reading disabilities (Gersten & Dimino, 2006). A great deal still needs to be understood about the effective implementation of RTI programs. There is a growing body of research that is investigating how RTI might accomplish these aims. However, only a fraction of the research investigates how districts and schools are actually moving from an IQ-achievement discrepancy model to an RTI model for identifying eligibility for special education services. There is a paucity of research that describes how schools are implementing RTI frameworks or how effective they are at accomplishing these two aims. The majority of empirical instructional research involving RTI models is initiated and implemented by research teams, not existing teachers and school teams. In this article, we will discuss how a large urban district conceptualized an RTI model and what happened during the pilot implementation in the three schools. Our investigation addressed the following two research questions:

- Did this RTI framework reduce the number of first grade students at risk for reading difficulty?
• Is there evidence to indicate that students who needed tertiary services received them in a timely way?

**Theoretical Framework**

Two theoretical frameworks inform our work. Ecological Systems Theory (Bronfenbrenner, 1979, 1986; Bronfenbrenner & Morris, 1998) is a means of looking at how the interaction of multiple systems directly and indirectly influence student development. These systems include Microsystems (the student’s immediate relationships), mesosystems (relationships between Microsystems or connections between situations), exosystems (external settings and decisions that directly affect the child) and macrosystems (societal influences such as policy, culture, and economics). An ecological perspective provides a lens for understanding how a common RTI framework was implemented in three very different schools.

The second framework is a theory of reading disability (RD). Evidence indicates that children who do not develop foundational literacy skills in the early grades continue to have reading difficulties (Allington & McGill Franzen, 1989; Juel, 1988; Stanovich, 1986). In order to qualify children for the individualized reading support provided by special education, districts were previously required to use an IQ-achievement discrepancy model as the defining characteristic of RD. This is problematic because robust scientific evidence demonstrates that IQ scores are irrelevant to identification of learning disabilities and many children are not properly served or identified by relying on the IQ model (Fletcher et al., 2001; Lyon et al., 2001; Siegel, 1989a; 1989b; Stanovich & Siegel, 1998; Stanovich, 2005; Steubing, Fletcher, LeDoux, Lyon, Shaywitz, & Shaywitz, 2002; Vellutino, Scanlon, & Lyon, 2000). It is also problematic because research has revealed that referrals and assessment decisions are often arbitrary (Harry & Klingner, 2006; Donovan & Cross, 2002; Shinn 2007). Not only have there been increases in the
numbers of children identified with reading disabilities, but students of color are disproportionately identified as needing special education (Donovan & Cross). IDEA 2004 allows districts to use an RTI alternative means of identifying children for special education services and support. The lowest performing children must be identified early and monitored as successively intense tiers of research-based literacy instruction are provided. A major premise of RTI is that children should not need to fail, before receiving additional instructional support.

**The RTI Paradigm**

In order for children to receive the help they need as soon as possible, there must be a system in place for early identification of need and existing support structures. Within the RTI paradigm, students who are likely to have difficulty learning to read are identified as at-risk based on screening assessment results. These at-risk students are closely monitored for responsiveness to their general education instruction (Tier 1). While evidence-based practices are endorsed, no one program has demonstrated clear superiority over another. However, 90 to 120-minute language arts periods that include attention to alphabetics, fluency, vocabulary and comprehension are the common characteristics of effective literacy models. After a predetermined period of instruction, a brief standardized test is administered to determine how the students’ responsiveness to classroom instruction compares to an established norm or standard. Children who are determined to be unresponsive are given more intense instruction (Tier 2), usually in a small group. During the Tier 2 intervention, progress monitoring occurs to determine each student’s response to this more intense instructional intervention. Research indicates that intense instruction and progress monitoring can increase early reading achievement of at-risk students and reduce the numbers of children requiring special education services (McMaster, Fuchs, Fuchs, & Compton, 2005; Pinnell, Lyons, DeFord, Bryk, & Seltzer, 1994;
Vellutino et al., 1996; Vellutino et al., 2000). Students who respond positively to the Tier 2 intervention may exit Tier 2 or continue receiving Tier 2 support until achieving an established goal. Students who do not respond to the Tier 2 intervention move to Tier 3. At this decision point, an evaluation team determines whether the student should receive an individualized, comprehensive evaluation to eliminate visual/auditory difficulties, speech/language impairment, emotional behavior disorders and mental retardation as the causes of nonresponsiveness. When these possible causes have been eliminated, the team (including the child’s parent) may conclude the child needs the ongoing and individualized support available through special education in order to make academic progress (Fuchs, Stecker, & Fuchs, 2008). At this point, IDEA 2004 no longer requires that there be a discrepancy between the child’s IQ and reading achievement.

**RTI Variations**

Different districts and schools are taking different approaches to the implementation of these common elements. One variation is the type of Tier 2 intervention. Variations include problem-solving protocols that vary individually by child and standard treatment protocols that involve a fixed intervention for a fixed duration. In order to keep a clean separation between Tier 2 and special education, Fuchs and Fuchs (2007) recommend that Tier 2 be a small group application of a standard protocol of an evidence-based intervention. This is more likely to insure an intervention that can be applied by school personnel with consistency in format, style, and intensity. In most empirical studies, graduate students or teachers who had been trained and formally observed by the university research teams applied standardized interventions (McMaster et al., 2005; Linan-Thompson, Vaughn, Hickman-Davis, & Kouzekanani, 2003; Vellutino et al., 2000). Decision-making bodies often choose standardized protocols because they are easier to implement, less expensive, and professional development that yields fidelity
and effectiveness can be applied more quickly than is required for the more theoretical problem-solving interventions such as Reading Recovery. In previous studies, group sizes have ranged from one to five children (McMaster et al.; Linan-Thompson et al.; Vellutino et al.). Studies also report variations in how many days a week the intervention occurs. Three or four days is typical. Most intervention sessions range between 30 and 45 minutes. Controversy and ambiguity surround the duration of each intervention cycle. Typically, instructional cycles have ranged from six to twelve weeks (Vaughn & Denton, 2008).

**Developmental Considerations**

There is some preliminary research in the implementation of RTI in the upper grades, but most of the research to date has examined standardized protocols applied in the primary grades (McMaster et al, 2005; Linan-Thompson et al., 2003; Vellutino et al., 1996; Velutino et al., 2000). Evidence indicates that the majority of children with reading disabilities have difficulties with phonological processing, alphabetics, and spelling. These difficulties can often be diagnosed in the primary grades using measures of phonological awareness, word recognition skills, and various forms of oral reading fluency. The accuracy and sensitivity of assessment tasks used to measure these abilities have been confirmed with indications of reliability, validity and correlations to each other and general reading ability in the primary grades (Fuchs, Fuchs & Hamlett, 2007; Reidel, 2007). Measuring children’s difficulty and progress within these constrained abilities is easy to quantify. Constrained abilities are those abilities that tend to develop from nonexistent to ceiling levels in the early grade levels such as letter knowledge, high frequency word recognition, oral reading fluency and to a lesser degree phonological awareness (Paris, 2005). Alternatively, unconstrained abilities like comprehension and vocabulary are complex multi-dimensional abilities that develop across a lifetime. The capacity to measure the
acquisition of phonological awareness, decoding skills and fluency in isolation using valid and reliable assessment tasks make these early reading skills a good match for RTI. Additionally, evidence indicates that given explicit instruction in these constrained abilities, English language learners (ELLs) benefit as much as non-ELLs (Chiappe, Siegel & Wade-Wooley, 2002; Chiappe & Siegel, 2006; Gunn, Biglan, Smolkowski & Ary, 2000; Haager, 2007; Linan-Thompson et al., 2003). The implementation of RTI in the upper grades has been made more challenging by the complexity of the theoretical construct of comprehension.

*Progress Monitoring*

Regular progress monitoring is an essential component of RTI. Progress monitoring is the means by which the school evaluation team, parents and other stakeholders can determine the extent to which the student has benefited from the intervention (Johnson, Mellard, Fuchs, & McKnight, 2006). Regular progress monitoring in Tier 1 can be used to provide information about expected levels of individual student growth or about instructional adjustments that may be needed to accelerate the growth of all students (Johnson et al.). The data from Tier 1 progress monitoring can be used in the early stages of RTI implementation to calculate expected or desired rates of growth. Fuchs and Fuchs (2008) recommend using progress monitoring with all students who score below the 50th percentile on the screening for six to eight weeks to decrease the likelihood of missing any students who might develop reading problems. In Tier 1 progress monitoring might occur once a week or at a minimum once a month (Fuchs & Fuchs) to determine if students are at risk. In Tier 2 and in special education, progress monitoring is the gauge to determine if the student is responding to the intervention and might occur as often as twice a week (Johnson et al.) Preset rules should be established to determine when a student has achieved the goals and might return to general education or when the child is not responding to
the intervention and should be considered for special education. One goal of RTI is to reduce the number of children in special education who do not need special education, not to eliminate the opportunity for those who need more intense support.

Mastery measurement and general outcome measurement are two different types of progress monitoring. Mastery measurement is a sequential skills battery that is evaluated using a mastery criterion. It is frequently used with commercially produced reading materials. For example, a phonics program might teach the vc short a vowel pattern for a week and test students by requiring them to read ten words and spell 10 words with that pattern. Mastery of the skill would be established when they achieved a particular criterion, say 80%.

General outcome measurement or curriculum-based measurement (CBM) is a more comprehensive indicator of overall reading achievement that might be expected over the entire school year. Weekly test administration is timed, standardized and each test is of equivalent content and difficulty. Score improvements reflect the students increasing overall knowledge and fluency with general reading competencies, such as reading fluency or letter-sound associations. Fuchs et al. (2007) and Johnson et al. (2006) recommend the use of CBM over other forms of assessment for progress monitoring due to their sensitivity for measuring inter- and intra-individual differences and growth that is not tied to a particular skill or instructional method. To determine adequate progress, they recommend calculating the mean score for the class and the standard deviation of that mean. The mean minus one standard deviation yields the discrepancy score. This formula is applied to both the outcome measure (e.g words correct per minute) and the slope or weekly rate of improvement. Students who meet the dual discrepancy criterion (1+ standard deviation below the class mean on performance level and slope) are considered
nonresponders (Fuchs & Fuchs, 2008; Fuchs, Fuchs, & Hamlett, 2007; Fuchs Seethaler, Fuchs, & Hamlett, 2008; Johnson et al., 2006; Shinn, 2007).

Most studies of the implementation of RTI have included high levels of involvement with university research teams. These teams have been available to support the intervention and progress monitoring process. However, the demands and priorities of the normal classroom teacher in a general education classroom are quite different than the researcher. Adding assessments requires taking time away from instruction. In order to allocate time for additional assessment, time must be reduced for teacher read-alouds, writing workshop, social studies, art, recess, shared reading or high-level comprehension instruction. Computer technology is not always available to track data in time efficient ways, particularly in poor urban schools. In many urban schools, teachers would need to do all of this record-keeping and data analysis manually. The mere mention of standard deviations and slopes is off-putting and intimidating to many teachers. The logistical challenges of progress monitoring in real classroom and intervention settings have not yet been addressed in the literature. Progress monitoring is underutilized in small special education settings for which it was originally intended (Shinn, 2007), so it is likely to pose a larger challenge with larger groups of children in classrooms with more external demands.

Urban Issues

In an RTI framework, school personnel are jointly accountable for taking immediate action that yields measurable reading results among the diverse student population found in the urban setting. Urban schools are typically populated by linguistically and culturally diverse students who are often members of families with low socio-economic status and low levels of education. This often results in children coming to school with similar language experiences as
children from middle-class families, but a much lower quantity of verbal interactions and less vocabulary (Hart & Risley, 1995; Snow, Burns & Griffin, 1998). Children who have not engaged with word play, nursery rhymes, and magnetic letters before arriving at school will be less likely to have a grasp of the phonological structure of words and letter knowledge that is a prerequisite for successful reading (Adams, 1990). Children entering school with 1000 hours of print exposure that includes read-alouds, writing and other forms of text interaction are more likely to arrive at school with an awareness of the nature and uses of print (Adams, 1990) than children who average less than four hours per year (Teale, 1986).

Similarly, if children are coming to school with no proficiency or minimal proficiency in English, academic achievement is likely to be hindered. While the best-intentioned teacher can value the cultural capital that a child brings to the primary classroom, these factors inevitably require acknowledgement and educational accommodations. Evidence indicates that consecutive years of good instruction in the primary years can bridge this knowledge gap (Allington & Cunningham, 1996). There is also evidence that a comprehensive literacy program that incorporates both literature-based instruction and systematic, explicit word study results in successful reading achievement for children who are entering school with minimal literacy experiences and minimal English literacy experience (Stahl, Suttles, & Pagnucco, 1996; Chiappe & Siegal, 2006). Particularly at the level of decoding, there is evidence that ELLs benefit from the explicit instruction of phonological awareness, letter sound relationships and orthography (Chiappe & Siegel, 2006; Gunn, Biglan, Smolkowski & Ary, 2000; Linan-Thompson, Vaughn, Hickman-Davis, & Kouzekanani, 2003). This is valuable information because in an urban setting with widely diverse populations and the constraints of the authentic classroom, it would be unrealistic to believe that teachers could juggle multiple sets of word study materials and
procedures for each cultural group in a classroom. RTI requires a support system that provides early diagnosis and intervention for all striving readers in the primary grades. It is useful for teachers in urban settings to recognize that a standardized protocol of early reading intervention has the capacity to improve the reading achievement of culturally and linguistically diverse student populations.

Method

Participating Schools and the District Context

The participating schools were identified in a way that was both voluntary and selected. The district Office of Special Education distributed a district-wide announcement that they would be supporting a pilot RTI initiative during the following school year (2007-2008). Several schools responded to indicate their interest in being selected to participate in the pilot RTI project. In the spring of 2007, the district Director of Special Education selected three schools with special education referral rates that were high compared to the district average. In kindergarten through grade two in the three schools, 8.7% of the children received an initial referral for special education services during the 2006-2007 school year. In November 2007, one of the selected schools withdrew from the district’s pilot RTI project but agreed to continue to participate in the research project as a comparison school. We will use the term “treatment” to indicate the two schools that received the year-long professional development and financial support of the Office of Special Education to implement the pilot RTI framework. It will enable a clear distinction between the treatment schools and the levels of intervention that are part of the RTI framework.

All three schools received Title I funds and more than 90% of the children were on free or reduced lunch at each school. The comparison school was the only Reading First school.
Demographically the schools looked quite different from each other in terms of racial and linguistic populations. See Table 1.

Overall, these were healthy urban schools. All three schools met their state-mandated adequate yearly progress goals for reading (and math) achievement at all tested grade levels for several consecutive years. Compared to schools with similar demographics, Treatment School B and the comparison school had twenty to thirty percent more children in the two highest proficiency levels on the state English Language Arts tests in third, fourth, and fifth grade. In other words, they can be considered “schools that beat the odds.”

Schools in our city may select their own literacy program. All three schools had a general education comprehensive literacy block of 90-120 minutes. However, the schools each used different instructional models to achieve the goals of the common districtwide curriculum. In all schools, writer’s workshop was used to teach writing for 30-45 minutes each day. Treatment School A used a reader’s workshop model with whole group mini-lessons followed by individual student conferences to discuss independent reading of instructional level texts. No small group work was ever observed in this school. Treatment School B used an eclectic approach, integrating a basal reader for shared reading in a whole group setting and guided instructional level reading with small groups. The comparison school was a Reading First school. In accordance with Reading First guidelines, the classrooms adhered to a variety of whole group and small group activities as suggested in the Harcourt basal reader.

In a district as large as our district, differences in the core programs are the rule. Since it would not be possible to dictate a consistent core program in any future RTI scale-up, it was not seen as desirable or possible to dictate a new rigid general education core model. The element
that had previously been missing from both intervention schools was a word study component. This became the focus of the RTI intervention.

*Student Participants*

This study is part of a larger study that involved kindergarten, first and second grade students. However, this paper will only discuss the first grade intervention and outcomes. In kindergarten, there was a focus on emergent reading. Additionally, initial literacy differences in kindergarten have a greater degree of attribution to home literacy practices than literacy differences after a year of instruction (Davis, Lindo, & Compton, 2007). In second grade, the primary means of observing progress as part of the intervention was oral reading fluency. Therefore, an investigation of first grade enabled us to focus on the progress of children on a wide range of foundational early reading skills. The student participants were 163 first graders. There were 112 students from two classrooms in Treatment School A and four classrooms in Treatment School B. 45 of these students were ELLs. The largest percentage of students who were ELLs spoke Spanish as their first language. However, Treatment School A’s first grade also included recently immigrated children who spoke Arabic, Ukranian, and Albanian. Three first grade classrooms in the comparison school consisted of 51 EO African-American students born in this country.

*Instructional Procedures*

While evidence-based practices are endorsed, no one program has demonstrated clear superiority over another (Johnson et al., 2006). Due to the variation in comprehensive literacy programs and the general void in adherence to evidence-based practice for phonics instruction, the Office of Special Education office provided the resources for each school to add Wilson Fundations® to their existing comprehensive program in the general education (Tier 1) setting.
The district had previously selected Wilson Fundations® and Wilson Reading System as approved word study programs, so the machinery for implementation and professional development was in place. The Wilson Fundations® program is a systematic, explicit phonics program that provides a script for direct instruction in kindergarten through grade three. Instruction incorporates phonological awareness (tapping out sounds) and matching sound-letter correspondences in reading and writing.

In order to keep a clean separation between Tier 2 and special education, our district decided to adhere to Fuchs and Fuchs (2007) recommendation to establish Tier 2 as a small group application of a standard protocol of an evidence-based intervention. Tier 2 was a “double dose” of the Wilson Fundations® program. A justification for the use of a double-dose model is the increased likelihood of creating consistency and cohesiveness between the Tier 1 and Tier 2 settings. Tier 2 groups accommodated up to six children. These groups met four days a week during the 37-minute extended day sessions that are offered by our city’s Title I schools. A certified teacher taught each Tier 2 group and the special education facilitators monitored for fidelity.

All participating teachers in both conditions attended a full-day Wilson Fundations® professional development session prior to the start of the school year. All Tier 2 teachers in both conditions attended a half-day professional development session in the fall to learn how to adapt the Fundations® lesson plans to the Tier 2 intervention group. Only the Tier 2 teachers in the treatment condition participated in Wilson’s winter professional development session on progress monitoring. Trained district-level special education facilitators observed each teacher twice a month, provided ongoing feedback, and modeled lesson components to insure fidelity in the treatment schools. After November, only the treatment schools received the support of the
trained special education facilitator. All three schools received complete sets of teacher and student Fundations® materials for the primary grades and access to online resources.

Assessment Tasks and Procedures

All three schools used different formative assessment systems to inform classroom instruction in the primary grades. The systems were all variations or adaptations of the tasks found in Clay’s Observation Survey (2006). Classroom screening assessments included untimed measures of children’s knowledge of letter recognition, print concepts, high-frequency word recognition, and leveled text reading accuracy. The classroom teacher administered the screening assessments during the first month of the school year.

Based on screening assessment results in the general education classroom, teachers identified students who were likely to have literacy difficulties. These at-risk students were informally monitored for responsiveness to general education instruction (Tier 1) for eight weeks. Decision points occurred at eight-week intervals. At the first decision point, the research team and special education facilitators administered the prescribed fall Dynamic Indicators of Basic Early Literacy Skills-6 (DIBELS) tasks to all children. This enabled a comparison of the children’s scores to an established norm and it allowed for a standardization of assessment across the schools. The child’s score indicates the responses provided within one minute. The tasks are:

- Phoneme Segmentation Fluency (PSF): Given a word orally (without seeing the word), the child says each phoneme in the word separately. One point is scored for each individual sound identified.
- Correct Letter Sound Fluency (CLSF): The child reads a list of nonsense words. One point is scored for each correct letter sound read.
• Oral Reading Fluency (ORF): The child is allowed one minute each to read three grade level passages. The score is the median number of words read correctly in one minute.

Using DIBELS proficiency levels, Fundations® unit test scores, and teacher observations, children deemed unresponsive to Tier 1 instruction were given more intense small-group, pull-out instruction (Tier 2). During the Tier 2 intervention, progress monitoring was used every two weeks to determine each student’s response to this more intense instructional intervention. Precalculated growth slopes based on mid- and end-of-year goals were built into the Fundations® progress monitoring assessment system. After eight weeks, the winter benchmark DIBELS tasks were administered to all children. At this decision point, students exited Tier 2 or continued receiving Tier 2 support. At each decision point, the Academic Intervention Services (AIS) team met with the school’s assigned RTI facilitator to review test data, share observations of class performance, and to evaluate the progress of each child. The school AIS team was made up of the principal, assistant principal, and the Tier 2 teachers.

The AIS team identified nonresponders based on DIBELS performance, informal teacher input, and classroom Fundations® unit tests. Officially, Tier 2 nonresponders entered Tier 3 of the model. Each school had an existing Individualized Educational Plan (IEP) team that could meet with parents and function as a Tier 3 decision-making body to determine if an individualized, comprehensive evaluation was warranted. If an evaluation eliminated visual/auditory difficulties, speech/language impairment, emotional behavior disorders and mental retardation as the causes of the student’s lack of responsiveness to the attempted interventions, a child was legally entitled to receive the sustained, individualized support that is the promise of the special education (Feldman & Viars, 2009).

Findings
Did this RTI framework reduce the number of first grade students at risk for reading difficulty and was there a difference by condition?

A primary goal of each school was to reduce the number of first graders at risk for reading failure. We compared the percentage of children assigned to each proficiency level based on their performance of the DIBELS tasks in the fall to the percentage of children in each proficiency level in the spring. Any shift in the number of students in each proficiency category defined by DIBELS norms was viewed as an important indicator (see Table 2).

Inspection of Table 2 revels that all children who were in the high risk level at baseline on the PSF task moved into lower risk levels at Time 3. This improvement occurred in both fully and partially implemented schools. Further, the great majority of students in the moderate risk group moved into the low risk group in both schools.

On measures of CLSF, the percentage of children in the highest risk category was reduced from 13% at baseline to 3% at Time 3. The percentage of children in the moderate risk group increased from 17% to 33%. Overall, the lowest risk category diminished slightly over the year with 70% of the children falling into that category at baseline and 63% at Time 3. There were group differences in risk reduction by condition. The treatment schools reduced the percentage of children in their highest risk category from 11% at baseline to 2% at Time 3, with an increase in the moderate risk category. The percentage of children who were in the high risk category was reduced from 18% to 8% from fall to spring. However, the number of children in their lowest risk category dropped by 18% across the school year resulting in the category of children at some risk increasing from 18% in the fall to 50% in the spring.

The ORF task was administered in the winter and spring only. The increasing developmental expectations in establishing risk criteria from winter to spring resulted in higher
scores producing greater numbers of children in higher risk categories. The percentage of children in the high risk category increased from winter to spring as measured by ORF in both conditions. Also the percentage of children in the low risk category decreased for both conditions.

Did participation in RTI result in greater gains in literacy measures in fully implemented treatment schools?

The means and standard deviations for the DIBELS in the Fall (Time 1), Winter (Time 2), and Spring (Time 3) are reported in Table 3. To test whether literacy gains occurred equally for the treatment and comparison schools, a Repeated Measures ANOVA was conducted in which implementation level was the between subjects factor, and pre and posttest scores for each testing time (fall, winter, spring) were the within subjects factor on each DIBELS task.

As displayed in Table 4, both groups showed significant gains in phoneme segmentation fluency over time, both between fall and winter, $F (1, 158) = 113, p < .001$, and between winter and spring, $F (1, 158) = 18.3, p < .001$. The rate of improvement was greater for students in the partially implemented school in the fall-winter time period, $F (1, 158) = 9.8, p = .002$, but gain rates were comparable between winter and spring, $F (1, 158) = .34, p = .56$. As can be seen from inspecting group means, the greater gain by students in the partially implemented school represented a “catching up” with the students at the implemented school over the fall-winter time period. After closing much of the large gap between the schools that existed at baseline, the students at both schools improved at comparable rates from winter to spring.

Secondly, both groups showed significant gains in correct letter sound fluency over time, between fall and winter, $F (1, 158) = 64.2, p < .001$, and between winter and spring, $F (1, 158) = 41.4, p < .001$. The rate of improvement was not different at a level of statistical difference for
the two groups between the fall and winter, $F(1, 158) = 1.1, p = .3$), but the fully implemented group made greater gains from winter to spring $F(1, 158) = 11.6, p = .001$.

Oral reading fluency was only tested in the winter and spring. As displayed in Table 4, both groups showed significant gains in oral reading fluency over time, $F(1, 165) = 140, p < .001$; however the rate of gain in both conditions was comparable, $F(1, 165) = .40, p = .53$.

**Did EO and ELL Students Make Comparable Gains?**

A repeated measures ANOVA was conducted to determine if EO and ELL students made comparable gains on all three DIBELS measures. Language group was the between subjects factor, and pre and posttest scores for each testing time (fall, winter, spring) were the within subjects factor on each DIBELS task. On the tests of phoneme segmentation fluency, both groups showed statistically significant gains, $F(1, 108) = 8.5, p < .001$ from baseline to outcome, and the magnitude of gains over times did not differ, as tested by the group X time interaction, $F(1.108) = .99, p = .32$. Similarly, tests of correct letter sound fluency showed that both groups made statistically significant gains, $F(1, 108) = 1.5, p < .001$, from fall to spring and the magnitude of the gains did not differ, $F(1, 108) = .04, p = .84$. Finally, both groups demonstrated statistically significant gains from winter to spring on oral reading fluency ($F(1, 108 = 8.6, p < .001$) and the group X time interaction indicated that there was not a statistical difference between the magnitude of gains made by EO and ELL students, $F(1, 108) = 2.08, p = .15$. See Table 5.

**RTI and Retention**

Retention rates of the treatment schools and the comparison school were similar. The treatment schools retained 7% of the first grade population at the end of the first year of the RTI pilot. Of the children retained, 75% were ELLs. This indicates that disproportionally high
numbers of ELL students were retained in first grade. There was an even distribution of students at each classification level of English language proficiency as determined by the New York State English as a Second Language Achievement Test. The four levels of English proficiency are (a) beginning, (b) intermediate, (c) advanced, and (4) proficient.

The comparison school retained 6% of their first grade population. All retainees were EO. The comparison school did not have any ELLs in first grade.

The retained children did not necessarily perform poorly on all DIBELS tasks, although 82% of these children scored in the highest risk category on the spring ORF task. On both PSF and CLSF, several of the children demonstrated large gains across the year moving them to a higher proficiency category including the lowest risk category (Proficiency Level 3). None of the retained children attained a mastery score (80%) on any of the Fundations® unit tests. The unit tests are written criterion-based tests that are administered by the classroom teacher to the whole group after a particular Fundations® unit of study is completed. DIBELS tasks are one-on-one tests of isolated skills. It may be that the children who had a difficult time learning the skills found it easier to reflect newly acquired knowledge on the controlled, individually administered DIBELS task rather than the written unit tests. Additionally, the unit tests were given upon the completion of a classroom instructional unit. If the Tier 2 instruction lagged slightly behind the classroom scope and sequence, the children would not yet have received intense small group instruction of the skills tested on the unit tests. The comparison school did not administer the unit tests because they used their basal reader phonics program in the general classroom.

**Discussion**

*Ecological Considerations in the Schools*
RTI requires the application of effective, empirically-based instructional models in the classroom and intervention setting. It requires the collaboration of school faculty and resource personnel that have traditionally not worked together closely. It also requires the implementation of a sensitive, on-going assessment system that is easily interpreted by teachers and used to drive instruction. Individually, each of these goals could require more than one year of school reform effort and sustained professional development.

Considering such complexities, all three schools were selected to participate in the district’s Pilot RTI project because they were healthy schools. The district Special Education Director knew that we would be unable to affect any worthwhile change in one year in a troubled school or in a school with faculty who were resistant to change. Our district has close to 1500 schools. Before allowing a new RTI policy to impact thousands of children, the Special Education Director wisely decided to start small with three schools. It was important to introduce RTI in a setting that could serve as a petri dish, making it was possible to establish, observe and adjust the preliminary standardized RTI framework before scaling up at the district level. All three schools shared the challenge of referring exceptionally high numbers of children for special education services. However, most other aspects of each school’s ecology reflected traits and accomplishments that are associated with effective schools.

We found the implementation of RTI to be a complex process that may be illuminated and better understood in terms of ecological systems theory (Bronfenbrenner, 1979, 1986; Bronfenbrenner & Morris, 1998). Specifically, we found the school principal and the intervention facilitator to be key players in the exosystems of the young children they served. Although the school principal does not interact directly with the child who is learning how to read, she is responsible for making important decisions that significantly affect the adults who do
interact directly with the child (i.e., classroom, Tier 2, and special education teachers).

Furthermore, the vision of the school principal shapes the kind of interactions (i.e., literacy experiences) that take place between these adults and the child over the course of the school day. Similarly, the intervention facilitator played an influential exosystemic role. The facilitator powerfully supported the work of the classroom teachers and the delivery of the intervention during Tier 1 instruction. In this manner, the work of the intervention facilitator served to bolster the quality of literacy instruction in the microsystem of the child’s classroom.

*The Role of the Principal.* Scheduling, faculty collaborations, and professional development are crucial aspects of RTI that fall under the direct jurisdiction of the school principal and his or her administration. Each school was led by an effective principal with decades of classroom experience as well as a strong track record as the school’s administrator. These principals successfully created a warm, supportive, and respectful school climate. In each school, the principal represented a maternal professional mentor trusted and respected by the teachers. One principal was admiringly described to our research team as a “chihuahua on wheels.” Indeed, these were women who got things done in their school and for their school. In establishing a new RTI paradigm, a strong, visionary administrator seems to be an essential element.

*Organizational Structure.* A flexible, yet supportive school organizational structure is also crucial to the implementation of the RTI paradigm. All three schools had existing functional structures of organization. Grade level team structures, including common team planning times, existed in all three schools. Data teams, consisting of the principal, assistant principal and literacy specialists, met regularly to review the school assessment data and to adjust curriculum and professional development accordingly. These characteristics contributed to their ability to
initiate an RTI framework within a one-year period. One of the salient features of this study is that the three schools implemented RTI without the assistance and support of the research teams that have conducted most other studies of RTI. The authors of this study primarily functioned as observers and data management assistants. Without the positive outstanding school leaders and the existing organizational structures in each school, it would not have been possible to implement the RTI framework within a single year. Schools without effective leadership and without structures in place would be likely to have a more difficult time introducing RTI and may not encounter the success that the treatment schools experienced.

Some of the Reading First mandates supported the RTI paradigm (the use of a core program in general education), however others (scheduling restrictions, testing) made it more difficult for our third school to adhere to the RTI framework. By November, the demands from both constituencies became overwhelming. As a result, they chose to become the comparison school. Therefore, it is important to keep in mind that our comparison school was not a true controlled condition. It was working in deliberate, data-driven ways to increase student achievement in its own way.

The Role of the Facilitator. One key element that made the treatment schools different from the comparison school is the support of the facilitator. The facilitators were special education teacher leaders who had expertise in Wilson Fundations® and administration. They played a crucial role that may help to explain the difference in the ability of the treatment schools and the comparison school to apply the Fundations® program, especially in Tier 2. All three schools received the exact same student materials, manuals, and access to support through a Wilson website. With the exception of one half-day session on progress monitoring for Tier 2 teachers in both treatment schools, the formal professional development sessions were the same
for both conditions. All three schools enlisted the aid of the facilitators from September to November to insure the delivery of materials, support early implementation efforts and to identify at-risk readers in Tier 1. After November, the facilitators only worked with the treatment schools. Facilitators visited each treatment school one full day each week during the first semester of the project and two or three days a month during the second semester. The facilitator provided ongoing support and coaching for the treatment schools in the form of organizing materials, acting as a Wilson Fundations® liaison, modeling lessons, observing lessons, providing lesson feedback, conducting fidelity checks, managing data collection, and spearheading the Tier 2 decision process. As experienced school leaders, the facilitators were able to find creative and effective ways to manage implementation challenges. For example, when second grade students had developmental difficulties with Fundations®, one facilitator rearranged grouping and instructional level materials to solve the problem. This resulted in clear instructional differences between the treatment schools and the comparison school. It may also explain the differences in results. The comparison school made much stronger progress between the Fall and Winter testing. The facilitator worked with the comparison school early in the year to help initiate the process. However, she discontinued her work with them late in November. In the treatment schools the facilitator worked with the teachers all year to help them refine their instruction and guide the process of data-driven instruction. Their gains continued and increased across the year.

The consistent presence of the facilitators in classrooms ensured that the treatment schools’ teachers were vigilant in their adherence to the Fundations® program scripts in both Tier 1 and Tier 2. Phonics lessons occurred for 20 to 30 minutes for four or five days a week in each Tier 1 classroom. Tier 2 instruction occurred for 30 minutes four days a week. There was
rigid adherence to the prescribed scope and sequence. Instruction was explicit and provided structured, intense student engagement. Since this was the first year of implementation, the teachers relied on the facilitators for help with the materials and to make sense of program content and procedures. This was the first experience teaching phonics for most teachers in the treatment schools. They welcomed both the program and the facilitator’s support. In both treatment schools, young teachers were grateful for the insights and help provided by these respected, experienced mentor teacher-facilitators.

Phonics instruction was part of the comparison school’s core program. So while the Tier 1 classroom teachers adhered to a specific scope and sequence, the lessons lasted from 15-20 minutes and varied somewhat from teacher to teacher. In this school, the Tier 2 teachers were also the classroom teachers. All Tier 2 instruction was conducted during the morning extended day period before school officially started. The Tier 2 instruction at the comparison school was eclectic. The first grade teachers had between ten and twenty-five years of experience teaching. So during the Tier 2 intervention, teachers used a wide range of materials and approaches based on personal preference. Although the teachers had engaged in Fundations® training sessions and had access to all Fundations® materials, they chose to pull from a variety of sources for phonics instruction during the Tier 2 intervention. As a result, the instruction lacked the intensity, explicitness, and systematic sequence found in the treatment schools.

Fuchs (2009) determined that facilitators did not affect the outcomes in an RTI project in kindergarten classrooms. However, the facilitators in that study were graduate students working with experienced teachers. In our study, experienced facilitators seemed to have a strong positive impact on the fidelity of implementation.
Scheduling Tier 2. The three schools were all Title 1 schools and each had funded 37-minute before-school extended day allocations. Originally, it made sense for the Tier 2 instruction to occur during this time slot. However, it soon became evident that many of the children who needed Tier 2 instruction were the same children who frequently arrived late for school. One of the treatment schools rearranged the schedule mid-year to have more Tier 2 intervention groups during the school day. Treatment School B and the comparison school were unable to make any kind of adjustment mid-year, so in both conditions Tier 2 attendance was poor. It is likely that during the pilot year, the intervention did not reach its full potential for effectiveness due to poor attendance in Tier 2 sessions by children who were assigned additional help. See Table 6.

This intervention was a phonics intervention. By conducting Tier 2 during the extended day time slot, the teachers were able to guarantee that none of the children missed their comprehensive general education literacy instruction. Scheduling is a challenge for all schools. General education teachers will need to be the gatekeepers, insuring that the comprehensive literacy program including conceptual vocabulary, comprehension, and process writing are not sacrificed for skill-based instruction especially for children encountering reading difficulties. The treatment schools did a good job of this during the pilot year of the RTI implementation. However, when Tier 2 sessions are scheduled during the school day, the children who are being pulled out of the classroom inevitably miss something else that is being taught. Collaboration, creative scheduling, and classroom teachers who are confident enough to advocate for the value of the general education curriculum are going to be essential elements of successful RTI implementations.

The RTI Paradigm As Process
Certainly the altruistic goal of RTI is to insure that children get the support they need without experiencing extended failure. However, politically and financially the impetus for RTI is to find a means to reduce the steadily increasing numbers of children being identified as requiring special education services. In some educational circles, there was a belief that children were being identified as reading disabled because they had not experienced effective early literacy instruction in the general education classroom. A series of studies supported the notion that providing intense evidence-based instruction to struggling novice readers does result in a reduction in the numbers of children requiring special education services (McMaster et al., 2005; Pinnell et al., 1994; Vellutino et al., 1996; Velutino et al., 2000).

Like many new RTI projects, this district’s program was initiated and financially supported by the district Office of Special Education Initiatives. The district’s focus was limited to decoding instruction in the primary grades. Since the two treatment schools had not previously incorporated a systematic phonics program, the introduction of a phonics program was able to make an immediate positive difference. It provides evidence that devoting 30 minutes a day to constrained skills in first grade can reap strong benefits for all children, including ELLs. With this time frame in place, the remaining 60 to 90 minutes of a literacy program can be devoted to the more complex unconstrained skills like comprehension, conceptual vocabulary and the writing process. Consistent with earlier studies, a Tier 2 intervention that focused on constrained skills (phonemic awareness, phonics, oral reading fluency) yielded positive outcomes with at-risk early readers, including ELLs (Gunn et al., 2000; Linan-Thompson et al., 2003). The outcomes achieved in the treatment schools within one year are commendable. The number of students in high-risk categories on essential foundational reading skills was reduced. ELL students made comparable gains to EO students on skills that are the basic building blocks of
reading. This is good news. The reduction of children in an at-risk status on foundational basic reading skills increases the likelihood that they can be successful in complex literacy processes.

There were a few children who were considered nonresponders, children whose rate of growth and achievement level did not meet the grade level goals. According to IDA (2004), the children who have not responded to these tiers of evidence-based instruction may truly need the more individualized, sustained, specialized expertise offered by the special education program. In real classrooms, Fuchs, Stecker and Fuchs (2008) estimate that the population of nonreponders requiring specialized help is slightly higher than the 2%-6% estimate based on tightly controlled research settings. Even with high fidelity interventions, they estimate that the figures may be closer to 6%-8% of the general population.

However, it was at this point that things became murky during the pilot year in this school system. Retention rates and special education referral rates provide some evidence of the confusion that existed. So much emphasis had been placed on the implementation of the formal intervention program, that there was not clarity at any level about the steps that needed to be taken with the children who did not respond to the intense Tier 2 Fundations® intervention. The district had not clearly spelled out a prescriptive set of procedures specifying the number of Tier 2 cycles that a child should attend as a nonresponder before he or she was considered for special education services.

At the school level, this lack of specificity seemed to result in a dual-pronged approach. In one prong, dedicated, well-intended Tier 2 teachers often continued to make modifications to the Tier 2 experiences for nonresponders, including adjusting the level of instruction or adding a third session during the day so that additional repetitions of the lessons could be conducted in dyads, triads, or individual settings. In the second prong, classroom teachers acted independently
and traditionally in making decisions about the future of their students. In many cases this meant retention. In end-of-year focus group conversations at each treatment school, teachers described the phonics program when asked to define their understanding of the RTI framework. Throughout the year effort and energy had been extended to formal and informal professional development addressing fidelity to the phonics program, none of it addressed RTI as a new paradigm for identifying children for special education. However, there was a vague level of understanding that RTI had taken the place of special education referrals, so some teachers viewed referrals to special education as a closed option.

In sum, the weakness of the pilot RTI framework in this district seemed to be an emphasis on program rather than process. Classroom teachers were at the center of the shift to initiate Fundations®, but they were at the periphery of the decision-making process throughout the year. The facilitator and the AIS team made the decisions about children’s progress and interventions with only informal or casual conversations to the classroom teachers. The lack of clear definition about how to determine a nonresponder and what to do with nonresponders resulted in children being retained or receiving intense, repetitive phonics instruction. The AIS team structure is a preexisting structure in this system that needs to be modified to adapt to an RTI paradigm. Conceptually, the idea of the AIS team is a good one. However, the participants from the preexisting AIS teams do not fully meet the needs of an RTI paradigm. In addition to the classroom teacher’s voice being needed, an RTI team should also include a special education teacher and if possible, the school psychologist. Both treatment schools had full time special education teachers and school psychologists housed in their buildings. They were not a part of any RTI conversations.
An important mission of the RTI legislation RTI research, and literature resulting from the preliminary research is to get students the help they need as early as possible. Born in that mission is the idea that all school personnel will work collaboratively to view Tier 2’s nonresponders individually to provide whatever it takes to maximize each child’s academic potential. It was this collaboration of all for the good of the individual that seemed to be absent in the pilot project. Voices were left out of the collaboration and school faculty often lost sight of the individual child, resorting instead to generalized solutions.

Limitations and Future Implications

The most serious limitation of this study was the lack of a true control group. The comparison school was not intentional in applying the specific intervention that was designed for the treatment schools. However it had received common formal professional development and the school was using data in vigilant ways to monitor student achievement in the primary grades. As a result, the differences in growth between the treatment and comparison conditions are not as large as they might be with a true control. However, it is always encouraging to see the numbers of children in high risk categories decreasing in urban schools.

The schools in this study are currently in their second year of implementing RTI. As they planned for Year 2 schedule adjustments were made. The two intervention schools have now scheduled all Tier 2 intervention during the school day. There is preliminary evidence that this has yielded higher attendance in those sessions, so that children who need the help are more likely to receive additional support.

Attention must always be directed to implementing evidence-based approaches with fidelity. The utilization of a structured program like Fundations® made it possible for the teachers in this study to provide explicit, systematic phonics instruction and to incorporate
progress monitoring in a way that was manageable for them. In this study, the facilitators played a key role in insuring that Fundations® was implemented with fidelity to maximize the potential benefits of the program. This year the facilitators visited the Year 2 schools less frequently and are now spending intense time with other schools initiating implementation. The more complex aspects of each school’s existing comprehensive language arts program were not altered. Fundations® was additive.

Schools that wish to implement RTI need to make sure that collaborative structures are explicitly designed for data-driven team conversations that focus on individual children. The RTI paradigm or process must be given explicit attention. General education teachers, literacy specialists and special educators need to have ongoing conversations to address curriculum, assessment and individual students. It is likely that within a smoothly running RTI framework, special education services will need to evolve into something different over time (Fuchs et al. 2008; Johnson et al., 2006). If children have received effective instruction at increasingly intense levels before they enter Tier 3, special education will need to provide something individualized that is not a replication of a previously tried approach or provides less individualization than Tier 2. Familiarity and fluidity may need to become stronger themes in school settings. All involved teachers will need to become familiar with individual students, intervention strategies and literacy content. New structures that allow for fluidity in both faculty conversations and student support services must be created and nurtured.
References


Individuals with Disabilities Education Improvement Act of 2004 (IDEA), Pub. L. 108-466.


Klingner, J., & Harry, B. (2006). The special education referral and decision-making process for English language learners: Child study team meetings and


### Table 1

**School Demographic Information**

<table>
<thead>
<tr>
<th></th>
<th>Treatment School A</th>
<th>Treatment School B</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
<td>453 (K-8)</td>
<td>446 (PreK-5)</td>
<td>357 (PreK-5)</td>
</tr>
<tr>
<td>% Free/Reduced Lunch</td>
<td>91</td>
<td>100</td>
<td>98</td>
</tr>
<tr>
<td>% ELL</td>
<td>32</td>
<td>27</td>
<td>2</td>
</tr>
<tr>
<td>% White</td>
<td>6</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>% Black or African</td>
<td>5</td>
<td>26</td>
<td>89</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>88</td>
<td>66</td>
<td>9</td>
</tr>
<tr>
<td>Asian</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 2

DIBELS PSF Pre-Post Percent of Children At Each Proficiency Level

<table>
<thead>
<tr>
<th>Level</th>
<th>Fall Treatment</th>
<th>Spring Treatment</th>
<th>Fall Comparison</th>
<th>Spring Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11</td>
<td>0</td>
<td>29</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>32</td>
<td>12</td>
<td>52</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>58</td>
<td>88</td>
<td>19</td>
<td>82</td>
</tr>
</tbody>
</table>

DIBELS CLSF Pre-Post Percent of Children At Each Proficiency Level

<table>
<thead>
<tr>
<th>Level</th>
<th>Fall Treatment</th>
<th>Spring Treatment</th>
<th>Fall Comparison</th>
<th>Spring Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11</td>
<td>2</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>16</td>
<td>26</td>
<td>18</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>73</td>
<td>72</td>
<td>64</td>
<td>42</td>
</tr>
</tbody>
</table>

DIBELS ORF Pre-post Percent of Children at Each Proficiency Level

<table>
<thead>
<tr>
<th>Level</th>
<th>Winter Treatment</th>
<th>Spring Treatment</th>
<th>Winter Comparison</th>
<th>Spring Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>9</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>2</td>
<td>18</td>
<td>22</td>
<td>31</td>
<td>35</td>
</tr>
<tr>
<td>3</td>
<td>78</td>
<td>69</td>
<td>42</td>
<td>37</td>
</tr>
</tbody>
</table>

Note. Level 1 is high risk category, Level 2 is some risk, Level 3 is low risk category for reading difficulties.
Table 3

Means for Repeated Measures of DIBELS

<table>
<thead>
<tr>
<th></th>
<th>Intervention (n = 110)</th>
<th>Comparison (n = 50)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td><strong>Phonemic Segmentation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>33.37</td>
<td>14.93</td>
</tr>
<tr>
<td>Time 2</td>
<td>42.59</td>
<td>12.53</td>
</tr>
<tr>
<td>Time 3</td>
<td>48.19</td>
<td>11.41</td>
</tr>
<tr>
<td><strong>Correct Letter Sound</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fluency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>36.18</td>
<td>20.28</td>
</tr>
<tr>
<td>Time 2</td>
<td>49.49</td>
<td>20.08</td>
</tr>
<tr>
<td>Time 3</td>
<td>67.05</td>
<td>26.48</td>
</tr>
<tr>
<td><strong>Oral Reading Fluency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 2</td>
<td>40.68</td>
<td>25.62</td>
</tr>
<tr>
<td>Time 3</td>
<td>56.20</td>
<td>28.89</td>
</tr>
</tbody>
</table>
Table 4
Repeated Measures ANOVA of Literacy Gains

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phoneme Segmentation Fluency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1-Time 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>113.0</td>
<td>1/158</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Time X Group</td>
<td>9.8</td>
<td>1/158</td>
<td>.002</td>
</tr>
<tr>
<td>Time 2-Time 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>18.3</td>
<td>1/158</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Time X Group</td>
<td>.3</td>
<td>1/158</td>
<td>.56</td>
</tr>
<tr>
<td>Correct Letter Sound Fluency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1-Time 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>64.2</td>
<td>1/158</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Time X Group</td>
<td>1.1</td>
<td>1/158</td>
<td>.3</td>
</tr>
<tr>
<td>Time 2-Time 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>41.4</td>
<td>1/158</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Time X Group</td>
<td>11.6</td>
<td>1/158</td>
<td>.001</td>
</tr>
<tr>
<td>Oral Reading Fluency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 2-Time 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>140</td>
<td>1/164</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Time X Group</td>
<td>.40</td>
<td>1/164</td>
<td>.53</td>
</tr>
</tbody>
</table>
Table 5

Repeated Measures Analysis of Variance Comparing Gains by Language Group

<table>
<thead>
<tr>
<th>Task</th>
<th>F (1/108)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phonemic Segmentation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>8.5</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Language X Time</td>
<td>.99</td>
<td>.322</td>
</tr>
<tr>
<td><strong>Correct Letter Sounds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>1.5</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Language X Time</td>
<td>.04</td>
<td>.840</td>
</tr>
<tr>
<td><strong>Oral Reading Fluency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>8.6</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Language X Time</td>
<td>2.1</td>
<td>.152</td>
</tr>
</tbody>
</table>

*p < .05
Table 6

Attendance Means for Students Assigned to Each Tier 2 Cycle

<table>
<thead>
<tr>
<th></th>
<th>Treatment</th>
<th></th>
<th></th>
<th></th>
<th>Comparison</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td></td>
<td>M</td>
<td>n</td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cycle 1 Only</td>
<td>43</td>
<td>23.9</td>
<td>1</td>
<td>27.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(41 days)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cycle 2 Only</td>
<td>5</td>
<td>14.6</td>
<td>8</td>
<td>22.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(47 days)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both Cycles</td>
<td>26</td>
<td>47.0</td>
<td>10</td>
<td>22.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(88 days)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>