Interim Report on the Effects of Wright Group/McGraw-Hill's *Early Reading Intervention (ERI)*: A "Response to Intervention" Model of Service Delivery

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Introduction

Wright Group/McGraw-Hill's ***Early Reading Intervention (ERI)*** is primarily a Tier 2 Response to Intervention (RtI) model of service delivery. The main goal of the program is to increase successful academic outcomes for all students, and most notably, for those who are struggling academically or behaviorally. RtI stems from the perspective that the traditional IQ-discrepancy formula fails to validly identify students who are learning disabled. It is conceptualized on a continuum that ranges in intensity in a tiered or phase format (Mastropieri & Scruggs, 2005). Typically, educators implement a three-tiered RtI model in which "instruction is layered over time in response to students' increasing needs" (Vaughn, 2003), but four-tiered models have been utilized in some districts across the nation (Tilly, 2003).

Tier 1 includes core curricula and instruction that are accessible to all students. Tier 2 targets the identified "at-risk" students who are struggling with the core academic curriculum. The importance of progress monitoring becomes readily apparent in Tier 2; students are monitored carefully and systematically over the course of the intervention period—anywhere from weekly, in most cases, to twice monthly. Intervention in Tier 3 is markedly more individualized with progress monitoring occurring more frequently. The duration of the intervention in Tier 3 is considerably longer, and may span months or perhaps, years. Students who fail to make adequate progress with Tier 3 intervention are often referred for special education evaluation to rule out other disabilities, such as a cognitive disability or emotional disturbance (Fuchs, & Fuchs, 2005).

Purpose of Study

The purpose of this study was to investigate the effects of *Early Reading Intervention* on the reading achievement of a select group of at-risk kindergarten through 3rd grade students. This study addresses two primary research questions:

1. What effect does the program have on the reading achievement of selected at-risk students?
2. How does student participation in the ERI intervention program affect the school's decision to refer a student for special education evaluation? (This question cannot be answered until the study is completed.)

Research Design

The single-subject research design, as employed in this case, allows educators to investigate the process of change for a *particular* child, not the *average* child. Unlike most research designs used in education studies, this is an experimental design, which drastically reduces the effects of extraneous factors that might otherwise interfere with the researcher's ability to attribute change in outcomes to the intervention (Horner, Carr, Halle, McGee, Odom, & Wolery, 2005). Most single-subject designs involve only one participant or a small group of participants (3 to 8) in a single study; the outcome variables are typically observations of a target behavior; and the

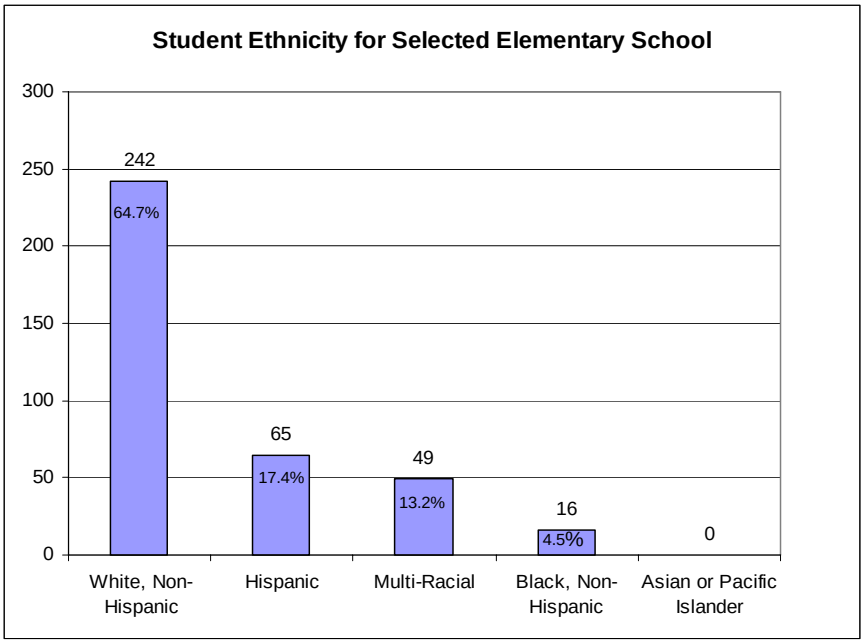
independent variable is a specified program or intervention procedure that is monitored throughout the investigation.

This study uses a multiple baseline over subjects design. Generally, multiple baseline designs contain the following elements: (a) repeated measurement of the outcome variable across at least two baselines; (b) staggered introduction of treatment across baselines; (c) immediate observed effects of the intervention with no observable effects in conditions in which the intervention has not been implemented. In the multiple-baseline-across-subjects design, the same intervention is "staggered" over time, and the same behavior monitored throughout the course of the study.

Sample

The site selected for this study is a small kindergarten through 6th grade school located in northeastern Ohio. The average daily enrollment for the elementary school is 374 students; a sizeable percentage (70%) is characterized as economically disadvantaged. The percentage of students identified with disabilities approximates 24%, remarkably higher than the district as a whole. Slightly over 10% of the students are characterized as limited English proficient. Table 1 provides a breakdown of student ethnicity, in absolute numbers and by percentage of the student population.

Figure 1.



The school's failure to meet adequate yearly progress (AYP) goals and below "proficient" performance on state indicators prompted the school to adopt an RTI model of service delivery. The RTI model is being piloted in grades kindergarten through third. These students are administered benchmark assessments in reading three times per year (fall, winter, and spring); students who perform below an established criterion are considered "at-risk" and are targeted for intervention in increasing intensity. Given the number of students considered limited English proficient and the high rate of identification for special education services (24%), the building has placed heavy emphasis on increasing achievement in reading for students in the early grades.

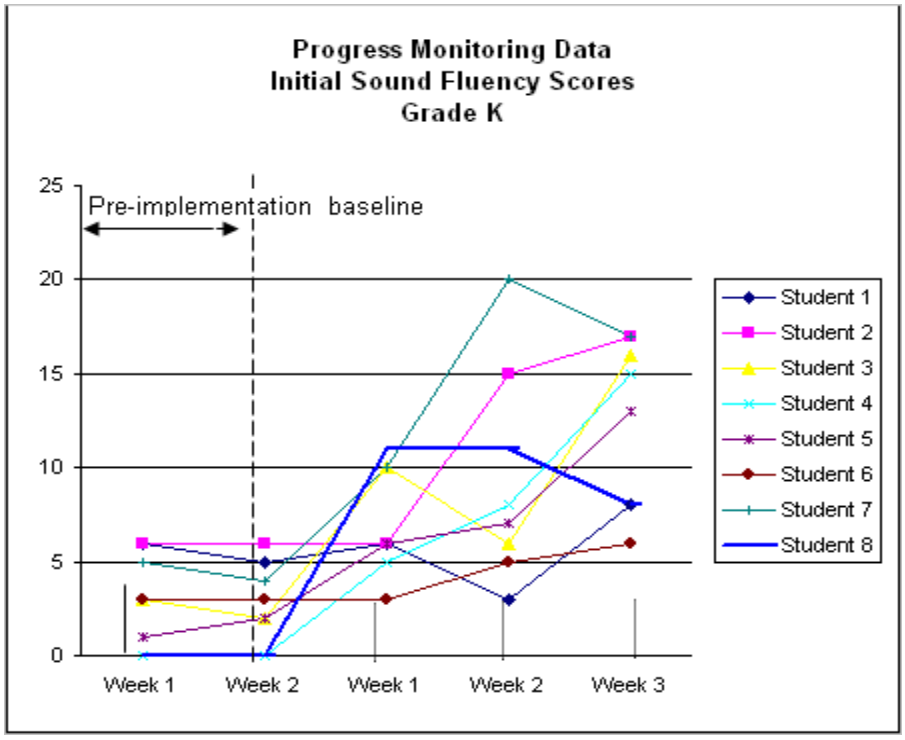
Eight kindergarten students, nine first graders, and fourteen second-graders were selected to participate in the study. Criteria for selection were performance on the fall administration of subtests of the Diagnostic Indicators of Basic Early Language Skills (DIBELS),[1] classroom performance, and teacher nominations.

For purposes of establishing a baseline (pre-program performance) and tracking progress, kindergarteners were administered the Initial Sound Fluency (ISF) subtest. First graders were administered the Nonsense Word Fluency (NWF) subtest, and second graders were administered the Oral Reading Fluency (ORF) subtest. The ERI program will be implemented in the third grade after the administration of the winter benchmark assessments.

Kindergarten Results

The ERI program was implemented in kindergarten in late November of 2008. The baseline measurement consists of two scores from the ISF subtest of the DIBELS; one form of the ISF subtest was administered for the first baseline measurement and a parallel form used to collect the second set of baseline scores. Figure 2 reveals the performance for each of the eight selected kindergarten students for the first three weeks of program implementation.

Figure 2.



[1] DIBELS is a standardized, individually administered curriculum-based measure consisting of various short, one-minute reading assessments designed to evaluate a student's fluency on specific reading tasks (University of Oregon Center on Teaching and Learning).Test-retest reliabilities for oral reading fluency on elementary students ranged from .92 to .97; alternate form reliability of different reading passages drawn from the same level ranged from .89 to .94 (Tindal, Marston, & Deno, 1983). Criterion-related validity studied in eight separate studies in the 1980's reported coefficients ranging from .52 to .91 (Good & Jefferson, 1998).

Table 1 presents the percentage of non-overlapping data (PND) for the kindergarteners receiving the ERI program. The PND is a commonly-used method for analyzing data in single-subject designs. It is calculated by first determining the number of data points in the intervention phase that exceed the highest data point in the baseline phase. This value is divided by the total number of data points in the intervention phase, and multiplied by 100, yielding a percentage score. Values of 90% or higher reflect "highly effective" interventions; values of 70% to under 90% reflect "moderately effective" interventions; values from 50% to under 70% reflect "mild" or "questionably effective" interventions; and values below 50% reflect an "ineffective intervention" (Ma, 2006).

Table 1.

Percent of Non-Overlapping Data for Initial Sound Fluency

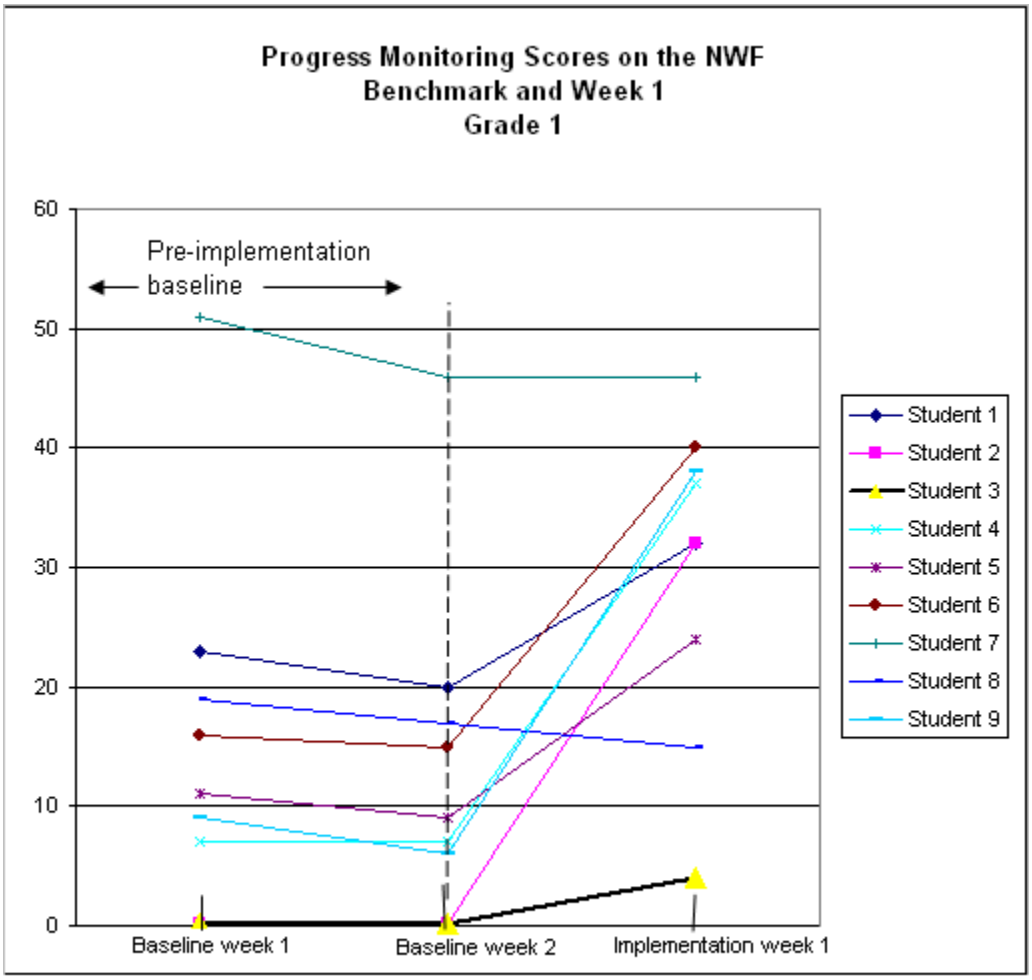
Subject	*%*	*Category*
A	33	Ineffective
B	67	Mildly Effective
F	67	Mildly Effective
C	100	Highly Effective
D	100	Highly Effective
E	100	Highly Effective
G	100	Highly Effective
H	100	Highly Effective

Examination of the PND scores indicates the program, to date, is having a positive effect for seven of the eight students participating in the ERI program, with 87% of the sample receiving some benefit. For five of these students (approximately 63%), the program is "highly effective." For two students (25%) the program is "mildly effective." For one student (approximately 13%), the program is not yet showing a positive effect.

First-Grade Results

While nine first-grade students were selected to participate in ERI based on their fall benchmark score on the Nonsense Word Fluency (NWF) subtest of the DIBELS, classroom performance, and teacher nomination, they did not begin using the program until January, 2009. Figure 3 provides each student's baseline score and the first progress monitoring probe following the first week of ERI participation. While it is not appropriate or possible to calculate a reliable measure of effect for a single progress monitoring data point, preliminary results suggest a notable reversal in trajectory of performance after just one week of participation in the ERI program. Of the nine first-grade students receiving ERI instruction, seven (78%) demonstrated early signs of improvement in their NWF score on the DIBELS.

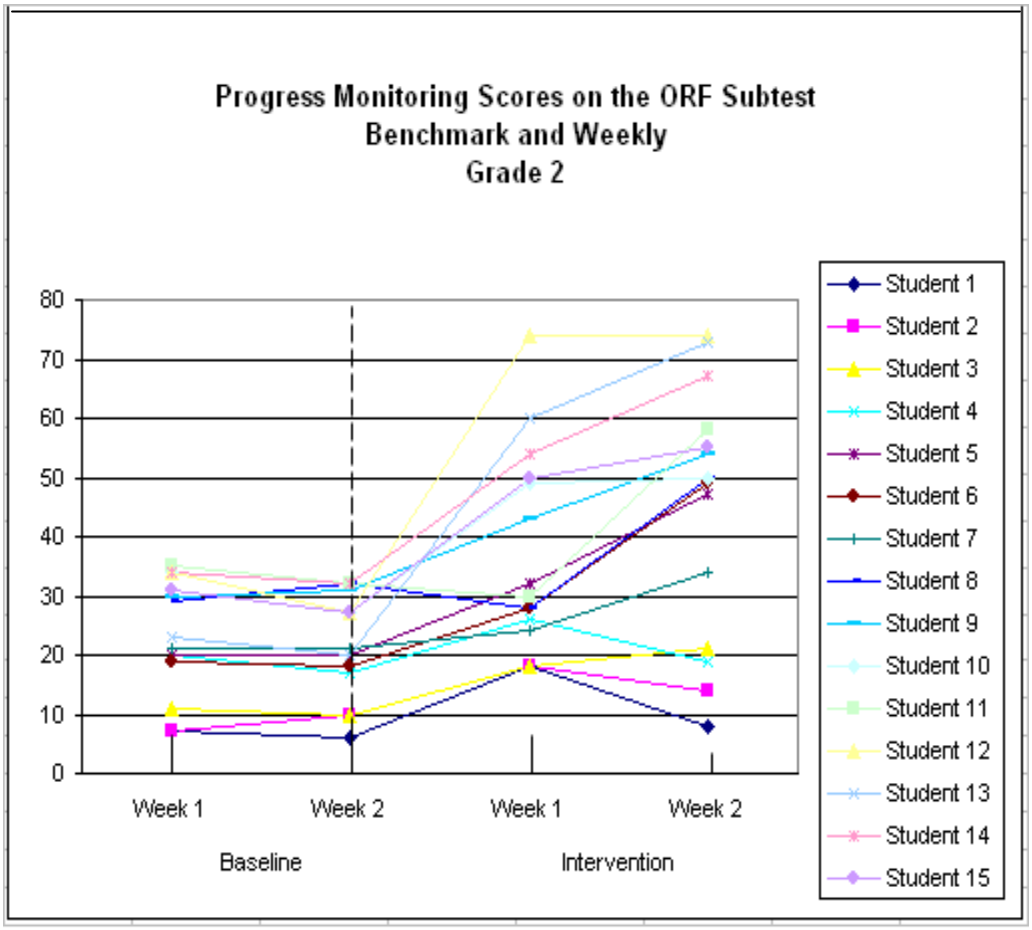
Figure 3.



Second-Grade Results

As of this writing, fourteen second-grade students are participating in the ERI program. Figure 4 lists each student's score on the fall benchmark assessment of the ORF subtest of the DIBELS, and the first two progress monitoring probes of ERI. The school-wide, end-of-year goal for second-grade Oral Reading Fluency is 90 words per minute. After only two weeks in the ERI program, nearly all students have demonstrated an increase in their ORF scores, with 12 of 14 students (approximately 86%) scoring above each of their respective baseline scores.

Figure 4.



Discussion

Preliminary results reveal that the *Early Reading Intervention* program can increase fluency in identifying initial sounds in selected kindergarten students. To date, the ERI program has been implemented at the first and second grade level for one and two weeks, respectively. Although it is not possible to calculate a true measure of effect in such a short period of time, preliminary results suggest that exposure to the program will likely lead to marked improvement in fluency for at least 78% of first-grade students and 86% of second-grade students.

Further data are needed to substantiate these early trends; thus, the ERI program will continue throughout the second half of the school year. Weekly data points will be collected and a final interview will be conducted. Spring benchmark scores will also be reported. At the end of the intervention period, students' performance will be discussed in the school's IAT (Intervention Assistance Team). Decisions about referral to Tier 3 (special-education evaluation) will be made at that time.

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