Abstract Title Page

Title: Preliminary Findings from a Multi-Year Scale-Up Effectiveness Trial of Open-Court Reading (Imagine It!)

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Abstract Body

Background / Context:

This study addresses the effectiveness of a nationally used core reading program that reflects the research-based practices recommended by the National Reading Panel. This and other similar programs are increasingly used to prevent reading difficulties and ensure that all children are reading at or above grade level by the end of third grade. Converging evidence from two decades of research suggests that with appropriate instruction, nearly all students can become competent readers (Denton & Mathes, 2003; Lyon, Fletcher, Fuchs, & Chhabra, 2006; Mathes & Denton, 2002; Snow, Burns, & Griffin, 1998). Yet statistics indicate that 65% of fourth grade students and 64% of eighth grade students fail to reach proficient-level reading scores (National Center for Educational Statistics, 2013). Recent initiatives emphasize the critical role of early reading instruction in preventing reading difficulties, recognizing that students who do not learn to read well by third grade are less likely to build vocabulary and interact with a wide variety of texts (Good, Simmons, & Kame'enui, 2001). Such failure can have a long-term impact on children's self-confidence, motivation to learn, performance in school, and success in life (Harris & Sipay, 1990; Juel, 1988; Stanovich, 1986, 2000), and reading difficulties are the most common reason for referral into special education (Donovan & Cross, 2002). Despite these concerns, however, only a few replicable beginning reading programs reviewed by the What Works Clearinghouse (2007) have more than a small amount of evidence suggesting that they have *potentially* positive effects: Success for All; Voyager; Reading Recovery; and Ladders to Literacy[1].

The *Open Court Reading* (OCR) program, published by SRA/McGraw-Hill and widely used since the 1960s, offers a phonics-based K-6 curriculum that shows promise for preventing reading difficulties. According to market research, OCR is among the top reading series (Educational Market Research, 2002). To date, a total of 2,917 districts and over 8,600 schools have adopted the OCR program across all 50 states and Washington DC (SRA/McGraw-Hill, 2008)[2]. Findings from independent non-experimental evaluations suggest that, in comparison to other reading curricula, OCR is associated with significantly better reading outcomes and may be particularly effective with low-performing students (Edsource, 2006; McRae, 2002; Skindrud & Gersten, 2006). In addition, a recent cluster randomized efficacy trial documented the impact of the OCR program on reading achievement in grades 1 through 5 in 5 schools across the country. Results revealed one-year classroom-level impacts of treatment assignment of approximately one fifth of a standard deviation on the Comprehensive Test of Basic Skills (Borman, Dowling, & Schneck, 2007). Despite the program's widespread use and promising research findings, OCR has not been evaluated rigorously on a large scale as part of an objective, third-party evaluation.

Purpose / Objective / Research Question / Focus of Study:

Effective early reading instruction is critical for preventing later reading difficulties. With two-thirds of 4th grade students failing to achieve proficiency in reading on the National Assessment of Educational Progress in 2013, the need to implement effective early reading programs is

[1] These programs were rated as having a "medium to large" amount of evidence which requires at least two studies that meet the WWC evidence screen with 2 schools and a total sample size of at least 350 students or 14 classrooms across the studies. "Potentially positive effects" is evidence of a positive effect in a domain with no overriding contrary evidence.

[2] The latest version of the Open Court Reading program is called *Imagine It!*

greatly apparent. The *Open Court Reading (OCR)* program published by SRA/McGraw-Hill and widely used for almost 40 years is a phonics-based core-reading program for students in kindergarten to 6th grade that incorporates many of the instructional practices related to phonemic awareness, phonics, fluency, vocabulary, and text comprehension recommended by the National Reading Panel of 2000. In this study, an independent research team evaluated the effectiveness of the OCR program in a large national sample of elementary schools at scale, across diverse school populations and conditions, and with no more support than schools would have access to if they had selected OCR as their early reading curriculum apart from participation in a research project.
The results of this study contribute to an understanding of whether OCR is effective in promoting reading proficiency in the elementary grades when implemented "at scale" with typical "real world" levels of support. The study was designed to address the following research questions:

- **Overall Impacts**. Does school-level assignment to the OCR curriculum intervention produce stronger effects on reading achievement than assignment to the "business-as-usual" control condition?
- **Impacts by Subgroups**. Is there significant variation in the outcomes of OCR or do the effects reliably replicate across student subgroups, the sampled classrooms/teachers, schools, and districts?
- **Fidelity of Implementation**. To what extent was the intervention delivered as the curriculum developers indicated it should be implemented? Was there significant variation in implementation fidelity of OCR among the classrooms/teachers, schools, and districts? In what ways were OCR students' experiences similar or different to those of students in the control condition?
- **Proximal Outcomes as Moderators of Impacts**. Is there a significant relationship between proximal student and teacher outcomes, such as fidelity of implementation or student motivation/engagement, and student reading achievement outcomes and does this relationship vary by classrooms/teachers, schools, and districts?

Setting:

The study was conducted in a sample of 49 elementary schools (kindergarten through 5th grade) in 7 districts across the country.

Population / Participants / Subjects:

The study participants include approximately 4,500 elementary school students and 1,200 teachers per year.

Intervention / Program / Practice:

The OCR program is widely used and incorporates the instructional practices recommended in the 2000 report of the National Reading Panel related to phonemic awareness, phonics, fluency, vocabulary, and text comprehension. The OCR curriculum includes student materials, teacher manuals, diagnostic and assessment tools, and test preparation practice guides. The program

includes a 2- or 3-day summer workshop to train teachers on program implementation and on-going support by OCR reading consultants throughout the school year. In all grades (kindergarten through 5th grade), the instructional format is a three-part lesson with specific instruction on vocabulary, comprehension strategies, and comprehension skills. Both informal and formal assessments are used to monitor progress and inform instruction.

Research Design:

The study design is a multi-site cluster-randomized trial in which 49 elementary schools from 7 districts across the country were randomized to training and delivery of the OCR curriculum (treatment group) or to delivery of the standard reading instruction for the school (control group) blocking at the district level.

Data Collection and Analysis:

Data from teachers and students in two cohorts (grades K&3 and grades 1&4) were gathered over two school years. This paper is presenting findings from the first year. The pre- and post-test outcomes were assessed in the fall and spring using the *Group Reading Assessment and Diagnostic Evaluation* (GRADE) and Student Motivation Form (SMF). Fidelity of implementation was captured using classroom observations, interviews, and surveys with teachers and other key staff (e.g., curriculum trainers).

The main intent-to-treat (ITT) impact analyses uses a three-level model with school level fall pre-test scores on the GRADE as a covariate and spring post-test scores as the dependent variable, nested within schools, which in turn were nested within districts. Additional subgroup (moderator) analyses will be used to investigate the effects of the OCR program as a function of student baseline characteristics (e.g., age/grade, gender, baseline math proficiency, student engagement), teacher/classroom characteristics (e.g., class size, fidelity of implementation), and school characteristics (e.g., geographic region or locale). Student, teacher, and school characteristics will also be examined as potential mediators of the effects.

Findings / Results:

Table 1 provides school level characteristics of students in the study schools at baseline. The analytical sample is comprised of 4,488 students in 49 study schools in grades K and 3 with valid scores on the Spring GRADE assessment used to measure students' reading proficiency. These data were pulled from the 2011-2012 CCD files and collected from schools. The sample is a heterogeneous group of students based on race/ethnicity and socioeconomic status. There is an even split by sex and grade. This table also provides a test of equivalence for students enrolled in schools randomized to the OCR treatment condition and students enrolled in business as usual schools. At baseline, there were no significant differences between the demographic characteristics of schools in the treatment and control conditions.

Insert Table 1 here

Preliminary results from the overall ITT impact analyses are presented in Table 2. The Intraclass Correlation (ICC) of student reading achievement was 0.086 for schools and 0.029 for the district level. The pretest scores were equivalent across treatment ($\bar{X} = 92.40, SD = 5.92$) and control schools ($\bar{X} = 92.77, SD = 4.14$).

The three level multilevel model (student, school, and district) includes grand-centered, school-mean GRADE pretest scores and an indicator for treatment condition. Both predictor variables of pretest and treatment condition are included in level 2 of the model.

Level 1:

$$Y_{ijkl} = \beta_{0jk} + \varepsilon_{ijkl}$$

Level 2:

$$\beta_{0jk} = \gamma_{00j} + \gamma_{01j}(MeanPretest)_{jk} + \gamma_{02}(Treatment)_{jk} + \eta_{0jk}$$

Level 3:

$$\gamma_{00} = \pi_{000} + \zeta_{000k}$$
$$\gamma_{01} = \pi_{010} + \zeta_{010k}$$
$$\gamma_{02} = \pi_{020} + \zeta_{020k}$$

The multilevel model results indicate that the school mean pretest is predictive of the posttest achievement. A one standard deviation increase in school pretest score is associated with a 0.89 increase in outcome scores. The effect of assignment to the treatment condition is positive, but it is not statistically significant.

Insert Table 2 here

This preliminary analysis indicates that the OCR program does not have a statistically significant impact on students' reading achievement compared to the business as usual curriculum in place in control schools after the first year of implementation. The results indicate that variation in the treatment effect by district was greater than one standard deviation. This possible effect will be explored further in additional analyses focusing on subgroup variation and differences in fidelity of implementation.

Insert Figure 1 here

Conclusions:

Early preliminary results indicate no statistically significant impacts of OCR after one year when implemented at scale relative to business as usual reading programs in a sample of 49 schools Year one findings will be further explored by assessing fidelity of implementation and subgroup impacts as well as potential mediation pathways in the full paper.

Appendices

Appendix A. References

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Appendix B. Tables and Figures

Table 1. School Characteristics for Study Schools and by Treatment Assignment at Baseline

		All Schools	OCR (Imagine It!) Treatment Schools	Business as Usual Control Schools	p-value
Title 1 Eligible (%)[A]		74%	65%	83%	0.151
Schoolwide Title I Eligible (%)[A]		74%	65%	83%	0.151
Students Eligible for Free or Reduced Price Meals (%)[A]		63%	61%	65%	0.587
Student Enrollment (Average)	Grade K	70	69	72	0.745
	Grade 3	66	64	68	0.580
Student Gender (%)	Male	52%	52%	52%	0.842
	Female	48%	48%	48%	0.842
Student Race/Ethnicity (%)	White	66%	67%	64%	0.658
	Non-Hispanic black	13%	12%	15%	0.672
	Hispanic	12%	12%	12%	0.889
	Other	9%	9%	9%	0.986
ELL (%)		12%	11%	12%	0.805
Special Education (%)		10%	11%	10%	0.423
Schools		49	25	24	
Students enrolled at Baseline		6,804	3,350	3,454	

Note A: Data for these variables was pulled from the most recent CCD files available – 2011/2012. However, one study school was first operational in the 2013/2014 school year. This school is not represented in these data.

Table 2. Multilevel Model Estimates for Impact of OCR (Imagine It!) on Student Reading Achievement

Fixed effects model	Coefficient	Standard Error	Degrees of freedom	t-ratio	p-value
Intercept	98.139	0.505	9.072	194.196	0.000
GRADE Pretest (grand-mean, school mean score)	0.886	0.060	50.780	14.793	0.000
Treatment	0.642	0.556	38.155	1.155	0.255

Random effects	Variance component	Standard deviation
School Level	1.315	1.730
District Level	0.781	0.609

Figure 1. Predicted Posttest GRADE Scores from 3 Level Model Across 7 Districts