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Efficacy of the Leveled Literacy Intervention System for K–2 Urban Students

An Empirical Evaluation of LLI in Denver Public Schools

REPORT FROM THE CENTER FOR RESEARCH IN EDUCATIONAL POLICY
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Executive Summary

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Efficacy of the Leveled Literacy Intervention System for K–2 Urban Students:

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EXECUTIVE SUMMARY

THIS REPORT SUMMARIZES the results of an efficacy study of the Leveled Literacy Intervention system (LLI) conducted by the Center for Research in Educational Policy (CREP) in Denver Public Schools (DPS) during the 2011–2012 school year. Developed by authors Irene C. Fountas and Gay Su Pinnell and published by Heinemann, LLI is a short-term, small-group, supplemental literacy intervention system that uses a series of "leveled" texts (i.e., texts of progressing difficulty) to help students in kindergarten through second grade achieve grade-level competency in literacy. There were four key purposes of this study: (1) to determine the efficacy of the Leveled Literacy Intervention system (LLI) in increasing literacy achievement for urban K–2 students and associated student subgroups; (2) to examine LLI program implementation fidelity in urban settings; (3) to determine perceptions of the LLI system according to relevant stakeholders; and (4) to corroborate the Fountas & Pinnell Benchmark Assessment System with established literacy assessments (i.e., the Developmental Reading Assessment, 2nd Edition [DRA2] and the STAR Early Literacy Assessment).

A total of 320 K–2 students participated in this mixed-methods randomized controlled trial (RCT) that included both quantitative and qualitative data. The students were matched demographically and randomly assigned to treatment and control groups. During the study, the treatment group students participated in LLI (18 weeks for first and second grade and 12 weeks for kindergarten), while the control group students could not receive LLI until after the study was over. The control students could receive other literacy interventions, however. Treatment and control group students' pre- and posttest performance was compared on three measures of student literacy achievement: the Fountas & Pinnell Benchmark Assessment System, the DRA2, and the STAR Early Literacy Assessment. Additional DRA2 and STAR data from a comparison group of 386 students who received LLI during the 2011–2012 school year but did not participate in the RCT was also examined. Further, an assessment of LLI implementation fidelity included independent observations of LLI groups and teacher-provided data taken from the LLI Online Data Management System. The quality of the core literacy instruction was also examined using classroom literacy observations, and feedback regarding LLI and the participating schools' core literacy programs was obtained from LLI teachers, classroom teachers, principals, parents/guardians, district literacy specialists, and independent on-site researchers who collected data for the study. Results from the current study are summarized by research question below.

1. What progress in literacy achievement, if any, do urban students who receive LLI make compared to students who receive core literacy instruction alone?

The results of the current study revealed that LLI positively impacts urban students' literacy achievement in kindergarten, first grade, and second grade students. On average, kindergarten students who received LLI progressed from Level A to Level C on the Fountas & Pinnell Benchmarks and outperformed their control group counterparts (who progressed from Level A to Level B) by one benchmark level. In first grade, LLI students outperformed the control group by one benchmark level on average, progressing from Level A to Level E; control group students progressed from Level A to Level D. Finally, second grade LLI students outperformed their control counterparts by less than one benchmark level on average, with both groups starting at Level E/F and finishing around Level I. Given the progress made, though not statistically significant, post-hoc analyses were conducted in order to examine these effects in a larger sample. In the combined-sample post-hoc analyses, the treatment group gained about 4.5 levels, finishing close to Level J, while the control group only gained around 3 levels, finishing close to Level I. These results are similar to those seen when looking only at the Denver second grade students; however, with the increased combined sample size, statistical significance was also attained.

Significant positive effects were also found for LLI students on the DRA2 in kindergarten and second grade, but no results were found at any of the three grade levels on the STAR (most likely due to extremely small sample sizes). Further, demographic subgroups including males, females, Hispanic students, and ELL students were shown to benefit from LLI across the three grade levels. Fidelity of LLI implementation (i.e., the degree to which LLI was implemented as designed) was shown to have some impact on student achievement in kindergarten and first grade but not second grade. Additionally, the amount of LLI attendance—relative to the recommended amount—appeared to have minimal effects on student achievement. Finally, comparison data from DPS students who received LLI but were not part of the randomized study revealed that students who received LLI—and any additional instructional time, literacy support, or intervention services they needed—during the 2011–2012 school year made highly significant gains on the DRA2 at all three grade levels, but only second grade students made significant gains on the STAR. However, these results should be interpreted with caution because the comparison group analysis did not include a control group who did not receive LLI, so it is not possible to infer a causal relationship between comparison group students' LLI participation and their growth in literacy scores.

2. At what level of fidelity to the program model is LLI implemented by teachers participating in the study?

Overall, the observation results from the current study suggest that LLI was implemented with a high degree of fidelity to design. In most of the observations, the majority of lesson components received high fidelity ratings. Further, the on-site researchers generally concluded that the lessons they observed were delivered as designed. Additionally, the observation results revealed that overall LLI implementation was consistent across the school year, with strong fidelity scores received at both time points when the observations were conducted. These observation results were corroborated by self-report feedback from the participating LLI teachers. Finally, the LLI attendance records from the current study revealed that, on average, students received less than the model's recommended number of instructional days (i.e., 62 days instead of 90 for first and second grade, and 45 days instead of 70 for kindergarten). Although second grade students made few significant gains, kindergarten and first grade students made significant progress in their literacy achievement despite receiving less than the recommended amount of instruction. This finding suggests that LLI can still be effective during a relatively shorter timeframe, which may be valuable to districts with a large number of students to serve or limited time in which to implement early literacy interventions.

3. What are stakeholders' perceptions of the LLI system and the core literacy program?

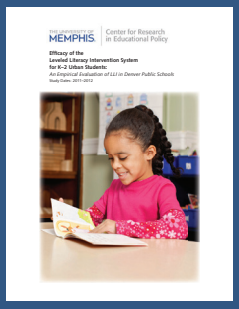
Overall, LLI teachers, classroom teachers, principals, parents/guardians, district literacy specialists, and on-site researchers shared extremely positive perceptions of the LLI system and its impact on struggling students' literacy. Stakeholders felt that LLI has benefits for students' literacy achievement and skills as well as their enjoyment, enthusiasm, and confidence related to reading

and writing. Stakeholders also reported positive perceptions of such aspects of the LLI system as its design and organization, instructional components, and materials (particularly the lesson books and take-home books). However, although stakeholders generally perceived that LLI is helpful for English Language Learner students, there was some disagreement about its benefits for students classified as special education. In general, stakeholders agreed that LLI may be too fast-paced for learners who need to spend more time on certain concepts. Additionally, stakeholders raised areas of concern including the expense of the LLI professional development and kits, the relatively small number of students that schools can serve with LLI (particularly when considering time and staffing limitations), and the fact that it is difficult for districts and schools to achieve the recommended amount of LLI instructional time during the school year.

Regarding the core literacy instruction, stakeholders' perceptions were generally positive, although some areas of concern were identified. Stakeholders perceived that their schools are generally supportive of literacy and provide a learning environment conducive to literacy development. Further, stakeholders shared positive perceptions of the core literacy program's impact on students' achievement, enthusiasm, and confidence related to reading and writing, as well as such aspects of the program as small group instruction, guided reading, differentiated instruction, support for ELL students, and teacher flexibility and autonomy. However, a large percentage of stakeholders agreed that the core literacy instruction needs improvement. Areas for improvement suggested by stakeholders included the need for a consistent and comprehensive curriculum, increased parental involvement, improved resources, and more individualized support for students.

4. How do the results of the Fountas & Pinnell Benchmark Assessment System compare to those of the Developmental Reading Assessment, 2nd Edition (DRA2) and the STAR Early Literacy Assessment?

Grade level equivalence information was available to compare treatment and control group students' scores on the Fountas & Pinnell Benchmarks with their scores on the DRA2 but not on the STAR Early Literacy Assessment, which also did not have a sufficient sample size in the current study to support such an analysis. Further, definitive conclusions can only be drawn about the comparison



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"[LLI is] very structured and easy to follow. The books are excellent and the students love them."

—PARTICIPATING LLI TEACHER

"We're seeing students' reading and writing skills improve, especially the ELL students that we serve. Students are proud of becoming readers and writers and are excited to come to LLI lessons."

—PARTICIPATING LLI TEACHER

"I love the fact that [LLI] has most of the components of reading and everything is right there at your fingertips instead of chasing down materials."

—PARTICIPATING LLI TEACHER

"[Our school should continue LLI] because it [has] shown growth in literacy based on data from several sources."

—PARTICIPATING SCHOOL PRINCIPAL

"We have seen academic gains as a result of the program. Teachers have shared students and it has promoted communication and collaboration."

—PARTICIPATING SCHOOL PRINCIPAL

"My son loves the books that he brings home from school (LLI program). Please continue to offer this program to the children. It gave his confidence a boost!"

—PARENT OF PARTICIPATING STUDENT

between kindergarten benchmark and DRA2 scores due to the high number of unavailable DRA2 scores in first and second grades for the time period used for analysis. Overall, there was a low rate of agreement between kindergarten students' posttest instructional levels on the benchmarks and their posttest DRA2 scores. However, approximately one-quarter of these kindergarten students did not have a comparable posttest DRA2 level for their posttest benchmark level; therefore, these students were automatically considered to have "no match" because no corresponding DRA2 level was available in the grade level equivalence information provided by Heinemann. Further, kindergarten students' scores on the DRA2 were more frequently categorized as "proficient" than on the benchmarks, with agreement between the benchmarks and DRA2 regarding proficiency or non-proficiency status occurring only half of the time. Finally, although there was a low level of agreement between both first and second grade benchmark and DRA2 scores, there was a trend suggesting high agreement between the two assessments on proficiency or non-proficiency status in these grades. However, due to the extremely small sample size, the first and second grade results are highly inconclusive and must be interpreted with caution.

The current study encountered several limitations that may limit the generalizability of the findings and that prevented researchers from obtaining adequate power to draw definitive conclusions. These limitations included a small sample size of students participating in the study (particularly in second grade), the researchers' inability to control testing conditions for two of the outcome measures, the acknowledgement that control group students were allowed to receive other supplemental literacy services besides LLI while they were participating in the study, and that treatment group students did not receive the recommended amount of LLI instructional time. However, despite these limitations, the current study found significant positive effects of LLI on urban students' literacy achievement when implemented with fidelity to the LLI model. Further, stakeholders in Denver Public Schools—including teachers, administrators, and parents/guardians—were supportive of LLI and perceived positive benefits of the LLI system for their students. Altogether, the results from this evaluation allow us to conclude that LLI positively impacts urban students' literacy skills, particularly in kindergarten and first grade. These results also suggest that continued implementation of LLI would be beneficial in DPS and offer an opportunity for research-based recommendations that may enhance the system, future research, and ultimately student achievement. A list of these recommendations—including items related to LLI design, implementation, and professional development, as well as future directions for LLI research—may be found in the main body of this report.

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