

Evaluation of the Leveled Literacy Intervention: Year 1

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Providing early interventions for struggling readers is critical for their future academic success. Studies have suggested that many children who fail to read well in their early school years continue as poor readers and writers in later grades (Juel, 1988). Students who are poor early readers are twice as likely to drop out of school when they reach high school (Kerschner & Connolly, 1991). While the need for early attention to reading and comprehension skills is well documented, traditional approaches have often been either ineffective or detrimental to students (Shepard & Smith, 1989; McGill-Franzen & Allington, 1993). However, there is some evidence that through quality early intervention programs, students' beginning reading difficulties can be prevented from becoming long-term reading deficiencies (Goldenberg, 1994; Hiebert & Taylor, 1994; Reynolds, 1991).

In January 2006, the Center for Reading Recovery and Literacy Collaborative (CRR) received approval to conduct training for the Leveled Literacy Intervention program (LLI) in a large, urban district in the northeastern United States. Due to the number of participants in the training program, CRR provided the eight session training course on-site in the district over three meeting periods: February 27-March 1; March 14-16; and April 24-25. Due to the approval process for a new program, training was not able to begin until the semester was underway, thereby reducing the planned 18-week intervention to approximately 14 weeks.

An evaluation of the LLI program was conducted by Education Innovations (EI) under the direction of Dr. Steven Ross, the director of both EI and its counterpart at the University of Memphis, the Center for Research in Educational Policy. The evaluation included a needs assessment, post-training questionnaires and interviews, and student achievement assessments. The evaluative work was designed to determine the effectiveness of the LLI program in preparing participating teachers for high quality implementation of the intervention, which

subsequently complements the district's comprehensive standards-based approach to balanced literacy and improving the literacy skills and achievement scores of participating students.

Description of the LLI program

The LLI program is a short-term, intensive, small-group intervention designed for children in grades kindergarten through second grade who are having difficulty learning early reading and writing skills. The goal of the program is to accelerate these children's progress in order to bring their skills up to grade level, so that their early literacy difficulties do not become long-term deficits. The program is appropriate for struggling regular education students and students with special needs, and there are minor modifications for English language learners.

Prior to student selection and program implementation, literacy teachers receive professional development on LLI implementation as well as the necessary materials and a detailed teaching guide. The LLI materials are based around a series of "leveled" texts (i.e. texts of progressing difficulty) with difficulty measured by the Fountas and Pinnell (2007) text gradient system. Additional professional development is provided throughout program implementation, including explicit training in how to best facilitate comprehension skills through interactions around books.

Children enrolled in LLI meet in small groups (ideally three students) for daily 30-minute lessons. The intervention lasts a maximum of 18 weeks. The instructional program emphasizes phonological awareness and phonics, fluency, comprehension, and the expansion of oral language skills, including vocabulary. More specifically, phonics instruction is an integral component of the program, and is systematic, explicit, and follows a prescribed sequence of sound-letter relationships and spelling patterns. Additionally, reading comprehension skills are taught through intensive interactions with the LLI teacher and the other children in the group.

One key idea behind LLI is that children benefit from experience with texts that they can read without difficulty, as well as with more challenging texts written at their instructional level. The LLI program provides struggling children with both kinds of reading experiences, alternating between lower level and challenging texts. Easier texts build fluency and give children success at reading that builds confidence and positive self-esteem. More challenging texts, which children read with scaffolding and support from the LLI teacher, give children the opportunity to acquire higher-level reading skills. The LLI materials specify concepts that teachers can emphasize when discussing each book in the sequence. Other key ideas supporting the LLI program components are:

- Struggling children learn best when lessons follow a predictable sequence. All LLI lessons have the same basic structure, allowing children to focus most of their processing attention on reading, writing, and phonics and word study activities.
- Children who are struggling with reading and writing need to learn fast, automatic processing of oral and written language. For this reason, LLI lessons are designed to be fast-paced, with a specified set of literacy activities for each day of the intervention. The fast pace promotes rapid processing, and keeps children engaged in the lessons and motivated to participate in the literacy activities and discussion.
- Literacy interventions should be linked to classroom instruction and the home environment. Children take LLI books home to read aloud to their parents, along with simple homework assignments, and they also may take books back to the classroom.
- A system of ongoing formative assessments give teachers information about student learning that can inform their instructional decision-making.

Research Questions

The purpose of this evaluation was to address the effectiveness of the LLI program through the examination of the needs, activities, and progress of teachers and students in an LLI training group. The results are based on the perceptions of a cohort of 38 teachers at 22 elementary schools and the literacy achievement of 165 students who participated in the LLI small groups led by this cohort. This evaluation was structured around the following key research questions:

- What were the status and needs of the teachers prior to the LLI?
- What were teachers' experiences with and reactions to the LLI?
- To what degree did teachers change their literacy instruction according to LLI emphases and best practices?
- What were the impacts of the LLI on student achievement as measured by student reading tests?

Evaluation Design and Measures

The evaluation period extended from February 2006 through June 2006. The evaluation design was based on both quantitative and qualitative data collected through: LLI trainee needs assessment surveys, phone interviews with randomly selected LLI participants, post-training on-line questionnaires, and Gates-MacGinitie Reading Tests (GMRT) administered to students prior to the intervention and at the end of the school year. Program developers administered the needs assessments to all LLI attendees on the first day of LLI training. Education Innovations researchers were responsible for conducting phone interviews, on-line post training questionnaires, and dissemination of appropriate versions of the GMRT to the LLI teachers.

Participants

All of the 38 participants were teachers from a large, urban district located in the northeastern United States. There were 22 schools represented in this evaluation, and all were classified as Title 1. Most of the schools were PK through 5th grade and ranged in population from 413 students to 1,725, with the median population of 880 students. Most of the schools were culturally diverse and the majority of students qualified for free lunches.

The majority of teachers who participated in the LLI training were reading specialists, many of whom had training in Reading Recovery. Demographic information concerning the LLI participants is thoroughly discussed in the Results of the Participant Needs Assessment section. LLI teachers varied in the number of students they were able to assist through the LLI program. Furthermore, beginning the implementation in mid-year contributed to scheduling difficulty for some LLI teachers. A total of 165 students completed the LLI program, with the majority of the students (63.6%) in the first grade. Table 1 provides a summary of participants and students.

Table 1: LLI Teachers and Students

School	LLI Participants	Kindergarten Students	1 st Grade Students	2 nd Grade students
PS 69	1		6	
PS 102	2		9	
PS 105	4	3	6	3
PS 112	1			3
PS 160	2		6	
PS 164	2	3	3	6
PS 170	2		6	
PS 179	2			6
PS 186	2	9	9	6
PS 192	1	3		3
PS 200	3		6	3
PS 204	2		6	
PS 314	4		21	
PS 95	1		3	
PS 225	1		3	
PS 19	1			3
PS 22	2	3		3
PS 39	1		3	
PS 44	1		6	
PS 14	1			3
PS 45	1		6	
PS 199	1		6	
Total	38	21	105	39

Instrumentation

Three instruments were specifically designed for this study: the Leveled Literacy Intervention Participant Needs Assessment (LLPNA), the Leveled Literacy Intervention Teacher Questionnaire (LLITQ), and the Leveled Literacy Intervention Phone Interview. In order to understand student growth in reading, group-administered literacy tests provided by Gates-MacGinitie were utilized. All instruments are described below.

Leveled Literacy Intervention Participant Needs Assessment (LLPNA). All teachers completed a needs assessment during the first day of LLI training. The needs assessment was comprised of six sections and was designed to gather demographic information, professional development experiences, literacy resources and availability of instructional materials, literacy instructional goals, necessary components to effective literacy instruction and the degree in which those components were effectively present in the classroom. Teachers were also to further describe their needs and experiences through a series of open-ended questions.

Leveled Literacy Intervention Teacher Questionnaire (LLITQ). All LLI participants were asked to complete an on-line questionnaire in June 2006. The purpose of the questionnaire was to gather participants' perceptions and insights regarding their LLI experiences. Teachers were asked about various components of the LLI professional development, materials, compatibility with school literacy goals, student motivation and achievement, and support received from faculty and administration. Open-ended questions were also included to allow teachers to elaborate on their experiences and offer insight into improvements that could further enhance the LLI experience.

Leveled Literacy Intervention Phone Interview. In May of 2006, nine LLI teachers were randomly selected to participate in a phone interview. During this interview a series of questions

were asked regarding LLI training, implementation, support, student achievement, and strengths and weaknesses of the program.

Gates-MacGinitie Reading Tests (MacGinitie, MacGinitie, Maria, & Dreyer, 2000).

The Gates-MacGinitie Reading Tests (GMRT) are valid, reliable, norm-referenced and scientifically based reading tests that provide teachers and researchers valuable information for assessing the level of reading achievement of individual students. Now in its fourth edition, the GMRT has forms to accommodate students from kindergarten through adulthood. The GMRT is group administered and students in k-2 use pencils to mark responses in a booklet. For the purpose of this study, several different forms were used for student assessment. Table 2 shows the tests used by grade level and time of testing. Classroom teachers administered the pretests in March at the beginning of the intervention and again in June, during the last week of school.

Table 2: Gates MacGinitie Testing Forms

	Kindergarten	First Grade	Second Grade
Pre-Test Level	Pre-Reading (PR)	Beginning Reading (BR)	Level 2 Form S
Post-Test Level	Beginning Reading (BR)	Level 1 Form S	Level 2 Form T

Procedure

Data for the evaluation were collected March-June 2006. During the initial LLI training on February 27th, the LLIPNA was administered. During the first 10 days of March, newly trained LLI teachers selected students for the intervention and notified EI of the number and level of GMRT assessments needed. LLI teachers assessed students in mid-March. In May, nine randomly selected teachers were interviewed via phone by EI researchers. In June, all teachers were asked to complete an on-line questionnaire and were mailed the appropriate number and level of GMRT assessments for the post-testing during the last week of school. The following table summarizes the type of measure, instrument, brief time line, and number and description of the collection process:

Table 3: Data Collection Summary

Type of Measure	Instrument	Timeline	Number Collected	Description
Surveys	LLI Needs Assessment	February 27, 2006	38	Distributed and collected on first day of LLI training by LLI program developers; sent to EI for analyses
	LLI Teacher Questionnaire	June 2006	31	Available on-line, all participants sent instructions and access code to participate.
Interviews	Participant Phone Interview	May 2006	9	Conducted by EI researcher: randomly selected LLI participants were interviewed via phone for 30-45 minutes
Student Achievement Analysis and Reporting	GMRT levels PR, BR, Level 2, form S	Spring 2006	165	GMRT assessments were sent to EI for scoring and analyses
	GMRT levels BR, Level 1, form S and Level 2, form T	Summer 2006	154	

Results

Leveled Literacy Intervention Participant Needs Assessment (LLIPNA)

There were 38 teachers who participated in the initial training session and completed the LLIPNA survey. The survey was comprised of six sections and allowed participants to respond to questions using a 5-point Likert scale and open-ended elaboration.

Section I. Section I contained 11 questions designed to gather information on participants' demographics and previous experiences. The majority of participants reported their positions as reading specialists, with almost 40 percent (39.5%) as Reading Recovery teachers, and 31.6% as Reading Teachers. Over 40 percent (44.7%) had been in their current position for one to five years, while 36.8% held their position between 6 and 10 years. Over three fifths of the respondents (60.5%) had more than 10 years experience in any school.

A large majority (78.9%) reported having more than 20 hours of professional development in literacy in the previous year. Almost half of the group, 47.4%, had more than eight years experience working with struggling readers; however, the amount of time spent with struggling readers in a small group setting varied. Over one-fourth, 28.9%, reported having more than nine years experience working with struggling readers in a small group setting; nearly 40 percent (39.5%) reported having between four and eight years experience teaching in a small group setting; and 28.9% had between one and three years experience teaching in small groups.

A large majority of the respondents had advanced degrees, with 73.7% reporting a master's degree plus 20 hours of educational classes. Also, a large majority were female (97.4%), and white, non-hispanic (86.8%).

Section II. The second section of the survey contained items relating to professional development experiences. Participants were asked to respond to eight items on a 5-point Likert scale ranging from (1) Strongly Agree to (5) Strongly Disagree. Participants were also allowed to mark “Non-Applicable” if necessary. Responses in the area of professional development were very positive. There were six items to which an overwhelming majority (over 80%) either strongly agreed or agreed:

- Current school administration encourages teachers to pursue professional development opportunities in literacy (reading and writing): 100%
- Professional development opportunities and training in literacy have been very helpful: 92.1%
- Participating in professional development and training opportunities in literacy have been enjoyable: 92.1%
- The principal or administration provides useful feedback on literacy teaching: 84.2%
- The literacy coach or reading specialist is available to support literacy teaching in and out of the classroom: 84.2%

Two other items were generally favorable, yet to a lesser extent. Nearly two-thirds (65.8%) agreed that they had received adequate training in best practices/ scientifically-based reading research programs in the past two years; 18.4% were neutral regarding this item, and 5.2% disagreed. Also, 73.6% of the respondents agreed that they had received previous training in working with small group literacy instruction for struggling readers; 13.2% were neutral, and 10.5% disagreed with the item.

Section III. The third section of the survey contained items relating to literacy resources and instructional materials available at the participants' schools. Participants were asked to respond to six items on the 5-point Likert scale or mark "Non-Applicable" if necessary. Responses in this section were also very positive. In all six items there was an overwhelming majority (over 80%) in which respondents either strongly agreed or agreed that:

- Classroom libraries were present: 100%
- Collaboration with other teachers and reading coaches regarding literacy instruction occurred: 97.4%
- The principal was available to discuss literacy instruction: 94.8%
- Leveled books were available: 94.7%
- Materials needed to provide literacy instruction was available: 92.1%
- Opportunities to observe other teachers modeling good literacy practices were available: 86.9%

Section IV. The fourth section of the survey contained items relating to literacy instructional goals. Participants were asked to respond to seven items on a 5-point Likert scale or mark "Non-Applicable" if necessary. The majority of responses in this section again were very positive. For six of the seven items, an overwhelming majority (over 80%) either strongly agreed or agreed that:

- The school/district had developed specific goals for literacy instruction: 100%
- The school district supported the school's goal for literacy instruction: 100%
- The school or district protected a daily reading block for grades k-2: 100%
- The school/district's literacy program was aligned with state and district language arts standards: 97.4%

- The school or district effectively communicated goals for literacy instruction to all teachers: 92.1%
- The school or district utilized a best practices/ scientifically-based reading research model for literacy instruction: 92.1%

The only question that did not receive positive responses involved the attitude of teachers and administrators towards the goal of all children reading at grade level by 3rd grade. Just over half of the respondents (55.3%) agreed that: *Teachers and administrators at my school believe all children can read on grade level by 3rd grade.* Over one-third responded neutrally (34.2%) and 10.5% disagreed with this statement.

Section V. Section five contained 12 items often deemed important in effective literacy instruction. Participants were asked to select the five items that were currently most important in effectively performing their jobs; then participants were asked to describe the degree to which all 12 items were currently being met. The scale used to describe how effectively these items were being met included (4) Met, (3) Partially Met, (2) Unmet, and (1) Does Not Apply.

Of the 12 items, a large majority (71.1%) listed time to plan for literacy instruction as being important. Supply of leveled books, time for literacy teaching, and use of assessments to inform instruction were all listed by 52.6% of the respondents. Half of the respondents (50%) listed interaction and collaboration with classroom teachers as vital. Those items that were less frequently listed included: interaction and collaboration with literacy specialists (21.1%), parental support (15.8%), and interaction and collaboration with principal (5.3%).

Of those items that were listed by the majority as being necessary for effective instruction, planning time was considered fully met by 26.3% of the respondents; partially met by 52.6%; and unmet by 13.2%. Supply of leveled books was considered fully met by 47.4%

and partially met by 44.7%. Time for literacy teaching was indicated to be fully met by 63.2%; partially met by 13.2% and unmet by 5.3%. The use of assessments to inform teaching decisions was described as fully met by 65.8% of the respondents; partially met by 18.4%, and unmet by 7.9%. Half of the respondents (50.0%) said their need for interaction and collaboration with classroom teachers was fully met and 42.1% reported this to be partially met.

Section VI. The final section gave participants the opportunity to respond to four open-ended questions. Participants were asked to list three to five strengths, three to five areas in which they wished to develop, their five most critical needs in order to be effective teachers, and the opportunity to relate additional comments regarding professional development experiences and needs.

LLI participants listed 151 strengths, which fell into 14 distinct categories. The most popular response was teachers' training in literacy instructional practices and continued professional development, mentioned with a frequency of 21.9%. The ability to provide individualized instruction (11.3%) and the use of assessments (10.6%) were also frequently listed responses.

When teachers were asked to list areas in which they wished to develop, there were 114 items listed that fell into 12 categories. The most common was increasing their knowledge of literacy practices, including scientifically based reading research practices, provided with a frequency of 26.3%. Other frequently mentioned responses included better use of assessments (14.9%) and knowledge of small group strategies (10.5%).

LLI participants were given the opportunity to list the five most critical components needed in order to be effective literacy teachers. There were 139 responses that fell into 15 distinct categories. The most frequently listed need was better materials, reported with a

frequency of 14.4%. The time and use of assessments (13.0%) and increased professional development and training (11.5%) were also popular responses.

Leveled Literacy Intervention Teacher Questionnaire (LLITQ)

There were 31 teachers who completed the LLITQ in June 2006. The survey was comprised of four sections and allowed participants to respond to questions using a 5-point Likert scale, a 3-point level of degree scale, and the opportunity to respond through open-ended elaboration.

Section 1. The first section of the survey contained items relating to participants' attitudes and experiences regarding LLI. Participants were asked to respond to 24 items on a 5-point Likert scale ranging from (1) Strongly Agree to (5) Strongly Disagree. Overall, responses were very positive, with 12 items to which a large majority of the participants (80% or more) either strongly agreed or agreed that they:

- Understood the goals of the Leveled Literacy Intervention program: 96.8%
- Understood how to implement LLI: 100.0%
- Had received adequate professional development for implementing LLI with a group of children: 83.9%
- Believed LLI had positively impacted the achievement of most of the students in the program: 90.3%
- Believed teachers in the school were supportive of LLI: 80.6%
- Believed ongoing communication existed between LLI teachers and classroom teachers: 80.6%
- Thought LLI allowed teachers to provide differentiated instruction to address the varying strengths and needs of a group of children: 83.9%

- Found instructional materials (books, assessments, and other resources) needed to implement LLI were readily available: 96.8%
- Believed LLI was aligned with state and district reading and language arts standards: 90.3%
- Felt LLI training had improved their reading instruction a great deal: 80.6%
- Believed students in LLI were more motivated to learn because of the lessons: 83.9%
- Had a greater understanding of the role of comprehension in successful reading: 80.6%

There were several items that garnered less positive feedback. The lowest percentage of favorable responses involved the school having enough teachers to provide LLI teaching to all children who need the intervention--16.1% agreed with this statement and 41.9% disagreed, with the remaining responses neutral. Just over one-fourth (25.8%) agreed that parents found the LLI program valuable, with 67.7% responding neutrally to this question. Items regarding time for planning and teaching were also lower. Over forty percent (41.9%) agreed that LLI teachers were given sufficient planning time to implement the program, with 32.3% responding neutrally and 25.8% who disagreed. Additionally, 48.4% agreed that the administration protected the time for daily uninterrupted LLI teaching, 29% were neutral, and 22.6% disagreed. The majority of respondents replied favorably to the remaining items.

Section II. The second section contained three items in which respondents were asked to relate the degree to which they occurred—extensively, somewhat, or not at all. Over three-fourths of the respondents (77.4%) reported that both the school administration and the district supported their efforts as LLI teachers “extensively.” Almost twenty percent, 19.4%, reported the support as “somewhat;” and 3.2% said “not at all.” Regarding scheduling and time available

to implement, 22.6% of the respondents measured their available time to implement LLI effectively as “extensive,” 67.7% measured this item as “somewhat,” and 9.7% said “not at all.” Nearly all of the participants—96.8% agreed that the school should continue the LLI program.

Section III. Section three contained five questions designed to gather information on participants’ demographics and previous experiences. Almost half of those responding to this questionnaire (48.4%) had between one and five years experience at their current school; however the majority (51.6%) had more than 15 years experience as a school employee. Over forty percent (41.9%) had been in their current position between one and five years and 32.3% held their current position between 6 and 10 years.

A large majority of the respondents to this questionnaire had advanced degrees, with 71.0% reporting a master’s degree plus 20 hours of educational classes. Also, the majority of respondents reported their cultural background as white, non-hispanic (83.9%)

Section IV. The final section gave participants the opportunity to respond to three open-ended questions. Participants were asked to list the strongest aspects of the LLI program, the weakest aspects of the program, and reasons to continue or discontinue the LLI program.

There were 30 LLI participants who responded to these questions and 44 responses. Responses fell into eight distinct categories. The most popular response was that LLI addressed components of scientifically-based reading research, including phonics, comprehension, vocabulary, oral language, and fluency. This item was mentioned with a frequency of 25.0%. The lesson plans and structure (22.7%) and the use of leveled readers and books (16%) were also frequently listed responses.

When asked to list areas that were the weakest, there were 29 participants who responded with 33 responses. These responses fell into eight categories. The most often listed weakness

was that the lesson preparation was too time-consuming (i.e. word card organization). This was listed with a frequency of 45.5%. Another frequently mentioned weakness was that the lessons were too long for 30 minutes, which was mentioned with a frequency of 18.2%.

LLI participants were given the opportunity to list reasons the program should or should not be continued. No participant responded that the program should not be continued; therefore all responses were categorized based on why the program should be continued. All 31 participants responded to this question and there were 37 responses, which fell into 5 categories. The most popular reason was that LLI provided a needed intervention, through small groups, for at-risk students. This was mentioned in 15 responses for a frequency of 40.5%. LLI's effectiveness and the growth that could be seen in the students was also mentioned frequently—37.8% of the responses.

Leveled Literacy Intervention Phone Interview

In May 2006, nine LLI teachers were contacted, via phone, to participate in an interview. Questions were asked to gain a fuller picture of the LLI professional development as well as the experiences the teachers had as they implemented the intervention. Interviews lasted approximately 30 minutes and were recorded for accuracy purposes.

Comments and opinions expressed through the phone interviews were similar to those made on the surveys. Teachers reported that the LLI program fit well with ongoing literacy initiatives, and worked especially well with the Reading Recovery program. LLI students were generally those who needed interventions, yet did not qualify for Reading Recovery. LLI was deemed vital in ensuring these students' success. Classroom teachers' and principals' attitudes were unanimously described as very supportive. Many of the interviewees also mentioned that because the classroom teachers could quickly see the impact on student achievement, their

support was very strong. Most of the teachers reported having sufficient resources; however, many suggested there was a great need for more LLI teachers at their schools. Also, several mentioned the need for more space.

Teachers consistently agreed that LLI provided students with strategies and skills that helped address their individual needs. Most teachers mentioned the ability of LLI instruction to move at the student's own pace and the effectiveness of this in addressing their individual needs. Teachers' use of assessment data, such as running records, indicated that students were increasing in their reading ability. Teachers had mixed opinions regarding the effectiveness of the instructional components concerning writing, phonics, and phonemic awareness.

Most teachers reported that their students were significantly more enthusiastic about reading, less frustrated, and had increased confidence. This lack of frustration improved student conduct both during the intervention and during regular classroom instruction. Some of the LLI teachers mentioned that writing skills had dramatically improved, while others had seen less positive results in the area of writing.

Teachers were overwhelmingly positive about the LLI training and suggested that it further reinforced their belief that struggling readers can achieve and become readers. The training also helped teachers set attainable goals for their students and fine-tune their approach regarding literacy instruction. Participants were very positive regarding support from program developers and felt questions and problems were addressed in a timely fashion. Most participants expressed the need for a refresher LLI course and would like the opportunity to collaborate with other LLI teachers. Several LLI participants mentioned that the use of videos in the training sessions would be helpful.

In general, LLI participants were enthusiastic and complimentary regarding LLI and the impact it had on students. The variety in components, structure of the program, adaptability, and consistency were mentioned as strengths. Many of those interviewed also stated that through the training they had gained an understanding of running records and how to effectively use them. Most did not mention an ineffective component of the program. The “bothersome” cards were mentioned by one person and a weak writing component was mentioned by several of those interviewed. Several participants wished that they could have had more time to see the full impact of LLI and regretted that implementation did not last the full 18 weeks.

Gates-MacGinitie Reading Tests (GMRT)

One-hundred and sixty-five students with reading skills below their grade level from 22 public schools participated in the LLI program. Student attendance ranged from approximately 12 to 15 weeks. Prior to and upon completing the program, students were assessed with the Gates-MacGinitie Reading Test (GMRT). Different versions and forms of the test for each grade level were applied and 154 students completed the posttest assessments. Kindergartners completed the GMRT Pre-Reading (PR) and the GMRT Beginning Reading (BR) for pretest and posttest, respectively. First grade students took the GMRT BR for pretest and the GMRT Level 1, Form S for posttest. Second graders completed different versions of the GMRT Level-2 (S and T) for pretest and posttest. In order to conduct comparisons across different versions and levels of GMRT, Extended Scale Scores of each test were used in the analysis.

Inferential Analysis. A series of paired *t*-tests were performed to determine whether significant differences occurred between pretest and posttest GMRT scores of K-2 students. The results indicated that the mean posttest scores were significantly higher than the mean pretest scores for all grade levels. In order to determine the educational importance of these differences,

the effect sizes were calculated by dividing the pretest and posttest mean difference with the standard deviation of the mean difference. The means, standard deviations, percentile rank, and findings from the inferential analysis are presented in Table 4. The standardized effect sizes were considered very large, ranging from 1.14 to 2.23. Similarly, substantial increases in the percentile rank were observed across all grade levels (refer to Table 5). The highest pre-post test mean difference and effect size were realized by kindergartners. Compared to other grade levels, observed improvement for second graders had the lowest effect size and corresponding pre/post difference. Based on these findings, it can be concluded that students' reading scores substantially increased in all levels. It should be noted that, due to the absence of a control group, it is not possible to infer a causal relationship between the program treatment and the difference in pretest and posttest scores.

Table 4: Paired T-Test Results

	<i>N</i>	Pre test			Post test			<i>t</i>	<i>df</i>	<i>p</i>	<i>ES</i>
		<i>M</i>	<i>SD</i>	<i>PR</i>	<i>M</i>	<i>SD</i>	<i>PR</i>				
Kindergartners	21	284.4	18.6	14	332.5	29.4	58	9.96	19	< .001*	2.23
1 st Graders	105	347.6	31.5	17	383.5	28.9	43	15.16	98	< .001*	1.52
2 nd Graders	39	391.3	18.5	10	410.3	24.9	21	6.72	34	< .001*	1.14

p* < .001Table 5: Frequencies by Percentile Ranks and Grade Levels**

Grade Levels	Percentile Rank Ranges							
	0- 25		26-50		51-75		76-100	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Kindergartners	20	2	1	7	0	6	0	5
1 st Graders	64	24	33	35	8	32	0	8
2 nd Graders	35	23	4	10	0	1	0	1

As can be seen in Table 5, before the intervention approximately 5% of the participating students were reading at the average level or above (51st to 100th percentile) and 72% were

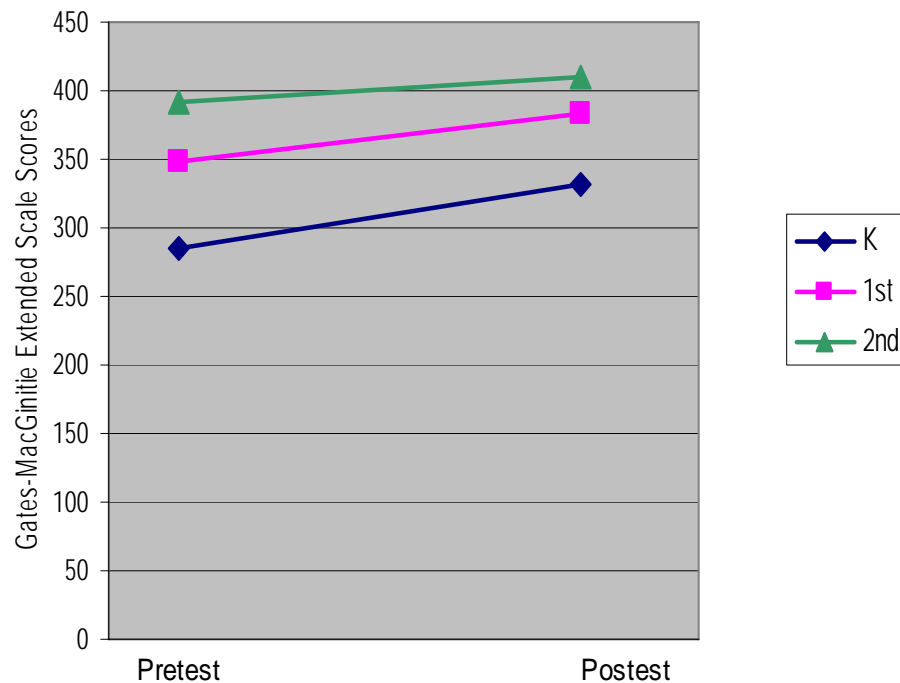
reading in the lowest quartile (0-25th percentile). After the intervention, 34% of the students were reading at or above the 51st percentile and 32% were reading in the lowest quartile.

The mean pretest and posttest reading scores for the kindergarteners, first graders, and second graders are shown in Figure 1. The relative average abilities of the students in the three grade levels are depicted, with 2nd graders performing at a higher level than 1st graders, who in turn scored higher than the kindergarteners. The slopes of the lines indicate the amount of progress made, on average, by each grade cohort, with kindergarteners making the most progress, followed by first graders, followed by 2nd graders.

Figure 1. Mean pretest and posttest scores on the Gates-MacGinitie Reading Test.

Pretest N=165

Posttest N=154



Findings

The findings of this study are presented in the context of the research questions that were posed for the evaluation.

What were the status and needs of teachers prior to the LLI?

The 38 teachers who participated in the LLI training were, in general, well-educated and experienced literacy specialists. Nearly 40 percent were Reading Recovery teachers, and another 30 percent were reading specialists. Most of those in the training (78.9%) reported that they had completed more than 20 hours of professional development in literacy the previous year.

At the onset of training, the LLI participants reported working in a school situation where the administration encouraged professional development in literacy and, consequently, they were uniformly able to take advantage of professional development opportunities. The majority also had a literacy coach. In addition, most teachers benefited from an ample supply of literacy resources and instructional materials. Literacy instructional goals were reported to be well developed and in place. The only “low” response item concerned the attitude of the classroom teachers at their schools regarding every child’s ability to read by 3rd grade-- just over half of the LLI trainees believed their fellow teachers felt this to be the case.

The LLI participants ranked the most important needs they required to be effective. Time for instructional planning was ranked most frequently, with over 70 percent (71.1%) of the participants agreeing this was a critical need. However, when asked to rate the degree to which this need was being met, just over one-fourth of the participants (26.3%) believed this need was currently being fully met at their school. Other needs that were commonly listed by participants included: supply of leveled books, time for teaching students, and the use of assessments for instruction. Less than half of the participants reported their need for leveled books was fully

met; however, the other most popular needs fared better. The majority of LLI trainees reported that their needs for teaching time and ability to use assessments for instruction were fully met.

Through open-ended responses more insight into teachers' needs was gained. The most popular strength listed by the trainees was training and professional development in literacy practices; however, this was also listed frequently as an area trainees wished to develop—especially as the professional development related to scientifically-based reading research practices. Another popular strength mentioned was the ability to provide individualized instruction; areas many trainees wished to develop included better use of assessments and small group strategies. When participants were given the opportunity to list what they believed to be the most critical needs they had in order to be effective, the responses corresponded with prior survey results. Again, materials, assessments, planning and instructional time, and professional development were popular responses.

In sum, the teachers represented in this evaluation were well-educated and well-experienced. Responses indicated both an appreciation of the role professional development and training in literacy instructional strategies play in successful literacy instruction, as well as encouragement by administrators and district personnel to further increase their instructional knowledge base. While most reported working in positive school climates, not all needs were being met, including the most often mentioned need for adequate time for planning instruction.

What were teachers' experiences with and reaction to the LLI?

Responses to the on-line questionnaires LLI trainees took in June were very positive with the majority of participants very pleased with most aspects of the training and subsequent small group instruction with the students. An overwhelming majority reported that they understood both the goals of the Leveled Literacy Intervention program and how to effectively implement

the program. The small group training—which many of the teachers had indicated as being an area in need of development—was considered successful by most respondents. Over ninety percent of those who completed the survey believed LLI had a positive impact on the students. LLI participants reported enjoying administrative support, collaborative opportunities with the classroom teachers, and found instructional materials readily available.

Teachers were less positive regarding some of the other resources that were needed for completely effective implementation. Only 16.1% of the respondents believed the school had an adequate number of LLI teachers and just over 40 percent (41.9%) agreed that LLI teachers were given sufficient planning time to implement the program. Also, although most teachers believed support from administration and district was substantial and all (100%) of the teachers responding on the LLIPNA that the daily reading block was protected, just 48.4% agreed that the administration protected the time for daily uninterrupted LLI teaching.

Open-ended questions allowed teachers to further elaborate on perceptions and experiences with the training and implementation. LLI's sound instructional practices, including the components of scientifically-based reading research, were considered strengths by many of the participants, as were the structured lesson plans and the leveled readers. The most commonly reported weakness had to do with the time-consuming nature of lesson preparation, especially with regard to the word card organization. With time for instructional planning an expressed critical need, this should be addressed by program developers.

When asked if LLI should be continued at the school, all who responded (96.8%) agreed that LLI should be utilized by their school. Respondents indicated that LLI provided a needed intervention, through small groups, for those students at-risk. In addition, LLI trainees reported that the intervention appeared to be effective and that they were able to detect student growth.

Furthermore, phone interviews with nine randomly selected LLI participants were similarly positive and enthusiastic regarding LLI training and impact on student achievement. LLI was reportedly a “good fit” with the literacy initiatives at each school and LLI teachers enjoyed tremendous support from both principals and classroom teachers. Reactions to the training itself and the follow-up support provided by program developers were also very positive. LLI participants received prompt and thorough support and felt questions were addressed in a timely fashion.

LLI participants agreed that the intervention was effectively able to address the individual needs of their students. Special mention was made of the ability to effectively utilize running records and leveled readers. Participants reported their students were significantly more enthusiastic and their confidence regarding reading had increased. Subsequently, behavior and conduct had improved.

Phone interviews also echoed the need for more LLI teachers at the schools; also, some of those interviewed indicated a need for better space to work with their students. Most of those interviewed indicated that a refresher LLI course would be beneficial and all mentioned that they could benefit from the opportunity to meet with and collaborate with other LLI specialists on a regular basis. Several LLI teachers indicated that the use of video-taped instructional lessons to model proper LLI techniques would be helpful during the training process.

To what degree did teachers change their literacy instruction according to LLI emphases and best practices?

A large majority of the LLI teachers (80.7%) indicated in the questionnaires that the LLI training had improved their reading instruction. Those that did not agree were neutral, with no respondent disagreeing with the statement. In addition, the majority of respondents also

indicated that, due to LLI training, they had a greater understanding of the reading process and leveled books; as well as increased understanding of the following instructional components: vocabulary and oral language, fluency, phonics and phoneme awareness, comprehension, and writing. Through open-ended comments, respondents also expressed that one of the strongest aspects of LLI is that it addressed components of scientifically-based reading research—an area a number of participants had indicated, through the needs assessment, they hoped to develop.

Through the phone interviews, teachers indicated that LLI provides students with strategies and skills necessary to meet their individual needs. Teachers were increasingly more confident regarding running records and the use of leveled readers. Additionally, teachers suggested that LLI training had helped them understand how to set attainable goals for their students and fine-tune their approach regarding literacy instruction. Nearly all of those contacted via phone believed their LLI training had reinforced their belief that struggling readers can achieve and become readers.

What were the impacts of the LLI on student achievement as measured by student reading tests?

Students' reading abilities, as measured by the GMRT assessments, improved after attendance in the LLI program. These achievement gains were significant for all three groups of students—kindergarteners, first-graders, and second-graders. The greatest impact was seen in the kindergarten students, which would correspond with current research suggesting the earlier an intervention is conducted, the greater the impact. Of the 21 kindergarten students who participated in the study, nearly one-fourth (23.8%) scored above the 75th percentile on the post-test. This was true for 7.6% of the first graders and 2.6% of the second grade students.

However, results should be interpreted with caution, due to the small sample size and lack of a control group.

Conclusions

The Leveled Literacy Intervention model was well-received by literacy teachers and appears to enjoy support from faculty and staff. Teachers' responses on questionnaires indicated a program that is well-designed and researched and further enhances the expertise and training of a professional, well-educated cohort of teachers. Program developers are responsive to the needs of the LLI teachers and are readily available for support and advice. The training was found to be thorough and informative, building on a fundamentally sound knowledge-base. In addition, the leveled texts that were provided, as well as the lesson-plans, were found to be engaging and well-structured.

However, a majority of the participants were unhappy with some of the materials, especially the picture cards that are used for instruction. The cards were cited as difficult to organize and contributed to the unmanageable length of lesson preparation. With time for literacy planning a recognized top need for literacy instructors, and one that is most often unmet, program developers should quickly address the picture card issue. Another area of attention should be directed towards the need for further training and support groups of LLI teachers. Through the questionnaires and phone interviews, the need for post-training support and the ability to collaborate with contemporaries was an often mentioned need. Incorporating video-taped examples of LLI instruction would further enhance the training.

Student achievement results suggested LLI was effective in quickly providing benefits to struggling readers and writers. This was especially meaningful due to the abbreviated duration of the intervention. Although designed to be an 18-week course, this study was based on a 14-

week intervention. The gains in reading ability were meaningful and suggested further research should be conducted in order to solidify these preliminary findings. With an increased number of students, as well as the addition of a control group, more meaningful analyses would be possible. A study of LLI that was conducted as planned, in which the students receive the entire 18-week program, should also be considered to detect more significant gains.

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