# Evaluation of Child Care Subsidy Strategies: Implementation of Three Language and Literacy Interventions in Project Upgrade

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# Introduction

This report describes the design and implementation of the three interventions tested in Project Upgrade, one of four experiments conducted as part of the Evaluation of Child Care Subsidy Strategies.[1] The evaluation was a multi-site, multi-year effort to determine whether and how different child care subsidy policies and procedures and quality improvement efforts help low-income parents obtain and hold onto jobs and improve outcomes for children. Study staff worked with states and communities across the country to identify significant issues and develop hypotheses about the use of child care subsidy funds that could be rigorously tested in a series of experiments. A guiding principle of the study was that state (or community) interests and preferences should play a large role in the choice of research topics and strategies.

The funds that flow to states through the Child Care and Development Fund (CCDF), administered at the federal level by the Child Care Bureau, have two purposes. The major portion of the funds provides subsidies for child care for children of low-income working parents whose eligibility is determined by states within broad federal guidelines. States must use at least four percent of CCDF funding, with the addition of state matching funds, to improve the quality of child care for all children. It was the expressed intention of the Child Care Bureau that the study generate a set of experiments that examined aspects of the use of both types of funds.

While some states expressed interest in testing some alternative policies governing the use of direct service dollars, many more were concerned about the effectiveness of their current use of funds intended to improve child care quality. Ultimately, study staff working closely with state and local staff, implemented four experiments, two that tested alternative subsidy policies and two that tested approaches to the use of quality set-aside funds. Project Upgrade in Miami-Dade County fell into the latter group of experiments. The study was a test of three different language and literacy interventions, implemented in child care centers in Miami-Dade County that served low-income families, most of whom received a subsidy for child care. Two of the three interventions had significant impacts on children's language and pre-literacy skills.

## Purpose and Organization of the Report

The policy and research contexts for the study, as well as detailed descriptions of the design and implementation of the evaluation and presentation of findings on the impact of the interventions on teachers and children can be found in an earlier report.[2]

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1 The Child Care Bureau and the Office for Planning, Research and Evaluation (OPRE) of the Administration for Children and Families within the US Department of Health and Human Services launched this study in 2001. The study was conducted by Abt Associates Inc, with its research partners MDRC and the National Center for Children in Poverty of Columbia University.

2 Layzer, J.I., Layzer C.J., Goodson, B.D., and C.Price. 2009. Findings from an Experimental Test of Three Language/ Literacy Interventions in Child Care Centers in Miami-Dade County. Final Report. US Department of Health and Human Services Administration for Children and Families, Office of Planning, Research and Evaluation. Washington, DC.

This report focuses more narrowly on the design and implementation of the three language/literacy interventions for preschool children that were tested in child care centers in Miami-Dade County.

Over the last several years, there has been growing interest in how interventions are actually implemented in real world settings. Understanding the extent to which the interventions as implemented met the specifications of their design is important in an experimental evaluation, both when the evaluation reports no effects of the intervention and when it does. There could be a number of reasons why an intervention is ineffective: its implementation might have been too weak to achieve the hypothesized results; it may not have differed sufficiently from the services the control group received; or the underlying logic of the intervention could be flawed. A careful examination of whether the interventions were implemented as intended, and of what was happening in the control group, would allow the researcher to eliminate the first two possibilities, leaving the third as the most likely explanation for failure.

An implementation study is equally important when, as in Project Upgrade, the evaluation reports positive impacts. Policymakers and program operators need a detailed understanding of what was actually tested, what level of implementation of the intervention was needed to produce the desired impacts, and what factors affected the implementation. This report is intended to address these issues.

The organization of the report is as follows: Chapter 1 provides a summary of the design and findings of the evaluation; Chapter 2 describes the design of the three interventions in terms of two components – the professional development model and the curriculum itself; Chapter 3 examines the implementation of the professional development model; Chapter 4 describes the implementation of the three curricula and examines the extent to which similar activities occurred in classrooms in the control group; and Chapter 5 discusses the findings and their implications.

# Chapter One: Summary of Evaluation Design and Findings

Project Upgrade was a two-year experimental test of the effectiveness of three different language and literacy interventions, implemented in child care centers in Miami-Dade County that served children from low-income families. One hundred and sixty-four centers were randomly assigned to one of three interventions, each of which used a research-based curriculum, or to a control group that continued with its existing program. The curricula, while grounded in a common set of research findings, differed in intensity, breadth, pedagogic strategies and use of technology. In each center, one classroom that served four-year-old children was selected for the study. Teachers and aides assigned to the three treatment groups received initial and follow-up training as well as ongoing mentoring over a period of approximately 18 months, from Fall 2003 to Spring 2005. All classrooms in the study, whether treatment or control, received an initial package of literacy materials (paper, crayons, books, tape recorders, books on tape, etc.). To reduce staff turnover, teachers in all four groups who remained in centers received $500 in July, at the end of each year of the study.

The hypotheses tested by the study stipulated two kinds of outcomes: teacher behavior and interactions with children, and aspects of the classroom environment that support children's language and literacy development, measured through direct observation; and children's language and pre-literacy skills, measured by their performance on a standardized assessment. Study staff conducted

classroom observations in Fall 2003, Spring 2004 and Spring 2005. Four-year-old children in the study classrooms were assessed in Spring 2005.

Key findings are summarized below and in Exhibits 1.1 and 1.2. Impacts are described in terms of effect sizes. Effect sizes are standardized measures of the magnitude of treatment effects. For each outcome measure, the effect size is equal to the estimated impact of the treatment, divided by the control group standard deviation (a measure of the variation in scores within the group). The standardization makes possible a comparison of the size of treatment effects across studies and, within limits, across outcome measures.[3] For example, if the effect sizes of a treatment on outcome measures A and B are 0.50, and 0.25, respectively, then the size of the treatment impact on A is considered to be twice the size of the impact on B.

## Findings

- The initial observations, conducted before the interventions, showed that, across all groups, teachers engaged in few of the behaviors and interactions that have been shown to support children's development of language and literacy skills.
- Within six months of training, in Spring 2004, all three language/literacy interventions produced significant impacts on teacher behaviors and interactions with children that supported their language and literacy development; by Spring 2005, these impacts were generally more pronounced, and there were significant impacts on the number of classroom activities that involved literacy, and on literacy resources in the classroom.
- The interventions had significant positive impacts on teacher behavior. These impacts were generally stronger for teachers whose primary language was Spanish than for their English-speaking counterparts.
- Two of the three interventions***, Ready, Set, Leap*** and ***Breakthrough to Literacy***, had significant impacts on all four measures of emergent literacy outcomes for children: definitional vocabulary; phonological awareness; knowledge and understanding of print and an overall index of early literacy. The impact of the two effective interventions was much greater for children in classrooms with Spanish-speaking teachers than for children in classrooms with English-speaking teachers.
- The two interventions that had impacts on child outcomes brought children close to or above the national norms on three of the four outcomes. On the fourth, definitional vocabulary, although children in the two treatment groups had significantly higher scores, they still lagged considerably behind the national norms. The impacts represent between four and nine months of developmental growth, depending on the outcome.
- The interventions resulted in a substantial increase in the time spent on language and literacy activities, both teacher-directed and child-initiated. This did not eliminate other important developmental activities. Rather, time spent on each of the other activities was reduced slightly.

[3] Comparisons across studies must be approached cautiously. Even if the same outcome measure is used, the comparison assumes that the two study samples have similar standard deviations. Comparison of effect sizes for very different outcome measures may be misleading.

- There was a small but significant relationship between teachers' educational attainment and some aspects of their behavior with children before the interventions. The training and on-going mentoring provided as an integral part of the interventions eliminated this relationship. That is, as a result of the training and mentoring, less-educated teachers looked remarkably similar to their better-educated counterparts in the extent to which they provided activities that supported literacy. Teachers' educational qualifications did not modify the impacts of the interventions on child outcomes.

**Exhibit 1.1**

**Key Impact Findings: Teacher Instructional Behaviors and Classroom Environment**

| Domain/Construct (measure) | All Teachers[a] (n = 104) Effect size | Spanish-dominant Teachers[b] (n = 49) Effect size | English-dominant Teachers[c] (n = 55) Effect size |
|---|---|---|---|
| **Teacher behavior (OMLIT, 2005)** | | | |
| Support for Oral Language | .61*** | .63** | .55* |
| Support for Phonological Awareness | .49** | .43* | .52* |
| Support for Print Knowledge | .74*** | .90** | .54* |
| Support for Print Motivation | .43** | .59* | ns |
| **Classroom literacy environment (OMLIT, 2005)** | | | |
| Literacy Resources | .28* | ns | ns |
| Literacy Activities | .80*** | .80*** | .77** |

[a] Outcomes shown are combined outcomes for all teachers in all three treatment groups; the reference group for the impact is all teachers in the control group (n = 53).

[b] Outcomes shown are combined outcomes for all Spanish-dominant teachers in all three treatment groups; the reference group for the impact is Spanish-dominant teachers in the control group (n = 26).

[c] Outcomes shown are combined outcomes for all English-dominant teachers in all three treatment groups; the reference group for the impact is English-dominant teachers in the control group (n = 27).

*** = p<.001, ** = p<.01, * = p<.05

**Exhibit 1.2**

**Key Impact Findings: Child Language and Emergent Literacy (TOPEL, Spring 2005)***

| | All Children (n = 674) Effect Size | Children in Classrooms with Spanish-dominant Teachers (n = 332) Effect Size | Children in Classrooms with English-dominant Teachers (n = 342) Effect size |
|---|---|---|---|
| Definitional Vocabulary | .30*** | .39** | ns |
| Phonological Awareness | .39 *** | .55 *** | ns |
| Print Knowledge | .63*** | .86 *** | .41** |
| Early Literacy Index | .53 *** | .72 *** | .36** |

[a] Outcomes shown are combined outcomes for the two interventions that showed significant impacts (RSL! and BTL). Results for the two treatments were combined since they were very similar and to provide additional statistical power. Outcomes for the individual curricula are shown in the final report on the impacts of the interventions (Layzer et al., 2009, op. cit.). Reference groups for the three columns have n = 509, n = 281, and n = 228, respectively.

*** = p<.001, ** = p<.01, * = p<.05

# Chapter Two: Design of the Three Interventions

As is true for many early childhood interventions tested in recent years, the three interventions tested in Project Upgrade had two components; a professional development component; and a curriculum component. For Project Upgrade, it is critical to understand both components. To meet the needs of the child care centers, teachers and children in Miami-Dade County, the curriculum developers designed professional development strategies that went considerably farther than the training customarily offered in support of their curricula. The impact findings summarized in the last chapter must be understood as a result of the interventions as they were designed for Project Upgrade, and cannot be generalized to the more usual implementation of these curricula, all of which are commercially available. This chapter describes the professional development model designed for this study and the three curriculum models used.

## The Professional Development Model

For all three interventions, a single professional development model was agreed-upon by the developers, in consultation with the Early Learning Coalition of Miami-Dade County. It reflected a shared understanding of the challenges posed by the child care system in Miami-Dade County, which include: a large number of small centers with director/owners who do not necessarily have an early childhood education background; many relatively untrained staff; and few classroom materials and resources to support literacy. The model had two important features:

- a staffing plan with several layers of supervision; and
- a training plan that featured three sequenced training sessions over an 18-month period, combined with ongoing mentoring and support over the entire period.

### Staffing Plan

One hundred and ten centers were randomly assigned to one of the three interventions. In these centers, one four-year-old classroom was selected to participate in the study.[4] To assist in training and to provide ongoing support for teachers and other staff in these centers, the developers determined that each intervention would need two full-time mentors (a caseload of approximately 18 centers per mentor). To oversee and support the two mentors, each developer would provide an on-site coach (a part-time position, to be filled by a full-time employee who would carry out this in addition to other functions for the developer). Finally, to oversee the implementation of all three curricula, and to act as a liaison between the developers' staff, the mentors, the participating centers, the Early Learning Coalition (ELC) and the evaluation staff, the ELC would provide a full-time Project Manager.

Qualifications for the mentor position included: an educational background in early childhood education (bachelor's degree or higher); and experience in an early care and education setting. In addition, because so many of the teachers and other center staff spoke Spanish as a first language, or were monolingual in Spanish, each developer needed at least one of the two mentors to be bilingual.

[4] See the Final Impact Report for the protocol used to select classrooms.

### Training and Support Plan

An important feature of the training plan was the recognition that both mentors and providers would need training and ongoing support. Mentors who would visit classrooms and support curriculum implementation had to be trained in the curriculum and in the developer's approach to mentoring (i.e., based on observation in the classroom and responsive to the needs of individual teachers); and classroom staff who would implement the curriculum had to be trained and supported.[5] In many ways, the approach to training and supporting mentors mirrored the approach to training and supporting classroom staff. In neither case was it assumed that a one-time training would be adequate by itself to ensure adherence to the desired approach.

Training for mentors was designed to be a two-day training session, with one day devoted to the curriculum itself and the second to the mentoring process. Coaching and ongoing support and consultation for mentors would be provided by the on-site coach, as well as through weekly meetings of the curriculum team.

For teachers (and other child care staff), the model called for three sequenced training sessions: the first, a two-day session, would introduce classroom staff to the curriculum and provide training in the initial activities. A follow-up session after two to three months would cover more complex material and activities. A second follow-up session, at the beginning of the second year would serve as a refresher training for staff remaining in their classrooms as well as a training for newly-hired classroom staff. To support implementation of the curricula, and to guide teachers' practice, the plan called for mentors to conduct visits to each of the classrooms approximately once every two weeks, but never less than once a month.

## The Curriculum Models

The three curricula tested were selected by the Early Learning Coalition after a systematic and comprehensive review of language/literacy curricula had been conducted by Abt Associates' staff.[6] To be considered for the study, a curriculum had to meet the following criteria:

- Provides support for children's language **and** early literacy;
- Provides support for all four of the elements of language and early literacy that research has shown to be predictive of later reading success: oral language; phonological processing; print knowledge; and print motivation;
- Is appropriate for and has been used with children whose first language is not English and with low-income populations;
- Is supportive of children's home culture and language;
- Is appropriate for both three- and four-year-olds (since the ELC was interested in introducing a curriculum in three-year-old as well as four-year-old classrooms);
- Has some preliminary evidence of effectiveness; and

[5] Typically, the developers of all three curricula offer an initial two-day training in their curriculum, with no ongoing support or mentoring.

[6] The review was funded by the US Department of Education as part of a different contract.

- Has a training plan that would allow the curriculum to be implemented by child care center staff.

Six of the curricula reviewed appeared to meet the criteria and were recommended to the ELC. Staff at the ELC reviewed the curriculum descriptions and interviewed three developers. One curriculum was rejected after the interviews because the developer believed it was not suitable for staff who were either monolingual in Spanish or would be more effectively trained in Spanish. Finally, the ELC chose to test two nationally-known curricula, *Ready, Set, Leap! (RSL!)* and *Breakthrough to Literacy* (BTL). The ELC also selected *Building Early Language and Literacy (B.E.L.L.)*, a curriculum not on the Abt list, which was developed by a local academic, Dr. Wendy Cheyney, and at that time implemented in kindergarten classrooms in Miami-Dade Public Schools.

The three curricula selected differed in instructional approach, breadth of approach, materials provided, intensity and cost, but all three focused on the development of early literacy skills and knowledge. All three included take-home components (books and materials to be used by families with children at home) and tools that teachers could use to assess children's progress in the curriculum.

***Ready, Set, Leap!*** (RSL!; LeapFrog SchoolHouse Inc.) is a comprehensive curriculum with activities throughout the day that include math and science. A multi-sensory curriculum, it builds oral language, phonological awareness, print awareness and a language-rich environment through whole-group, small group and individualized instruction, including the use of three different interactive technology tools. The curriculum offers teachers a choice of two different instructional manuals: one focusing on a literature-based approach, the other on a theme-based approach. For Project Upgrade, a theme-based approach was selected by the developer.[7] The 120 lessons are based on themes such as school, the child, home, neighborhood, animals, community helpers, nature, food and transportation. Teachers organize their activities with children around multiple thematically-grouped trade books over a one- or two-week period (before moving to another set of books).

The RSL! curriculum suggests the material to be presented and how it should be presented. For each lesson, the teacher is given a theme, encouraged to read the appropriate Big Book or another book from the Read-Aloud library, integrate the LeapPad and other activities related to the theme and use both books and activities with the whole group and with small groups of children. Her teaching strategies should support reading comprehension, questioning, predicting, summarizing and problem solving and should help children reflect on what they have learned.

The teacher is expected to encourage and model the use of RSL! technology, which uses separate, unrelated materials. The LeapPad™ is an electronic story book system that uses controlled-language stories to focus on discrete concepts (e.g., color, number, letter shapes and names, word meaning, directionality of print). The LeapDesk™ is a simplified keyboard with key cards and is used primarily to help children learn to identify upper and lower case letters by name, to learn the symbol and name for numbers, to begin to learn letter-sound correspondence and, ultimately, to practice writing and spelling (i.e., encoding). Both the LeapPad and the LeapDesk technology have Spanish-language

[7] The decision to select a single approach for all the RSL teachers had the advantage of simplifying the training and mentoring process, but was also seen as more accessible to teachers, who are accustomed to the idea of "themes" (e.g., Thanksgiving, Easter, Christmas). The trainers and mentors moved them on to a richer set of themes, but the basic idea was the same.

activities for children. The LeapMat™ is another tool for learning letter-sound and letter-name combinations by combining sound and touch on a large plastic mat. Several LeapPads and LeapDesks are located in an activity center and are meant to be used throughout the day, each day by each child.

As part of the Home Connection, children take LeapPad story books and Little Take-Home Books home with them so that parents can share the story-reading and alphabet-learning experiences with their children. The LeapDesk incorporates an assessment function which evaluates the child's knowledge of letter names, letter sounds, and phonemic awareness.

***Building Early Language and Literacy*** (B.E.L.L.; Neuhaus Education Center) is an add-on, pre-kindergarten literacy curriculum designed to promote children's general language proficiency, phonological awareness, shared reading skills, and print awareness. It entails two daily 15-minute whole-group lessons. One of the daily lessons typically involves oral reading (the teacher reads aloud from a Big Book[8] or a poster and the children repeat the rhyme or story) and a discussion of the story. The curriculum uses controlled language books, which are intended to serve as a springboard for language development, rather than as the sole form of literature in the classroom. The second daily lesson focuses on phonemic awareness and knowledge of letters and typically involves attending to the sounds in words (for example, forming compound words, detecting rhymes, alliteration) and activities targeting print knowledge (directionality, identifying letters and known words in text). The curriculum contains 12 units covering 48 weeks of instruction. Materials provided for small group activities in activity centers after the whole group lesson include letter cards and books and listening center materials (books on tape). Teachers are encouraged to create their own materials. Small versions of the Big Books are sent home with children. A teacher-administered test of phonological awareness and print knowledge (PELI) is included as part of the curriculum.

***Breakthrough to Literacy*** (BTL; Wright Group/McGraw-Hill) is a comprehensive curriculum with activities throughout the day that include math and science. The language and literacy curriculum is built around a series of weekly books with a focus on reading aloud and active discussion about the book. At the heart of the curriculum are five "daily essential practices": listening to and discussing stories; reading; writing; individualized software instruction; and talking, reading and writing at home.

The central strategy in the *Breakthrough to Literacy* curriculum is to build children's oral language skills – including vocabulary, speaking, aural comprehension – and comprehension of text in an emergent literacy sense, that is, with the teacher scaffolding children's access to text through shared reading. To this end, the key component of the BTL classroom is the shared weekly book, the Book of the Week (BOW). These books are grouped thematically, and most are created for purely didactic purposes (that is, they target early childhood basic concepts such as shapes, colors, size, and other labels such as the names of rooms in a house). Teachers read a BOW to the whole group daily, using the whole group setting to employ techniques of dialogic reading, such as asking questions aimed at developing vocabulary and concept knowledge, checking children's comprehension, and building motivation by using questions to make connections between events or characters in the BOW and children's experiences. These shared reading experiences and extensions are also to be conducted in

[8] A Big Book, for those unfamiliar with them, is a large version of a children's book that allows the teacher to point to words or details of an illustration while reading to a group of children.

small group settings, and vocabulary, oral language, and comprehension skills are emphasized in whole group and small group settings outside the shared reading activity.

A second key component of the BTL curriculum is daily writing to support reading and comprehension. Teachers are expected to provide daily opportunities for children to engage in activities such as writing in a journal, writing about the BOW that was read (writing to a prompt, such as, “How did Buster help?”—writing related to a book about a service dog named Buster). Teachers support developmental writing by encouraging children to draw pictures (which the teacher captions) and then to try to write on their own.

Each child is expected to spend 8-12 minutes a day on the computer. Computer software provides individualized self-paced literacy activities for children, also organized around the weekly book, that focus on phonological and print knowledge, with additional books for use once the child has completed the BOW activities. It is also worth noting that the sophisticated software uses male and female voices, regional accents and speakers of English as a second language to accustom children to a variety of tones and accents.

BTL also provides materials to be sent home with the child, as well as a report function in the Individualized Software Instruction that enables the teacher to track children’s progress from session to session. The software assesses the child’s strengths and weaknesses and targets areas in which the child needs more practice, creating an individualized sequence for each child, without any effort on the part of the teacher.

As noted above, all three curricula include materials to be sent home weekly with each child: RSL! provides interactive books to be read at home; B.E.L.L. provides small book versions of the Big Books read and discussed that week; and BTL provides copies of the week’s book to be read aloud at home. All three provide some materials in Spanish for children with the aim of motivating reading, regardless of the language. All three meet the Florida Preschool Language and Literacy Learning Standards; two of the three, RSL! and BTL, also meet the state standards for a comprehensive curriculum, since they include math and science concepts.

**Exhibit 2-1**

**Strategies Used to Address Four Critical Aspects of Language/Literacy Development**

| Skill/Knowledge Area | Curriculum | | |
|---|---|---|---|
| | RSL! | B.E.L.L. | BTL |
| Oral Language | • Read-aloud with trade books (rich natural language)<br>o Post-reading discussions target: comprehension & vocabulary development activities<br>o Frequency: Daily during whole-group/circle time; no set time limit<br>• Independent reading of short stories with controlled (reduced) language on LeapPad (electronic storybooks)<br>• Theme important—many suggested follow-up activities based on theme related to target book (i.e., whatever book teacher reads aloud to whole group that week). | • Read-aloud with Wright Group books (controlled (reduced) language books)<br>o Post-reading discussions target: comprehension & motivation<br>o Frequency: 2-4 times/week, in 15-minute large (6+ children) group sessions<br>• Theme important—many suggested follow-up activities based on theme related to target book (i.e., whatever book teacher reads aloud to whole group that week). | • Read-aloud with Wright Group books (controlled (reduced) language books)—Book of the Week (one book read aloud every day in week); teacher could supplement with other books<br>o Post-reading discussions target: vocabulary development (primary) and comprehension<br>o Frequency: Daily 10-15-minute sessions in large (6+ children) group<br>• Independent reading/virtual shared reading with same Book of the Week and other (Wright Group) books on computer (electronic storybooks)<br>• Theme important—many suggested follow-up activities based on theme related to target book (i.e., whatever book teacher reads aloud to whole group that week (Book of the Week)). |
| Print Knowledge | • LeapDesk: this tool enables the child to engage in self-correcting (that is, the tool provides feedback or the correct answer) activities aimed at learning letter shape (see, touch, trace, fit like puzzle); letter name (hear), letter sound (hear)<br>• LeapMat: this tool has the same self-correcting aspect and features letter name, letter sound, and beginning spelling<br>• LeapPad: electronic books on which children can control the pace of reading with a stylus | • Laminated charts with poems and short controlled language stories (e.g., in which target letters or sounds are over-represented): Direct instruction in letter identification (e.g, find the letter 'm'), directionality of print (e.g., left to right, top to bottom), concept of word & sentence, punctuation (e.g., first word in sentence starts with uppercase letter, sentence ends with period),<br>o Frequency: 1-3 times/week in 15-minute large (6+ children) group sessions | • Computer (Individualized Software Instruction, ISI): letter identification (letter name), letter sound, concept of word, directionality of print<br>o Frequency: daily @ 8-11 min./child<br>• ISI also includes electronic storybook in which program tracks (highlights) print, highlights words, etc.<br>• Small group activities (letter ID, story cards) related to the Book of the Week, including using the small Take-me-home books (small newsprint versions of the Book of the Week that children could take home with them), identifying target letters or sight words in the book of the week, identifying words (e.g., underline each word, to show the understanding of concept of word). |

**Exhibit 2-1**

**Strategies Used to Address Four Critical Aspects of Language/Literacy Development**

| Skill/Knowledge Area | Curriculum | | |
|---|---|---|---|
| | RSL! | B.E.L.L. | BTL |
| Phonological Sensitivity | • LeapPad: electronic books featuring beginning and ending sounds of words and rhyming.<br>• Teachers encouraged to include songs and rhymes in whole group activities | • Manipulatives and games involving breaking compound words into component words, breaking sounds in words apart and blending them together; Direct instruction<br>o Frequency: 1-3 times/week in 15-minute large (6+ children) group sessions<br>• Songs and rhymes included in 15-minute sessions and recommended for follow-up small group activities. | • ISI: beginning and ending sounds, rhyming and alliteration, breaking sounds of words apart and blending together; interactive software (program corrects child and provides more practice or provides more challenging tasks)<br>o Frequency: daily @ 8-11 min./child |
| Print Motivation | • Read-aloud (with trade books); discussion: focus on motivation—relating books to children's experience or introducing toys for center time that are related to the theme<br>• LeapPad: electronic books featuring short stories, basic concepts (color, shape, position, number, etc.).<br>• Developer considers that trade books inherently increase motivation. | • Read-aloud (Wright Group books)+ follow-up activities (2-4 times/week in 15-minute sessions)<br>• Developer uses Wright Group books for convenience; no philosophical commitment or reason not to use other books, but units are based on WG books | • Read-aloud (Wright Group books); follow-up activities that seem fun and/or relate to children's experience<br>• Developer considers work with books that children are able to read independently (even if "reading" rather than actually decoding) is inherently motivating. |

# Chapter 3: Implementation of the Professional Development Model

In this chapter we describe how Early Learning Coalition (ELC) and developer staff and mentors implemented the professional development model described earlier. Information for this discussion came from a number of sources, including:

- meetings with curriculum developers and ELC staff;
- observation of training sessions;
- document review (resumes, training agendas, manuals);
- observation of mentoring visits;
- monthly meetings with all Upgrade staff and partners; and
- informal interviews and discussions with individual mentor staff.

## Preparing for Implementation

Our discussions with the ELC assumed a two-year implementation of the selected curricula. To accomplish this, the decision to embark on the experiment needed to be made in the Spring of 2003. In reality, the decision was made at the end of July 2003, after extended negotiation about the number of interventions to be tested (a decision that was contingent on the funds that the ELC could dedicate to the purchase of the curricula and professional training that accompanied them) and an equally extended process of selecting the curricula. With a good deal of help from ELC staff and staff from the two central agencies that administered child care subsidies, the recruiting of centers for the study was accomplished in the two-month period following the selection of the curricula. Centers were recruited by the beginning of the Fall 2003. However, before classroom staff could be trained to deliver the curriculum, there were many steps to be taken, including the hiring of on-site coach/trainers by two of the three developers;[9] hiring, assignment, and training of mentors; the collection of baseline observation data in the study centers; and the collection of LAP-D child assessments by the ELC. Once these and other essential activities were completed, classroom staff could receive initial training in November/December 2003. This reduced the implementation period to 18 months (mid-December 2003 to mid-June 2005).

In addition to the steps noted above, the curriculum developers identified two concerns after visiting centers that had been recruited to the study. The first concern was that many centers were poorly equipped to put in place a strong literacy curriculum. They lacked many of the basic materials that we would expect to see in an early childhood setting: e.g., art and writing materials; whiteboards; tape players and audiocassettes; and a variety of children's books, among other things. The decision was made by the ELC, in consultation with members of the study team, to provide a package of basic literacy materials to all the four-year-old classrooms in the study, including those in the control group. These had to be selected, ordered and delivered before teachers were trained.

The developers' second concern arose from the large proportion of teachers (47%) who had indicated that they would prefer to be trained in Spanish. (Not all of these were monolingual; almost half of

[9] BTL already had a trainer on staff who moved to Miami for the study.

teachers whose first language was Spanish reported that they spoke a mixture of English and Spanish in the classroom.) Although all three developers had expressed their willingness and readiness to train Spanish-speaking teachers, it was clear that, without a training plan specifically tailored to meet the needs of this population, the interventions were likely to be unsuccessful. The development of these plans was helped by the fact that all three of the on-site coach/trainers were fluent in both English and Spanish, and Spanish was the first language for all three of them.

The final step in preparation for implementation was to hire, assign, and train the mentors who would be responsible for providing ongoing support for classroom staff. By design, approximately equal numbers of centers participating in the study were assigned to each of the two central agencies, and random assignment to treatment and control groups was done within the two groups, so that each agency had approximately18 centers in each of the intervention groups (and 27 centers in the control group). As part of their overall contract with the ELC to support quality improvement, negotiated in Summer 2003, each of the agencies was responsible for the salaries of three of the six mentors (two per intervention) who were hired. The interviewing and hiring of the mentors, however, was conducted by the ELC Project Manager.

Two of the mentors hired had master's degrees in education and had taught kindergarten, first and second grades in the Miami-Dade Public Schools. One mentor was working on her master's degree at FIU while working in the school system. The three remaining mentors had undergraduate degrees in ECE and two had experience working with one of the central agencies and their centers on child assessment and quality improvement. Three of the six were bilingual. Once hired, the mentors were divided into two groups, bilingual/monolingual English and then randomly assigned to one of the curricula, so that each curriculum had one bilingual mentor who could work with teachers who were monolingual in Spanish.

## Training Mentors

The mentor training, conducted by each developer and their on-site coach/trainer in late Fall 2003, was a two-day training that combined an introduction to the elements of each curriculum with a focus on the approach to mentoring that each developer prescribed.[10] There were many commonalities among the three interventions in their approach to mentoring. All three emphasized that the mentor would observe classroom staff, model activities and strategies, and continuously elicit feedback from teachers on aspects of the curriculum that were working better than others and on areas in which they needed more help.

There were, however, differences in the amount of flexibility allowed in the mentoring process. Of the three interventions, B.E.L.L. was the most prescriptive, BTL the least restrictive. While the B.E.L.L. mentor training envisaged a consistent mentoring strategy across classroom staff with different backgrounds, both RSL! and, especially, BTL emphasized the need for flexibility to ensure that they met the needs of classroom staff with a wide range of education and experience. Trainers urged mentors to spend time initially observing teachers in the classroom and to use their observations to suggest and model activities that were feasible for an individual teacher and fit into whatever program or schedule she was currently using. The more individualized approach stressed by

[10] The mentors participated in the training sessions for classroom staff held later in the year, solidifying their understanding of the curriculum they were to support.

BTL recognized that not all classroom staff would be equally comfortable with the computer software or equally able to grasp more complex concepts, at least initially

Both BTL and RSL! trainers presented material primarily through lecture and demonstration, while B.E.L.L. trainers spent less than half of the time in this way, using most of the remaining time to engage mentors in exercises and activities that they would be expected to model for teachers in the classroom. This is not to say that the BTL and RSL! training sessions were not interactive; rather they followed closely their mentoring model, modeling behavior and activities and then asking for feedback and suggestions. All three sets of trainers checked regularly to make sure concepts were understood and to elicit ideas from the mentors on how to work with teachers. All three training sessions were led by the developers and their coaches.

## Training Classroom Staff in the Curricula

Although the major focus of the training and mentoring was the lead teacher in each classroom, all three developers made a point of including classroom aides and center directors in all the training sessions. This turned out to be an important feature of the training strategy and assured some measure of continuity when teachers left and had to be replaced and trained.

Each curriculum developer conducted three major training sessions for classroom staff. The first of these was a two-day training session for classroom staff and directors in late November/early December of 2003. The second set of training sessions were two-day sessions held in late January/early February of the following year. This schedule allowed the trainers to introduce the curriculum in a sequence, with more complex material covered in the second session, after classroom staff had had a chance to absorb and begin to implement the initial material and associated activities. The third training session, held in August of 2004, was a one-day refresher training for staff remaining in their classrooms as well as a two-day training for newly-hired classroom staff.

The training sessions represented a substantial effort on the part of developers, with national staff at BTL and RSL! training sessions and the original authors at the BTL and B.E.L.L. sessions. In addition, training sessions were set up so that at least part of the content was delivered in Spanish for teachers who had indicated a preference for being trained in Spanish. Developers used different strategies to accomplish this: one provided a translator, who sat at a table with the Spanish-dominant teachers; another had the site coordinator/trainer do a parallel translation of the whole training; the third had no whole-group training in Spanish, but had the bilingual site coordinator/trainer facilitate one of the training rotation stations. In addition, some teacher materials were provided in Spanish: one developer (B.E.L.L) translated all the training materials, the other two each provided translations of at least one type of teacher resource material (lesson extensions in one case (RSL!)), and the teacher's guide in the other (BTL)).

As with the training for mentors, very little of the training was didactic, although trainers for each curriculum began the initial session with an overview of the rationale underlying each element of the curriculum, including the research supporting it. Beyond that introduction, the sessions were highly interactive with many hands-on activities for trainees. In the judgment of study staff who observed the training sessions, all three were equally effective in engaging participants.

The training schedule conceals the reality that training was ongoing throughout the 18-month implementation period. The decision to train both directors and aides in addition to teachers was an astute one, because it ensured some continuity when teachers left their jobs. (Discussion of turnover is in the section below.) However, replacement teachers had to be trained and, to achieve this in a timely fashion, on-site trainers and mentors had to schedule individual training sessions. In addition, not all classroom staff were able to attend the scheduled training sessions, so that additional group training sessions had to be scheduled close to the planned session. No provision was made by the ELC to pay centers for substitute staff while classroom staff attended training sessions so that, while attendance was high at the initial session, some directors were reluctant or unable to release staff for subsequent training sessions. It seems likely that a stipend to cover the cost of substitute staff would have reduced the need for additional group training. However, the challenge of training new staff is probably irreducible.

## The Mentoring Process

Each curriculum was assigned two mentors, paid for by the ELC, and supervised by the on-site coach/trainers employed by the developers. Each mentor was responsible for approximately 18 classrooms, which she visited twice a month, on average. After the initial round of visits, the mentors, in consultation with their trainers, designed more flexible schedules that reflected the individual needs of classroom staff. Some classrooms required visits weekly or even more frequently, while others in which staff were moving quickly in implementing the curriculum required less frequent visits. More frequent visits were needed for teachers who were slower to grasp the concepts embedded in the curricula, or somewhat hostile to them, or who needed assistance in basic classroom management. The site coordinators also conducted mentoring visits, especially to new teachers or to teachers who were experiencing difficulty implementing the curriculum. The visits were similar across curriculum models, with each mentor visiting one or two classrooms in a morning, one or two classrooms in the afternoon, and completing paperwork at the end of the day. Each intervention used a systematic way of recording progress, rating fidelity of implementation, and providing instructional feedback to teachers. The forms used by the mentors reflect the developers' ideas about key components of the curriculum and effective strategies to communicate them. While these forms do measure fidelity to the curriculum (discussed in the next chapter), their primary use was to guide the mentor's work with the teacher. They were used to identify specific areas for teachers to work on, such as conducting more activities in small groups, spending less time in whole-group activities, using graphic organizers to build vocabulary from the book of the week, and strategies for classroom management to help children focus.

We do not show the fidelity checklists here, since like the training materials, they are proprietary. However, it is possible to describe the areas of observation and the ways in which mentors could add observational notes to the more formal assessment.

For RSL!, at each visit, mentors were asked to rate as "observed" or "not observed", the following aspects of the classroom environment and teacher behavior:

- evidence of positive interactions between teachers and children and participation by all children (3 items)
- aspects of the classroom environment that support children's learning and specifically support literacy activities (7 items)

- evidence of implementation  of the RSL! curriculum (25 items)

The fidelity checklist for B.E.L.L. mentors had two components: the first noted implementation of aspects of oral language and shared reading; the second looked at phonological and print awareness.

The first part of the checklist dealt with five topics:

- the pre-reading discussion of the contents of the book and the teacher's and children's own stories (5 items);
- the reading of the book by the teacher and retelling by children (4 items);
- the rereading of the book, with discussion and open-ended questions (5 items);
- reaction to the book in the form of related activities (5 items); and
- print awareness (6 items).

The second part of the checklist covered four topics:

- oral language development (4 topics);
- phonological awareness , including word awareness, rhyming words, compound words, and alliteration (11 items);
- print awareness and alphabet knowledge (5 items)
- literacy support in other activities (4 items)

The BTL fidelity checklist consisted of three components: the first covered "Essential Practices" (intended to be implemented daily); the second covered "additional daily practices" (specific features of classroom activities and organization), classroom environment and management; and the third was a very detailed report about computer settings, records of children's individual performance and the overall performance levels of the class.

The first part of the BTL fidelity checklist covered five "essential practices":

- BOW (Use of Book-of-the-Week; 14 items)
- Daily Writing (14 items)
- Small Group Activities (space for qualitative and descriptive information about small group activities)
- Daily Computer (6 items per computer and 9 general—about computer settings and adjustments)
- Home Connections (13 items)

The second part of the BTL fidelity checklist covered four "additional daily practices," environment, and management:

- Circle Time/Morning Meeting (10 items)
- Centers (10 items)

- Environment (10 items)
- Management (4 items)

The computer checklist consisted of a detailed list of information from the computer-generated report of children's activities, computer-based assessments, and so on.

As we noted earlier, these measures were used to shape the support and technical assistance provided by the mentors and to develop individualized plans for each teacher to address areas of weakness. In addition, they served as an accountability tool for the on-site coaches, who could examine both the ratings and the plans developed from them and ensure that mentors were on-track and helping teachers to move forward.

## Challenges to Implementing the Professional Development Model

By far the most serious challenge for mentors and their coaches was ***teacher turnover***. Teacher turnover is high in centers in Miami-Dade County—by some estimates as high as 45 percent per year. The problem was only slightly ameliorated by the $500 retention stipends offered to all teachers. Over the period of the interventions, teacher turnover was 28% in RSL! classrooms, 42 % in BTL classrooms and 44% in B.E.L.L. classrooms. (In control classrooms, two-year turnover was 49%.) Most of the teacher turnover in B.E.L.L. classrooms occurred in the first year; in Year 2 of the study, turnover was only 5%. For the other two curricula and for the control group, turnover rates were roughly the same for each of the two years. As noted earlier, the developers made appropriate provision for training replacement teachers. Because aides, and in many instances center directors, had been trained on the curricula, they were able to provide guidance for new teachers and ensure some consistency during the transition. However, the need for on-going training (as opposed to mentoring) was greater than developers anticipated and made considerable demands on the time of the on-site coaches.

In spite of the agreements signed with Abt and the ELC at the beginning of the study, there were some problems with ***lack of cooperation*** on the part of some center owners and administrative staff. Center directors were mostly supportive of the interventions and tried hard to ensure that teachers were able to attend the training sessions. However, in addition to the turnover in teachers, there was also turnover among center owners and owner/directors. In this situation, the ELC Project Manager and the coach had to spend time with the new director explaining the study and the intervention that was being implemented in their center. Usually, but not always, this effort was successful in continuing the center's participation, but there was usually less enthusiasm on the part of administrative staff and less willingness to release teachers for training sessions. Some directors prized their role as teacher supervisors and felt threatened by the mentor's role as instructional guide. In these cases, the teachers often found themselves caught between the two, and mentors and coaches needed to meet repeatedly with directors to build trust and understanding.

Mentors' ability to shape teacher's behavior and classroom practices was also hindered by ***lack of basic classroom management skills*** on the part of some of the teachers. While the mentors were ready and willing to deal with this problem, it absorbed a good deal of time, and meant that some teachers lagged behind in implementing the curriculum. In practical terms, what this meant was that some classrooms were visited weekly or even more frequently during the initial six months of the

intervention; others, where teachers were seen as moving steadily toward full implementation, were visited once a month. While it is almost certainly the case that any mentoring model would allow for this variation, coaches and mentors felt that, in the absence of an evaluation timetable, it would have been better to screen teachers and provide pre-intervention services to develop basic classroom management skills for those teachers who lacked them, before embarking on training them in the curriculum. This would entail only a slight modification of the professional development model.

# Chapter Four: Implementation of the Curriculum

The final question about implementation deals with the extent to which, given the materials, training and ongoing mentoring they received, classroom staff were able to deliver the curriculum. This chapter describes our efforts to address this question, both during the course of the interventions, and after the study was completed.

During the interventions, implementation of the curriculum for the purposes of the evaluation was examined in two different ways:

- by mentors and coaches, using a global rating developed by Abt for the study and basing their rating on scores assigned on their own fidelity checklists, and
- by senior evaluation staff, who conducted qualitative observations and interviewed mentors about implementation challenges and factors influencing successful implementation.

After the study was completed, and because of our dissatisfaction with the global rating, we attempted a third strategy:

- mapping the items in the three fidelity checklists onto items from the Observation Measures of Language and Literacy Instruction (OMLIT),[11] the battery of observation measures used by evaluation staff to collect data on the classroom environment, teacher behaviors and interactions with children related to support for language development and literacy skills.

Below, we describe what we learned from each approach.

## Using Mentors and Coaches to Rate Fidelity of Implementation

Probably the best way to assess the degree to which a curriculum is implemented as planned is for evaluation staff to work closely with the designers of the curriculum, before the intervention begins, to develop an observation measure which can then be used by objective and carefully-trained staff to carry out the assessment. This strategy has several advantages: it can ensure that all essential elements of the model are incorporated into a measure; and it can also be used to observe the extent to which participants in the control condition are exhibiting these same behaviors without the benefit of an intervention. By comparison, its disadvantages are minor. Because of resource constraints, it is

[11] Goodson, Layzer, Smith, and Rimdzius, 2004. Details about the process used in mapping items from the fidelity checklists to OMLIT variables are provided in Appendix A. More information about the OMLIT is also provided in Appendix B.

unlikely that these observations can be carried out repeatedly, to help us understand the dynamic process of implementation; it is more likely that they will be carried out at the end of the intervention (or at best, once again, part-way through the intervention). In addition, observers will need to receive some training to understand the curriculum, as well as training in applying the measure.

For Project Upgrade, in addition to resource constraints, our decision about how to assess implementation was complicated immensely by the simultaneous testing of three very different curricula, using very different fidelity measures for the specific purpose of informing the mentoring process. Developing and applying a unique and objective measure for each of the three would have been time consuming and not possible within the time constraints of the study. Therefore, to assess the extent to which the interventions were implemented, study staff had to rely on assessments made by mentors and coach/trainers. In an effort to structure these assessments, we created a five-point summary rating scale to be used as a common metric by mentors and coaches in all three interventions. They were asked to base their rating of centers' implementation on their scoring of their own detailed fidelity checklists (described above), condensing the scores to fit each point on the rating scale from 1 (not implemented) to 5 (fully implemented).

The scale did not work well, especially for interim judgments, for reasons discussed below. However, if we are willing to accept the final ratings made by the mentors, by the end of the second study year, all three curricula were judged to be fairly well or well-implemented in the majority of centers. Across the three interventions, a similar small number of centers (3 to 4) in each group were still not implementing the curricula at a satisfactory level. In some cases, this reflected a teacher, newly hired late in Year 2, who was not sufficiently familiar with the curriculum; in others, there was resistance on the part of the director or the teacher or both.

There are many reasons why we should be wary of mentor judgments. First, we know from their own data that mentors for the same intervention, using their own measure, were differentially accurate in their assessment of implementation. The finer-grained the distinctions they were asked to make, the more likely they were to make an accurate assessment on individual items. Some mentors systematically made harsher judgments, others overlooked areas of weakness if they felt the teacher was making a good-faith effort. By itself, this effect could be countered if outside observers conducted periodic observations, using the developers' own measures. This would necessitate careful training to ensure that the observers understood the curriculum, as well as the observation measure. However, the final reason why mentors' judgments are flawed is that the judgments made for the rating, (i.e., partially implemented, fairly well-implemented, etc.) meant something different to the mentors than they might to external observers. They judged an individual teacher to be implementing well *if she was implementing at the level they expected her to achieve at that point in time.* Most of the mentors were former teachers and were accustomed to thinking in this way about their students. A third-grader may be tested and judged to be "proficient" in reading, but that does not imply he is a proficient reader. Rather it means he is at the stage in reading that we expect a third-grader to reach. These judgments are especially confusing when they are made early in the study, but even summative judgments at the ends of the study may be affected. Because their fidelity measures reflected their own effectiveness (as coaches) as well as the teacher's compliance, there may have been some halo effect.

## Qualitative Observations of Curriculum Implementation

In addition to analyzing the mentors' ratings of curriculum implementation, we were eager to understand and communicate what each of the curricula looked like when it was well-implemented. To accomplish this, in the Fall of 2004 and Spring of 2005, Abt staff accompanied both mentors for each of the interventions on mentoring visits and interviewed the mentors after the visits. (On three occasions, the ACF Project Officer was able to accompany study staff on these visits.) Staff visited 15 classrooms, five for each of three curricula.

Beginning in Fall 2004, the mentors and their coaches were allowed to select the classrooms to be visited, and we proposed that they select, in each case, classrooms where implementation of the curriculum was proceeding as planned. These observations were not meant to judge how well the curriculum was being implemented, since the mentors and trainers were much better judges of that, but to be able to describe, for each intervention, what a relatively-well implemented version would look like and what role the mentors played. Below, we provide three vignettes from the many that resulted from the visits, to illustrate each of the curricula.

***Ready, Set, Leap!*** In a visit to one classroom in early Fall 2004, children were engaged in writing activities in small groups. Some children were seated at tables writing first their own name and then a friend's name. Others were using LeapFrog lighted writing surfaces to trace letters and words. In this classroom, the teacher conducted the class in Spanish for the most part, but struggled to conduct the letter-naming activity in English. The class was large – 22 children, — and no aide was present. Although this was only ten days into the program year, the four-year-olds, who all spoke Spanish as their first language, could identify all 26 upper-and lower-case letters of the alphabet in English, and did so with great pride. The mentor explained that RSL! viewed this competence as an easy one to be mastered early in the program year so that children could move onto more challenging activities.

In another class observed, two children worked together on letter-sound identification at the Leap Desk, which was one of several activity centers in the classroom. In this classroom, all the RSL! technology was grouped in the one center and the teacher rotated children in small groups through the center. After the children had spent some time in the activity centers, the teacher gathered them for circle time and engaged them in a discussion of the picture book about Emperor penguins that she had earlier read aloud to them. In another classroom, no children were using the technology during the observation, but the teacher was working with a group of 10 children on letter-sound recognition, while the aide worked with the other half of the class on phonics (word families: -at and –un). Both groups were using teacher-made materials rather than materials provided by the developer.

***B.E.L.L***. In one classroom visited, the two teachers divided the class into two groups of ten children and conducted simultaneous sessions so that, while one group was engaged in shared reading, the other group was engaged in a phonological awareness/letter knowledge activity. The groups switched teachers and activities in the afternoon. In the shared reading group, the children listened to a story on tape while the teacher turned the pages of the book. At intervals, she paused the tape for comprehension checks, asking the children questions about the story. At the end, the teacher repeated the story, with the children saying the lines of the story out loud. In the other group, the teacher was playing "thumbs up/thumbs down" – children put their thumbs up when the teacher said a pair of rhyming words and down when the pair did not rhyme. They then explored an alliteration chart (poem) that focused on words that begin with the letter L. The teacher used this opportunity to review print concepts, asking questions such as "where do I start reading next, after I finish this line?" and "who can show me where a sentence begins?" The teacher also had children hold plastic snapping beads and push them together as they formed compound words, pulling them apart as they broke the words into their two separate components.

In another class, working on the same activities in a different order, the mentor had identified two classroom management strategies for the teacher to work on:

- When the children stand up or move around and interrupt an activity such as read-aloud, stop the reading and wait until they are all listening;
- Collect the "break-it/make it" manipulatives when the activity is over so that the children can focus on their next activity.

After the "make it/break it" activity (children held the plastic balls and broke them apart as they broke a word like "sunflower" into "sun' and "flower" and pushed them together to make "haystack" from "hay" and "stack"), the teacher collected the plastic manipulatives and began working with the same alliteration chart focused on the letter L. The children were very engaged in this activity, so much so that several stood up and moved close to the chart, blocking it from view. The teacher ignored them and continued with the lesson. So she had used one of the mentor's recommendations but not the other.

***Breakthrough to Literacy.*** In one classroom visited, there were several activity groups operating. In one, children were engaged in dramatic play. In the main part of the classroom, a small group was writing about one piece of the Book of the Week (*This Old Man/He Played Paddywhack*), using a picture prompt from the book. Two children were copying a line of text from the book, one was writing about one aspect of the text ('he gave the dog a bone", one had added more detail to the picture and described the new scene ("it was a beautiful day"). At another table, children were molding play-doh into the shapes of items in the story (bones, a knee, a shoe, a thumb); at another table, children were counting out paper bones to match the number written on a card. At the sand table, one boy was digging up numbered bones, trying to find all 20. On the rug, a girl was putting story cards in sequence. Two children were working at computers on different activities related to the BOW. The song "This Old Man" was playing on a CD player. The teacher sat with the writers while the aide circulated, talking to the play-doh group, the math group and checking on the computer users. After a few minutes, one of the children completed his time on the computer, moved his name-card and notified the child whose name-card was next in line. As the writers finished their work, they moved to a different activity center.

In this classroom, the mentor had been working with the teacher for most of the year on shifting from whole-group to small-group and individual activities. During the whole of the observation, children spent the time in five or six small groups. However, the teacher still had some misgivings and wasn't convinced that the small groups were effective. In this case, the teacher was following the mentor's recommendation but still getting used to the feel of a different teaching approach.

## Characteristics of Successful Implementers

In interviews, mentors and coaches from all three curriculum models reported independently the same features of successful implementers:

- a positive attitude towards instructional change. Mentors reported that perhaps the most important aspect of successful centers was willingness on the part of both directors and classroom staff to refocus on specific literacy goals and adjust their space and routines to support those goals;
- effective management of time. All of the mentors noted that the ability to organize lesson plans and manage time to accommodate all the planned activities were hallmarks of classrooms that could successfully implement a curriculum;
- well-organized classroom space and effective classroom management. Once classroom materials have been set up and are available to children, the challenge is to cycle children through the different areas so that they are exposed to a variety of materials and activities over the course of a day and a week. High-implementing classrooms had effective strategies for handling transitions and helping children to take turns. For example, in one classroom, children placed cards with their names and a representative icon into a labeled pocket in the area where they chose to play. In another, children chose a song to play when it was time to move to another center. In many of the classrooms, at least initially, the mentors helped develop classroom schedules and provided lesson plans as a guide, intending to wean teachers from them as they became more competent in managing the classroom. In the end, however, most continued to provide lesson plans as way of maintaining a clear focus;
- healthy working relationships among director, staff and parents. Implementation was smoother and more complete when directors trusted teachers to act as instructional leaders and make changes where necessary, with guidance from mentors. Directors' involvement in classroom activities varied greatly; some taught regularly and visited the classroom often. Others were more concerned with running the center as a business and focused on those aspects of administration, visiting the classroom infrequently; and
- frequent one-on-one interactions between teachers and children. In classrooms where the teacher was already practiced in making meaningful contacts with individual children, full implementation was more likely. In one classroom, the teacher used greeting time, as children gathered on the playground in the morning, to have brief conversations with each child. She treated these conversations as informal conferences to reinforce classroom routines and activities, help children plan their activities and encourage them individually. Conversations described actions, experiences and events and the teacher listened and responded to children's comments and suggestions. Another teacher worked hard to maintain encouragement and one-on-one engagement with children at all ability levels, reinforcing the literacy goal positively whether answers given orally were correct or incorrect. In another classroom, some children were able to write names and addresses with or without adult help, while others made letter-like marks on the page. The teacher provided positive feedback to each child, regardless of ability level, reinforcing literacy goals as she did so.

## Building Implementation Measures from Observation Data

In neither of the approaches described above did we investigate what was happening in control group classrooms. We were aware that the control group centers continued to receive mentoring visits from Miami-Dade Public School staff as part of the subsidy agency's efforts to improve the overall quality of centers serving subsidized and other low-income children. This constituted "business as usual" for those centers.[12]

In addition, we were concerned that the global ratings completed by mentors varied in their accuracy and also provided no insight into areas of weak vs. strong implementation. Therefore, after consultation with ACF staff, we elected to make a *"post hoc"* effort to measure implementation of the three curricula. This effort, partially undertaken for BTL as part of another study,[13] began with the developers' own fidelity checklist (implementation measure). If the developer had not already done so, we grouped items conceptually (for example, phonemic awareness, print conventions). The next step was to identify items from the OMLIT battery of measures that reflected the underlying concept. The OMLIT is well-suited for this task, since the battery contains a very large number of individual items (a relatively small number of which were used to build the constructs for the teacher outcome measures). The categories in their fidelity checklists included some items that represented good developmental teaching practice, for which similar items could be identified in the OMLIT. An example of such an item in BTL's Reads and Discusses category is "teacher emphasizes vocabulary/oral language on 4-5 days of a typical week," which could readily be linked to several items in the OMLIT. More challenging, but very important, were the categories that reflected the idiosyncratic approach of an individual curriculum. An example of such an item in B.E.L.L.'s Word Awareness category is "students push blocks for each word,"[14] which could not be linked to any item in the OMLIT.

The task of the analyst, therefore, was to critically analyze the meaning of each item in the developers' measures, identify one or more items from the OMLIT battery that reflected that meaning, and then compare the resulting set of OMLIT items with the developer's set of items to determine whether, taken together, the selected group of items was adequate to measure the category. The next piece of the task was to create an implementation index with items grouped conceptually. This was completed for both RSL! and BTL fidelity checklists.

It proved impossible to complete the process for the B.E.L.L. fidelity checklist, however. While it was possible to identify OMLIT items that reflected some of the categories covered by the B.E.L.L. measure, some important aspects could not be measured. An example of a critical category for which we found almost no matching items in the OMLIT is Phonological Awareness, measured with 15 items on the B.E.L.L. checklist. B.E.L.L. teachers were expected to spend a good deal of time on this

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[12] None of the control centers was implementing a literacy curriculum, since this would have made them ineligible for the study.

[13] The *Breakthrough to Literacy Fidelity Instrument: 2006-2007* was developed by Abt in collaboration with the BTL developers and instructional coaches in a study of Breakthrough to Literacy in the Chicago Public Schools funded by a grant from the U.S. Department of Education, Institute of Education Sciences (Layzer & Hurtig, 2006, unpublished document).

[14] This is really shorthand for "teacher engages students in an activity in which students push blocks for each word".

category, supporting children's phonological awareness development through physical expression – for example "feel syllables with hand under chin," "students clap for each word," "use connecting links or blocks to show awareness of syllables," "use fists to 'break it or make it.'" After lengthy review of what could and could not be measured with OMLIT items, we determined that the B.E.L.L. measure did not lend itself to this exercise, and did not proceed further. Our analyses of data from the 2005 OMLIT were carried out for the newly created BTL and RSL! implementation indices only,[15] although for each of them, we examined the extent to which B.E.L.L. teachers were engaging in similar practices.

## Translating Developers' Fidelity Checklist Categories Into Implementation Index Dimensions

### *BTL Implementation Index*

The BTL Implementation Index has seven conceptual dimensions, developed from the original BTL fidelity checklist's five categories (Reads & Discusses; Writes; Individualized Software Instruction; Classroom Culture and Management Routines; and Reads, Writes, and Talks at Home), which correspond to the five "daily essential practices." All except the category "Reads, Writes and Talks at Home" for which there were no corresponding OMLIT items, are reflected in the Implementation Index as follows:

| BTL Fidelity Checklist Categories | BTL Implementation Index Conceptual Dimensions |
|---|---|
| **Book of the Week (BOW): Reads & Discusses** | **Comprehension while reading aloud:** Comprehension activities conducted as part of shared reading experiences, when the teacher was reading aloud with more than one child. |
| | **Comprehension in non-reading activities:** Comprehension activities conducted outside of shared reading experiences. |
| | **Vocabulary:** Activities aimed at fostering vocabulary development. |
| | **Oral language:** Activities aimed at developing children's oral language skills other than oral vocabulary. |
| **Daily Writing** | **Writing:** Activities intended to support the development of emergent writing skills |
| **Individualized Software Instruction (ISI)** | **Individualized software instruction:** Use of computer for instructional purposes. |
| **Classroom Culture and Management Routines** | **Classroom culture and routines:** Organization and management of the classroom |
| **Reads, Writes, and Talks at Home** | *Not measured* Use of take-home materials and activities with parents at home |

[15] The measures, mapped onto the developers' own measures, are attached in Appendix A.

The seven conceptual dimensions in the implementation index contain between one and fourteen items. (The specific items within each dimension are shown in Exhibit 4.1.) Many activities were intended by the developer to be done in both large or whole group *and* in a small group setting or with individuals.

***RSL! Implementation Index***

The RSL! Implementation Index has three major dimensions, drawn from the original implementation fidelity checklist's five categories: Interaction, Environment, RSL! Curriculum, Assessment, and Family Involvement. We were able to capture two of the three Interaction items, all seven Environment items, 11 of 25 Curriculum items, and none of the items from the Assessment and Family Involvement categories from the RSL! Fidelity checklist. Some examples of Curriculum checklist items that could not be matched to OMLIT variables are: "RSL! materials are set up throughout the classroom," "The teacher follows the daily schedule," and "The teacher follows a lesson plan from the 'Teacher's Manual' or the one provided by the project coordinator." In addition, some aspects of items were not included because they were not measured, such as for "whole group language and literacy activities *where each child is encouraged to participate*": it is clear that the last part of this is probably the more important aspect of the item, but it was not something that we measured (see Appendix A-2).

| RSL! Fidelity Checklist Categories | RSL! Implementation Index Dimensions |
|---|---|
| Interaction | **Interaction:**<br>Teachers' warmth and attentiveness to children, evidence of full-group activities. |
| Environment | **Environment:**<br>Classroom organization and physical content including furnishings and materials for literacy instruction. |
| Curriculum | **Curriculum:**<br>Use of "evidence-based" practices in early language and literacy instruction and use of specific curriculum materials (books) and tools (such as LeapPad, LeapDesk, and LeapMat). |
| Assessment | *Not measured*<br>Use of assessment to guide instruction and completion of end-of-unit class assessment reports |
| Family Involvement | *Not measured*<br>Use of information about children's homes, interactions between home and school, and check-in/out system for parents to borrow RSL! materials |

RSL!'s curriculum strategy begins with creating a classroom that incorporates the features that researchers and practitioners have defined as "high-quality", in terms of the interactions between teachers and children, and environmental aspects of the classroom.

It is important to recognize, from the outset, that the measures developed as a result of the process described above, cannot be seen as providing a global implementation **score** or level, in the way that the developers' own measures could do. As Exhibits A1 and A2 in Appendix A show, in each of the

two measures developed in this way, there are a sufficient number of items that could not be linked to corresponding OMLIT items, that we need to be cautious in how they are used. We were interested, however, in examining the kinds of behaviors, activities and interactions that were more or less difficult for teachers to put into practice, to look at the extent to which control group teachers implemented any or all of these practices, and to look at commonalities across treatment groups, i.e., the extent to which teachers were implementing some practices, regardless of which curriculum they were trained to deliver. Of course the OMLIT, used as an interim outcome measure achieved some of these objectives. However, the creation of the implementation indices differed from the creation of OMLIT constructs in an important way. The constructs created for each implementation index represented the developer's own hypothesis about effective practices. The OMLIT constructs were based on a research consensus, at the time they were created [16]. While there was considerable overlap, some interesting differences emerged, as the discussion later in the report suggests.

### Findings

The data used for the analysis were collected in late Spring 2005, by independent observers using the OMLIT battery. Our description of the findings is couched in terms of the proportion of teachers in each group who are rated as partially or fully implementing the items that make up each of the curriculum dimensions.

We present the findings for each of the two curricula separately, first discussing the results for the teachers and classrooms in the appropriate treatment group and then comparing them with teachers in the control group classrooms and with teachers who were trained in one of the other two curricula. After the overall findings, we present findings on implementation of the two curricula by the two major subgroups of teachers: those for whom Spanish was the primary language and those for whom English was the primary language.

#### *Implementation of BTL Essential Practices*

Overall, although large proportions of the teachers implemented the BTL curriculum strategies and activities, most implementation was only partial. For example, only one or two teachers were observed using small group activities, which meant that all of the others were missing a key aspect of the curriculum, which is differentiation of instruction to focus on individual children's strengths and weaknesses.[17] While varying proportions of teachers in all groups implemented some aspects of BTL practices, more of the BTL group teachers than teachers in other groups implemented BTL strategies and activities.

**Teachers' use of comprehension strategies while reading aloud.** All BTL teachers were observed reading a book aloud to children, most (71%) used a book that was related to a class theme (a strategy for bolstering comprehension), and almost all (89%) used one or more comprehension strategies during the read-aloud. About two-thirds of the teachers extended the reading with a

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[16] For information on the psychometric properties of the OMLIT measures, see Judkins, D., St. Pierre, R., Gutman, G., Goodson, B., von Glatz, A., Hamilton, J., Webber, A., Troppe. P., and T. Rimdzius (2008). A study of classroom literacy interventions and outcomes in Even Start. Washington, D.C: US Department of Education, Institute of Education Sciences.

[17] The BTL mentors identified the same weakness in their own fidelity ratings.

discussion or other activity aimed at deepening comprehension;[18] most of those teachers used book-related questions to prompt discussion about the book. A much smaller proportion (31%) of teachers made connections between the book and children's experiences (to make the content less abstract or to enhance motivation) or explicitly connected the book to the classroom theme (to support the transfer or generalization of book content). (Exhibit 4.1)

**Teachers' use of comprehension strategies in non-reading activities.** Less than 30 percent of BTL teachers used comprehension strategies outside shared reading activities, and those who did conducted these activities in large groups rather than with individuals or in small groups, while the developer recommends using these strategies in large and small groups. Less than one-fifth (17%) of BTL teachers conducted discussions with children that were rich, abstract, or open-ended, or extended beyond the here-and-now, or related to children's experiences (Exhibit 4.1).

**Teachers' use of activities aimed at supporting vocabulary development.** On this dimension, most teachers did *none* of the kinds of activities (such as calling attention to new words during a shared reading activity, highlighting the meaning of new words in discussions or conversations) intended by the developer. Only 20 percent of BTL teachers emphasized vocabulary during a read-aloud activity, for a smaller proportion (14 %) the quality of story-related vocabulary instruction was moderate to high, and a similarly small proportion worked to support vocabulary development outside the read-aloud activity. This area of early childhood development is one of the most challenging for teachers to support, particularly for teachers who themselves have more limited vocabulary or feel less confident about techniques for helping children learn new words, but vocabulary development is a critically important area for supporting children's later reading comprehension(Exhibit 4.1). The weaker performance by teachers in activities to support vocabulary development is reflected in the lesser (though still significant) impact of the interventions on children's vocabulary development.

**Teachers' use of strategies to support oral language development.** Most (77%) teachers provided opportunities for children to speak in a large group or whole group setting, and the quality of those opportunities in most was moderate to high—that is, the teacher extended discussions with multiple back-and-forth exchanges with individual students. In addition, more than half of the teachers also used dialogic reading techniques that involved children's oral participation—either through asking higher-order questions or eliciting elaborated response. As in other activities, however, all of these opportunities occurred in large or whole groups rather than small groups or with individuals, which would be more developmentally appropriate and afford in-depth interaction with more children.

**Teachers' use of strategies and activities to support the development of early writing.** Almost three-quarters (71%) of the teachers provided at least two high-quality writing activities (that is, not just copying or de-contextualized writing, but rather writing for a purpose or within a familiar topic), a slightly higher proportion (77%) worked with all or most of the children in writing activities during the day and many (66%) managed to work with individual children or small groups of children on writing. In line with the developers' intentions, almost 80 percent of teachers had children write on their own and did not insist on conventional spelling or letter formation, and more than two-thirds of classrooms had children's own writing (more than just their names) on display. Overall, a majority of

[18] This rating captured only discussions or activities rated as moderate to high in quality—that is, lasting at least 5 minutes and extending or reinforcing the comprehension of the book.

teachers (66%- 83%) did more than 50 percent of what developers intended on this dimension. Writing activities that smaller proportions of teachers implemented include: integrating writing into other activities (43%); establishing a separate writing area with writing materials accessible to children (46%); and connecting writing to a class theme (14%) (Exhibit 4.1).

**Classroom use of individualized software instruction (computers).** We were not able to document how the computers were used, only whether children used them during the observation. If children were using them daily as suggested, for the intended amount of time, we would have expected to observe children using them during at least 2 hours of the 2.5-hour observation period. In fact, we found that in 57 percent of classrooms, teachers had implemented this for the amount of time intended—at least as far as we could measure. It is possible that children also spent more time on the computer after the observation time, since children were in the classroom all day, and it is also possible that, in the 43 percent of classrooms where we did not observe children using the computer for the recommended amount of time, children used the computers when we were not observing, such as in the afternoon.

**Classroom culture and routines.** All of the classrooms were well-organized and afforded children a variety of choices for independent activities. Aside from things that are common across preschool classrooms (such as having activity centers), one noticeable feature of these classrooms was that, in a large proportion of them (83%), children spent less than one-third of the time in management, routines or transitions. In almost one-third of the classrooms, children spent more than half of their time in age-appropriate "high-value" activities (reading, alphabet, oral language, sounds, writing, science/nature, math, creative play, dramatic play, block play, and fine motor play. In more than half of the classrooms (57%), children spent at least 20 percent of their time, outside the "routines and transition" portion, in a group of five or fewer children. This is not inconsistent with earlier statements; children spent a fair amount of time in activity centers and other small group activities, but teachers did not often use this time as an opportunity to work with them in the smaller group.

***How Did The Other Classrooms In Project Upgrade Compare With BTL Classrooms On The BTL Implementation Index?***

**Teachers' use of comprehension strategies while reading aloud.** While the majority of teachers (71%) in the BTL group used books connected to a classroom theme during read-aloud activities, many fewer teachers in the control, RSL! and B.E.L.L. groups used books in this way (23%, 44%, and 12%, respectively). Although a majority of teachers in all three treatment groups used a variety of strategies designed to promote comprehension, BTL teachers were more likely to do so than teachers in the other two groups (89% vs. 78% and 76% for RSL! and B.E.L.L. respectively) and much more likely to do so than teachers in the control group (60%). Post-reading book-related discussions and activities in BTL classrooms were also notably more prevalent and of higher quality than in other groups. RSL! teachers were rated more highly on one item: almost twice as many related the book they were reading to the child's experience as teachers in the other three groups (58% vs. 31%, 33%, and 30% for BTL, B.E.L.L., and control group teachers, respectively (Exhibit 4.1).

**Teachers' use of comprehension strategies in non-reading activities.** Although comprehension strategies outside shared reading experiences were not the most widely implemented strategy in BTL classrooms (less than one-third of BTL teachers used this strategy), they were very rarely used by control group teachers (6%), and only somewhat more frequently observed for teachers in the other two groups (19% and 12% for RSL! and B.E.L.L., respectively).

**Teachers' use of activities aimed at supporting vocabulary development.** As we noted earlier, this was a weak area for BTL teachers. It proved to be similarly weak for teachers in the B.E.L.L. and control groups. Interestingly, more RSL! teachers used strategies to support vocabulary development—slightly more than other groups in shared reading but far more than all other groups outside shared reading activities (36% of RSL! teachers, as opposed to between 6 and 14% of teachers in other groups) . This latter kind of activity (using language games, songs, rhymes, explanations, discussions and other activities to encourage developing and expanding vocabulary) was rarely seen in B.E.L.L. and control group classrooms (6% and 9%, respectively).

**Teachers' use of strategies to support oral language development.** Like BTL teachers, about four-fifths of RSL! and B.E.L.L. teachers (81% and 79%) provided opportunities for children to practice communication skills, as did more than two-thirds of teachers in the control group. Between 60 percent and 67 percent of teachers in the three treatment groups provided activities that combine communication and listening skills, compared with only 40 percent of teachers in the control group. The quality of oral language activities was higher in the BTL group of teachers than in the other three groups, although the proportion of teachers using high-quality oral language strategies was higher in all three treatment groups than in the control group.

**Teachers' use of strategies and activities to support the development of early writing.** Both BTL and RSL! emphasized the importance of children's writing and similarly high proportions of teachers in both these groups engaged children in writing activities, encouraged children to write and displayed their writing. Much smaller proportions of B.E.L.L. and control group teachers engaged children in this way. In over three-fourths of BTL classrooms, teachers encouraged children to write on their own and supported developmental writing, while in Control group and B.E.L.L. classrooms the proportions ranged from just over half to less than two-thirds following this approach.

BTL classrooms included more writing activities, and more high-quality writing activities than classrooms in other groups, with the difference being less pronounced between BTL and RSL! (but more pronounced between teachers in those two groups and teachers in the B.E.L.L. and Control group classrooms). Many more teachers in BTL classrooms than in the others worked with most or all students in writing activities throughout the day; again, the difference between BTL and RSL! classrooms was less pronounced.

**Classroom use of individualized software instruction (computers).** Although implementation of the computer component was less than what developers might have hoped in BTL classrooms, with children in just over half of classrooms observed using computers for the recommended amount of time, there was dramatically less use of computers in classrooms in all of the other groups. Teachers in B.E.L.L. classrooms were least likely to use computers in the classroom (6% vs. 11% for RSL! and 13% for Control group teachers). This item is the least reliable item on the index, however, as our observation period spanned a relatively small proportion of the whole program day, and it is possible that children were involved in activities on computers during other times of the day in classrooms in all groups, as long as computers were available.

**Classroom culture and routines.** There were only two notable differences in classroom management across groups, with one important difference being that compared with all other groups, children in a larger proportion of RSL! classrooms spent less than one-third of their time in routines. The other big difference was that a larger percentage of Control group classrooms (nearly 74%) had children spending over 20% of their time in groups of five or fewer children. One possible

explanation for this is that, in the control group classrooms, children were free to move to activity centers after a brief Circle Time activity. Teachers might observe those activities but not actively work with children in the small groups. Although, in substantial proportions of the treatment classrooms, children spent time in small group activities, a larger proportion of time was spent on large-group language and literacy activities than in the control group classrooms.

***Implementation Of RSL! Essential Practices***

Overall, large proportions of RSL! teachers demonstrated evidence of the characteristics of Interaction, and of implementation of the strategies and activities in the Environment dimension, but far smaller proportions (fewer than half of the teachers) demonstrated evidence of implementation on most (seven out of eleven) of the Curriculum dimension items.

**Interaction.** The two items rated in this dimension looked at grouping and at teacher's tone and attitude towards children. All RSL! teachers were observed to engage in some activities with the whole group. In fact, since this is the norm for prekindergarten classrooms, all classrooms in all groups in the study were observed to use whole-group activities, and since we did not qualify as to whether or not each child was encouraged to participate, this item does not capture key differences that might have been present. As far as using a positive tone and showing respect for children, over half of the RSL! teachers (58%) were observed to behave in this way.

**Environment.** This scale measures generally accepted aspects of the physical environment of the preschool classroom, such as size, condition, and organization of furnishings; presence of activity centers, including a cozy reading area; materials representing diverse cultures and languages; materials to support emergent writing and display of children's writing. All classrooms in all study groups were arranged with activity centers for children, nearly all RSL! classrooms (and all classrooms in all groups) had word cards for children to copy. Most RSL! classrooms had appropriate furnishings, and more than 60 percent had dedicated reading areas. Over half of RSL! classrooms had books representing diversity of culture and language, and a similar proportion had a variety of tools and materials for writing and displayed children's writing (58% and 61%, respectively).

**Curriculum.** The items that make up this dimension alternate between measuring very specifically use of RSL! materials (such as the LeapPad™) and capturing generally accepted good early childhood practices (such as using "Big Books"), organizing activities around a classroom theme, and using dialogic reading techniques in shared reading. On many of the items that captured RSL!-specific practices, we observed one-third or fewer teachers implementing the strategy (range from 14% to 36%). The strongest areas included nearly two-thirds of teachers (61%) providing opportunities for language and literacy activities, including writing, that were of moderate to high quality, and teachers working with children one-on-one or in small groups with RSL! materials (67%). Furthermore, in more than three-quarters of classrooms, teachers had made it possible (through arrangement of materials and prior work with children) for children to work independently with RSL! materials (78%). This is especially important as the electronic aids (LeapMat, LeapPad, LeapDesk) were intended to be used in exactly this way—as a supplementary tool to be used by children independently to reinforce instruction and to free the teacher to work with others individually or in small groups.

***How Did The Other Classrooms In Project Upgrade Compare With RSL! Classrooms On The RSL! Implementation Index?***

On RSL! implementation index items that measure general good practices of early language and literacy instruction, BTL teachers were nearly identical to RSL! teachers (as measured by this index), while as one would expect, only RSL! teachers were using RSL!-specific materials (such as LeapPad), and thus far outscored teachers from other groups on those RSL!-curriculum-specific items in the Curriculum dimension of the index.

**Interaction.** As noted above, all classrooms in all groups provided some full-group activities during the day. In the only other area rated on this dimension, similar proportions of RSL! and BTL teachers were observed to demonstrate positive tone and attitude towards children (58 and 53%, respectively), while this was true of fewer teachers in the Control group or B.E.L.L. classrooms (43 and 42%, respectively).

**Environment.** Again, as noted above, all classrooms in all groups were arranged with learning areas for children that allowed children to choose materials and participate in activities independently, and there was more similarity than difference between groups on all items in this dimension. Interestingly, many more B.E.L.L. classrooms provided books and materials representing diverse cultures and languages (nearly 85%, in contrast with others ranging from 58-64%). Two other areas of difference were that more RSL! classrooms had tools available to children to practice writing words and letters (86%) compared with other groups (BTL the closest, with 77% of classrooms having these supports, and B.E.L.L. and control group classrooms closer to 70%). Close to two-thirds of RSL! and BTL classrooms had children's writing on display, as compared with closer to one-third of classrooms in B.E.L.L. and Control group classrooms.

**Curriculum.** Because so many of the items on this scale were very specifically tied to the use of RSL! materials (especially the electronic tools, which are unique to this curriculum), obviously, almost no teachers in other groups used RSL! materials.[19] However, on items such as use of Big Books, which any teacher could have used, teachers in more than half of BTL classrooms were observed using Big Books with children as opposed to only 14 and 15% of RSL! and B.E.L.L., respectively, and only one teacher in the Control group.

In the more generally-accepted-best-practices items, the only difference between observed practices was that more teachers in both RSL! and BTL classrooms (61 and 69%, respectively, as compared with 42% of teachers in B.E.L.L. and Control group classrooms) provided opportunities to engage in literacy activities, including writing, that were of moderate to high quality.

### BTL and RSL! Implementation Indices: English-preferring vs. Spanish-preferring Teachers

Since our impact analysis showed stronger impacts for Spanish-preferring teachers in the three treatment groups, it would not be surprising to find differences in implementation between Spanish-speaking teachers and their English-speaking counterparts. Because the sample sizes in these subgroups, are small, we regard all differences as suggestive only.

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[19] The small number of control group classrooms that were rated as using these materials were probably classrooms where the teacher or director had purchased a LeapMat or LeapPad, which are both commercially available in toy stores, for children's use, not as part of a curriculum.

***BTL Implementation, By Teachers' Language Preference***

Exhibit 4.3 shows the number and proportion of teachers, by language preference, who partially or fully implemented each item of the BTL implementation index. For eight out of seventeen items in the Reads & Discusses dimension (Comprehension within and outside reading activities and Vocabulary), a greater proportion of Spanish-preferring teachers implemented the activity, while on only one item (teachers provided vocabulary development activities outside shared reading), were a larger proportion of English-preferring teachers rated as implementing partially or fully. On the Oral Language dimension, the groups were more similar to each other, with differences of three to five percentage points (which represent approximately the equivalent of one teacher) across the four items.

The situation was reversed for activities that support writing. On the Writing dimension, a greater proportion of English-preferring teachers were rated as fully or partially implementing six out of fourteen items, while on only one (involving children in writing activities connected to a classroom theme), a larger proportion of Spanish-preferring teachers implemented the activity. On the remaining items in this dimension, there were only small differences (representing one to three teachers).[20] Teachers also differed slightly in their implementation of the Classroom Culture and Routines dimension items, with a greater proportion of English-preferring teachers implementing two of the four items and a greater proportion of Spanish-preferring teachers implementing one of the four.

***RSL! Implementation, By Teachers' Language Preference***

Exhibit 4.4 shows the number and proportion of teacher, by language preference, who implemented each item of the RSL! implementation index. For more than one-third of the items (4 in the Environment category and 4 in the Curriculum category), far more Spanish-preferring teachers implemented the activity. There was only one item on which more English-preferring teachers implemented than their Spanish-speaking counterparts (use of recommended book in shared reading); on the remainder of items, the trend was still for a greater proportion of Spanish-preferring teachers to implement as compared with their English-speaking counterparts, and there were comparable proportions on 5 of the items.

[20] The sample sizes in these subgroups are small—16 teachers in the Spanish-preferring and 19 teachers in the English-preferring. With such small sample sizes, one teacher in sixteen represents 6 percent.

**Exhibit 4.1: Number and Percentage of Teachers Demonstrated Evidence of Each Item (Partially or Fully)[21] in the BTL Implementation Index, for Teachers in Each Condition**

| BTL Implementation Index Dimensions | Control (n=53) | | RSL! (n=36) | | B.E.L.L. (n=33) | | BTL (n=35) | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | n | % | n | % |
| **Reads and Discusses** | | | | | | | | |
| ***Comprehension while reading aloud*** | | | | | | | | |
| The teacher read a book aloud.* | 33 | 62.3% | 32 | 88.9% | 26 | 78.8% | **35** | **100.0%** |
| The teacher read aloud a BTL Book of the Week. | 1[22] | 1.9% | 0 | 0.0% | 0 | 0.0% | **33** | **94.3%** |
| The teacher read aloud a book connected to a class theme. | 12 | 22.6% | 16 | 44.4% | 4 | 12.1% | **25** | **71.4%** |
| The teacher used one or more strategies promoting comprehension while reading aloud.* | 32 | 60.4% | 28 | 77.8% | 25 | 75.8% | **31** | **88.6%** |
| The teacher made at least 1 connection between the book being read and children's experiences or class themes.* | 16 | 30.2% | 21 | 58.3% | 11 | 33.3% | **11** | **31.4%** |
| The teacher asked book-related questions at the end of the read aloud.* | 9 | 17.0% | 7 | 19.4% | 9 | 27.3% | **15** | **42.9%** |
| The average depth of post-read-aloud discussions or activities was moderate to "high" (e.g., they lasted at least 5 minutes and/or they extended or reinforced the comprehension of the book).* | 5 | 9.4% | 6 | 16.7% | 7 | 21.2% | **23** | **65.7%** |
| ***Comprehension in non-reading activities*** | | | | | | | | |
| The teacher provided one or more activities that supported the development of comprehension skills outside of read-alouds.* | 3 | 5.7% | 7 | 19.4% | 4 | 12.1% | **10** | **28.6%** |
| The average quality of discussions was moderately high or high (e.g., the content or topics were rich, abstract, open-ended, extended beyond the here-and-now, and/or related activities to children's' experiences).* | 3 | 5.7% | 4 | 11.1% | 6 | 18.2% | **6** | **17.1%** |

[21] Item Scores: For most items, a teacher scored one point if she or he engaged in the described instructional activity. Items with an asterisk (*) were scored as follows: "0" if the teacher never engaged in the instructional activity, "1" if she engaged in the activity with a small or a large group, and "2" if she engaged in the activity with both a small and a large group.

[22] This variable was created by checking the title of the book read with a list of BTL Book-of-the-Week (BOW), so in this single classroom, a non-BTL teacher was observed reading a McGraw-Hill book that is on the BTL BOW list.

**Exhibit 4.1: Number and Percentage of Teachers Demonstrated Evidence of Each Item (Partially or Fully)[21] in the BTL Implementation Index, for Teachers in Each Condition**

| BTL Implementation Index Dimensions | Control (n=53) | | RSL! (n=36) | | B.E.L.L. (n=33) | | BTL (n=35) | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | n | % | n | % |
| ***Vocabulary*** | | | | | | | | |
| The teacher emphasized vocabulary in at least one read aloud.* | 10 | 18.9% | 9 | 25.0% | 7 | 21.2% | **7** | **20.0%** |
| The quality of story-related vocabulary instruction during read alouds was moderate to high (e.g., one or more vocabulary word was discussed and a comprehension support was used). | 5 | 9.4% | 8 | 22.2% | 4 | 12.1% | **5** | **14.3%** |
| The teacher provided one or more activities that supported vocabulary development outside of read-alouds (e.g., vocabulary knowledge was provided in the context of explanations, writing, songs, stories, rhymes, language games, discussions, shared reading, emergent writing, and/or child tagging or matching).* | 5 | 9.4% | 13 | 36.1% | 2 | 6.1% | **5** | **14.3%** |
| ***Oral language*** | | | | | | | | |
| The teacher provided at least one literacy activity aimed at developing children's oral communication and/or listening skills. | 21 | 39.6% | 23 | 63.9% | 22 | 66.7% | **21** | **60.0%** |
| The teacher had students engage in language games, rhymes, songs, storytelling, or discussion **in order to comprehend a text**. If the activity was a discussion, it was rated moderately high or high (e.g., they included turn-taking by students and the teacher elaborated or asked students to elaborate on comments).* | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | **0** | **0.0%** |
| The teacher used one or more instructional strategies that promoted higher order thinking during or after a read-aloud session (e.g., they asked book-related open-ended questions that required speculation, and/or expanded responses, thinking, or analyses).* | 21 | 39.6% | 17 | 47.2% | 16 | 48.5% | **19** | **54.3%** |
| The teacher provided at least a few opportunities for oral language. | 36 | 67.9% | 29 | 80.6% | 26 | 78.8% | **27** | **77.1%** |
| The average quality of the oral language activities provided by the teacher was moderate to high (e.g., the teacher provided integrated, higher quality oral language opportunities of varying types for most students individually or in small groups in which the teacher scaffolded or extended discussions with multiple turns that focused on non-management topics). | 28 | 52.8% | 22 | 61.1% | 19 | 57.6% | **25** | **71.4%** |

**Exhibit 4.1: Number and Percentage of Teachers Demonstrated Evidence of Each Item (Partially or Fully)[21] in the BTL Implementation Index, for Teachers in Each Condition**

| BTL Implementation Index Dimensions | Control (n=53) | | RSL! (n=36) | | B.E.L.L. (n=33) | | BTL (n=35) | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | n | % | n | % |
| **Writing** | | | | | | | | |
| Examples of children's writing were on display in the classroom (other than just names). | 20 | 37.7% | 22 | 61.1% | 12 | 36.4% | **24** | **68.6%** |
| Children spent time in journal-writing activities. | 0 | 0.0% | 5 | 13.9% | 1 | 3.0% | **0** | **0.0%** |
| The teacher used at least one high quality activity aimed at developing knowledge of the functions and features of print (e.g., using authentic print materials, graphic organizers, or word webs). | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | **2** | **5.7%** |
| The teacher provided a separate writing area and/or writing materials accessible to children. | 22 | 41.5% | 18 | 50.0% | 13 | 39.4% | **16** | **45.7%** |
| In at least some writing activities, the writing was done by the children themselves rather than by adults. | 31 | 58.5% | 27 | 75.0% | 20 | 60.6% | **27** | **77.1%** |
| The teacher sometimes, often, or consistently encouraged children to write on their own rather than insisting on conventional letter formation or spelling. | 28 | 52.8% | 22 | 61.1% | 19 | 57.6% | **27** | **77.1%** |
| The teacher provided one or more literacy activities that involved emergent writing, copying, or tracing. | 29 | 54.7% | 27 | 75.0% | 15 | 45.5% | **26** | **74.3%** |
| Children were engaged in one or more writing activity (including emergent writing, copying, and tracing) that was connected to a class theme during the day. | 3 | 5.7% | 2 | 5.6% | 1 | 3.0% | **5** | **14.3%** |
| The teacher worked with most or all of the students in writing activities during the day. | 25 | 47.2% | 19 | 52.8% | 13 | 39.4% | **27** | **77.1%** |
| Writing activities and opportunities were sometimes, often, or consistently conducted with individuals or small groups. | 27 | 50.9% | 26 | 72.2% | 15 | 45.5% | **23** | **65.7%** |
| The teacher provided two or more opportunities to engage in writing. | 24 | 45.3% | 22 | 61.1% | 14 | 42.4% | **25** | **71.4%** |
| The teacher provided three or more types of writing activities. | 9 | 17.0% | 12 | 33.3% | 5 | 15.2% | **12** | **34.3%** |
| The teacher provided children with writing opportunities that were sometimes, often, or consistently of higher quality (e.g., emergent writing, captioning, dictating, writing names on work, book-making, and/or writing in journals. | 31 | 58.5% | 23 | 63.9% | 19 | 57.6% | **29** | **82.9%** |

**Exhibit 4.1: Number and Percentage of Teachers Demonstrated Evidence of Each Item (Partially or Fully)[21] in the BTL Implementation Index, for Teachers in Each Condition**

| BTL Implementation Index Dimensions | Control (n=53) | | RSL! (n=36) | | B.E.L.L. (n=33) | | BTL (n=35) | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | n | % | n | % |
| The teacher provided writing opportunities that were sometimes or often integrated into activities with goals other than literacy. | 23 | 43.4% | 17 | 47.2% | 10 | 30.3% | **15** | **42.9%** |
| **Individualized Software Instruction** | | | | | | | | |
| The average child used a computer for the amount of time recommended by BTL, or longer (pre-K: 8-12, K: 12-15 minutes). | 7 | 13.2% | 4 | 11.1% | 2 | 6.1% | **20** | **57.1%** |
| **Classroom Culture and Routines** | | | | | | | | |
| The classroom was well-organized and had the space and layout to afford children a variety of independent activity choices, including learning centers (e.g. it had at least one distinct activity center, some materials that were marked, sorted, and stored; the layout allowed for at least two group sizes, some independent choices for students, sufficient space, adequate light, and/or no odors). | 53 | 100.0% | 36 | 100.0% | 33 | 100.0% | **35** | **100.0%** |
| The average child spent less than 33% of the time in transitions, routines, and management or being uninvolved in activities. | 42 | 79.2% | 34 | 94.4% | 27 | 81.8% | **29** | **82.9%** |
| The average child spent at least 50% of their time engaged in educationally "high value" activities (including: reading, alphabet, oral language, sounds, writing, science/nature, math concepts, dramatic play, creative play, block play, and fine motor play). | 21 | 39.6% | 13 | 36.1% | 9 | 27.3% | **11** | **31.4%** |
| The average child spent at least 20% of their time in groups of 5 or fewer (not including meals, routines, transitions, or management). | 39 | 73.6% | 22 | 61.1% | 22 | 66.7% | **20** | **57.1%** |

[a] Item Scores: For most items, a teacher scored one point if she or he engaged in the described instructional activity. Items with a "*" were scored as follows: "0" of the teacher never engaged in the instructional activity, "1" if she or he engaged in the activity with a small or a large group, and "2" if she or he engaged in the activity with both a small and a large group.

EXHIBIT READS: In five BTL classrooms (14.3 percent of the Project Upgrade BTL sample), children were engaged in one or more writing activity (including emergent writing, copying, and tracing) that was connected to a class theme during the day; in contrast, in three Control group classrooms (5.7 percent of the Project Upgrade Control group sample), children were engaged in such activities.

*Source: Project Upgrade, spring 2005.*

**Table 4.2: Number and Percentage of Teachers who Demonstrated Evidence of Each Item in the RSL! Implementation Index, for Teachers in each Condition**

| | Control (n=53) | | RSL! (n=36) | | B.E.L.L. (n=33) | | BTL (n=35) | |
|---|---|---|---|---|---|---|---|---|
| **RSL! Implementation Index Dimensions** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** |
| ***Interaction*** | | | | | | | | |
| The tone and classroom conversations are positive; teacher shows respect for children and listens attentively, encouraging them to learn likewise. | 23 | 43.4% | **21** | **58.3%** | 14 | 42.4% | 20 | 57.1% |
| Evidence of full-group activities, where each child is encouraged to participate. | 53 | 100.0% | **36** | **100.0%** | 33 | 100.0% | 35 | 100.0% |
| ***Environment*** | | | | | | | | |
| In the classroom: Furnishings and materials are appropriately sized, in good repair, clearly organized, appealing, accessible and not crowded. | 46 | 86.8% | **26** | **72.2%** | 26 | 78.8% | 25 | 71.4% |
| Learning areas provide opportunities for children to engage independently in activities. | 53 | 100.0% | **36** | **100.0%** | 33 | 100.0% | 35 | 100.0% |
| An inviting and orderly area is set aside for book reading, made comfortable by soft materials such as pillows and cushions. | 37 | 69.8% | **22** | **61.1%** | 20 | 60.6% | 12 | 34.3% |
| Books promote cultural diversity, and there are materials in other languages that represent children's culture of origin. | 34 | 64.2% | **21** | **58.3%** | 28 | 84.8% | 22 | 62.9% |
| There are word cards, with names or familiar words intended to support children's writing. | 53 | 100.0% | **35** | **97.2%** | 33 | 100.0% | 35 | 100.0% |
| There are toys and materials accessible to children that include words/letters and there are tools accessible to children to help them practice writing words/letters (e.g., stencils, templates, tracing sheets). | 38 | 71.7% | **31** | **86.1%** | 23 | 69.7% | 27 | 77.1% |
| There is a variety of paper and writing tools available (chalkboard, pencils, crayons, etc.). | 26 | 49.1% | **19** | **52.8%** | 17 | 51.5% | 20 | 57.1% |

**Table 4.2: Number and Percentage of Teachers who Demonstrated Evidence of Each Item in the RSL! Implementation Index, for Teachers in each Condition**

| | Control (n=53) | | RSL! (n=36) | | B.E.L.L. (n=33) | | BTL (n=35) | |
|---|---|---|---|---|---|---|---|---|
| **RSL! Implementation Index Dimensions** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** |
| Variety of teacher's captioning (from child's work) and children's own writing (journals, sign in, etc.) on display. | 20 | 37.7% | **22** | **61.1%** | 12 | 36.4% | 24 | 68.6% |
| ***RSL! Curriculum*** | | | | | | | | |
| There is evidence in the classroom of the use of RSL! materials. | 3 | 5.7% | **33** | **91.7%** | 1 | 3.0% | 0 | 0.0% |
| Opportunities for extended uses of language, (activities, materials, and displays) are coordinated with RSL! goals in each unit and its current theme. | 14 | 26.4% | **13** | **36.1%** | 5 | 15.2% | 16 | 45.7% |
| Teacher encourages the use of the LeapMat to review the letters learned in the current lesson, and follows suggested activities in the "Teacher's Manual". | 0 | 0.0% | **11** | **30.6%** | 0 | 0.0% | 0 | 0.0% |
| Teacher integrates the LeapPad, the correspondent book, and activities ("Teacher's Manual") with the current lesson. | 2 | 3.8% | **10** | **27.8%** | 0 | 0.0% | 0 | 0.0% |
| Teacher encourages the use of the LeapDesk, and models its use to review letters and numbers as suggested in the Manual. | 0 | 0.0% | **8** | **22.2%** | 0 | 0.0% | 0 | 0.0% |
| Teacher reads the suggested book for the lesson (Read-Aloud Library), and implements suggested activities in the "Teacher's Resource Guide". | 9 | 17.0% | **11** | **30.6%** | 0 | 0.0% | 2 | 5.7% |
| The teacher uses the Big Books and Read Aloud Library for full-group and small group activities according to the lesson. | 1 | 1.9% | **5** | **13.9%** | 5 | 15.2% | 19 | 54.3% |
| Teaching strategies support reading comprehension, questioning, predicting, summarizing, problem-solving, and reflecting on learning. | 24 | 45.3% | **17** | **47.2%** | 14 | 42.4% | 17 | 48.6% |

**Table 4.2: Number and Percentage of Teachers who Demonstrated Evidence of Each Item in the RSL! Implementation Index, for Teachers in each Condition**

| | Control (n=53) | | RSL! (n=36) | | B.E.L.L. (n=33) | | BTL (n=35) | |
|---|---|---|---|---|---|---|---|---|
| **RSL! Implementation Index Dimensions** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** |
| Adults engage in one-to-one or small group activities using RSL! materials. | 1 | 1.9% | **24** | **66.7%** | 0 | 0.0% | 0 | 0.0% |
| Adults facilitate opportunities and model for the children to practice their reading and writing skills as learned in the lessons. | 22 | 41.5% | **22** | **61.1%** | 14 | 42.4% | 24 | 68.6% |
| Children use RSL! materials on their own or with a friend by own initiative. | 3 | 5.7% | **28** | **77.8%** | 1 | 3.0% | 0 | 0.0% |

**Table 4.3: Number and Percentage of BTL Teachers Implementing Each Item in the BTL Implementation Index Dimensions, By Teacher's Language Preference**

| | BTL Spanish-Speaking Teachers (n=16) | | BTL English-Speaking Teachers (n=19) | | BTL Full Group (n=35) | |
|---|---|---|---|---|---|---|
| **BTL Implementation Index Dimensions** | **N** | **%** | **N** | **%** | **N** | **%** |
| **Reads and Discusses** | | | | | | |
| ***Comprehension while reading aloud*** | | | | | | |
| The teacher read a book aloud.* | 16 | 100.0% | 19 | 100.0% | 35 | 100.0% |
| The teacher read aloud a BTL Book of the Week. | 16 | 100.0% | 17 | 89.5% | 33 | 94.3% |
| The teacher read aloud a book connected to a class theme. | 14 | 87.5% | 11 | 57.9% | 25 | 71.4% |
| The teacher used one or more strategies promoting comprehension while reading aloud.* | 15 | 93.8% | 16 | 84.2% | 31 | 88.6% |
| The teacher made at least 1 connection between the book being read and children's experiences or class themes.* | 5 | 31.3% | 6 | 31.6% | 11 | 31.4% |
| The teacher asked book-related questions at the end of the read aloud.* | 7 | 43.8% | 8 | 42.1% | 15 | 42.9% |
| The average depth of post-read-aloud discussions or activities was moderate to "high" (e.g., they lasted at least 5 minutes and/or they extended or reinforced the comprehension of the book).* | 12 | 75.0% | 11 | 57.9% | 23 | 65.7% |
| ***Comprehension in non-reading activities*** | | | | | | |
| The teacher provided one or more activities that supported the development of comprehension skills outside of read-alouds.* | 6 | 37.5% | 4 | 21.1% | 10 | 28.6% |
| The average quality of discussions was moderately high or high (e.g., the content or topics were rich, abstract, open-ended, extended beyond the here-and-now, and/or related activities to children's' experiences).* | 4 | 25.0% | 2 | 10.5% | 6 | 17.1% |
| ***Vocabulary*** | | | | | | |
| The teacher emphasized vocabulary in at least one read aloud.* | 4 | 25.0% | 3 | 15.8% | 7 | 20.0% |
| The quality of story-related vocabulary instruction during read alouds was moderate to high (e.g., one or more vocabulary word was discussed and a comprehension support was used). | 3 | 18.8% | 2 | 10.5% | 5 | 14.3% |

**Table 4.3: Number and Percentage of BTL Teachers Implementing Each Item in the BTL Implementation Index Dimensions, By Teacher's Language Preference**

| | BTL Spanish-Speaking Teachers (n=16) | | BTL English-Speaking Teachers (n=19) | | BTL Full Group (n=35) | |
|---|---|---|---|---|---|---|
| **BTL Implementation Index Dimensions** | **N** | **%** | **N** | **%** | **N** | **%** |
| The teacher provided one or more activities that supported vocabulary development outside of read-alouds (e.g., vocabulary knowledge was provided in the context of explanations, writing, songs, stories, rhymes, language games, discussions, shared reading, emergent writing, and/or child tagging or matching).* | 1 | 6.3% | 4 | 21.1% | 5 | 14.3% |
| ***Oral language*** | | | | | | |
| The teacher provided at least one literacy activity that afforded students knowledge of oral communication and/or listening skills. | 10 | 62.5% | 11 | 57.9% | 21 | 60.0% |
| The teacher provided one or more activities that included language games, rhymes, songs, storytelling, or discussion; that afforded students knowledge in the comprehension of a text; that included an average depth of the discussion that was moderately high or high (e.g., they included turn-taking by students and the teacher elaborated or asked students to elaborate on comments).* | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| The teacher used one or more instructional strategies that promoted higher order thinking during or after a read-aloud session (e.g., they asked book-related open-ended questions that required speculation, and/or expanded responses, thinking, or analyses).* | 9 | 56.3% | 10 | 52.6% | 19 | 54.3% |
| The teacher provided at least a few opportunities for oral language. | 12 | 75.0% | 15 | 78.9% | 27 | 77.1% |
| The average quality of the oral language activities provided by the teacher was moderate to high (e.g., the teacher provided integrated, higher quality oral language opportunities of varying types for most students individually or in small groups in which the teacher scaffolded or extended discussions with multiple turns that focused on non-management topics). | 11 | 68.8% | 14 | 73.7% | 25 | 71.4% |
| **Writing** | | | | | | |
| Examples of children’s writing were on display in the classroom (other than just names). | 11 | 68.8% | 13 | 68.4% | 24 | 68.6% |
| Children spent time in journal-writing activities. | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |

**Table 4.3: Number and Percentage of BTL Teachers Implementing Each Item in the BTL Implementation Index Dimensions, By Teacher's Language Preference**

| | BTL Spanish-Speaking Teachers (n=16) | | BTL English-Speaking Teachers (n=19) | | BTL Full Group (n=35) | |
|---|---|---|---|---|---|---|
| **BTL Implementation Index Dimensions** | **N** | **%** | **N** | **%** | **N** | **%** |
| The teacher used at least one high quality activity aimed at developing knowledge of the functions and features of print (e.g., using authentic print materials, graphic organizers, or word webs). | 1 | 6.3% | 1 | 5.3% | 2 | 5.7% |
| The teacher provided a separate writing area and/or writing materials accessible to children. | 5 | 31.3% | 11 | 57.9% | 16 | 45.7% |
| In at least some writing activities, the writing was done by the children themselves rather than by adults. | 11 | 68.8% | 16 | 84.2% | 27 | 77.1% |
| The teacher sometimes, often, or consistently encouraged children to write on their own rather than insisting on conventional letter formation or spelling. | 10 | 62.5% | 17 | 89.5% | 27 | 77.1% |
| The teacher provided one or more literacy activities that involved emergent writing, copying, or tracing. | 12 | 75.0% | 14 | 73.7% | 26 | 74.3% |
| Children were engaged in one or more writing activity (including emergent writing, copying, and tracing) that was connected to a class theme during the day. | 3 | 18.8% | 2 | 10.5% | 5 | 14.3% |
| The teacher worked with most or all of the students in writing activities during the day. | 11 | 68.8% | 16 | 84.2% | 27 | 77.1% |
| Writing activities and opportunities were sometimes, often, or consistently conducted with individuals or small groups. | 10 | 62.5% | 13 | 68.4% | 23 | 65.7% |
| The teacher provided two or more opportunities to engage in writing. | 11 | 68.8% | 14 | 73.7% | 25 | 71.4% |
| The teacher provided three or more types of writing activities. | 6 | 37.5% | 6 | 31.6% | 12 | 34.3% |
| The teacher provided children with writing opportunities that were sometimes, often, or consistently of higher quality (e.g., emergent writing, captioning, dictating, writing names on work, book-making, and/or writing in journals. | 11 | 68.8% | 18 | 94.7% | 29 | 82.9% |
| The teacher provided writing opportunities that were sometimes or often integrated into activities with goals other than literacy. | 6 | 37.5% | 9 | 47.4% | 15 | 42.9% |

**Table 4.3: Number and Percentage of BTL Teachers Implementing Each Item in the BTL Implementation Index Dimensions, By Teacher's Language Preference**

| | BTL Spanish-Speaking Teachers (n=16) | | BTL English-Speaking Teachers (n=19) | | BTL Full Group (n=35) | |
|---|---|---|---|---|---|---|
| **BTL Implementation Index Dimensions** | **N** | **%** | **N** | **%** | **N** | **%** |
| **Individualized Software Instruction** | | | | | | |
| The average child used a computer for the amount of time recommended by BTL, or longer (pre-K: 8-12, K: 12-15 minutes). | 10 | 62.5% | 10 | 52.6% | 20 | 57.1% |
| **Classroom Culture and Routines** | | | | | | |
| The classroom was well-organized and had the space and layout to afford children a variety of independent activity choices, including learning centers (e.g. it had at least one distinct activity center, some materials that were marked, sorted, and stored; the layout allowed for at least two group sizes, some independent choices for students, sufficient space, adequate light, and/or no odors). | 16 | 100.0% | 19 | 100.0% | 35 | 100.0% |
| The average child spent less than 33% of the time in transitions, routines, and management or being uninvolved in activities. | 12 | 75.0% | 17 | 89.5% | 29 | 82.9% |
| The average child spent at least 50% of their time engaged in educationally “high value” activities (including: reading, alphabet, oral language, sounds, writing, science/nature, math concepts, dramatic play, creative play, block play, and fine motor play). | 4 | 25.0% | 7 | 36.8% | 11 | 31.4% |
| The average child spent at least 20% of their time in groups of 5 or fewer (not including meals, routines, transitions, or management). | 10 | 62.5% | 10 | 52.6% | 20 | 57.1% |

EXHIBIT READS: In five Project Upgrade classrooms (14.3 percent of the Project Upgrade sample), children were engaged in one or more writing activity (including emergent writing, copying, and tracing) that was connected to a class theme during the day

*Sources: Project Upgrade, spring 2005.*

**Table 4.4: Number and Percentage of Teachers Who Demonstrated Evidence of Each Item in the RSL! Instructional Dimensions in Project Upgrade, for English-Speaking Teachers, Spanish-Speaking Teachers, and the Full RSL! Group**

| | RSL! Spanish-Speaking Teachers (n=17) | | RSL! English-Speaking Teachers (n=19) | | RSL! Full Group (n=36) | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| ***Interaction*** | | | | | | |
| The tone and classroom conversations are positive; teacher shows respect for children and listens attentively, encouraging them to learn likewise. | 10 | 58.8% | 11 | 57.9% | 21 | 58.3% |
| Evidence of full-group activities, where each child is encouraged to participate. | 17 | 100.0% | 19 | 100.0% | 36 | 100.0% |
| ***Environment*** | | | | | | |
| In the classroom: Furnishings and materials are appropriately sized, in good repair, clearly organized, appealing, accessible and not crowded. | 15 | 88.2% | 11 | 57.9% | 26 | 72.2% |
| Learning areas provide opportunities for children to engage independently in activities. | 17 | 100.0% | 19 | 100.0% | 36 | 100.% |
| An inviting and orderly area is set aside for book reading, made comfortable by soft materials such as pillows and cushions. | 11 | 64.7% | 11 | 57.9% | 22 | 61.1% |
| Books promote cultural diversity, and there are materials in other languages that represent children's culture of origin. | 15 | 88.2% | 6 | 31.6% | 21 | 58.3% |
| There are word cards, with names or familiar words intended to support children's writing. | 17 | 100.0% | 18 | 94.7% | 35 | 97.2% |
| There are toys and materials accessible to children that include words/letters, and there are tools accessible to children to help them practice writing words/letters (e.g., stencils, templates, tracing sheets). | 15 | 88.2% | 16 | 84.2% | 31 | 86.1% |
| There is a variety of paper and writing tools available (chalkboard, pencils, crayons, etc.). | 10 | 58.8% | 9 | 47.4% | 19 | 52.8% |
| Variety of teacher's dictation (teacher-led activity, from child's work) and children's writing (journals, sign in, etc) on display. | 12 | 70.6% | 10 | 52.6% | 22 | 61.1% |
| ***RSL! Curriculum*** | | | | | | |
| There is evidence in the classroom of the use of RSL! materials. | 16 | 94.1% | 17 | 89.5% | 33 | 91.7% |

**Table 4.4: Number and Percentage of Teachers Who Demonstrated Evidence of Each Item in the RSL! Instructional Dimensions in Project Upgrade, for English-Speaking Teachers, Spanish-Speaking Teachers, and the Full RSL! Group**

| | RSL! Spanish-Speaking Teachers (n=17) | | RSL! English-Speaking Teachers (n=19) | | RSL! Full Group (n=36) | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| Opportunities for extended uses of language, (activities, materials, and displays) are coordinated with RSL! goals in each unit and its current theme. | 7 | 41.2% | 6 | 31.6% | 13 | 36.1% |
| Teacher encourages the use of the LeapMat to review the letters learned in the current lesson, and follows suggested activities in the “Teacher’s Manual”. | 5 | 29.4% | 6 | 31.6% | 11 | 30.6% |
| Teacher integrates the LeapPad, the correspondent book, and activities (“Teacher’s Manual”) with the current lesson. | 5 | 29.4% | 5 | 26.3% | 10 | 27.8% |
| Teachers encourage the use of the LeapDesk, and models its use to review letters and numbers as suggested in the Manual. | 2 | 11.8% | 6 | 31.6% | 8 | 22.2% |
| Teacher reads the suggested book for the lesson (Read-Aloud Library), and implements suggested activities in the “Teacher’s Resource Guide”. | 4 | 23.5% | 7 | 36.8% | 11 | 30.6% |
| The teacher uses the Big Books and Read Aloud Library for full-group and small group activities according to the lesson. | 2 | 11.8% | 3 | 15.8% | 5 | 13.9% |
| Teaching strategies support reading comprehension, questioning, predicting, summarizing, problem-solving, and reflecting on learning. | 9 | 52.9% | 8 | 42.1% | 17 | 47.2% |
| Adults engage in one-to-one or small group activities using RSL! materials. | 12 | 70.6% | 12 | 63.2% | 24 | 66.7% |
| Adults facilitate opportunities and model for the children to practice their reading and writing skills as learned in the lessons. | 11 | 64.7% | 11 | 57.9% | 22 | 61.1% |
| Children use RSL! materials on their own or with a friend by own initiative. | 14 | 82.4% | 14 | 73.7% | 28 | 77.8% |

EXHIBIT READS: In 21 RSL! classrooms (58.3% percent of the RSL! sample), caregivers speak warmly and listen attentively to children.

*Sources: Project Upgrade, spring 2005.*

# Chapter Five: Discussion

In this report we examined two distinct aspects of the implementation of interventions tested in Project Upgrade: a single professional development model; and three curriculum models.

## Implementation of the Professional Development Model

It seems fair to conclude that the professional development model was well-implemented:[23] training sessions and ongoing mentoring were delivered at least as often as the design called for, by well-trained staff, and there was little turnover of staff. The coaches and mentors for each intervention were highly-motivated and persistent in their efforts with classroom staff.

However, absolute fidelity to a model is neither easy to achieve nor necessarily desirable. The curriculum developers, coaches and mentors had to adapt the plan to meet a set of challenges. These adaptations did not result in deviation from the principles underlying the model. Rather, in all cases, meeting the challenges resulted in an intensification of effort on the part of all three groups.

To meet the challenge of teacher turnover, developers and coaches provided additional training sessions and more frequent visits to the center by coaches and mentors. When teachers were unable to attend follow-up training sessions because there was no substitute teacher available, additional, smaller training sessions were organized. To meet the challenge of teachers who lacked basic classroom management skills, mentors made more frequent visits, reorganized classroom space and advised teachers on classroom management, while continuing to address the requirement to implement the curriculum.

To meet the challenge of director turnover, or changes in center ownership, coaches and the Project Coordinator visited the centers repeatedly to explain the study, the intervention that the center was participating in, and the benefits and obligations of participation. As a result, attrition of centers from the study was very low.

While most of these challenges are to be expected in any subsequent implementation of these models, some are a by-product of the evaluation in which the interventions were nested, which dictated the timeframe for implementation of the interventions. The challenge of teachers who lacked classroom management skills was addressed by increasing the frequency and intensity of visits. In a replication of the model, a better solution (advocated by developers, coaches and mentors) would be to delay training in curriculum implementation until the issue of basic skills had been addressed. Similarly, teachers who were essentially monolingual in Spanish struggled to honor the request to conduct literacy activities in English and needed manuals and other materials in Spanish, beyond what the developers had anticipated. However, in training sessions, the teachers themselves suggested that they would have welcomed classes in English, as preparation for the interventions.

Another challenge for coaches and mentors was the number of teachers who resisted implementing a curriculum, either because they had not wanted to participate in the study at all (the directors had

[23] The curriculum trainers observed each mentor regularly and gave them feedback. However, there was no formal rating of mentor fidelity.

imposed the decision on them) or preferred a different curriculum. Coaches and mentors spent a great deal of additional time working with these teachers, sometimes to little effect. Again, this additional effort was helpful for the study, in reducing attrition and strengthening implementation, but the problem would either not arise or would be approached differently in a replication. In a replication, program managers might encourage active participation of teachers in the design of a professional development and curriculum strategy, or might work to increase interest and motivation before beginning training.

A final note about the professional development model and the effect of the evaluation on it concerns the duration of mentoring and support. These activities, in almost all cases, stopped at the end of the 18-month period of the interventions. Many teachers requested some continuing support and a number clearly needed it. In a larger-scale implementation, it is likely that mentoring support would be more tailored to the needs of the individual (always maintaining the basic model), and sustained on a lower level, tapering off rather than being abruptly withdrawn.

## Implementation of the Curriculum Models

To guide their own supportive efforts, mentors and coaches used quite detailed fidelity measures that were curriculum-specific (although, as our subsequent efforts show, they also shared elements of good, research-supported teaching practice). To provide the study with a simpler common assessment of level of implementation, the mentors rated classrooms on a five-point scale. Ultimately, this told us little beyond the fact that most teachers in the three treatment groups were implementing the curricula satisfactorily (only a few received a score of five on the five-point scale, while many received a score of four, meaning "fairly well-implemented"). Although the developers could analyze their own fidelity measures to identify areas of weakness that might need attention, the global ratings did not provide that kind of information.

The implementation indexes developed *post hoc* were imperfect because it was impossible to capture all of the behaviors and practices that were specifically linked to individual curricula. Nevertheless, the measures were useful. First, the comparisons across all four groups made us aware that, although teachers were not always effectively implementing finer-grained and curriculum-specific practices, a majority of teachers in both the BTL and RSL! groups were implementing practices and activities that research has linked to the development of language and literacy, and that formed the basis of each curriculum. By contrast, on many items, B.E.L.L. teachers more closely resembled teachers in the control group. Although in both of these groups (B.E.L.L. and control) some teachers were engaging children in activities that support language and literacy development, the proportions were considerably smaller than in the other two groups.[24]

As an example of how this worked in practice, consider that all BTL teachers read a book aloud during the observation, and between 62 percent (control group) and 89 percent (RSL) did so. Slightly lower percentages used one or more strategies to promote comprehension during the read-aloud. Both of these practices are supported as "good practice" and training in any literacy curriculum would

[24] B.E.L.L. was delivered as two brief (15-20) minute activities, both of which were always scheduled in the morning, which was when our four-hour classroom observations were conducted. Observations across all study groups probably missed some more informal literacy activities and opportunities that may have occurred later in the day, after children had napped and before they were picked up.

begin with these. By contrast, scores on a BTL curriculum-specific item that extends the book discussion (teacher asked book-related questions at the end of the read-aloud), scores were lower, even for BTL teachers (43%), and lower still in the other groups (17% for the control group teachers, 19% for RSL and 27% for B.E.L.L.). Similarly, in supporting writing activities, a focus of both BTL and RSL, high proportions of teachers consistently encouraged children to write on their own (77% in BTL, 61% in RSL, 57% for B.E.L.L. and 53% in the control group). However, for an item that emphasized repeated opportunities for children to engage in writing, about one-third of BTL and RSL teachers were scored as doing this, with much lower proportions in the other two groups (15% in B.E.L.L. and 17% in the control group). What we understand from these findings is that teachers were variably successful in implementing practices that increased the quality and intensity of a general good practice, and that were part of the curriculum for which they were trained. But, in the absence of guidance (in B.E.L.L. and the control group) few if any teachers implemented them.

We note again that we were unable to create an implementation index for B.E.L.L. that reflected the idiosyncratic set of practices mandated by the curriculum. However, the relatively lower usage by a large proportion of B.E.L.L. teachers of the more general practices that are strongly linked in the research literature to later reading success provides a possible explanation for the intervention's failure to produce impacts on children.[25]

Areas in which many teachers struggled included: activities to support children's independent writing; extending support for comprehension and vocabulary support throughout the day and outside specific literacy activities; and working with small groups of children or individuals. Because the classes were small on average, this latter may have seemed less important to teachers, but it also reflects a common difficulty that teachers in all preschool settings experience. The ability to work one-on-one or in small groups with children is critically dependent on the teacher's skill in structuring the small-group activities so that other children are productively engaged.

[25] It should also be remembered that the B.E.L.L. intervention consisted of two brief (15-minute) activities, one almost totally focused on phonological awareness. If phonological awareness is less strongly linked to literacy outcomes than, say, vocabulary or writing, then the B.E.L.L. strategy could be ineffective, because it failed to include time for these other activities.

# Appendix A
## *Creation of Implementation Indexes*

## Creation of Implementation Indexes

The development of the implementation index for each curriculum involved three major steps:

1. We used the developer's fidelity checklist as a starting point for identifying the instructional practices that constitute fidelity to the curriculum.
2. We linked each instructional practice required for fidelity to the curriculum with data collected using the OMLIT, if possible (i.e., a crosswalk between the curriculum concepts and OMLIT variables to match OMLIT variables with specific instructional practices required for fidelity);
3. For each instructional practice that could be mapped to data from the OMLIT, we set criteria for implementation fidelity.

We describe each step in greater detail below. The process of developing the fidelity measure using data from the OMLIT was successful for BTL and RSL! However, we could not create a measure of B.E.L.L. implementation fidelity using the OMLIT data, because the OMLIT data did not map onto the unique B.E.L.L. instructional practices.

**Step 1: Identifying Core Instructional Practices using the Fidelity Checklist**. We started the process of identifying key practices for each curriculum by examining the curriculum developer's fidelity checklist. To identify BTL practices, we examined the *Breakthrough to Literacy Fidelity Instrument: 2006-2007,* which was developed by Abt in collaboration with the BTL developers and instructional coaches for another study of BTL.[26] For RSL!, we examined the *RSL! Language and Literacy Observation Tool*, and for B.E.L.L., we examined the *B.E.L.L. Observation Checklist*. For each curriculum, the developer's fidelity instrument identifies the key instructional practices that teachers are expected to use. The fidelity instruments were intended to be used by coaches to document implementation in study classrooms. The global ratings by coaches using the developers' fidelity instruments did not yield enough variation for us to use in our analysis. In a final effort to examine implementation, we measured as many of the core elements as possible based on our own research team's observations conducted using the OMLIT.

**Step 2: Linking the Core Instructional Practices to OMLIT variables.** For each curriculum, we identified the key concepts with which the OMLIT variables align most closely. Though not all of the categories included on each fidelity instrument could be linked with OMLIT variables, most elements deemed essential to BTL and to RSL! could be translated into variables from data collected by the research team using the OMLIT. For each curriculum, the instructional practices measured by the developer's fidelity checklist and the corresponding construct that was measured by the OMLIT are presented in Exhibits A1, A2, and A3. A crosswalk is presented for BTL in Exhibit A1, for RSL! in Exhibit A2, and for B.E.L.L. in Exhibit A3. Core instructional practices for the curriculum are described in the left-hand column and the corresponding behavior, characteristic, or rating measured by the OMLIT is identified in the right-hand column of the same row. Instructional practices and characteristics from the fidelity checklists that did not align with OMLIT variables are marked "Not measured".

[26] Although that fidelity checklist was organized differently from the checklist used by mentors in Project Upgrade, the same elements were present in both.

The OMLIT items used to measure implementation of the curricula were taken from the following OMLIT instruments:

- CLIP: Classroom Literacy Instruction Profile
- SNAP: Snapshot of Classroom Activities
- RAP: Read-Aloud Profile
- CLOC: Classroom Literacy Opportunities Checklist
- QUILL: Quality of Language and Literacy Instruction

There are five key categories of BTL practices: Reads & Discusses; Daily Writing; Individualized Software Instruction; Classroom Culture and Management Routines; and Reads, Writes, and Talks at Home. Four of the five can be measured using OMLIT data. The specific instructional practices that comprise each dimension are shown in Exhibit A1.

There are five key categories of the RSL! curriculum: Interaction, Environment, RSL! Curriculum, Assessment, and Family Involvement. Three of the five RSL! categories could be measured with data from the OMLIT. The specific instructional practices that comprise each dimension are shown in Exhibit A2.

The B.E.L.L. curriculum is organized around two main categories—Reading/Oral Language and Print Awareness/Phonological Awareness. Each of those is subdivided into subcategories. The specific instructional practices for each category are shown and, where possible, corresponding OMLIT variables are listed in Exhibit A3. Because such a small proportion of items could be translated accurately into OMLIT variables, we were not able to create an index that would provide a fair representation of the B.E.L.L. curriculum.

**Step 3: Setting Criteria for Evidence of Implementation Fidelity.** For each instructional practice that could be measured using variables from the OMLIT, we set criteria for evidence of fidelity. For example, one BTL instructional practice involves engaging children in post-reading discussions of moderate or greater depth. In order for a teacher to have demonstrated evidence of this practice, she needed to have a rating of 3 or higher (out of 5) on a Read Aloud Profile (RAP) quality rating of the depth of post-reading activity. In another example involving an RSL! instructional practice, teachers are supposed to facilitate opportunities for students to practice reading and writing. In order to have demonstrated evidence of this practice, teachers had to have ratings above 2 (out of 5) for both the frequency and quality of reading and writing activities measured by the QUILL.

For each instructional practice that could be measured using variables from the OMLIT, we set criteria for evidence of fidelity by matching the developer's fidelity measure item to an OMLIT item, as closely as possible. For example, one BTL instructional practice involves engaging children in post-reading discussions of moderate or greater depth. The Read Aloud Profile (OMLIT-RAP) includes a quality rating as follows:

1 = no post-reading extension or activities
2 = discussion and/or activity that:
relates to the story/book but does not extend its meaning or comprehension;
BUT lasts less than 5 minutes.
3 = discussion and/or activity that:

relates to the story/book but does not extend its meaning or comprehension;
AND lasts at least 5 minutes.

4 = discussion and/or activity that:
reinforces comprehension of the story/book;
BUT lasts less than 10 minutes.

5 = discussion and/or activity that:
extends the meaning of the text and reinforces comprehension of the story/book;
AND lasts at least 10 minutes.

Given these anchors, a score of '2' doesn't constitute moderate or greater depth, so the minimum to qualify for fidelity of implementation of BTL would be a score of '3'.

Thus, we set the criterion that in order for a teacher to have demonstrated evidence of *engaging children in post-reading discussions of moderate or greater depth*, she needed to have obtained a rating of 3 or higher (out of 5) on a Read Aloud Profile (RAP) quality rating of the depth of post-reading activity. In another example involving an RSL! instructional practice, teachers are supposed to facilitate opportunities for students to practice reading and writing. In order to have demonstrated evidence of this practice, teachers had to have ratings above 2 (out of 5) for both the frequency and quality of reading and writing activities measured by the QUILL.

**Exhibit A1:**

**Mapping Categories from BTL Fidelity Checklist to OMLIT Variables and Constructs for BTL Implementation Index**

| Items from BTL Fidelity Checklist | Items from BTL Implementation Index |
|---|---|
| **Reads & Discusses** | |
| | **Comprehension while reading aloud & Comprehension in non-reading activities (* indicates activity in small and large groups)** |
| 1. BOW **displayed prominently in the classroom** (such as on an easel, easy to see) | • Not measured |
| 2. Graphic organizers displayed and used in instruction 4-5 times per week | • Not measured |
| 3. **All/Most** BTL reading support materials visible and accessible (Elephant, BOW posters, Alpha frieze, audio CDs, pupil books, book baskets). Visible & accessible: displayed at eye level of children, used by children. | • Not measured |
| 4. BOW is read aloud **daily or as often as possible** | • The teacher read a book aloud.<br>• The teacher read aloud a BTL Book of the Week (BOW).<br>• The teacher read a book connected to a class theme. |
| 5. Teacher meets with small groups to re-read the BOW. | • The teacher read a book aloud—in small groups.<br>• The teacher read aloud a BTL Book of the Week (BOW) —in small groups..<br>• The teacher read a book connected to a class theme—in small groups.. |
| 6. Teacher uses BTL Teacher Guide to provide comprehension and word study activities for small groups, determined by child reports, performance and observation data. | • The teacher used one or more strategies promoting comprehension while reading aloud.*<br>• The teacher made at least 1 connection between the book being read and children's experiences or class themes.* |
| | **Vocabulary & Oral Language** |
| 7. Teacher emphasizes vocabulary/ oral language **4-5 days** during a typical week. | • The teacher emphasized vocabulary in at least one read aloud.*<br>• The quality of story-related vocabulary instruction during read alouds was moderate to high (e.g., one or more vocabulary word was discussed and a comprehension support was used).<br>• The teacher provided one or more activities that supported vocabulary development outside of read-alouds (e.g., vocabulary knowledge was provided in the context of explanations, writing, songs, stories, rhymes, language games, discussions, shared reading, emergent writing, and/or child tagging or matching).*<br>• The teacher provided at least one literacy activity aimed at developing children's oral communication and/or listening skills.<br>• The teacher had students engage in language games, rhymes, songs, storytelling, or discussion in order to comprehend a text. If the activity was a discussion, it was rated moderately high or high (e.g., they included turn-taking by students and the teacher elaborated or asked students to |

**Exhibit A1:**

**Mapping Categories from BTL Fidelity Checklist to OMLIT Variables and Constructs for BTL Implementation Index**

| Items from BTL Fidelity Checklist | Items from BTL Implementation Index |
|---|---|
| | elaborate on comments).*<br>• The teacher used one or more instructional strategies that promoted higher order thinking during or after a read-aloud session (e.g., they asked book-related open-ended questions that required speculation, and/or expanded responses, thinking, or analyses).*<br>• The teacher provided at least a few opportunities for oral language.<br>• The average quality of the oral language activities provided by the teacher was moderate to high (e.g., the teacher provided integrated, higher quality oral language opportunities of varying types for most students individually or in small groups in which the teacher scaffolded or extended discussions with multiple turns that focused on non-management topics). |
| 8. Teacher emphasizes comprehension strategies/higher-order thinking skills **4-5 days** during a typical week. | • The average depth of post-read-aloud discussions or activities was moderate to "high" (e.g., they lasted at least 5 minutes and/or they extended or reinforced the comprehension of the book).*<br>• The teacher provided one or more activities that supported the development of comprehension skills outside of read-alouds.* |
| **Writes** | |
| 1. Child writing related to BOW and other independent writings, beyond names, are displayed. | • Examples of children's writing were on display in the classroom (other than just names). |
| 2. Children write in journals daily | • Children spent time in journal-writing activities. |
| 3. Teacher maintains writing folders to track children's progress, and, s/he consult writing folders to make instructional decisions such as: which updates to implement for ISI, small group work, etc. | • Not measured |
| 4. Teacher offers a wide array of daily writing opportunities, including authentic activities such as captioning and journaling, connected to BOW. | • The teacher used at least one high quality activity aimed at developing knowledge of the functions and features of print (e.g., using authentic print materials, graphic organizers, or word webs).<br>• The teacher provided a separate writing area and/or writing materials accessible to children.<br>• The teacher provided one or more literacy activities that involved emergent writing, copying, or tracing.<br>• Children were engaged in one or more writing activity (including emergent writing, copying, and tracing) that was connected to a class theme during the day.<br>• The teacher provided two or more opportunities to engage in writing. |

**Exhibit A1:**

**Mapping Categories from BTL Fidelity Checklist to OMLIT Variables and Constructs for BTL Implementation Index**

| Items from BTL Fidelity Checklist | Items from BTL Implementation Index |
|---|---|
| | • The teacher provided three or more types of writing activities.<br>• The teacher provided children with writing opportunities that were sometimes, often, or consistently of higher quality (e.g., emergent writing, captioning, dictating, writing names on work, book-making, and/or writing in journals.<br>• The teacher provided writing opportunities that were sometimes or often integrated into activities with goals other than literacy. |
| 5. Teacher encourages children to begin to write using scribbles, drawings, copying letters and words, and some phonetic spelling. | • The teacher sometimes, often, or consistently encouraged children to write on their own rather than insisting on conventional letter formation or spelling. |
| 6. Teacher initiates shared, interactive, and guided writing strategies to support th children as they work toward becoming independent writers. [teacher uses all three] | • In at least some writing activities, the writing was done by the children themselves rather than by adults.<br>• The teacher worked with most or all of the students in writing activities during the day.<br>• Writing activities and opportunities were sometimes, often, or consistently conducted with individuals or small groups. |
| 7. Teacher always uses graphic organizers in coordination with the BOW, as a springboard to move children from oral discussion to writing. | • Not measured. |
| **Interactive Software Instruction (ISI)** | |
| 1. The average child used a computer for the amount of time recommended by BTL, or longer (pre-K: 8-12). | • The average child used a computer for the amount of time recommended by BTL, or longer (pre-K: 8-12). |
| 2. Teacher uses BTL ISI as an instructional tool, **AND regularly reviews updates**. | • Not measured. |
| 3. Most children progressing appropriately in Explore Words objectives, **AND** there is evidence of the Explore Words curriculum in other classroom activities. | • Not measured. |
| 4. Teacher uses reports analytically with assessments to place students, differentiate instruction, and confirm observations. | • Not measured. |
| 5. Teacher consistently models effective ISI use and uses reports to identify areas where modeling is needed. | • Not measured. |
| **Classroom Culture and Management Routines** | |
| 1. Teacher has established a consistent system and schedule and moves the class between activities smoothly and efficiently. | • The average child spent less than 33% of the time in transitions, routines, and management or being uninvolved in activities.<br>• |
| 2. Children independently manage computer turntaking using established | • Not measured. |

**Exhibit A1:**

**Mapping Categories from BTL Fidelity Checklist to OMLIT Variables and Constructs for BTL Implementation Index**

| Items from BTL Fidelity Checklist | Items from BTL Implementation Index |
|---|---|
| system . | |
| 3. Teacher has well-structured room and leads discussions in whole or small groups, AND children read, reflect on, and work in whole and small groups and in literacy centers. | • The classroom was well-organized and had the space and layout to afford children a variety of independent activity choices, including learning centers (e.g. it had at least one distinct activity center, some materials that were marked, sorted, and stored; the layout allowed for at least two group sizes, some independent choices for students, sufficient space, adequate light, and/or no odors). |
| 4. Children are provided a variety of learning experiences and choices daily – independent, whole and small group instruction, learning centers. | • The average child spent at least 50% of their time engaged in educationally "high value" activities (including: reading, alphabet, oral language, sounds, writing, science/nature, math concepts, dramatic play, creative play, block play, and fine motor play).<br>• The average child spent at least 20% of their time in groups of 5 or fewer (not including meals, routines, transitions, or management). |

**Exhibit A2:**

**Mapping Items of RSL! From Original Fidelity Instrument onto OMLIT Measures for RSL! Implementation Index**

| Items on RSL! Fidelity Checklist | Construct Measured on RSL! Implementation Index |
|---|---|
| **I. Interaction** | |
| 1. The tone and classroom conversations are positive, teacher shows respect for children and listens attentively, encouraging them to learn likewise. | Caregiver speaks warmly and listens attentively to children |
| 2. Teacher encourages children to express their feelings, experiences, and perspectives with intentional efforts to expand their spoken vocabulary | Not Measured |
| 3. Evidence of full-group activities, where each child is encouraged to participate | Evidence of full-group activities. |
| **II. Environment** | |
| 1. In the classroom: Furnishings and materials appropriately sized, in good repair, clearly organized, appealing, accessible and not crowded | In the classroom, materials are organized, and space in the classroom is sufficient size for the number of children |
| 2. Learning areas provide opportunities for children to engage independently in activities | The classroom layout allows children to choose materials and participate in activities independently |
| 3. An inviting and orderly area is set aside for book reading, made comfortable by soft materials such as pillows and cushions | There is a distinct reading area, with books to choose from, where children can sit comfortably to read, with soft furnishings, including a rug and pillows, cushions or couches. |
| 4. Books promote cultural diversity and there are materials in other languages that represent present children's culture of origin | There are books accessible to children in languages other than English, and either books show diverse groups of people or toys/materials represent varied cultures, ethnic groups, or types of people. |
| 5. There are word cards, with names or familiar words intended to support children's writing | There are toys and materials accessible to children that include **words/letters** (e.g., toys: puzzles, blocks, board games, card games; materials: magnetic letters, letter stamps, letter cards, word cards).<br>If include cloc_col32 –<br>(**and** there are tools accessible to children to help them practice writing **words/letters** (e.g., stencils, templates, tracing sheets, worksheets). |
| 6. There is variety of paper and writing tools available (chalkboard, pencils, crayons, etc) | There is a variety of paper types and/or a variety of writing tools accessible to children. |
| 7. Variety of teacher's dictation (teacher-led activity, from child's work) and children's writing (journals, sign in, etc) on display | Examples of children's own writing, other than just the child's own name on work/artwork, are on display. |
| **III. RSL! Curriculum** | |
| 1. RSL! Materials are set up throughout the classroom | Not Measured |
| 2. The teacher has implemented a system that ensures that children appropriately use the RSL! technology components during learning center time and have learned to take care of it (please document teachers system on comment sheet) | Not Measured |

**Exhibit A2:**

**Mapping Items of RSL! From Original Fidelity Instrument onto OMLIT Measures for RSL! Implementation Index**

| Items on RSL! Fidelity Checklist | Construct Measured on RSL! Implementation Index |
|---|---|
| 3. There is evidence in the classroom of the use of RSL! Materials | Not Measured |
| 4. The teacher follows the daily schedule | Not Measured |
| 5. Opportunities for extended uses of language, (activities, materials and displays) are coordinated with RSL! goals in each unit and its current theme | Classroom has a theme based on a rich concept, and theme is evident in classroom materials or displays. |
| 6. The teacher follows a lesson plan from the "Teacher's Manual" or the one provided by the project coordinator | Not Measured |
| 7. Teacher encourages the use of the LeapMat to review the letters learned in the current lesson, and follows suggested activities in the "Teacher's Manual" | The LeapMat is used as a literacy resource in the classroom. |
| 8. Teachers integrates the LeapPad, the correspondent book, and activities ("Teacher's Manual") with the current lesson | The LeapPad is used as a literacy resource in the classroom. |
| 9. Teachers encourage the use of the LeapDesk , and models its use to review letters and numbers as suggested in the Manual | The LeapDesk is used as a literacy resource in the classroom. |
| 10. Teacher reads the suggested book for the lesson (Read-Aloud Library) , and implements suggested activities in the "Teacher's Resource Guide" | Teacher reads a book related to the class theme, and organizes post-reading activities related to the book or other activities related to the theme. |
| 11. The teacher integrates " Little Ears" CD or tape to the lesson (note in comments section if music is simply played vs. actively integrated) | Not Measured |
| 12. The teacher uses the Big Books and Read Aloud Library for full-group and small group activities according to the lesson | Teacher or children read a big book related to the class theme and engage in an activity related to the book/theme. |
| 13. Teaching strategies support reading comprehension, questioning, predicting, summarizing, problem-solving, and reflecting on learning | During reading, teacher uses open-ended questions that support reading comprehension by requiring prediction, thinking or analysis, by expanding responses, or by relating the book to children's experiences. |
| 14. Adults engage in one-to-one or small group activities using RSL! materials | Adults use RSL! materials in activities with children, one-on-one or in small groups. |
| 15. Adults facilitate opportunities and model for the children to practice their reading and writing skills as learned in the lessons | Adults provide a moderate number of opportunities for children to engage in language and literacy activities and a moderate number of opportunities for children to engage in writing activities, and these reading and writing activities are above minimal quality. |
| 16. Children use RSL! Materials on their own or with a friend by own initiative | Children use RSL! materials on their own or with a friend.<br><br>(no info about doing so by own initiative) |
| 17. RSL! Poem and song posters are posted as for correspondent lesson and used along with the "Little Ears" CD | Not Measured |
| 18. Teachers uses the Flip Book for discussions to increase of words used and understood, and practice more complex sentences | Not Measured |

**Exhibit A2:**

**Mapping Items of RSL! From Original Fidelity Instrument onto OMLIT Measures for RSL! Implementation Index**

| Items on RSL! Fidelity Checklist | Construct Measured on RSL! Implementation Index |
|---|---|
| 19. Puppets are used as learning aids and as suggested by lesson | Not Measured |
| 20. Teacher demonstrates mastery of RSL! Materials and its integration with the current lesson | Not Measured |
| **IV. Assessment** | |
| 21. Information gained from assessment is used to plan or vary practices accordingly to ensure children's individual growth and achievement | Effective use of assessment (to direct instruction)<br>Not Measured |
| 22. Class assessment report is completed by the end of each unit, to be aware and monitor children's progress according to the unit's objectives | Effective use of assessment (to monitor children's progress)<br>Not Measured |
| **V. Family Involvement** | |
| 23. There is evidence in the classroom of attempts to learn and use information from children's homes | Family involvement<br>Not Measured |
| 24. There are regular interactions between home and school to support children's learning, by guiding them through RSL! materials and assignments, and to provide information about children's progress | Family involvement<br>Not Measured |
| 25. Teacher has an effective check-in and out system in place for parents to use the RSL! materials at home | Family involvement<br>Not Measured |

## Exhibit A3:

## Mapping Items of From B.E.L.L. Fidelity Checklist onto OMLIT Variables for B.E.L.L. Implementation Index

| Items in B.E.L.L. Fidelity Checklist | Possible OMLIT Variables | Comments |
|---|---|---|
| **Phonological and Print Awareness Component: Oral Language Development** | | |
| 1. Teacher discusses related concepts & vocabulary | CLIP: Discussed vocabulary. | Combination of OMLIT codes not found.—not coded, not measured |
| 2. Teacher asks questions related to rhyme (meaning) | CLIP: Discussed comprehension of text – coded with “rhyme chart” | Combination of OMLIT codes not found.—not coded, not measured |
| 3. Teacher & students recite or sing rhyme | CLIP: Presented oral communication or listening skills or sound (no print) or led a singing activity | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 4. Teacher & students dramatize rhyme | Not measured | Not measured |
| **Phonological Awareness: Word Awareness** | | |
| 5. Students push blocks for each word | Not measured | Not measured |
| 6. students clap for each word | Not measured | Not measured |
| **Phonological Awareness: Rhyming Words** | | |
| 7. use rhyming objects or pictures | CLIP: Sounds-focused activity with objects or pictures | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 8. make a rhyming picture web | Not measured | Not measured |
| 9. play “thumbs-up/thumbs-down” game | CLIP: Sounds-focused activity | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| **Phonological Awareness: Compound words / Syllables** | | |
| 10. Use 2-part pictures or puzzles | CLIP: Sounds-focused activity | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 11. feel syllables with hand under chin | CLIP: Sounds-focused activity | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 12. use connecting links or blocks to show awareness of syllables | CLIP: Sounds-focused activity | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 13. use fists to “break it and make it” | CLIP: Sounds-focused activity | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| **Phonological Awareness: Alliteration** | | |
| 14. use beginning sound objects/pictures | CLIP: Sounds-focused activity | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 15. make a beginning sound picture web | Not measured | Not measured |
| **Print Awareness & Alphabet Knowledge** | | |
| 16. demonstrate one-to-one correspondence | CLIP: Activity focused on functions/features of print | B.E.L.L. item more specific than OMLIT—not |

**Exhibit A3:**

## Mapping Items of From B.E.L.L. Fidelity Checklist onto OMLIT Variables for B.E.L.L. Implementation Index

| Items in B.E.L.L. Fidelity Checklist | Possible OMLIT Variables | Comments |
|---|---|---|
| | | measuring B.E.L.L. |
| 17. demonstrate return sweep | CLIP: Activity focused on functions/features of print | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 18. demonstrate top to bottom & left to right | CLIP: Activity focused on functions/features of print | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 19. point to beginning letters on charts | CLIP: Activity focused on functions/features of print | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 20. sing the ABC song with Alphabet Book | Singing with "ABC song" and alphabet book | |
| **Additional Classroom Activities** | | |
| 21. Use letters in children's names | CLOC: Presence of children's names on cards | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 22. use magnetic or plastic letters | CLOC: Presence of letter-related materials | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 23. use alphabet books, puzzles, games | CLOC: Presence of letter-related materials | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 24. use labels, charts, signs, messages | CLOC: Presence of environmental print | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| **Miscellaneous** | | |
| 25. Rhyme chart used | Not measured | Not measured |
| **Oral Language & Shared Reading Component: Pre-reading** (develop background knowledge / schema) | | |
| 26. discussion: concepts/vocabulary | RAP: vocabulary focus in pre-reading | |
| 27. front cover: predictions | RAP: predictions in pre-reading | |
| 28. tell a personal story | RAP: tell story before reading | |
| 29. picture walk | RAP: picture walk | |
| 30. children make up their own story | Not measured | Not measured |
| **Oral Language & Shared Reading Component: Read TO children** (model & enjoy story) | | |
| 31. use appropriate intonation | RAP: reads with expression | |
| 32. focus on picture cues | RAP: calls attention to pictures during reading | |
| 33. comprehension questions | RAP: asks comprehension questions during reading | |
| 34. children retell story using pictures | RAP: post-reading retelling | Too specific (OMLIT doesn't distinguish teacher's from children's retelling)—not measured |

**Exhibit A3:**

## Mapping Items of From B.E.L.L. Fidelity Checklist onto OMLIT Variables for B.E.L.L. Implementation Index

| Items in B.E.L.L. Fidelity Checklist | Possible OMLIT Variables | Comments |
|---|---|---|
| **Oral Language & Shared Reading Component: Re-read WITH children (discuss & interact)** | | |
| 35. invite children to “choral read” | RAP: children join in reading | |
| 36. reread / echo read predictable lines | RAP: children join in reading | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 37. discuss story (characters, plot, setting) | RAP: post-reading discussion | B.E.L.L. item more specific than OMLIT—not measuring B.E.L.L. |
| 38. ask open-ended questions | RAP: post-reading discussion—quality | |
| 39. relate story to children’s life experiences | RAP: post-reading ask question/relate story to children’s life experiences | |
| **Oral Language & Shared Reading Component: React** | | |
| 40. [use] puppets | RAP: text support = puppets | |
| 41. illustrate class book | Not measured | Not measured |
| 42. dramatize | RAP: children act out story | |
| 43. hands-on activity | Not measured | Too general—Not measured |
| 44. structure writing | RAP: post-reading activity | Too specific—not measured |
| **Oral Language & Shared Reading Component: Book Awareness** | | |
| 45. show cover | RAP: teacher shows/comments on cover, points to title, points to author/illustrator | Common practices—not specific to B.E.L.L. |
| 46. point to the title | Same as for item 45 | Common practices—not specific to B.E.L.L. |
| 47. point to the author | Same as for item 45 | Common practices—not specific to B.E.L.L. |
| 48. point to the illustrator | Same as for item 45 | Common practices—not specific to B.E.L.L. |
| 49. pictures tell a story | RAP: teacher does “picture walk” | Common practices—not specific to B.E.L.L. |
| 50. teacher reads the print | RAP: teacher reads a book aloud | Common practices—not specific to B.E.L.L. |
| | | |

# Appendix B
## *Observation Measures for Language and Literacy Instruction (OMLIT)*

## Observation Measures for Language and Literacy Instruction (OMLIT)[1]

The OMLIT (Observation Measures of Language and Literacy Instruction) was a new battery developed for the national study of the Even Start Family Literacy Program being conducted by the U.S. Department of Education. The CLIO[2] study was also an experimental test of early childhood language and literacy curricula, and, as with the Miami study, CLIO needed measures of classroom process that would be sensitive to the interventions. The CLIO study also reviewed available measures, including the Early Language and Literacy Observation Tool (ELLCO)[3] and the ECERS-R, and determined that new measures would have to be developed if measuring effects on classroom process was a priority. The Department of Education supported the development of the OMLIT battery, with the charge that the measure would be closely linked to the most up-to-date research on instructional practices shown to predict children's reading and other academic outcomes in school. Given the more than adequate reliability of the OMLIT battery, its clear link to all of the critical classroom outcomes in the study, and its track record in large-scale applied research, we selected the OMLIT for the Miami study. Although we considered administering the ECERS-R together with the OMLIT, for purposes of comparison with other early childhood studies, we judged that the two measures would have to be administered in separate visits to classrooms (i.e., observers could not reliably code both the OMLIT and the ECERS-R simultaneously). The cost of the additional training and doubling the visits to classrooms was determined to be prohibitive, especially in light of the limited usefulness of the ECERS-R for measuring treatment-control differences (versus allowing us to characterize the quality of the child care centers in the Miami sample compared with other samples).

The complete battery of observation measures used includes five instruments from the Observation Measures for Language and Literacy Instruction (OMLIT; Goodson, Layzer, Smith, Rimdzius, 2004) battery and the Arnett Caregiver Rating Scale (Arnett, 1989).[4]

### The Snapshot of Classroom Activities (OMLIT-Snapshot)

The OMLIT-Snapshot is a description of classroom activities and groupings, integration of literacy in other activities, and language in the classroom. It has two sections. The Environment section describes the number of children and adults present, as well as the type of adult (staff, parents, etc.). The Activities section describes activities that are taking place. For each activity, the observer records the number of children and adults in that activity, whether any adult or child is talking, and whether they are speaking English or another language, and whether literacy materials are used (text, writing, letters, singing).

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1 The OMLIT (Goodson, Layzer, Smith, Rimdzius, 2004) is an unpublished battery of observation instruments for use in measuring the quality of early language and literacy instruction in ECE classrooms.

2 The study is named CLIO, for Classroom Literacy Intervention and Outcomes study.

3 Like the ECERS-R, the version of the ELLCO available at the time of the study focused primarily on environmental supports for literacy (classroom materials, activities) with little attention to teacher-child interactions which we believed to be critical elements of support for language and literacy development.

4 The Arnett measures the teacher's affective behavior and disciplinary style.

### The Read Aloud Profile (OMLIT-RAP)

The OMLIT-RAP is a description of staff behavior when reading aloud to children (in CLIO, the RAP was completed when an adult was reading to at least two children). The RAP records adult behavior during the read-aloud session in four categories: (a) pre-reading (set-up) behavior, (b) behavior while reading the book, (c) post-reading behavior, and (d) the language the adult uses when talking to children during the read aloud. The RAP records characteristics of the adult, the children, and the book itself in three categories: (a) role of the adult involved in the read-aloud (e.g., teacher, aide), (b) characteristics of the book being read, and (c) number of children involved in the read-aloud. The RAP also includes five quality indicators which summarize particular aspects of the read-aloud: (a) the degree to which the adult introduces and contextualizes new vocabulary to support children's learning, (b) the depth of the discussion related to the story that the adult facilitates with the children before, during, and after the read-aloud, (c) the extent to which the adult uses open-ended questions that invite children to engage in prediction, imagination, and/or rich description, (d) the depth of children's engagement with the read-aloud activity, and (e) the quality of any post-reading book-related activities that the adult organizes (beyond oral discussion).

### The Classroom Literacy Opportunities Checklist (OMLIT-CLOC)

The OMLIT-CLOC is an inventory of classroom literacy resources. It provides an overall rating of the extent to which a classroom is a literacy-rich environment and delineates eight aspects of the literacy environment: (a) physical layout of the classroom, (b) the text or print environment, (c) books and reading or listening areas, (d) writing resources, (e) literacy-related materials and toys, (f) cultural diversity in literacy materials, (g) literacy integrated in classroom areas or learning centers, and (h) the richness and integration of a curriculum theme.

### The Classroom Literacy Instruction Profile (OMLIT-CLIP)

The OMLIT-CLIP involves a two-stage coding protocol in which the observer first determines if any classroom staff member is involved in a literacy activity and, if so, the observer codes seven characteristics of the literacy activity: the type of activity, the literacy knowledge being afforded to the children, the adult's level and type of participation in the activity, any text support, languages spoken by staff and children, and the number of children involved. If the literacy activity involves adult-child discussion, the quality of this discussion is rated on three characteristics—the cognitive challenge in the discussion, the extensiveness of the discussion, the level of abstraction of the discussion.

### The Quality of Language and Literacy Instruction (OMLIT-QUILL)

The OMLIT-QUILL is an overall evaluation of the quantity and quality of the instructional practices that build children's print awareness and oral language skills, expose children to a rich and varied vocabulary, and build children's phonological awareness. These practices are predictors of better reading outcomes for children once they are in school; this is particularly true of those at risk for reading difficulties (Dickinson and Tabors, 2001; Lonigan, Burgess, and Anthony, 2000; NICHD, 2000; Snow, Burns, and Griffin, 1998; Whitehurst and Lonigan, 1998). In addition, the QUILL evaluates instructional practices with English language learners.

More information about the OMLIT can also be found in the earlier report on Project Upgrade: ***Evaluation of Child Care Subsidy Strategies: Findings from an Experimental Test of Three Language/Literacy Interventions in Child Care Centers in Miami-Dade County, Final Report*** (January 2009).