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Is Professional Training Enough?

The Effect of Coaching in the Practice of Early Literacy Instruction

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Abstract

This project explores the effectiveness of an early literacy coaching model on the teaching behaviors and classroom environments of early childhood educators. Thirty-six preschool centers, serving high poverty communities in the Midwest region, were randomly assigned to one of two groups (coaching and control). The coaching group received training and ongoing coaching on early literacy for thirteen months. The control group received similar training with no ongoing coaching. To evaluate the impact of coaching both groups have been evaluated through direct observations using the Early Language and Literacy Classroom Observation (ELLCO). Compared to the control group, the coaching group scored significantly higher in the ELLCO and showed greater change over time. Results indicate that there has been great improvement in both classroom environment and literacy teacher behaviors in preschool centers that have been receiving ongoing early literacy coaching.

Is Professional Training Enough?

The Effect of Coaching in the Practice of Early Literacy Instruction

Learning to read and write is fundamental to a child's success in school and later in life. The level to which a child progresses in reading and writing will affect a child's future educational and work opportunities and whether he or she will be able to contribute actively to society. Because many young children arrive at school with diverse literacy abilities such as print-related knowledge and oral language skills (Dickinson & Snow, 1987; Owocki, 2001; Snow, Burns, & Griffin, 1998), more educators are facing the challenge to help their students become proficient readers.

The explosion of information in recent years has placed even greater demands on children to develop literacy skills they will need to succeed. As a result of the development of technology and communication across distances, current expectations in the work place not only require a high school graduate to be literate, but also to be able to read and analyze challenging material (Snow et al., 1998). However, according to the National Educational Goals Panel (1999), only 33% of the nation's fourth and eighth graders read at or above proficient levels where lower levels of reading proficiency are even more pronounced for children living in poverty and children learning English as a second language.

As a result of the need to help all children become proficient readers, early literacy has become an area of emerging attention and interest that may hold promise for our nation's current efforts. Early literacy is defined as the phase of literacy development in which young children come to understand the functions of spoken and printed words. During this time children begin to understand literacy through their language and their attempts at reading and writing (Smith & Dickinson, 2002b). Although literacy skills and abilities continue to develop throughout the life

span, the early childhood years are the most important period for literacy development. Children begin the process of learning to talk, read and write very early in life, long before formal instruction occurs (Dickinson, 2002; Neuman, Copple, & Bradekamp, 2000). Contrary to prior views of early literacy, literacy is understood as a developmental continuum rather than an all-or-none process that starts when children enter school.

An ample array of researchers have demonstrated that literacy development begins long before children start formal instruction and have shown the importance of the preschool years in children's long-term literacy success (for a review of these studies see Neuman & Dickinson, 2003; Snow et al, 1998; Whitehurst & Lonigan, 1998). However, most children do not spontaneously move from an emergent literacy phase into a conventional literacy phase without direct instruction and opportunities for the use of oral language, reading, and writing skills (Ehri & Sweet, 1991; Neuman et al, 2000; Snow et al., 1998). More specifically, some groups such as children living in poverty and children with limited English proficiency are less likely to have opportunities to learn and use the early literacy skills necessary to be prepared for the literacy instruction they will receive when they begin first grade. Generally, children from families with low incomes and English language learners show poor language skills, have less vocabulary, and have less knowledge of print and phonological sensitivity, skills that researchers have shown are important to develop abilities necessary to learn to read and write (Snow et al., 1998; Whitehurst & Lonigan, 1998, 2003).

Areas of emergent literacy relevant to children's literacy skills include language and discourse skills, vocabulary knowledge, phonological awareness, book and print concepts, and letter knowledge (Snow et al., 1998; Tabors, 2002; Whitehurst & Lonigan, 1998). These literacy skill areas need to be explicitly taught to young children to prepare them for formal education as recommended by the National Research Council (Burns, Griffin, & Snow, 1999) and the

National Association for the Education of Young Children (NAYEC) together with the International Reading Association (IRA) in their position statement about developmentally appropriate practices to learn to read and write in the early childhood years (Neuman et al., 2000).

Therefore, instructional innovations have placed a focus on literacy rich environments that promote the instruction of early literacy skills and increase literacy-based adult-child interactions. Enough support and evidence has been gathered by researchers who have shown that preschool environments make important contributions to the acquisition of literacy skills in young children and that these contributions will benefit subsequent literacy development (Dickinson & Snow, 1987; Dickinson & Tabors, 1991, Koskos & Neuman, 2003; Morrow, 1990; Neuman & Koskos, 1993). The physical environment is relevant in actively influencing the amount and type of literacy behaviors in children as well as increasing voluntary use of literacy materials when these materials were visible and accessible. Researchers investigating physical environments have indicated that in settings in which there were more literacy materials such as books, paper, writing utensils, and environmental print, children engaged in more literacy behaviors and had more opportunities to use language, reading and writing. Furthermore these behaviors were increased when there was adult mediation and interaction in thematic settings (Morrow, 1990; Neuman & Koskos, 1993).

One of the most important elements in developing literacy skills in young children is an adult who stimulates, scaffolds, and responds to a child's attempts to learn. Both parents and teachers have a critical role in a child's literacy developmental process. In the preschool environment, teachers have an impact on children's literacy development when they use varied vocabulary, read books, and engage children in conversations (Dickinson, 2002; Hart & Risley, 1995; Whitehurst & Lonigan, 1998). Yet, teachers' instructional practices are likely to be shaped

by teachers' educational experiences (Kontos & Wilcox-Herzog, 2002; Smith and Dickinson, 2002b). Therefore, it is evident that teacher preparation and ongoing assistance can play a significant role in helping teachers become aware of the particular skills and practices necessary to facilitate literacy development in children.

Ongoing professional development in early literacy is such an important practice that it has been included among the strongly recommended policies essential for achieving developmentally appropriate literacy experiences stated by the NAEYC. Consistent professional development and preparation is needed to ensure that teachers acquire foundational knowledge in early literacy learning and development (Neuman, Copple, & Bredekamp, 2000). In addition the Committee on the Prevention of Reading Difficulties in Young Children has recommended that teachers receive "ongoing support from colleagues and specialists as well as regular opportunities for self-examination and reflection" (Snow et al., 1998, p.331).

Although national policies have emphasized the need to support literacy development during the early years, methods that can help preschool classroom teachers provide this support are lacking. Simply providing teachers with information about new instructional strategies may not necessarily result in changes in teaching behaviors. Methods for developing and refining effective teachers' skills should be interactive and should address teachers' beliefs and practical knowledge about the teaching process (Dickinson, 2002; Goldenberg & Gallimore, 1991; Hamilton & Richardson, 1995). Given the importance of effective teaching in preschool settings and the difficulty of having highly educated teachers in the early childhood education field, researchers have looked at other pathways for effective teaching in childcare and preschool settings. Mentoring and supervising appear to enhance early childhood teachers' ability to teach effectively and compares similarly to the effectiveness of educators with BA degrees (Howes, James, & Ritchie, 2003).

Trainers and researchers searching for effective professional development have explored alternative practices such as coaching as a method to promote teacher reflection. Researchers have shown that retention of new material decreases after three weeks of training and although traditional workshops are appropriate for increasing knowledge, they are ineffective for changing teacher behavior. However, workshops become more effective for improving teacher performance when they combine theory with modeling, practice, feedback, and follow-up coaching (Peterson, Harris, & Watanabe, 1991; Peterson & Hudson, 1989).

Coaching is an effective vehicle to promote continuous improvement of professional skills, to develop shared language and common understandings necessary for the acquisition of new knowledge, and to provide the structure for the follow up to training which promotes the acquisition and consolidation of strategies and skills (Peterson, 1994). Given the role of coaching as an effective tool to promote reflective learning and professional development to ensure that staff in early childhood programs receive the necessary knowledge to promote effective early literacy instructional practices, we can expect preschool teachers to increase teaching behaviors that promote literacy growth in their classrooms as a result of ongoing coaching assistance that includes current theory and practice relevant to early literacy.

The purpose of the present study was to explore the effectiveness of an early literacy professional development coaching model on the teaching behaviors and classroom environments of early childhood educators working with preschool aged children. The researchers in this project investigated this issue by providing a comprehensive training and coaching program shaped by current theory and practices in language and early literacy development for early childhood educators located in high poverty communities and by evaluating how teachers' literacy practices and classroom environments were affected through the provision of ongoing early literacy coaching.

Method

Participants

As part of a major research effort, the Minnesota Early Literacy Training Project, teachers and assistant teachers were invited to participate in a two-year training and professional development project. Teaching staff from 36 preschool centers located in inner-city high-poverty neighborhoods in Minnesota participated in the study. To be eligible for participation, centers had to be located within two miles of three targeted elementary schools that had high percentages of low-income students. The intervention sites were the "coaching" group that participated in seven training sessions on early literacy and continued professional development for 13 months (coaching). The control group received similar training with no ongoing professional development coaching. Twenty-four centers were assigned to the coaching group and 12 centers to the control group. The coaching group included 34 preschool classrooms with 72 teachers (96% women). The control group included 18 preschool classrooms with 31 teachers (94% women). All centers served children between the ages of 3 and 5 years and were state licensed facilities.

Materials

To measure the impact of coaching, the coaching and the control groups were evaluated through direct classroom observations using the Early Language and Literacy Classroom Observation (ELLCO) Toolkit (Smith & Dickinson, 2002a). The ELLCO Toolkit includes three components: the Literacy Environment Checklist, the Classroom Observation and Teacher Interview, and the Literacy Activities Rating Scale.

Literacy Environment Checklist. The checklist is a 24-item inventory of the literacy related materials present in the classroom. The inventory includes five areas: book area; book selection; book use; writing materials; and writing around the room. The checklist is designed to

provide the user an orientation to the classroom before the other components of the toolkit are completed (Smith & Dickinson, 2002b).

Classroom Observation and Teacher Interview. The observation consists of 14 independent behaviors of literacy instruction followed by a brief interview of the classroom teacher to supplement and clarify information gained during the observation. The observation is divided into two categories: (a) General Classroom Environment and (b) Language, Literacy and Curriculum. The General Classroom Environment category includes items that rate organization and contents of the classroom, presence and use of technology, opportunities for child choice and initiative, classroom management strategies, and tone of teacher-child interactions. The Language, Literacy and Curriculum category includes items that rate oral language facilitation, presence of books, approaches to book reading and writing, curriculum, recognizing diversity of the class, home support, and use of assessment measures. The rater scores each of the 14 items on a scale of 1 (deficient, minimal evidence of behavior) to 5 (exemplary, strong evidence of behavior) (Smith & Dickinson, 2002b).

Literacy Activities Rating Scale. The rating scale is a nine-item measure, grouped into two areas: Book Reading and Writing. The scale is designed to provide summary information on the nature and duration of literacy related activities observed (Smith & Dickinson, 2002b).

Procedures

The study was conducted over an 18-month period. The quasi-experimental design included baseline measures and the selection of intervention-coaching and control sites. Initially participants in both groups received seven, 2.5 hour training sessions on early literacy theory and practice. At the end of the training period the coaching group began receiving ongoing professional development (coaching).

Training. All participating staff were trained using the SEEDS curriculum (developed by K. Horst, SEEDS Inc.). The SEEDS curriculum is an interactive research-based early literacy curriculum designed to give preschool educators the knowledge and skills to provide early literacy experiences for 3 to 5 year old children. During training participants learned about significant research and data regarding the need to increase early literacy opportunities for young children. Training included reflective videos of participant teachers with the purpose of identifying positive teaching strategies as models of best practices. The training covered the following areas: characteristics of literacy rich classrooms; SEEDS quality teacher behaviors; first and second language development; the "Big 5" emergent literacy skills including (a) conversation and discourse skills, (b) vocabulary and background knowledge, (c) phonological awareness, (d) alphabet knowledge, and (e) book and print rules; and family involvement and community literacy resources. In the SEEDS curriculum each letter stands for various behaviors found in a quality teacher: (S)ense and respond, (E)ncourage and enjoy, (E)ducate, (D)evelop through doing, and (S)elf image. Specific terms and key concepts taught in the training included definitions of literacy and emergent literacy, school readiness, language development, question asking, running commentary, scaffolding, and explicit instruction.

All teachers participating in the project received SEEDS training manuals, which included goal setting forms. These forms allowed teachers to set a goal related to the information provided in each session, goals which were required to be accomplished before returning to the next session. Checklists were provided also to catalogue existing classrooms characteristics and identify materials to be added to enhance or create a literacy rich classroom.

Coaching. At the conclusion of training, centers participating in the coaching group received coaching for the following 13 months. A group of coaches provided coaching in early literacy to preschool teachers and assistant teachers, as well as to directors and support staff.

Coaches had at least a BA degree, had experience in early childhood education and had received extensive training on early literacy and the SEEDS curriculum. Depending on the size of the centers, based on number of classrooms and staff, each coach had a portfolio of 7 to 9 centers. For the first 6 months of coaching, child-care center staff and coaches met every other week for one hour. For the rest of the coaching period, contact with centers increased to weekly visits. To meet the needs of each center, coaching happened in a variety of formats: one on one, small teaching teams, and center wide groups. All sessions occurred during teachers' normal workday outside of classroom activities, with the exception of teachable moments that arose around modeling during classroom integration time and following periods of observations.

Goals of coaching were to reinforce the goals and objectives of the SEEDS curriculum and to impact early literacy instructional practices. To promote the development of skills introduced in training and make improvements in the classrooms, coaches used specific strategies that included: reviewing and modeling behaviors and skills taught in training, classroom observations and integration, implementing new concepts and activities, assisting with on-going goal setting and giving positive feedback, and videotaping teachers for self reflection.

Project staff and coaches developed different tools to promote skill development in lesson planning, to encourage self-reflection and self-evaluation in teachers, to create literacy rich activities, and to create literacy rich environments. Many tools were derived directly from the SEEDS curriculum to intentionally support coaching (see Appendix A). Various assessments were also conducted at several different intervals to capture snapshots of children's literacy skill development in the areas of vocabulary, phonological awareness and print rules. Results of these assessments along with the ELLCO observation scores were shared as tools to set goals in teacher behavior and classroom environment.

Coaching With SEEDS

To reinforce training material and develop SEEDS quality behaviors in teachers; coaches modeled the specific SEEDS behaviors throughout coaching sessions and during classroom integration opportunities. SEEDS behaviors guided how sessions were conducted, including each of the SEEDS components (see Appendix B).

Sense and Respond. To become aware of how teachers were doing, sessions began with intentional questions that invoked an awareness of the events of their day and week. Throughout coaching, coaches became familiar with teacher knowledge and abilities through informal interviews and observations during classroom time, which allowed for the exchange of information and helped coaches become aware of individual styles. Sessions began reviewing goals sets in a prior meeting. During this time teachers received the support they needed to continue working on goals and were given an outlet to share challenges they identified as barriers to success.

Encourage and Enjoy. During classroom time, coaches visited the classrooms to observe teachers in action with children and in some cases used videotaping to allow for self-reflection. During this time coaches recorded specific information about quality behaviors and effective literacy skills during classroom activities to use as positive feedback for teachers as well as specific affirmations of what teachers were doing effectively. This feedback created more awareness for improvements and helped teachers and coaches to set mutual goals related to environment and behavior. Giving feedback on classroom observations also created opportunities to affirm specific behaviors identified as exemplary according to observations and tools used.

Educate. This component included reviewing or sharing information about early literacy, providing feedback from observations and children's evaluations, and modeling best practices on early literacy. Coaches gave Early Literacy information through one or all of the following

strategies; discussing an article, a video or sharing specific curriculum activities. They also provided Feedback when classroom observations or children's assessments were completed and discussed results that were used to set specific goals. Coaches used this time as an opportunity to explicitly instruct teachers on a specific aspect related to their environment or to promote a specific teacher behavior to increase literacy in their environments. Finally modeling was accomplished through classroom integration opportunities that allowed coaches to model desired interactions between children and adults. For example, coaches facilitated a specific literacy rich activity in which they conversed with a child using open-ended questions, read a book that initiated predictions or take dictation of what a child thought about their drawing. Coaches thus educated teachers on specific behaviors and implemented materials needed in a literacy rich environment. These regular opportunities allowed for new skills to be consciously practiced and become developed overtime. In many occasions, lesson planning was re-examined to assure opportunities for teachers to model and for children to practice: talking, reading and writing through fun and meaningful activities.

Develop through doing. This was the last component of each coaching session and was closely related to what was discussed during the session. Teachers set a goal that could relate to four different areas of development: literacy rich environment, SEEDS quality behaviors, literacy skills/activities, and family involvement. Coaches and teachers set a time frame to accomplish goals and progress of goals was reviewed in every session.

Coaches and project staff met weekly to share updates, successes and challenges. Together, solutions were brainstormed and suggestions were made as to what tools, approaches and other resources would be effective to address challenges or to affirm successes. Regular communication with center directors also played a vital role in insuring center growth and

development. Direct involvement and follow-through of center directors helped maintain continuity in the goals and the regular participation of teachers.

ELLCO Observations

To measure the effectiveness of coaching, direct observations using the ELLCO Toolkit (Smith & Dickinson, 2002a) were conducted on both coaching and control groups at three different times during the project. A first round of observations was conducted during fall 2002 before coaching was provided to have a starting point for later comparison. A second round of observations was conducted for preliminary results and coaching purposes. And a third and final round of observations was conducted in winter 2004 to have a final evaluation and to compare with the measures collected in 2002. Observations were completed in 1.5-2 hour periods and times for observations were designated by the preschool teachers as times were literacy related activities would most likely occur. Coaches and trained project staff conducted all the observations and reliability ratings. To avoid bias coaches did not observe classrooms that they were coaching.

Results

This study included the 52 classrooms in 32 centers that were assessed during fall 2002 and winter 2004. This included 18 classrooms in the control (training only) group and 34 classrooms in the coaching group.

Reliability

To assess the observer reliability of ELLCO ratings, we selected 15 centers to be observed by two raters during the 2002 observations and 14 centers during the 2004 observations. The second ratings were completed on the same day as the primary ratings. Only

the primary ratings were used in subsequent reports and analyses—reliability ratings (second observations) were used for reliability analysis purposes only.

Based on the 21 items (subscales) rated across the 15 centers (315 ratings) in 2002, perfect agreement was achieved 61% of the time while ratings were one point off 26% of the time; overall, ratings were perfect or one point off 87% of the time. In 2004 across 14 centers (294 ratings), perfect agreement was achieved 82% of the time while ratings were one point off 16% of the time; overall, ratings were perfect or one point off almost 99% of the time.

The items where rating agreement was less than perfect consistently across the two years included *Book Use* from the literacy environment checklist; *Recognizing Diversity in the Classroom* and *Facilitating Home Support for Literacy* from the classroom observation; and *Writing* from the literacy activities rating scale. For the classrooms in the reliability study, percent perfect agreement or one point off is reported in Table 1 for each item.

Overall, the rater reliability appeared to be adequate (80% agreement) and for most of the items, better than adequate (greater than 85% agreement) in 2002, while excellent in 2004.

Table 1

ELLCO Rater Reliability Analysis: Points Possible and % Perfect Agreement or One Point Off

ELLCO scales and subscales	*Points possible*	*% Perfect or 1 point off*	
		2002	2004
Literacy Environment Checklist	#	%	%
Book Area	3	93	100
Book Selection	8	80	100
Book Use	9	73	93
Writing Materials	8	93	100
Writing Around the Room	13	73	100
Classroom Observation			
Organization of the Classroom	5	80	100
Contents of the Classroom	5	100	100

Presence and Use of Technology	5	87	100
Opportunities for Child Choice and Initiative	5	93	100
Classroom Management Strategies	5	93	100
Classroom Climate	5	87	100
Oral Language Facilitation	5	93	100
Presence of Books	5	93	100
Approaches to Book Reading	5	80	100
Approaches to Children's Writing	5	80	100
Approaches to Curriculum Integration	5	87	100
Recognizing Diversity in the Classroom	5	93	93
Facilitating Home Support for Literacy	5	87	93
Approaches to Assessment	5	87	100
Literacy Activities Rating Scale			
Book Reading	8	87	100
Writing	5	80	93

Although ratings were ordinal (based on rating scales of varying point values), the individual ratings for each key area were summed to compute total scores for the Literacy Environment Checklist, the Classroom Observations (General Classroom Environment and Language, Literacy, & Curriculum), and the Literacy Activities Ratings Scale. Reliability analysis of total scores provided internal consistency estimates of reliability (coefficient alpha) including *Literacy Environment Checklist* with five items (alpha = 0.44 in 2002 and 0.82 in 2004); *General Classroom Environment* with 5 items (alpha = 0.73 in 2002 and 0.91 in 2004); and *Language, Literacy, and Curriculum* with 8 items (alpha = 0.81 in 2002 and 0.92 in 2004) as summarized in Table 2. In 2002, these coefficients were not strong, but fair given the small number of items. However, each of the reliability coefficients was substantially increased based on the 2004 observation scores. Because the score variance for each scale was similar across the two years as seen in Table 3 (a common reason for increase in reliability is increased variation in scores), the increase suggests greater consistency in observation ratings within raters and perhaps

greater meaning in ratings for centers. Essentially, scores contained less random error during the second round of observations.

Table 2

Reliability of Subscale and Total Scores

	Coefficient alpha	
ELLCO Scales	2002	2004
Literacy Environment Checklist	0.44	0.82
Classroom Observation		
A. General Classroom Environment	0.73	0.91
B. Language, Literacy, & Curriculum	0.81	0.92

Rating Summaries

Mean rating scores for each of the four ELLCO scales are summarized in Table 3. Overall, the 2002 ratings made in each area indicated that there was a great deal of room for improvement within both control and coaching classrooms. To facilitate comparison across scales and time, each mean was divided by the total possible and reported as percent of possible points (Table 4). Except for General Classroom Environment, classrooms received about 50-66% of the total points possible on average in 2002. Very little change occurred by 2004 in the control classrooms, but for the coaching classrooms, 68-83% of the total possible points were obtained on average for each scale.

Table 3

ELLCO Scale Means and Standard Deviations for Control and Coaching Classrooms

	Control (n=18)		Coaching (n=34)	
ELLCO Scales	*Mean*	*SD*	*Mean*	*SD*
2002				
Literacy Environmental Checklist	20.5	4.2	19.9	4.2
Classroom Observation				
A. General Classroom Environment	19.2	4.3	20.2	2.7

B. Language, Literacy & Curriculum	25.9	4.9	26.2	5.5
Literacy Activities Rating Scale	6.3	3.3	6.4	3.0
2004				
Literacy Environmental Checklist	21.7	7.6	31.2	5.4
Classroom Observation				
A. General Classroom Environment	17.4	5.2	20.7	2.1
B. Language, Literacy & Curriculum	24.4	6.5	30.7	6.1
Literacy Activities Rating Scale	7.3	2.8	8.8	2.5

Table 4

ELLCO Scale Percentage Score Means for Control and Coaching Classrooms

	Control (n=18)	Coaching (n=34)
ELLCO Scales	*% of Total Possible*	*% of Total Possible*
2002		
Literacy Environmental Checklist	50	49
Classroom Observation		
A. General Classroom Environment	77	81
B. Language, Literacy & Curriculum	65	66
Literacy Activities Rating Scale	48	49
2004		
Literacy Environmental Checklist	53	76
Classroom Observation		
A. General Classroom Environment	70	83
B. Language, Literacy & Curriculum	61	77
Literacy Activities Rating Scale	56	68

Tests of Control versus Coaching Differences

To facilitate statistical testing of differences between control classrooms and coaching (treatment) classrooms, a MANOVA test of mean differences was conducted to first evaluate the omnibus null-hypothesis that control and coaching classrooms do not differ on any of the ELLCO scales, protecting the family-wise error rate. The results of the MANOVA suggested statistically significant differences within the multivariate set of scales (Wilks' Lambda = 0.58 or

alternatively Pillai's Trace = 0.42; both resulting in $F(10, 41) = 2.97$, $p = 0.007$). To assess the location of these differences, univariate ANOVAs were completed and reported in Table 5.

Table 5

ANOVA Tests of Mean Differences

ELLCO Scales	*F*	*p-value*	η^2
2002			
Literacy Environmental Checklist	0.209	0.649	-
Classroom Observation			
A. General Classroom Environment	1.009	0.320	-
B. Language, Literacy & Curriculum	0.028	0.869	-
Literacy Activities Rating Scale	0.013	0.908	-
2004			
Literacy Environmental Checklist	27.042	0.000	0.35
Classroom Observation			
A. General Classroom Environment	10.567	0.002	0.17
B. Language, Literacy & Curriculum	24.396	0.000	0.33
Literacy Activities Rating Scale	4.882	0.032	0.09

The two groups of classrooms control and coaching classrooms were similar in terms of their mean ratings on all areas in 2002 (Table 5), providing an even baseline measure between groups. For each of the ELLCO scales except the Literacy Activities Rating Scale, a statistically significant difference existed between control and coaching classrooms, all with *p-values* < 0.005. The Literacy Activities Rating Scale demonstrated a marginal statistically significant difference with $p = 0.032$, particularly considering the number of tests and attention to controlling the family-wise error rate. Also in Table 5, effect sizes are reported in eta-squared (η^2) metric, a proportion-of-variance-explained statistic. The effect sizes for each scale control-coaching classroom mean difference is small to moderate, except for the Literacy Activities Rating Scale (a very small effect, $\eta^2 = 0.09$).

Finally, an analysis of change over time was conducted using ANCOVA, with time 1 scores for each ELLCO scale employed as a covariate. Controlling for time 1 scores, coaching classrooms grew at a statistically higher rater on all ELLCO scales, with small to moderate effects for each scale except the Literacy Activities Rating Scale ($\eta^2 = 0.09$, a very small effect). The effect sizes (η^2, eta-squared) for growth on each ELLCO scale as well as percent change from time 1 to time 2 are reported in Table 6. Notice that these effect sizes are similar to the simple mean difference comparisons reported in Table 5, largely because there were small differences between control and coaching centers to start with at time 1.

Table 6

Change Over Time

				% Growth	
ELLCO Scales	*F*	*p-value*	η^2	Control	Coaching
Literacy Environment Checklist	27.8	0.000	0.36	6	57
Classroom Observation					
A. General Classroom Environment	9.2	0.004	0.16	-9	2
B. Language, Literacy, & Curriculum	26.3	0.000	0.35	-6	17
Literacy Activities Rating Scale	5.1	0.029	0.09	16	38

Discussion

Using direct classroom observations, the investigators of this project explored the effectiveness of an early literacy coaching model on the teaching behaviors and classroom environments of preschool teachers. The purpose of this study was to examine early literacy coaching effectiveness by evaluating and comparing literacy practices and classrooms

environments of a coaching and a control group using the ELLCO Toolkit (Smith and Dickinson, 2002a)

In general, the results of the study support the idea that early literacy training in addition to ongoing coaching affects teaching behavior and classroom environments of early childhood educators. Results of the study show that teachers who received early literacy training and ongoing coaching were more likely to improve their physical environments, making their classrooms more literacy rich, and increased their literacy teaching behaviors, putting into practice new instructional strategies compared to teachers who only received early literacy training. Thus results demonstrate that teachers in the coaching group were more likely to implement more literacy related strategies in their classrooms than did the control group where comparisons of results between control and coaching groups in 2004 show significant differences between the mean scores.

In addition, results show that the most significant differences between the coaching and the control group are present in the Literacy Environment Checklist and in the Language, Literacy & Curriculum section of the Classroom Observation; both sections of the ELLCO observation tool evaluated aspects of early literacy that were strongly emphasized during coaching. The Literacy Environment Checklist is an inventory of literacy materials present in the classroom and evaluates the literacy richness of a classroom; therefore higher scores indicate that teachers in the coaching group increased number, variety and availability of literacy materials (i.e. books, writing utensils, and environmental print) in their classrooms. Promoting a literacy rich classroom was a strong focus of coaching and specific feedback about classrooms was regularly provided to teachers, therefore observation results demonstrate that direct modeling and feedback of a literacy rich environment may have positive effects on the improvement of this environment. Another area that shows a significant difference between coaching and control

groups was the Language Literacy & Curriculum Observation. This section primarily evaluates the exercise of literacy activities in the classroom that promote the instruction of language, reading and writing. These literacy areas were also strongly emphasized during coaching; results support the idea that teachers in the coaching group were modifying their instructional behaviors increasing activities that promoted more literacy instruction in their environments as a result of coaching. These findings support other studies of coaching that indicate that training along with coaching is an effective method to use for improving instructional performance and influences effective teaching (Howes, James, & Ritchie, 2003; Peterson, Harris, & Watanabe, 1991).

Results of comparisons of the observations in 2004 between the coaching and control groups not only demonstrate greater gains in the coaching group, but also show that classrooms in the control group varied more than classrooms in the coaching group. This may suggest that coaches were consistent in the way they carried out the coaching model among the classrooms participating in the project. General observation rates in the coaching group show that literacy practices and changes in classrooms were more consistent in the coaching group than in the control group and may be influenced by the fact that coaching was integrating literacy practices and information among participating classrooms.

A final analysis shows that the coaching group had higher percentages of growth in all areas of the ELLCO toolkit between the first and the last observations compared to the control group that showed minimal growth and in some cases decrease growth. Furthermore, higher percentages of growth presented in the coaching group included areas that were strongly emphasized in coaching: physical environment and literacy activities exercised by teachers and children in the classroom; in contrast the control group showed little growth in these areas and literacy activities in the classroom diminished considerably within 13 months after receiving

training on early literacy, implying that training is not enough and that is necessary to have follow-up support to effectively influence teaching behavior.

The results of this study also support the effectiveness of the ELLCO toolkit as a reliable measure to capture essential elements of early literacy instruction and literacy practices in early childhood. It also reflects the effectiveness of the toolkit as a vehicle to promote teacher reflection, help teachers promote children's growth in literacy and improve their practice over time (Smith & Dickinson, 2002).

Using direct observations in this study allowed researchers to have a good measure of what was happening in the classroom, yet the routine and culture of the center did not always allow observers to observe all the items that were included in the toolkit, as a result some of the items had to be complemented by interview and was not verified by the observers all the time. In addition, reliabilities of the first round of observations did not have a high percentage of perfect agreement compared to reliabilities conducted in the last round of observations, which reflected the necessity to spend more time observing classrooms to practice using the toolkit to get familiarize with the tool. Spending time using the toolkit allowed observers to reach a high percentage of perfect agreement in the last round of observations.

This study was conducted with childcare centers in inner-city poor neighborhoods, which involved some challenges. Programs varied in size, population served, available support staff, and affiliation with supporting agencies. Furthermore, centers were affected in their majority by budget cuts that resulted in classrooms being combined, changed or closed and in some cases whole centers closing down because of financial difficulties. Given the positive results of the study, it will be important to continue exploring alternative ways to support early childhood educators and stress the importance of supporting early childhood educators in the complex task they have before them. According to the results of this study, coaching proves to be an effective

alternative pathway to support early childhood staff; therefore it will be important to continue providing coaching not only for a period of time but as part of the regular support given to preschool classrooms.

It is essential to provide professional development that includes training as well as coaching. Results of our study demonstrate how coaching builds on teacher's strengths and may increase the likelihood of teachers implementing new teaching strategies that directly affect children in their care. As a result children increase their early literacy skills and thus later school success.

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Appendix A

Coaching Forms and Tools

SEEDS of School Readiness: An Emergent Literacy Program Goal Setting Form
This form was helpful in defining components of a comprehensive preschool program; *A Literacy Rich Classroom, A SEEDS Quality Teacher, Big 5 Literacy Skills and Family Involvement.* Goals set fit into one or more of these specific areas.

Literacy Rich Classroom Checklist
The purpose of this checklist was to provide the observer and the teacher with a picture of the environment of the classroom. It was designed as a tool for discussion, not as an evaluation instrument. It focuses on physical environments, children's activities, and adult teaching practices.

SEEDS Observation Form
This form was used to observe SEEDS quality teacher behaviors in the classroom. The form allowed observers to take anecdotal information in specific literacy behaviors. The information was used to provide positive feedback to the teachers

SEEDS of Quality Adult Behaviors
This is a simplified observation form, which allows for recording quantitative evidence of SEEDS qualities in adults while interacting with children. The definitions of specific behavioral related terms are provided on this form. This observation is meant to be a snapshot of a normal teaching day; it usually takes between 10-15 minutes. This form can be used for peer observations.

Peer Observation Form
This peer observation tool allows for the recording of quantitative evidence of language interactions between teacher and children. The definitions of specific language developing skills are provided on this form. This observation takes usually between 10-15 minutes, to capture a snapshot of typical language interactions.

SEEDS Planning & Recording Form

This form was used to record information provided by teachers and to allow the coach keep track of what was happening in the classroom, what materials had been covered, goals sets and the barriers and challenges teachers had been experiencing.

Lesson Planning and Teaching the Big 5 Literacy Skills
This form defines Big 5 literacy skills. It provided the opportunity for teachers to practice their lesson planning skills. It was designed to help teachers to practice creating opportunities for children to **talk, read, and write** through intentional lesson planning that also focuses on developing Big 5 literacy skills (i.e., conversation, vocabulary, phonological awareness, book and print rules, and alphabet knowledge)

Appendix B

COACHING PROCEDURE

SEEDS of Coaching	Strategies/ Coaching with SEEDS	Coaching Tools/Forms
SENSE & RESPOND	• Ask teachers questions and get to know them and their workday strengths and challenges. • Acknowledge and address shared insight and needs. • Become aware of teaching styles, knowledge base, approaches to curriculum, center support and attitude towards coaching.	SEEDS Observation Form ELLCO Toolkit Early Literacy Assessments SEEDS Planning & Recording Form Informal Surveys
ENCOURAGE & ENJOY	• Give specific positive feedback about environment, activities and behavior. • Use affirming language to describe their strengths, efforts and achievement. • Use positive non-verbal and written communication.	SEEDS Observation Form SEEDS Goal Setting Form SEEDS Planning & Recording Form
EDUCATE	• Review training manual and notes to discuss applications. • Explicit Instruction and training of literacy terms. • Regular use of vocabulary and modeling behavior • Identify teaching skills practiced and behavior mastered.	SEEDS Observation Form SEEDS Training Manual Literacy Rich Classroom Checklist Teaching the “Big 5” Literacy Skills
DEVELOP through DOING	• Practice skills during coaching & in classroom: write lesson plans, extend activities, ask questions, take dictation etc. • Use books, digital cameras, and other materials to increase talk, read and write opportunities. • Teachers graphed assessment results and identified ways instructional practice will influence future development.	Peer Observation Forms Literacy Rich Checklist SEEDS Goal Setting Form Teaching the “Big 5” Literacy Skills Early Literacy Assessments
SELF-IMAGE; respected & capable	• Review successes and acknowledge growth. • Allow teachers to share opinions and contribute ideas to coaching experience. • Award hours, validate participation & achievement.	SEEDS Goal Setting Form SEEDS Observation Form Informal Surveys