



# **Pierce County Library System Emergent Readers Literacy Training and Assessment Program Research Report**

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The Pierce County Library System

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## **Introduction**

Starting in the cradle, children must be exposed to specific language and literacy practices in order to improve their later competitive competence as readers (Kuhl, 2010). Every early childhood setting should provide exposure to early literacy skills in order to prepare children for starting school. Some of the early literacy skills essential for later reading success include letter knowledge and an understanding that letters make up words, the ability to describe things and tell stories, an awareness of the sounds of words and an awareness of the basic concepts of print. These skills fall under broader categories of early literacy principles that have been identified in research studies as important to later reading success. The six principles that are emphasized by the American Library Association's early literacy program, Every Child Ready to Read (ECRR), are narrative skills, phonological awareness, letter knowledge, print awareness, print motivation and vocabulary. The Pierce County [WA] Emergent Readers Literacy Training and Assessment Program was designed to focus on these early literacy principles to help children attending in-home childcares emerge better prepared for school.

The Pierce County Library was established in 1946 and has since then grown to become the fourth largest library system in the state of Washington. The Library's mission is to bring the world of information and imagination to all people of their community. The Library offers many diverse programs that impact children and youth including STARS training workshops (for caregivers), a book delivery program (for childcares), storytimes and programs, and a bookmobile. The Pierce County Library System is intensively involved in the area of early learning through these programs, trainings and book delivery services. While providing these services they discovered that in-home childcare providers need to be exposed to early literacy training.

Evaluative research conducted through the American Library Association (ALA) shows that children attending in-home childcares are less likely than children in other types of childcares to be exposed to early literacy activities so that they may be entering school less prepared than their peers. According to the Washington State Department of Early Learning, half of all children registered for childcare in the state attend in-home childcare. As a result, a large portion of the

children in the state of Washington may not have the preparation they need as emerging readers. In an attempt to fill this need for early literacy training, the Pierce County Library System developed the idea for the Emergent Readers Literacy Training and Assessment program. The program was funded by The Boeing Company, The Muckleshoot Indian Tribe, and Pierce County Library Foundation.

## **Background**

The research phase of the Pierce County Emergent Readers Literacy Training and Assessment Program, patterned after a similar study carried out by the Carroll Count [MD] Public Library, began in the spring of 2010 and continued for a full year until the spring of 2011. The program consisted of an intervention targeting in-home childcare providers and a study of the intervention effects on the caregivers and on the children in their care. The intervention, lasting six months, provided the caregivers with training workshops, early literacy kits, newsletters and additional one-on-one interaction with Pierce County Library System staff. There were two data-collection components to the research study: (1) pre- and post- intervention surveys covering early literacy knowledge and practices were given to in-home childcare providers and (2) the Early Literacy Skills Assessment (ELSA) was conducted with the three and four year olds in these in-home childcares before and after the intervention.

## **Method**

Pierce County Library System collaborated with a community organization and an academic institution for this project:

- Tacoma-Pierce County Child Care Resource and Referral (CCRR)
- Information School at the University of Washington

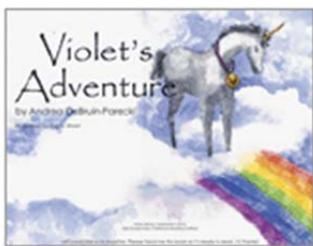
## **Study Participants**

In-home childcare providers were encouraged to participate by the Tacoma-Pierce County Child Care Resources and Referral. Thirty-one in-home childcare providers volunteered to participate. Because the ELSA was designed to assess the literacy skills of 3 and 4 year-olds, only those

providers having children of those ages were accepted into the program. These providers and the parents of the children in their care signed consent-to-participate forms. A pretest-posttest experimental design was used for this study: providers were randomly assigned to treatment and control groups. Of the 31 providers who started the program, 18 were assigned to the control group and 13 to the treatment group. This division resulted in 53 children in the control group and 33 in the treatment group. The children's age and sex were recorded. No data on race, ethnicity or socio-economic status of either childcare providers or children were collected. Although the proportions of males to females and of 3 to 4 year-olds in the control and treatment groups differed somewhat, chi-square tests ( $X^2 = 2.7$ , 1 df,  $p > 0.01$  for age;  $X^2 = 0.7$ , 1 df,  $p > 0.01$  for sex) showed these differences to be insignificant. Therefore, although more three year olds than four year olds were present in both groups when tested for statistical significance, no difference in age or gender between the treatment and control groups was found.

#### Treatment and Assessment Implementation

The pre- and post-intervention surveys were largely identical to the ones developed by Carroll County with a few minor changes. A question about the library services was changed to reflect the services that are offered by Pierce County. The vocabulary referring to the specific literacy skills was also changed to reflect the vocabulary that Pierce County uses in their trainings (print awareness, print motivation, letter awareness, vocabulary, narrative skills, and phonological awareness). The Early Literacy Skills Assessment (ELSA), developed by the High/Scope Educational Research Foundation that was used by Carroll County was also used in this study. ELSA assesses the children in the areas of comprehension (narrative skills), phonological awareness, alphabetic principle (letter awareness), and concepts about print (print awareness).



ELSA Violet's Adventure

The assessment instrument is a picture book in which 24 questions that probe early literacy skills are embedded and is used by an assessor with one child at a time. While reading the book, the assessor pauses at pre-determined points to ask the child scripted questions. Based on the child's answers, the assessor quickly records a score on a standardized form. A video of three trained assessors

administering the test to a child with the ‘expert’s’ scores provided at the end of each assessment allows for establishing intercoder reliability. The Highscope Co also established the validity of the test before marketing it.

Two researchers, Eliza Dresang, a professor, and Kathleen Campana, a doctoral student, from the Information School at the University of Washington held a workshop to train six Pierce County staff members on the administration and scoring of ELSA. The presurveys (see Attachment A) were then mailed to the childcare workers, and they were contacted by phone to schedule a visit. The six Pierce County staff members were each assigned a portion of the in-home childcares to visit. These visits, done in April and May of 2010, included assessing each child individually with ELSA and answering provider questions.

The treatment group then attended the initial workshop given by the Pierce County Library Early Learning Supervising Librarian, Susan Anderson-Newham, and the Early Learning Librarian, Alison Pascone, at the end of May 2010. These two staff members also organized and oversaw and participated in all assessment, communication, and data collection activities carried out by Pierce County Library staff and communicated regularly with the University of Washington researchers. The four-hour workshop included training on the early literacy skills as well as exposure to activities that could foster these early literacy skills. At this workshop the treatment group also received kits of materials to help support the activities and early literacy concepts taught at the workshop. The early literacy kits included a puppet, books, games, magnetic letters, play food, CD of children’s songs, etc. They also received a folder containing literature on early literacy and rhymes, finger-plays and songs.

Although the Pierce County Program, mirroring the ALA’s Every Child Ready to Read, includes six early literacy skills, ELSA assesses only four of these skills. The two other early literacy skills, print motivation and vocabulary, were included in the childcare providers’ training but were not assessed in the research study.

During the intervention period the treatment group received 10 newsletters (see Attachments F – N) via email that included additional activities for developing early literacy skills with their children, some of which were contributed by the providers themselves (see Attachment E for types of activities across newsletters). In September 2010, a Pierce County staff member

contacted the treatment group by phone to conduct a midway interview (see Attachment B). In this phone interview the caregivers were asked for feedback on the materials from the kit, whether they found the ideas from the newsletters helpful and whether they had noticed any growth in their children’s early literacy skills. In October 2010, the treatment group attended a second half-day workshop led by the same Pierce County Library staff. At this workshop the caregivers were given a chance to talk about their experiences thus far and ask questions about the kits and the activities. They were also exposed to new activities that can help to foster early literacy skills.

In December 2010, the Pierce County staff members went again to the in-home childcares to do the post assessment with the children using ELSA. Following the post assessment the control and treatment in-home caregivers were sent separate final surveys (see Attachments C and D) asking about their early literacy skills knowledge and practices now incorporated in the in-home childcare and the effect the training had on the treatment group.

### **ANALYSIS OF DATA AND RESULTS**

Through attrition, the number of participants in both the treatment group and the control group changed from spring of 2010 to winter of 2011 (see Table 1).

**Table 1. Numbers of Children and Providers Completing the Pierce County Library Emergent Readers Literacy Training and Assessment Program**

<u>Group</u>	<u>Population</u>	<u>Number Before Intervention</u>	<u>Number After Intervention</u>	<u>Completion Rate</u>
Control	Children	53	40	75%
	Providers	18	15	83%
Treatment	Children	33	23	70%
	Providers	13	10	80%

### **Early Literacy Skills Assessment (ELSA) Results**

An ELSA score for each of the early literacy skills is obtained by summing the scores on the indicator items mapped to each skill.

The ELSA measures concepts about print (print awareness) by the following items:

- Orientation: Knowing which is the top and bottom of a book
- Story beginning: Identifying where in the text one begins to read
- Direction of text: Understanding that text is read from left to right and top to bottom
- Book Parts: Identifying the front cover, back cover, and title of a book.

The ELSA measures phonological awareness by the following items:

- Rhyming: Pairing words with corresponding ending sounds
- Segmentation: Orally dividing words into syllables
- Phonemic awareness: Understanding that a spoken word consists of a series of individual sounds; attending to the sound structure of a word rather than to the meaning.

The ELSA measures alphabetic principles (letter knowledge) by the following items:

- Sense of word: Understanding that a word is a consistent set of letters and sounds
- Alphabet letter recognition: Recognizing and naming letters on sight
- Letter-sound Correspondence: Identifying sounds associated with the letters

The ELSA measures comprehension (narrative skills) by the following items:

- Prediction: Guessing what will happen next in a story based on picture cues and/or previous text
- Retelling: Explaining in sequence what happened so far in a story or summarizing the complete story sequentially
- Connection to real life: Relating plot, concepts, or characters in a book to real life experience.

Pretest and posttest ELSA scores were obtained for 40 control-group children and 23 treatment-group children. Parametric statistical procedures for comparing groups are sensitive to violations of the homogeneity of variances assumption; similarly, nonparametric procedures for testing for

differences in proportions are sensitive to low expected frequencies. These problems are less likely to occur when sample sizes are equal. Thus a simple random sample of 23 children was selected from the control group for comparison to the 23 treatment-group children. To put it simply, the groups are equalized in number to increase the accuracy of the statistical results.

Random assignment to control and treatment groups is assumed to ensure the equivalence of the groups before the treatment group is exposed to the intervention. This assumption was tested by comparing the groups' pretest ELSA scores using the independent samples t-test and the Mann-Whitney U test. There were no significant differences; therefore, the 2 groups were considered to be equal on each of the 4 early literacy skills before the intervention.

Pre- and posttest ELSA scores for the control and treatment groups are summarized in Table 2. Paired samples t-tests and Wilcoxon matched-pairs signed ranks tests were employed to evaluate pretest and posttest ELSA score differences for the control and treatment groups. Alpha was set at 0.01 to ensure a 99% probability that the results of these statistical analyses (see Table 3) do not occur by chance. No significant differences between pre- and posttest scores were found in the control group. In the treatment group however, significant pre- and posttest differences were found on 3 of the 4 skills: phonological awareness, alphabetic principle (letter knowledge), and concepts about print (print awareness).

**Table 2. Pre- and Posttest Average ELSA Skill Scores for Control and Treatment Groups. SD = standard deviation, IQR = interquartile range.**

ELSA Skill Score	Control Group N=23		Treatment Group N=23	
	Pretest	Posttest	Pretest	Posttest
Comprehension	Mean = 6.6 SD = 5.0	Mean = 7.3 SD = 4.8	Mean = 8.2 SD = 3.5	Mean = 8.8 SD = 4.3
Phonological Awareness	Median = 4 IQR = 2	Median = 6 IQR = 8	Median = 5 IQR = 6	Median = 8 IQR = 8
Alphabetic Principle	Median = 7 IQR = 24	Median = 11 IQR = 29	Median = 4 IQR = 27	Median = 21 IQR = 31
Concepts about Print	Mean = 11.3 SD = 2.8	Mean = 13.1 SD = 3.6	Mean = 11.3 SD = 2.6	Mean = 14.0 SD = 3.9

**Table 3. Results of Tests for Differences between Pre- and Posttest ELSA Scores in Treatment and Control Groups.**

<b>ELSA Skill</b>	<b>Control Group N=23 Posttest Score-Pretest Score</b>	<b>Treatment Group N=23 Posttest Score-Pretest Score</b>
Comprehension <sup>1</sup>	t = -0.5, 22 df; NS	t = -0.6, 22 df; NS
Phonological Awareness <sup>2</sup>	z = -2.1; NS	z = -3.5*
Alphabetic Principle <sup>2</sup>	z = -2.2; NS	z = -3.4*
Concepts about Print <sup>1</sup>	t = -2.0, 22 df; NS	t = -4.0, 22 df*

<sup>1</sup>Paired Samples t-Test

<sup>2</sup>Wilcoxon Matched-Pairs Signed Ranks Test

NS = not significant at the p<0.01 level.

\*Significant at the p<0.01 level.

Another way to use the ELSA results to assess the effect of the intervention on the children in the treatment group is to aggregate raw ELSA scores into one of three levels for each skill:

**Level 1: Early Emergent – Exploration**

Children explore books, play with sounds, look at and handle letters, and use words to convey ideas and experiences.

**Level 2: Emergent – Awareness**

Children begin to pay particular attention to book parts, print conventions, sounds that make up words and letter names. They use an increasing number of words to convey meaning and to talk about the immediate past and future.

**Level 3: Competent Emergent -- Application**

Children test their own theories as they “read” books, experiment with sounds that make up words, and recognize and use letters. Their growing vocabularies enable them to express increasingly complex ideas and narratives.

The following tables (Tables 4, 5, 6, and 7) use the aggregate (rather than raw) scores for each level as described above, and show the numbers and percentages of children at posttest Level 1, 2, and 3 in the control and the treatment groups for each literacy principle.

<b>Table 4. Posttest Comprehension Levels</b>				
<b>Level</b>	<b>Control N=23</b>		<b>Treatment N=23</b>	
	<b>Count</b>	<b>Percentage</b>	<b>Count</b>	<b>Percentage</b>
1	16	69.6%	13	56.5%
2	6	26.1%	8	34.8%
3	1	4.3%	2	8.7%
<b>Total</b>	<b>23</b>	<b>100.0%</b>	<b>23</b>	<b>100.0%</b>

<b>Table 5. Posttest Phonological Awareness Levels</b>				
<b>Level</b>	<b>Control N=23</b>		<b>Treatment N=23</b>	
	<b>Count</b>	<b>Percentage</b>	<b>Count</b>	<b>Percentage</b>
1	11	47.8%	4	17.4%
2	10	43.5%	12	52.2%
3	2	8.7%	7	30.4%
<b>Total</b>	<b>23</b>	<b>100.0%</b>	<b>23</b>	<b>100.0%</b>

<b>Table 6. Posttest Alphabetic Principle Levels</b>				
<b>Level</b>	<b>Control N=23</b>		<b>Treatment N=23</b>	
	<b>Count</b>	<b>Percentage</b>	<b>Count</b>	<b>Percentage</b>
1	7	30.4%	4	17.4%
2	9	39.1%	10	43.5%
3	7	30.4%	9	39.1%
<b>Total</b>	<b>23</b>	<b>100.0%</b>	<b>23</b>	<b>100.0%</b>

<b>Table 7. Posttest Concepts about Print Levels</b>				
<b>Level</b>	<b>Control N=23</b>		<b>Treatment N=23</b>	
	<b>Count</b>	<b>Percentage</b>	<b>Count</b>	<b>Percentage</b>
1	5	21.7%	4	17.4%
2	16	69.6%	14	60.9%
3	2	8.7%	5	21.7%
<b>Total</b>	<b>23</b>	<b>100.0%</b>	<b>23</b>	<b>100.0%</b>

These tables show that for all four principles more children in the treatment group were at Level 3 in the posttest compared to those in the control group and that more children in the treatment group compared to the control group were at Level 2 in the posttest on all of the literacy principles other than concepts about P\print (print awareness). However the latter is because substantially more were at Level 3 in the treatment group. Looking at the data the other way, fewer children in the treatment group were at Level 1 posttest on all literacy principles than those in the control group.

Another way to look at the literacy levels of the children is to compare the percentage of children who ‘grew’ by 1 and 2 levels in relation to each principle (see Tables 8, 9, 10, and 11). The results of this comparison are as follows:

<b>Table 8. Children Increasing 1 or 2 Levels Pretest to Posttest in Comprehension</b>				
<b>Level Increase</b>	<b>Control</b>		<b>Treatment</b>	
	<b>Count</b>	<b>Percentage</b>	<b>Count</b>	<b>Percentage</b>
1	4	17.4%	5	21.7%
2	1	4.3%	1	4.3%

<b>Table 9. Children Increasing 1 or 2 Levels Pretest to Posttest in Phonological Awareness</b>				
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Level Increase	Control		Treatment	
	Count	Percentage	Count	Percentage
1	8	34.8%	11	47.8%
2	1	4.3%	2	8.7%

**Table 10. Children Increasing 1 or 2 Levels Pretest to Posttest in Alphabetic Principle**

Level Increase	Control		Treatment	
	Count	Percentage	Count	Percentage
1	6	26.1%	8	34.8%
2	0	0.0%	3	13.0%

**Table 11. Children Increasing 1 or 2 Levels Pretest to Posttest in Concepts about Print**

Level Increase	Control		Treatment	
	Count	Percentage	Count	Percentage
1	4	17.4%	6	26.1%
2	1	4.3%	2	8.7%

Once again it can be seen that in all areas, more treatment group children moved up 1 or 2 levels than control group children.

### **Childcare Provider Survey Results**

#### **Pre- and PostSurveys**

The pre- and postsurveys of childcare providers (Attachments A, C & D) were created to track changes in understanding an application of the key early literacy concepts tested by the ELSA.

The survey contained mostly multiple choice questions with one open-ended response.

However, the midway interview conducted via telephone (Attachment B) provided additional qualitative data and added insight into the impact of the study. The open-ended responses and interview questions let the providers explain how they applied their concept knowledge and also gave them the opportunity to say how they thought the training affected their early literacy programs.

Similar surveys were administered in the fall and in the spring to allow comparison of responses. Two of the providers in the Control group did not complete a pretest survey, so their results were not included in this analysis.

For several reasons, some survey questions were not appropriate for statistical analysis of pre- and posttest responses:

- The large number of possible responses provided for the multiple choice answer sets meant that the expected values in some contingency table cells were less than 5. Because chi-square and related tests are not robust under this condition, most of the pre and post answers could not be compared statistically. [See PostSurvey Attachments C & D, Qs 3,4,5,7,10,11,13]
- The statistical analysis of a few other questions showed a high degree of agreement between the control and treatment group providers, so they also were not useful in assessing differences in control and treatment group providers. (see PostSurvey in Attachments C & D, Qs 16,18,22,23)
- There was no pretest question equivalent. (See PostSurvey Attachments C & D Qs 8,14)
- The question applied only to the treatment Group (See PostSurvey Attachment D Qs 26, 27).

Where statistical analysis was possible, the Wilcoxon matched pairs-signed ranks tests, appropriate for data that is not normally distributed, were used for pretest-posttest statistical comparison. The analysis below compares both the multiple choice responses and the open-ended comments.

For the following, there was a statistically significant positive change in results for the treatment group providers but there was no statistically significant change (positive or negative) in the pretest-posttest results for the control group providers.

- Number of narrative (comprehension) skills used in childcare setting (*e.g.*, ask children to make predictions about what will happen next in a story when reading to them)
- Number of phonological skills used in childcare setting (*e.g.*, activities where children listen for beginning sounds of words)

- Number of print awareness (concepts about print) activities used in childcare setting (e.g., talking about the cover of a book and the author and title before reading).

For the following question, there was no statistically significant change for either control group or treatment group providers.

- Number of letter knowledge (alphabetic knowledge) skills used in childcare setting (e.g., singing the ABC song)

Control and treatment group providers were similar in the frequency of communicating with parents, in use of the public library, in encouraging child interaction in pretend play, in their commitment to joining in this play, and in numbers of books and storytimes they held.

One area in which the treatment group providers exhibited a statistically significant positive change was in number and variety of pretend play activities they provided, which may have had some influence on the children's development of literacy through increased interaction with peers and teachers.

#### Midway Interview/Treatment Group Providers

Questions on the midway interview solicited response only from treatment group providers as some of the questions were about resources and newsletters provided only to that group. The interviewer queried the providers regarding the usefulness of the materials and any gain the providers had noticed in early literacy skills. Following are several responses illustrating how the providers and children used the materials to promote various early literacy principles:

#### Comprehension (Narrative Skills)

*“The children are becoming good at guessing what might happen next, prediction, as Leslie has been practicing this skill with them when reading.”*

*“The children are able to express themselves more completely and put more on paper also. Their artwork is more detailed and this is a pre-writing skill. Their attentions spans are also longer.”*

*“This is where children are given a bag with many different things inside and they must create a story based on the item from the bag that they pull out. Once they are finished telling their part of the story, they pass the bag along to the next child who picks up the story using a new item from the bag as inspiration. The children request this activity all the time.”*

*“Yes, their attentions spans (and ability to listen to stories) are growing. They are asking more questions, able to verbalize better what the story is about, and are more attentive when listening to a story being read.”*

### Alphabetic Principle (Letter Knowledge)

*“The children invented a game with bubbles one day. Each bubble that a child blew represented a letter (in order) in the alphabet. As they blew bubbles from their wand, they said the letters of the alphabet based on the number of bubbles they blew and they told Ms. Levette which letter they stopped on and what letter would come next. For example, if they blew 5 bubbles from their wand, they would say (A, B, C, D, E) so they stopped with “E” and the letter that comes next would be “F.”*

*“They’ve enjoyed using the magnetic letters for making words.”*

*“They used the alphabet magnetic letters to spell out their names.”*

*“She made up alphabet cards and had the children match the play food with the alphabet letter that the food begins with.”*

*“They also did the activity where the children changed or retold the story and had a blast with that. Celia wrote down each one of the children’s stories word for word. Every story was different. Each child illustrated their own picture to go with their story and signed their name so they know it is theirs. Celia put each picture and written story on construction paper and laminated it for the children.”*

### Phonological Awareness

*“Their awareness is just so improved since this program.” Rhyming is a skill that has specifically improved in the children.”*

## Concepts about Print (Print Awareness)

*“They go to books more often - especially during choice time. My older ones are sitting the younger ones down and reading to them - holding the books, turning the pages the right way. “*

## Survey Question about Resources Provided to Parents

Childcare providers were asked what resources they provided to parents. Approximately half responded to this open-ended question. The nature of their responses changed from the pre to the postsurvey however. The responses in the postsurvey were more often related to the literacy curriculum and to activities related to it than in the presurvey.

For example, a typical presurvey response was

*“I encourage my families to read together.”*

While on the postsurvey a typical response was

*“I personally talk with parents to let them know our curriculum and which letters, special books, etc. we are working on.”*

and

*“I talk about books & let them know what the children’s favorite stories are – encourage children to retell their favorite stories to their parents.”*

## DISCUSSION

### Major Findings

The Pierce Co Emergent Readers Literacy and Training Program treatment or intervention, the training of childcare providers in early literacy principles, had a significant impact on

- the outcomes for children regarding demonstrated growth in competence related to early literacy principles and
- the variety of activities related to literacy principles that the providers implemented.

Early literacy researchers made major advances during the past two decades in identifying factors that are predictive of literacy successes in school-aged children. The National Early Literacy Panel’s (NELP) was charged with conducting empirical research to discover the factors

that support early literacy development and the influences of the home and family on this development. The NELP (2008) focused its attention on determining what the skills and abilities of young children (age birth through five years or kindergarten) are that predict later reading, writing, or spelling outcomes. The two principles that were found to have the highest predictive value for children entering kindergarten for reading success were what have been referred to in this study as alphabetic principle (letter knowledge) and phonological awareness. Concepts about print (print awareness) were also found to be important as was comprehension (narrative skills), vocabulary, and other skills. Following publication of the NELP Report, Paris and Luo (2010) criticized it, noting that early literacy skills could and should be viewed as constrained (that is important for beginning readers, but then lessening in importance) and unconstrained (gaining more importance as a child matures as a reader). Both alphabetic knowledge (letter knowledge) and phonological awareness were among the constrained skills while comprehension (narrative skills) and vocabulary were among those found to have a longer term impact.

Placing the outcomes for children who were in the Pierce Co treatment group in this context, it is clear that

- Two of the early literacy principles upon which the children in the treatment group improved with an extremely high level of confidence, i.e., alphabetic knowledge (letter knowledge) and phonological awareness, are among those most essential for predicting success as children begin to read.
- Concepts about print (print awareness) are also ‘constrained skills,’ extremely important for beginning readers. This is the other skill upon which the children in the treatment group improved with an extremely high level of confidence.
- Comprehension (narrative skills) is more complex and is considered an ‘unconstrained’ skill. It is not surprising that neither group improved here in a statistically significant manner. There is likely no end to growth for a reader who excels at comprehension.

The responses of both groups of childcare providers on which they were in close agreement demonstrate that they all are committed to an environment that supports literacy, all having book collections, using the library, and reading regularly to children. However, some differences did exist in their responses, indicating that the training may have changed some of their behaviors and that these may have had an influence on the outcomes for the children. Comparing the

growth of the treatment group providers in using a greater variety of activities than did the control group related to phonological awareness, alphabetic principle (letter knowledge), and comprehension (narrative skills) as well as the specific comments about observed change in children's behaviors, it seems likely to conclude that the training provided by the Pierce County Library System as well as the frequent contacts and ongoing curriculum and activity suggestions through regular newsletters, had an impact on the children's readiness-to-read.

Even though the treatment group children grew in concepts about print (print awareness), the treatment group providers did not increase the number and variety of activities related to concepts about print (print awareness). Since neither group of providers showed self-reported growth in this area, it may mean that both were confident about concepts about print (print awareness) before the study started. However, the treatment group providers may have become more conscious about emphasizing this skill through the Pierce County Library Training.

It is interesting that the treatment group childcare providers did demonstrate growth in number and variety of activities in comprehension (narrative skills) as compared to the control group, yet the children did not demonstrate comparative growth in this area. Several explanations might be suggested for this including the one above that comprehension is an unconstrained, long term skill that takes more time to develop in children, regardless of the caregivers' growth. In examining the responses of the treatment group regarding comprehension activities and their results (see above), it seems this might be the case, as they were clearly actively engaged in prompting this early literacy principle. Another factor and possibly the more important factor may have come into play with both treatment and control groups, i.e. *perhaps* the providers did not use a dialogic/interactive reading technique as often as would be desirable. Early literacy research has found this method of reading to have an important impact on reading readiness. But no concrete evidence exists in the Pierce County study to support this idea. No question was asked about the use of dialogic reading on the surveys and it was not part of the ELSA. Although it was included in the Pierce Co Library training, it was not reinforced as rigorously as other literacy skills because that was not the intent of this study.

The skill of the Pierce Co trainers and the enthusiasm of the treatment group childcare providers for the resources provided them and their commitment to incorporating these resources into their

childcare setting are clear, and it is likely that this commitment and enthusiasm contributed to the success in helping children grow in their ability as emerging readers.

### **Limitations**

All studies have some limitations, and this one is no exception. Limitations are not to be equated with weaknesses of the study; they are rather the parameters within which the study was conducted. The fact that a random sample was taken of the in-home childcare providers who volunteered for the study lessens concern about some of the variables for which there could be no control. The study was conducted in a geographic area that is largely suburban and rural with a few urban locations, and it is not known how these settings might have affected the learning of either the teachers or the children. No data were obtained about socio-economic status or race of either providers or children. There were, however, quite a few more three year olds than four year olds, even at the end of the study, but their proportions in the treatment and the control groups were found not to be significantly different. The preponderance of younger children might have lessened the progress either group made but there is no reason to suspect it would have been different in the treatment and control groups. Other factors also might have had an impact on the outcomes, e.g. six Pierce County Library staff tested the children on the pretest and there were three new staff added as testers for the posttest. Although the Early Learning Librarian tested the same children pre and post intervention, other staff members did not necessarily test the same children. This variability in testers might have had some impact on the scores, even though all staff were trained and there was demonstrable intercoder reliability. The time during which the intervention took place, six months, was relatively short, shorter than that in the previous Carroll County study, and a longer period of time might have produced even more stellar results for the treatment group. Also the study started in the summer when there was more absenteeism due to vacations and other family activities; three of the six months of the study took place in the summer months. Finally, the results of the study can only be generalized to the population from which the random sample was chosen, although the results do have implications for early literacy programs elsewhere.

### **IMPLICATIONS**

This study had a successful and positive outcome both for the childcare providers and for the

children who participated. It was demonstrated that library staff could provide training for in-home childcare workers in early literacy principles and activities that would result in children better prepared as emergent readers. Since many of the children were still three at the end of the study, it is expected that they will continue to gain skill and confidence as they approach school age. Just as the study in Carroll County provided a model for this study in Pierce County, the Pierce County study can provide an example to be adopted and adapted for public libraries in other communities. There is a great desire by both librarians and the general public to know training childcare providers and others in early literacy principles can make a difference. The answer is yes! It is encouraging that there have now been two randomized studies, Carroll County MD and Pierce County WA, in which statistically significant results occurred for three of the four early literacy principles when library training for childcare workers took place. More studies of this type will continue to build confidence in the efficacy of the public library's extended role in preparing children for success in school.

As others venture into the realm of patterning after this study, it is important to note what the parameters of this study were. Children who were four at the beginning of the study could not enter kindergarten during the study, as that would have contaminated the data gathered at the childcares. Also resources given the childcare providers were carefully selected and related to the early literacy principles. University faculty skilled in training and knowledgeable about early literacy principles conducted the training for library staff who were to test the children and later analyzed the statistical data. Library staff skilled in early childhood services in turn trained the daycare workers and collected the data. In addition the ongoing support through the provision of relevant newsletters, phone conversations, and a mid-course get together to share ideas and experiences most likely had an effect on demonstrating the increased reading readiness for those children who participated in the treatment group of the study.

Certainly the most important outcome of this study is that public librarians, school officials, parents, teachers, and other community members can have an increased and research-documented confidence that public libraries do make a difference in the lives and learning of young children.

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Collaborative Corporate Strategy Research Programmes (C.C.S.R.P.) a Conceptual Integrative Strategic Framework for a Practical Research Agenda. *Open Journal of Business and Management*, Vol. 01, Issue. 03, p. 91. 6 See, for details, Henry Mintzberg and Waters, James A., "Of Strategies, Deliberate and Emergent," *Strategic Management Journal* 6, no. 3 (1985): 257-72; for a summary, see Mintzberg, , ed., *Tracking Strategies*, 7-8. 7 We are grateful to Nicole Hebert from the Business Information Center at Rio Tinto Al-can in Montreal [hereafter, RTA] for granting us access and helping to identify the relevant documents. 8 Called *Compass* until 2000, it underwent several name changes thereafter, most recently to *Our World*. This article defines emergent literacy, discusses the meaning of evidence-based practice, and describes three promising evidence-based approaches for emergent literacy intervention. 9 The decade of the 1990s saw a tremendous increase in research studying the value of emergent literacy intervention, particularly for meeting the needs of children at risk. Such studies have documented the positive effects of adult-child shared storybook reading, literacy-enriched play settings, and structured phonological awareness curricula for enhancing the emergent literacy skills of young children. This article defines emergent literacy, discusses the meaning of evidence-based practice, and

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The Pierce County [WA] Emergent Readers Literacy Training and Assessment Program was designed to focus on these early literacy principles to help children attending in-home childcares emerge better prepared for school. The Pierce County Library was established in 1946 and has since then grown to become the fourth largest library system in the state of Washington. The Library's mission is to bring the world of information and imagination to all people of their community. 10 The Pierce County Library System is intensively involved in the area of early learning through these programs, trainings and book delivery services. While providing these services they discovered that in-home childcare providers need to be exposed to early literacy training.