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The effectiveness of language-literacy training for child care workers

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THE EFFECTIVENESS OF LANGUAGE-LITERACY TRAINING FOR CHILD
CARE WORKERS

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ABSTRACT

The purpose of the current study was to examine the effectiveness of group-based language-literacy training for child care workers. The first phase of the study followed a pre-post single group comparison design and involved 23 child care providers. The independent variable was the teacher training and the dependant variable was scores from a questionnaire. The second phase of the study involved a sub-group of four child care workers who received one-on-one follow up training after the group sessions. The questionnaire was administered a third time to the follow-up group.

An analysis of the questionnaire items at pretest indicated that the teachers felt most knowledgeable and skilled with children's speech and language development and less knowledgeable and skilled with their development of reading, although differences between items were not significant. Post-test scores were significantly higher than pretest scores, but scores did not continue to increase after the one-on-one training. The results of the current study suggest that group-based, language-literacy training can increase the knowledge and skill of child care providers.

CHAPTER 1

INTRODUCTION

In a number of studies, a child's development of language has been shown to be affected by the quality and quantity of a caregiver's input (Hart & Risley, 1995; Hoff-Ginsberg, 1998). One positive outcome of these studies has been the development of parent training programs to reduce the inequality that exists across caregivers' input to children. With more caregivers working outside of the home and more children spending a majority of their time in child care settings, however, there is a need to also consider training programs that target child care providers. This need seems particularly relevant for child care settings that serve low-income families, because several studies have reported that lower-income families receive poorer quality child care than those with greater financial resources (Anderson, Nagle, Roberts & Smith, 1981; Goelman & Pence, 1987; Howes & Stewart, 1987; Kontos & Fiene, 1987).

As a first step, the present study aimed to learn more about the knowledge and skills of child care providers within the context of a group-based, language-literacy training program. The literature review is divided into three sections. First, I review how child care centers vary in quality and how there is a need to provide training for facilities that lack quality. Next, I review studies that have documented the behaviors of child care providers. These studies are useful for identifying the specific types of behaviors that vary across providers and the specific behaviors that could be targeted within a group-based training program. Last, I review one experimental study that examined the usefulness of a group-based training program for child care providers.

McCartney (1984) examined the ways in which differences in child care affect children's language development.   Nine child care centers in Bermuda were selected for study. Eight sites were privately owned and one was government run and served low-income families. To collect descriptive aspects of the sites, two measures were collected. First, the Early Childhood Environment Rating Scale (ECERS; Harms and Clifford, 1980) was used as an index of quality for the centers. Second, the quality of the child care providers' language input to children was examined through six observational sessions. Verbal intelligence and language development were assessed using The Peabody Picture Vocabulary Test (PPVT-r; Dunn, 1979), The Preschool Language Assessment Instrument (PLAI; Blank, Rose & Berlin, 1978), caregiver ratings of the Adaptive Language Inventory (ALI; Feagans & Farran, 1979), and observational measures of the children during an experimental communication task. The experimental communication task required the children to retell a story, talk on the telephone, and finish a story.

A hierarchal regression analysis showed that the overall quality of the child care centers was predictive of all four measures of the children's language development. There also was an indication that the verbal interaction skills of the caregivers predicted children's language development. For example, when family background and center care experience were controlled for, the number of functional utterances directed to children by caregivers predicted the children's language scores on the ALI and the experimental communication task. The verbal interaction variable was significant in predicting the scores on the PPVT-r and the PLAI.   Another finding was that centers with higher

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proportions of representational talk (theme-based) over control talk (content-based) had

children that performed better on tests of language development (PPVT-r, PLAI, ALI).

So, child language is enhanced when they are given information and requested to give

information. These findings show that children's development of language is related to

the language environment of child care centers.

In a second study, Philips, Voran, Kisker, Howes, and Whitebrook (1994) studied

the quality of child care for children in poverty. Some of the variables the researchers

examined were group size, child-staff ratios, percentage of teachers with varying levels of

education, percentage of teachers with at least ten hours of in-service training, and annual

teacher turnover rate. The study analyzed two independent data sets, the Profiles of Child

Care Settings Study (Profiles Survey) and the National Child Care Staffing Study

(Staffing Study). The sample of centers that served low-income families was defined

using different criteria from the two data sets. Nevertheless, the two samples were

predominantly non-profit, received the major source of their incomes from government

sources, enrolled a substantial share of subsidized children, and had substantial

proportions of both black and white children and staff.

The data used in the Profiles Survey consisted of the child care centers, early

education programs, and home-based child care providers that were licensed or registered

by the state in which they were located, as well as some religious programs, Head Starts,

and part-day programs that were not licensed in all locales. Data were collected using

computer assisted telephone interviews. The Staffing Survey was an observational study

of 227 licensed full-day child care centers in five metropolitan areas. Within each center,

the researchers randomly observed one infant, toddler, and preschool classroom.

Results of the study were that the subsidized centers from the Profiles Survey and the low-income centers in the Staffing Study varied greatly in quality. About 60% of toddler classrooms in both studies did not meet recommended group and ratio sizes, and a large number of the classroom teachers had not received an education beyond a high school degree. In the observation part of the Staffing Study, only a limited number of classrooms achieved a "good" level of quality. Instead, "minimal" levels of quality were more common. Finally, a number of the teachers that were observed demonstrated behaviors that reflected detachment and harshness to their children. Findings from this study underscore the need for training programs to target child care providers in low-income settings.

Teacher Behavior in Child Care Centers

In this section, findings from four studies that examined the behaviors of child care providers are reviewed. While none of these studies focused specifically on low-income centers, the findings are useful for learning about the nature of teacher-child dynamics within child care centers. These studies can also be used to identify specific types of behaviors and activities to include within a group-based training program. The first study I found was by Girolametto, Weitzman, van Lieshout, and Duff (2000). They studied the directiveness of teachers' language input to toddlers and preschoolers during play dough and reading activities. Five subtypes of directiveness were examined. They were: response control, topic control, turn taking control, behavior control, and conversation control. Participants included twenty early childhood education teachers and four children from each teacher's classroom. Ten of the teachers were caregivers for

toddlers and the remaining ten were caregivers for preschoolers. All of the child participants were developing normally.

Each teacher and four of her children from her classroom were videotaped for fifteen minutes in a book reading activity and fifteen minutes in a play dough activity. One to three weeks after the taping, the researchers returned and videotaped the teachers and their children again using the same books and play dough. The videotapes were transcribed and each utterance was coded to capture functional use of language output. Individual codes were combined to create three variables: behavior control, response control, and conversation control. Second, the Teacher Interaction and Language Rating Scale (Girolametto, Weitzman, & van Lieshout, 2000) was used to assess the caregivers' use of balanced turn-taking and their ability to follow the child's lead.

Results were that children in both the toddler group and preschool group received similar amounts of directive input from their teachers. Results also revealed that a teacher's directiveness was more the result of the context of the interaction than the children's age. Book reading elicited more behavior control, response control, and topic control and was associated with the least amount of child talk. In the play dough activity, which was less directive, teachers asked fewer test questions, and provided fewer attention calls, directive yes/no questions, and open-ended Wh-questions. In this activity, the teachers also engaged more in individual child talk, and allowed more turn-taking among the children. In turn, the play dough activity resulted in greater amounts of child talk.

Girolametto, Hoaken, Weitzman, and van Lieshout (2000) also investigated the language input of eight child care providers in a study that focused on children with

developmental disabilities. The participants were 40 children ranging in age from 32 to 53 months who were enrolled in an integrated child care and their eight child care providers. Eight of the children presented cognitive and language delays. The remaining children presented typically developing language; four of these children served as a comparison group. They were picked as controls because they were close in age and language ability to the target child with a disability. All eight of the providers had completed high school and two years of a post-secondary education in early childhood studies. All of the child care providers had received information regarding general language stimulation techniques for children with developmental disabilities, but this training was not from a speech-language pathologist.

The data consisted of videotaped samples of each of the child care providers in a play dough and book reading activity. These samples were transcribed and three different caregiver behaviors were coded. They were: behaviors that directed the child, behaviors that engaged the child in interaction, and behaviors that modeled language at the child's level. The adult's language was also analyzed for rate of speech in minutes, total number of utterances, mean length of utterances (MLU), and the ratio of different words to total words used (TTR).

Only one aspect of adult language was found to differ between the groups. The child care providers lowered their MLU significantly when talking to the children with disabilities as compared to the children who were typically developing. Also, the teacher's average MLU was at least twice as long as the MLU of the children with disabilities. Another finding was that the providers addressed one-half to three-quarters of their utterances to individual children. This however, may be contributed to small

group size in the study. Larger groups may provide fewer opportunities for such dyadic conversations. In both groups, children received similar proportions of discourse adaptations from their child care providers, but the adults used significantly more directive language input and less language modeling input when addressing the children with disabilities as opposed to the children who were typically developing.

In a third study, Girolametto and Weitzman (2002) studied the responsive language input of child care providers to children enrolled in community child care centers. Three different subtypes of responsive interaction strategies were rated and compared across two age groups and two contexts. The strategies compared were: child-oriented responses, interaction-promoting responses, and language-modeling responses. Twenty-six caregivers of toddlers and preschoolers participated. Like Girolametto et al.'s (2000) study, each teacher was observed interacting with four children from her classroom.

The caregivers and their children were videotaped for fifteen minutes in a book reading and a play dough activity. The videotapes were transcribed to analyze the children's number of utterances, different words, and multiword utterances. The Teacher Interaction and Language Rating Scale (Girolametto, Greenburg, & Weitzman, 2000) also was used to evaluate responsiveness of the caregivers during group interaction. Items used from the scale were: Wait and Listen, Follow the Children's Lead, Be Face to Face, Use a Variety of Questions, Encourage Turn-taking, Scan the Class, Use a Variety of Labels, Expand a Child's Utterance, and Extend a Child's Utterance.

The study found that there were no significant differences in the teachers' responsiveness as a function of the children's age. Nevertheless, they did vary in their use

of language-modeling strategies. The caregivers of toddlers used simple labels while the caregivers of preschoolers used more extensions to help children use more advanced language. Like Girolametto and Weitzman's earlier work, caregivers' responsiveness was influenced by the context of the activity. The play dough activity elicited higher scores for all three of the interaction strategies (Use a Variety of Questions, Encourage Turn-taking, and Scan the Class), two of the child-oriented strategies (Wait and Listen and Follow the Children's Lead), and one language-modeling strategy (Expand a Child's Utterance). Strategies used by two groups of providers were four interactive strategies: Use a Variety of Questions, Encourage Turn-taking, Expand a Child's Utterance, and Extend a Child's Utterance.

Finally, O'Brien and Bi (1995) recorded teacher and toddler speech in three different classroom play contexts. The study included one- and two-year-old children with and without documented developmental delays. The child care providers were early childhood education undergraduates and a graduate student in the same major. The first play area was a doll/house area equipped with dolls, animals, telephone, cooking toys, and blankets. The second area was a block/truck area which contained blocks, trucks, and cars. Thirdly, a large motor area was set up and included a climbing structure, a balance beam, inner tubes, and bikes. The child care providers were instructed to conduct a play activity related to the materials in each area. Children were free to move from one area to another. The child care providers were videotaped during three 10-minute play sessions in each area. Providers were coded for their use of: questions, directives, attentionals, suggestions, comments, teaching language, praise, sounds, and interpretations. In addition, the examiners examined each child care providers' total

number of utterances, mean length of utterance, type-token ratio, number of different words per 100 utterances, number of nouns per 100 utterances, and number of different nouns per 100 utterances. The children's language was coded for: statements, labels, agreements, refusals/protests, greetings, requests, offers, and other. Also, each child utterance was coded according to its role as (a) a response to a teacher's question, (b) an imitation or repetition, or (c) a child initiated sentence.

Like Girolametto et al.'s (2002) work, results showed significant differences in the teacher's use of language across the play contexts. For structural elements, significant differences were found for type-token ratio (lowest in large motor play), different words (fewest in large motor play), total nouns (most in doll/house play, fewest in large motor play), and different nouns (most in doll/house play). For the children, there were significant differences in total speech, total intelligible speech, and MLU by play context. The greatest number of utterances and the longest MLU's were in the block/truck context and the fewest utterances and least complex utterances were in the large motor play context. They labeled more in the doll/house play context and described events more in the large motor play. Their language occurred equally in response to the child care providers' questions, as imitations, and in child-initiated speech. However, the complexity of the children's language as measured by MLU differed significantly. The children's MLU when responding to the teacher's questions averaged 1.26, whereas their MLU averaged 1.74 and 1.98 when they were imitating the child care provider and providing a child-initiated utterance respectively.

In summary of these four studies, results indicated that the context of an interaction plays an important role in the types of language behaviors that child care

providers use with children.   Also affecting a child care provider's behaviors is the

child's age and/or developmental level, but this factor seemed to influence the providers'

behaviors less than the context of the activity. Findings from these four studies also

documented the wide range of behaviors that child care providers use when interacting

with children. These included behaviors that served to control, respond to, and expand

upon, a child's behavior. Finally, of these three general types of behaviors, the last two

led to child language output that was most complex.

An Intervention Program that Targeted Child Care Providers

One study has examined the usefulness of providing language facilitation training

to child care providers, and the results were positive (Girolametto, Weitzman, &

Greenburg, 2003). In this study, participants included sixteen caregivers who had at least

two years experience in early childhood education, but none who had received any formal

language development training. All caregivers were randomly assigned to experimental

and control groups. Each caregiver was randomly assigned to four children. These

children ranged in age from 18 to 67 months and were typically developing according to

a parent report. Most of the participating children attended the child care center full-time

(40 hours per week) and had attended their center for at least two months.

The goal of the in-service program was to teach the child care providers three

main strategies for enhancing child language: child oriented responses, interaction

promoting responses, and language modeling responses. An experienced speech-

language pathologist administered the in-service training. The program lasted fourteen

weeks and included eight group evening sessions. Each session was 2.5 hours long. The

sessions included interactive lectures, observation and analysis of videotapes that

illustrated program techniques, large and small group discussions, and role-plays of program techniques.

At the pretest and post-test sessions, the groups were videotaped for 15 minutes in a book reading activity and 15 minutes in a play dough activity. The videotapes were transcribed and the following behaviors were coded: number of utterances read (book reading), number of spontaneous utterances, words per minute, mean length of utterance, type-token ratio, Scan the Class, Be Face to Face, Wait and Listen, and Encourage Turn Taking. The Teacher Interaction and Language Rating Scale (Girolametto, Weitzman, and Greenburg, 2000) was also used to evaluate verbal and non-verbal features of caregiver-child interactions that were difficult and time consuming to transcribe. The scale consisted of 11 items and used a 7-point response scale to judge how frequently a caregiver used a specific strategy. (1=rarely, 3=sometimes, 5=frequently, 7=consistently).

Pretest comparisons showed no significant differences between the two groups of child care providers for any of the dependant variables. Also, there were no differences between the two groups of children on measures of language productivity. At post-test, however, the experimental group produced more utterances and more words per minute during book reading and more utterances during conversation than the controls. They also read less text during the reading than did the controls. On the rating scale, the experimental group received gains in two items, Wait and Listen and Encourage Turn Taking during the reading activity. During the play dough activity the experimental group also made greater gains in Scan the Class and Face to Face behaviors.

<u>Purpose of the Current Study</u>

The purpose of the present study was to further examine the usefulness of training child care providers to enhance child language development in the preschool years. The study used a pre-post single-group comparison design. The training was two 2-hour workshops that were group-based in format. A questionnaire was administered before and after the training workshops to examine the participants' self-ratings of their knowledge and skills in child language-literacy development. Following this training, a subgroup of participants completed additional one-on-one training and then completed the questionnaire a third time.

The questions that guided the research were:

1. How do child care workers rate their knowledge and skills in child language-literacy development and language-literacy facilitation methods?

2. Do child care workers' self-ratings of their knowledge and skills increase as a function of attending group-based language-literacy training?

3. Do child care workers' self-ratings of their knowledge and skills further increase when group-based training is followed with one-on-one, classroom-based training?

CHAPTER 2

METHODS

Design

The first phase of the study followed a pre-post single-group comparison design and included 23 child care workers. The independent variable was the teacher training and the dependant variable was scores from a questionnaire. The second phase of the study involved a sub-group of four child care workers who received additional one-on-one training in the classroom after the group training sessions were completed. The questionnaire was re-administered a third time to these participants.

Participants

Twenty-four child care workers from two low-income centers participated in the study, but only 23 completed the questionnaire. Both centers were Early Head Starts in East Baton Rouge, LA. The teachers participated as part of mandatory continuing education training that was set up by the child care centers. The teachers provided their race, age, education, previous childcare training, number of years they had worked in childcare, and number of years they had worked at the present facility. Twenty of the teachers were African-American, two were Caucasian, and one was biracial. The youngest teacher was 20 years old and the oldest was 53. The mean age was 34.23 years (SD=8.89). Their education levels ranged from completion of high school to a Master's of Education degree. All of the teachers had some form of training regarding child-care. Their years worked in child-care ranged from one year to 25 years, while their years worked at the study site ranged from one year to 14 years. Summary statistics are reported in Table 1.

Table 1

Description of participants.

	N	Minimum	Maximum	Mean	Standard Deviation
Teacher's Age[a]	22	20	53	34.23	8.89
Additional Training	23	1	1	1.00	.000
Teacher's Education	23	12	18	14.17	2.08
Years Worked in Child Care	23	1	25	10.22	6.81
Years at Facility	23	1	14	4.04	3.51

[a] One teacher did not report her age on the questionnaire.

Following the workshops, four teachers participated in the additional one-on-one training sessions. All four teachers were African-American. Three ranged in age from 31 to 40 years, while one did not indicate her age. These four teachers reported they had worked in child care for at least eight years and they had worked at the study site from three to seven years. Their data are reported in Table 2.

Table 2

Description of four teachers who completed additional training

	N	Minimum	Maximum	Mean	Standard Deviation
Teacher's Age[a]	3	31	40	36.67	4.93
Additional Training	4	1	1	1.00	.000
Teacher's Education	4	12	18	14.50	3.00
Years Worked in Child Care	4	8	13	11.00	2.16
Years at Facility	4	3	7	4.25	1.89

[a] One teacher did not report her age on the questionnaire.

Teacher Training Sessions

One graduate student who worked in the Department of Communication Disorders at LSU and a licensed Speech Language Pathologist administered the training program. The training involved two 2-hour workshops presented over two days. The

themes were: "Addressing Pre-Literacy Skills in the Classroom and at Home" and "Developing Language Skills Through Play in the Classroom." As part of the training, the teachers also received a packet of written materials that highlighted the issues discussed.

The Storybook Reading session highlighted the importance of incorporating reading into children's classroom routines on a daily basis. It explained the differences between traditional verses interactive reading. Interactive reading encourages language enhancement activities during reading, instead of just reading the words on the page. The workshop included a discussion of storybook reading levels and levels of phonemic, print and word awareness and described different types of prompts that teachers can use to focus a child's attention on print. Finally, classroom design suggestions were made such as keeping labels and posters at the children's eye level. Throughout the workshop, the graduate student and speech-language pathologist demonstrated storybook reading.

The Play session emphasized the importance of an adult's use of language-facilitative talking behaviors while playing with a child, and highlighted the connection between children's play and their language development. The workshop explained the differences between perceptual and functional play, the role of toys and adults in play, stages of play, adjustments adults can make in their actions and language during play to help expand the language skills of children at different developmental levels.

Both sessions focused on how an adult's language affects a child language development. The teachers were reminded to speak at each child's level, reduce the number of words in their utterances when talking to children, slow down their rate, and increase the amount of child talking during book reading and play.

<u>Follow-up Training Sessions</u>

One week following the workshops, four teachers agreed to rate themselves a third time following two modeling sessions in the classroom. The student modeled reading and play strategies two separate days at one of the facilities. Modeling was based on techniques highlighted in the previous workshops. Examples included: pointing to print, using props on the page, decreasing utterance length, talking differently to different age groups, expanding the child's utterance, and talking about the actions of the storybook picture.

<u>Questionnaire</u>

The questionnaire included 30 items that asked the child care workers to rate their knowledge and skill in child language-literacy development and language-literacy facilitation methods. The questions came from previous research studies that have examined the efficacy of parent training (Pruitt, 2002; Farho, Pruitt, Poston, Posey, Oetting , 2001; Poston, Pruitt, Oetting 2002). The items on the questionnaire focused on three general categories: general questions pertaining to child speech and language development, reading questions, and play questions. For each question, child care workers were provided a six-point scale (0-5) to rate their abilities. For all but one of the questions, a score of zero indicated lack of knowledge or non-use of a facilitative behavior and a score of five indicated optimal knowledge or use. The one question that differed from the others was "I make it a point to get through the whole book during designated reading time". The target behavior in this question was considered less facilitative than reading behaviors that encouraged adult-child talking about the story. For this item, a score of 0 was considered optimal. For this item, the participants' scores

were converted to be consistent with the others (i.e; 0=5, 1=4, 2=3, 3=2, 4=1, 5=0). See

appendix A for a copy of the questionnaire.

Data Coding and Reliability

The questionnaires were coded by number, labeled as pre, post, or follow-up data,

and they were entered into an SPSS data file. Reliability of the data entry was examined

by having a second student in Communication Disorders independently enter the data

into an SPSS data file. There were 1653 data points in each file; 1652 were entered into

the data files in the same way for a 99% rate of agreement.

CHAPTER 3

RESULTS

For each item on the questionnaire, the child care providers' average scores for
pre, post, and follow-up are listed in Table 3.   There were several questions for the
pretest which were scored higher (>4.0) than others (<4.0). These include questions 5, 10,
13, 22, 27, and 30.   There was not a general trend to these questions and they included
all three types of questions (speech-language development, play, reading). For example,
questions included: "I understand how ear infections can affect child speech and language
development", "I know how to expand a child's language during book reading", and "I
understand the adult's role in play." Questions 11, 20, and 25 were all scored lower
(< 3.0) than the rest (>3.0). They dealt with a specific definition of a term. For example,
question 20 states "I know the definition of a phonemic cue." Interestingly, though,
visual inspection of the post-test and follow-up scores indicated that these pretest
differences between the items dissipated with training.

Table 3

Descriptive data of individual questions

a. Pretest

	N	Mean	Std. Deviation
Pre Item 1	23	3.26	.86
Pre Item 2	23	3.35	.83
Pre Item 3	23	3.09	.95
Pre Item4	23	3.22	1.04
Pre Item 5	23	4.22	1.04
Pre Item 6	23	3.17	1.37
Pre Item 7	22	3.68	1.21
Pre Item 8	23	3.48	1.08
Pre Item 9	23	3.74	1.18
Pre Item10	22	4.09	.92
Pre Item11	23	2.96	1.87
Pre Item12	23	3.39	.89
Pre Item13	23	4.13	.92

Table 3 continued…

Table 3 continued…

	N	Mean	Std. Deviation
Pre Item14	23	3.78	1.48
Pre Item15	22	3.05	1.21
Pre Item16	23	3.22	1.38
Pre Item17	23	3.52	1.41
Pre Item18	23	2.83	1.56
Pre Item19	23	3.74	.96
Pre Item20	23	2.17	1.67
Pre Item21	23	3.04	1.55
Pre Item22	23	4.00	1.13
Pre Item23	23	3.83	1.07
Pre Item24	23	3.96	1.11
Pre Item25	23	2.70	1.43
Pre Item26	23	3.30	1.40
Pre Item27	23	4.26	.86
Pre Item28	23	3.61	1.62
Pre Item29	23	3.96	.83
Pre Item30	23	4.39	.66

b. Post-test

	N	Mean	Std. Deviation
Post Item 1	23	4.39	.72
Post Item 2	23	4.39	.66
Post Item 3	23	4.35	.78
Post Item 4	23	4.22	.74
Post Item 5	23	4.57	.79
Post Item 6	23	4.22	1.28
Post Item 7	23	4.26	1.01
Post Item 8	23	4.22	.74
Post Item 9	23	4.48	.73
Post Item 10	23	4.83	.58
Post Item 11	23	4.70	.64
Post Item 12	23	4.13	.97
Post Item 13	23	4.43	.84
Post Item 14	23	4.39	1.23
Post Item 15	23	3.78	1.24
Post Item 16	23	3.83	1.27
Post Item 17	23	3.96	1.2
Post Item 18	23	2.65	2.0
Post Item 19	23	4.57	.73
Post Item 20	23	4.39	1.1
Post Item 21	23	4.61	.66
Post Item 22	23	4.74	.45
Post Item 23	23	4.70	.56
Post Item 24	23	4.57	.79
Post Item 25	23	4.70	.56
Post Item 26	23	4.61	.72
Post Item 27	23	4.78	.52
Post Item 28	23	4.30	.93
Post Item 29	23	4.65	.57
Post Item 30	23	4.87	.46

Table 3 continued…
c. Follow-up

	N	Mean	Std. Deviation
Follow Item 1	4	4.00	1.16
Follow Item 2	4	4.00	1.16
Follow Item 3	4	4.00	1.16
Follow Item 4	4	3.75	.96
Follow Item 5	4	4.50	1.00
Follow Item 6	4	3.25	2.22
Follow Item 7	4	4.50	.58
Follow Item 8	4	4.50	.58
Follow Item 9	4	4.25	.96
Follow Item 10	4	4.50	1.00
Follow Item 11	4	4.25	.96
Follow Item 12	4	4.25	.50
Follow Item 13	4	4.25	.96
Follow Item 14	4	5.00	.00
Follow Item 15	4	4.50	1.00
Follow Item 16	4	4.00	.00
Follow Item 17	4	4.50	.58
Follow Item 18	4	3.75	1.26
Follow Item 19	4	4.00	.82
Follow Item 20	4	3.75	1.50
Follow Item 21	4	4.25	.96
Follow Item 22	4	4.25	.96
Follow Item 23	4	4.00	.82
Follow Item 24	4	4.50	1.00
Follow Item 25	4	4.25	.96
Follow Item 26	4	4.50	1.00
Follow Item 27	4	5.00	.00
Follow Item 28	4	4.75	.50
Follow Item 29	4	4.75	.50
Follow Item 30	4	4.75	.50

Another way to examine trends in the data is to group items as a function of their content. Recall, some items focused on speech and language development, some on play, and some on reading. Descriptive statistics for pretest data of these three types of questions are presented in Table 4. As can be seen, the teachers displayed the greatest knowledge and skill for the play questions, then the general speech and language questions, and last the reading questions, but differences were not statistically significant when examined with paired t-tests.

Table 4

Average scores on questionnaire as a function of item type.

	N	Mean	Standard Deviation
Speech and Language[a]	22	3.50	.70
Play	23	3.70	.64
Reading[a]	21	3.34	.65

[a] One to two child care providers left an item on the questionnaire blank so an average was not calculated.

The next analysis examined differences between the teachers' pretest and post-test scores. The pretest average was 3.50 (SD=.56) and the post-test average was 4.37 (SD=.49). A paired t-test indicated that the scores increased as a function of training, $t(20) = 7.70$ $p < .001$ (See figure 1). Three paired t-tests indicated that the teachers scores on all three types of questions increased with training; general speech and language, $t(21)=5.73$, $p<.001$; play $t(22)=7.12$, $p<.001$; reading $t(20)=6.12$, $p<.001$.

Figure 1

Average scores on questionnaire

The next analysis examined the data from the four teachers who received follow-up training by the clinician. The post-test average was 4.18 (SD=.65) and follow-up was 4.28 (SD= .66). A paired t-test indicated that the scores were not statistically significant from each other (see Figure 2).

Figure 2

Average Scores from Follow-Up Training

CHAPTER 4

DISCUSSION

The purpose of the current study was to examine the effect of group-based

training to increase child care providers' self ratings of their knowledge and skill in child

language-literacy development and language-literacy facilitation methods. Additional

one-on-one training in the classroom was administered to four teachers and they rated

themselves a third time. Chapter 4 is divided into three sections. The first section

discusses the results of the research questions that guided the study, the next session

discusses the implications of the research, and the third section discusses the limitations

of the data and offers suggestions for future studies.

<u>Interpretation of Results</u>

The first research question examined which areas of speech and language were

the teachers most knowledgeable and skilled. Descriptive results showed that the

teachers rated themselves highest on questions related to play, next on general questions

related to child speech and language development, and last to questions related to

reading. The second research question focused on whether teachers increased their self-

ratings as a result of attending group-based training in child language-literacy training.

The findings indicated that of the 30 items on the questionnaire, the teachers' ratings

showed a statistically significant increase from pre to post. Also, the training was equally

beneficial in increasing the child care providers' knowledge and skills of the three

general areas (speech-language development, play, reading). The third question

examined whether additional one-on-one training would lead to increased knowledge and

skills of the child care providers. Non-significant results were found for the analysis of this question.

Implications of the Research Findings

The results of the current study suggest that group-based training is useful for presenting information pertaining to child language-literacy development to child care providers who work in low-income child care centers. Overall, the child care providers' self ratings increased as a result of attending two, two-hour workshops.

Results of this study are similar to the findings of Giralametto et al. (2003) in that both studies found positive outcomes as a result of teacher training. However, the training examined in the current study was significantly shorter than Giralametto et al.'s, and measures of outcome were very different. The current study made use of a self-rating questionnaire and Giralametto et al. used behavioral rating scales and videotaped sessions of children and adults.

Limitations of the Study

One limitation was that the teachers were not working during the training so they were unable to practice different strategies that were introduced in the sessions. Also, the training sessions only occurred over a period of two days for a total of four hours as opposed to a lengthier period of 14 weeks in Girolametto et al.'s study (2003). A limitation of the follow-up group was that the number of participants was very small and therefore decreased the opportunity to produce statistically significantly results when the post-test scores and follow-up scores were compared. Again, one-on-one training only occurred on two days, which may not be a long enough time to change a child care provider's knowledge and skills.

Another limitation of the study was that a self-rating questionnaire is not a strong tool in analyzing the effects of training. For example, some teachers quickly finished the post-test and follow-up questionnaire by simply scoring "fives" on everything. However, it should be pointed out that if they rated themselves as a five on all the items then they should have also done this for question 18, the non-facilitative question. Although this did not occur (recall question 18 presented a low average score at post-test and follow-up), general increases on the other items following training may have occurred because of a "halo effect." The "halo effect" in research is when study participants' general impression of an examiner (or in this case trainer) influences their performance within an experiment. (Lin & Gronlund 1995). In other words, if the child care providers liked the trainer of the workshops, she may have been more inclined to give higher scores on the questionnaire following training.

Suggestions for Future Research

Suggestions for future research include examining different length and duration schedules for presenting the training. For example, researchers may want to present a series of workshops over several weeks while the teachers are actually working in the centers. This would allow the teachers time to consider the training content as part of their classroom experiences. They could also use this time to experiment with the language-literacy facilitation strategies while teaching. Questions or comments from the teachers could also be addressed as they occurred across the training period.

Another suggestion for future research would be to include more teachers in follow-up training to determine whether or not additional one-on-one training produces significantly different results. Related to this suggestion would be the need for the scale

of the question to allow for additional increases in teacher knowledge and skill at follow-up. Recall that non-significant differences were found when the follow-up scores were compared to the post-test scores. This null finding may have occurred because the teachers were already at ceiling at post-test.

Finally, future studies should include a questionnaire that would directly assess the knowledge and skills of the teachers. Recall that the current questionnaire asked the teachers to rate themselves. A better tool for the future would be a probe (e.g., a multiple choice questionnaire, fill in the blank questionnaire, or even an essay questionnaire) that asks teachers to answer questions about child language-literacy development and child language-literacy facilitation techniques. For example, rather than ask the teachers to rate their knowledge of print awareness, the new probe would ask them to define this term or ask them to select from a series of options a child behavior that illustrates this term.

At the same time, comments made by the participants during the current training study indicated that an audience's attitudes and self-ratings should never be overlooked when the goal of the training is to change participant behavior. Anecdotal evidence from the current study suggested that the self-rating questionnaire helped the participants reflect upon their beliefs and behaviors within the training sessions. For example, during the training, one of the program directors questioned if the different strategies took the "fun" out of reading since it concentrated on "teaching." Another teacher expressed her opinion about "baby talk" during the training and indicated that she didn't feel an adult should imitate a newborn's babble nor let babies use words such as "ba-ba" for "bottle." When these types of comments were offered in the training sessions, the trainer was able

to use them to share additional information about child speech and language development

to the participants.

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APPENDIX: QUESTIONNAIRE

"TIPS ABOUT TALK"

In order for us to improve our workshops, we are asking that you complete this questionnaire before the first workshop and following the final workshop. Your information will be confidential.

Demographic Information

Please answer the following information about yourself:

1. Race: _____

2. Age: _____

3. Highest level of education: _____

4. Have you had any additional training specific to child care?

   _____

5. How long have you worked in child care? _____

6. How long have you worked at this facility? _____

Please circle the number that best describes your opinion. Thank you!

1	I am familiar with speech developmental milestones in children.	0 1 2 3 4 5
2	I am familiar with language developmental milestones in children	0 1 2 3 4 5
3	I am familiar with pre-literacy development milestones in children.	0 1 2 3 4 5
4	I am familiar with literacy development milestones in children.	0 1 2 3 4 5
5	I understand how ear infections can affect child speech and language development.	0 1 2 3 4 5
6	I know what a speech-language therapist does.	0 1 2 3 4 5
7	I know what articulation is.	0 1 2 3 4 5
8	I would know when to talk to a parent about speech or language concerns.	0 1 2 3 4 5
9	I understand that a speech therapist can identify language problems such as comprehension (understanding), vocabulary, grammar, and reading.	0 1 2 3 4 5
10	I know how to expand a child's language during book reading.	0 1 2 3 4 5

11	I know what print awareness means.	0 1 2 3 4 5
12	When reading with a child, I incorporate alphabet knowledge.	0 1 2 3 4 5
13	When reading with a child, I say more about the page than the printed words.	0 1 2 3 4 5
14	I read differently to a one year old as opposed to a three year old.	0 1 2 3 4 5
15	I spend time reviewing the cover of the book before presenting the story.	0 1 2 3 4 5
16	I make comments and ask questions about the print.	0 1 2 3 4 5
17	I point to print on each page.	0 1 2 3 4 5
18	I make it a point to get through the whole book during the designated reading time.	0 1 2 3 4 5
19	I know about other types of activities besides reading books to help develop a child's literacy abilities.	0 1 2 3 4 5
20	I know the definition of phonemic cue.	0 1 2 3 4 5
21	I understand the connection between play and language development.	0 1 2 3 4 5
22	I understand the adult's role in children's play.	0 1 2 3 4 5
23	I know how to help children learn to talk when playing with toys.	0 1 2 3 4 5
24	When I play with toys with a child, I talk about what I am doing with the toy.	0 1 2 3 4 5
25	I know the difference between perceptual and functional play.	0 1 2 3 4 5
26	I understand the different levels of play.	0 1 2 3 4 5
27	I know how to follow a child's lead during play.	0 1 2 3 4 5
28	I talk differently during play to the different age groups.	0 1 2 3 4 5
29	I understand the role of toys in a child's development of language.	0 1 2 3 4 5
30	I try to incorporate social skills into playtime.	0 1 2 3 4 5

VITA

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