

University of Montana

ScholarWorks at University of Montana

Graduate Student Theses, Dissertations, &
Professional Papers

Graduate School

2016

Preschool Writing Instruction: Modeling the Writing Stages

Shelby Swant

University of Montana - Missoula

Follow this and additional works at: <https://scholarworks.umt.edu/etd>



Part of the Educational Methods Commons

Let us know how access to this document benefits you.

Recommended Citation

Swant, Shelby, "Preschool Writing Instruction: Modeling the Writing Stages" (2016). *Graduate Student Theses, Dissertations, & Professional Papers*. 10649.

<https://scholarworks.umt.edu/etd/10649>

This Thesis is brought to you for free and open access by the Graduate School at ScholarWorks at University of Montana. It has been accepted for inclusion in Graduate Student Theses, Dissertations, & Professional Papers by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.

Preschool Writing Instruction: Modeling the Writing Stages

Shelby Swant

University of Montana

PRESCHOOL WRITING INSTRUCTION: MODELING THE WRITING STAGES

By

SHELBY MARIA SWANT

Bachelor of Arts, University of Montana, Missoula, MT, 2014

Thesis

presented in partial fulfillment of the requirements
for the degree of

Master of Science
In Speech Language Pathology

Department of Communicative Sciences and Disorders
University of Montana
Missoula, MT

May 2016

Approved by:

Lucy Hart Paulson Ed.D., CCC-SLP
Department of Communicative Sciences and Disorders

Laurie Slovarp, Ph.D., CCC-SLP,
Department of Communicative Sciences and Disorders

Kate Brayko, Ph.D
Department of Curriculum and Instruction

Abstract

Swant, Shelby, M.S., Spring 2016

Speech-Language Pathology

Preschool Writing Instruction: Modeling the Writing Stages

Chairperson: Lucy Hart Paulson, Ed.D., CCC-SLP

Writing is an essential component of language development and early literacy. With the growing focus on national and state education standards, the early foundation of writing and literacy skills proves to be an area of importance and concern; however, limited research has been conducted in the area of preschool writing instruction. This study investigated writing and other foundational literacy skills in preschoolers following three different instructional conditions. Preschoolers ($n=85$), who attended a preschool educational setting serving low-income families, were randomly assigned to classrooms in three research groups: control, comparison, and treatment. The control group participated in implicit writing experiences and instruction, typical in many preschool classrooms. Students in the comparison group received biweekly *modeled adult writing* instruction, and students in the treatment group received biweekly *modeled emergent writing* instruction over a 10 week period of time. Pre- and post-assessment of early literacy skills indicated that children who received *modeled emergent writing* and those who received *modeled adult writing* demonstrated statistically significant improvement in their early writing skills compared to children in the control group who did not receive explicit writing instruction. Results indicated no statistical significance for letter knowledge, print concept, and phonological awareness skill growth between the research groups. Writing skill growth occurred among 3-, 4-, and 5-year-old participants. This study contributes to the knowledge base of the most effective and efficient form of writing instruction for preschool children building early literacy foundations needed for later achievement.

Keywords: emergent writing, instruction, preschool, early literacy skills

Acknowledgments:

I would first like to thank my committee chair, Dr. Lucy Hart Paulson. She has inspired and fostered my passion in early literacy development. Without her patience, humor, and understanding, this master's thesis would have been impossible.

I would also like to thank:

My thesis committee members, Dr. Laurie Slovarp and Dr. Kate Brayko, for taking the time out of their already busy schedules to help shape this project with their creativity and innovative thinking;

Dr. Daniel Lee of the Department of Educational Leadership for his critical and invaluable support with the data analysis;

The faculty members of the Communicative Sciences and Disorders department at the University of Montana for guidance and dedication to my education;

The undergraduate research assistants involved in the project, who contributed immensely and conducted the research procedures;

and,

My family and friends, for their endless love, words of encouragement, and unfailing support. Thank you.

Table of Contents

Abstract	iii
Acknowledgments:.....	iv
List of Tables	Error! Bookmark not defined.
List of Figures	Error! Bookmark not defined.
Chapter 1: Introduction	1
Review of the Literature	2
Importance of early literacy.....	2
Required skills for early writing	3
Writing development.....	4
Assessing emergent writing.....	6
Instruction and dosage.....	7
Chapter 2: Methods	11
Experimental Design.....	11
Participants.....	11
Procedures	14
Measures.....	15
Variables	16
Statistical Methods and Analysis Procedures.....	17
Chapter 3: Results	19
Assessment Results	19
Modeled writing intervention.....	19
Comparison of emergent literacy screening results	22
Comparing age and writing growth.....	26
Comparing age and writing stage.....	28
Reflective Observations.....	30
Discussion	32
Limitations.....	36
Implications for future research.....	37
References	38
Appendix A	42
Appendix B	43

List of Tables

Table 1. Rubric of Emergent Writing Stages	5
Table 2. Participants in Research Groups	12
Table 3. Early Writing Rubric	16
Table 4. Mean Writing Gain Scores and Standard Deviations for Each Group	20
Table 5. Writing Growth Test of Homogeneity	21
Table 6. Writing Growth Post Hoc Test Results	22
Table 7. Mean Early Literacy Skills Gains and Standard Deviations for Each Group ...	23
Table 8. Early Literacy Skills Test of Homogeneity	23
Table 9. Participants Sample Size by Age Group	27
Table 10. Mean Writing Gains and Standard Deviations by Age	27
Table 11. Writing Gain by Age Test of Homogeneity	28
Table 12. Mean Writing Stage and Standard Deviations by Age	28
Table 13. Mean Writing Stage by Age Test of Homogeneity	29
Table 14. Mean Writing Stage by Age Post Hoc Test Results	30

List of Figures

<i>Figure 1.</i> Gender demographics.....	12
<i>Figure 2.</i> Ethnicity demographics.....	13
<i>Figure 3.</i> Mean age comparison for each research group.....	14
<i>Figure 4.</i> Writing mean gain scores by group.....	21
<i>Figure 5.</i> Mean gain scores in letter knowledge skills.....	244
<i>Figure 6.</i> Mean gain scores in print concept skills.....	255
<i>Figure 7.</i> Mean gain scores in phonological awareness skills.....	256
<i>Figure 8.</i> Mean writing gain scores for each age group.....	277
<i>Figure 9.</i> Mean writing stage by age group.....	299

Chapter 1: Introduction

Our world requires writing, both socially and professionally (Bangert-Drowns, Hurley, & Wilkinson, 2004). Writing is an essential component of language development (American Speech Language Hearing Association [ASHA], 2001) and early literacy (Gerde, Bingham, & Wasik, 2012). With the growing focus on national and state education standards, the early foundation of writing and literacy skills proves to be an area of importance and concern. Prior to kindergarten, children begin learning about letter names, shapes and purpose. Many learn to write their names and write familiar words in the appropriate writing format (Montana Early Learning Standards Task Force, 2014). According the Common Core State Standards, by the end of kindergarten children are expected to write and use a combination of drawing, dictating, and writing to compose informative, narrative, and opinion text (National Governors Association Center for Best Practice, Council of State School Officers, 2010). Yet with documented early foundational standards in place, the National Center for Education Statistics found 20% of eighth-graders failed to reach basic writing expectations and 74% did not reach the proficient level (National Center for Education Statistics [NCES], 2012) indicating the instruction methods of early writing foundations should be further investigated.

According to the American Speech, Language, and Hearing Association (2001), speech-language pathologists (SLPs) have a role and responsibility to prevent, identify, and intervene with language and literacy including reading and writing. With the close interrelationship between reading and writing and the increasing national emphasis on

early literacy, it is important for SLPs to address the development, assessment, and instruction pertaining to emergent writing.

The purpose of this study was to examine the effectiveness of early writing instruction with preschool students when instruction includes the modeling of the developmental stages of writing acquisition followed by students participating in writing-focused activities. Existing research lacks a clear consensus for the most effective writing instruction method and the impacts of the instruction on early literacy. The results from the study contribute to the knowledge base of preschool literacy development, specifically writing instruction and acquisition.

Review of the Literature

Importance of early literacy. According to the National Reading Panel [NRP] (2000) and confirmed by the National Early Literacy Panel report [NELP] (2008), abilities in oral language, phonological awareness, and print knowledge learned in the preschool years build the foundation for conventional literacy in phonemic awareness, phonics, vocabulary, reading fluency, and reading comprehension. Missing from this seminal meta-analysis was the writing process of transcription and composition. Six specific variables, which were identified by the NELP (2008), influence literacy development. These include: alphabet knowledge, phonological awareness, writing skills, phonological memory, and rapid automatic naming. Specifically, the writing skills listed combined own-name writing and composition writing. Early writing predicts later educational abilities including reading, spelling (NELP, 2008), and early elementary success (Diamond, Gerde, & Powell, 2008). Not only can writing skills increase comprehension and achievement in all subject areas (Bangert-Drowns et al., 2004) but

engaging in writing can develop and foster increased literacy (Aram & Biron, 2004) and oral language skills (ASHA, 2001) in preschoolers. As a foundational skill of literacy, early writing skills should be an area of assessment, monitoring, and intentional instruction at the preschool level.

Required skills for early writing. Writing is a foundational skill that requires a combination of motor and cognitive-linguistic skills (ASHA, 2001). Specific language skills needed for writing development include print concepts, letter knowledge, and phonemic awareness along with oral language skills that are represented in print. Along with writing, literacy skills develop as letter knowledge and phonological awareness continually integrate into an understanding of the alphabetic principle, which is the concept that letters represent speech sounds (Cabell, Puranik, & Tortelli, 2014).

Although writing is considered a linguistic skill that relies heavily on language, motor skills matter greatly. Early writing is a complex motor task involving motor planning, visual-motor integration, kinesthesia, and in-hand manipulation (Tseng & Cermak, 1993; Tseng & Murray, 1994; Weil, Cunningham, & Amundson, 1994). Executive functioning skills also contribute to writing competency. Beginning writers must exhibit inhibition, working memory, goal setting, planning, and self-regulating skills (Altemeier, Abbot, and Berninger, 2008; Graham & Harris, 2000). Despite the complex combination of required skills, children can demonstrate early writing behaviors as young as two years of age (Puranik & Lonigan, 2011). Engagement in writing experiences helps to improve motor skills, oral language, and early literacy skills (Berninger, Abbott, Jones, Wolf, Gould, Anderson-Youngstrom, Apel, 2006). Letter formation is needed for own-name writing; however, invented spelling for composition or

message writing requires a broader and deeper understanding of print and should be considered as different skill sets (Puranik, Lonigan & Kim, 2011).



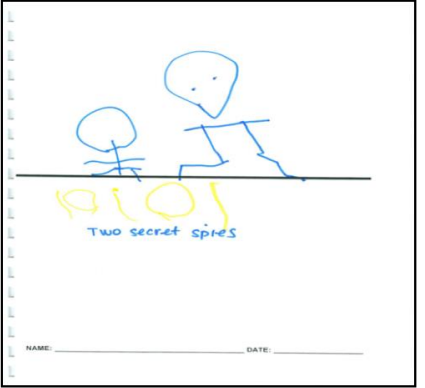
Writing development. Typical writing acquisition occurs in a predictable progression of identified stages. The development can be described using the combination of the Early Writing Framework (Cabell, Tortorelli, & Gerde, 2013) and Sulzby's Forms of Writing (Sulzby, Barnhart, & Hieshima, 1998) into the following developmental stages: drawing, scribbling, mock letters, random letters, semi-phonetic, and phonetic. The stages of transitional and conventional complete the writing framework beyond the early writing development period. The writing process begins when children learn to differentiate drawing and writing.

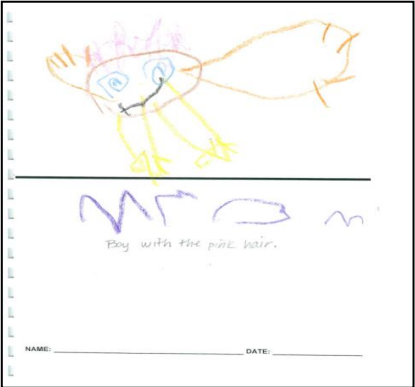


During the initial stage, children scribble as a means of writing, which differs from their drawing. Scribble writing is characterized by a horizontal orientation and, most often, left to right production (Cabell et al., 2013). Following scribbling, children develop greater print awareness by scribing mock letters, which are individual letter-like "squiggles" instead of a continuous form. As children develop more print awareness, they scribe letters randomly, which can consist of letters from of their own names, patterns of familiar letters, or random letters without sound/symbol connections (Sulzby et al., 1998). Once children acquire an understanding of the relationship between letters and sounds, they progress into the semi-phonetic or salient and beginning sounds stage. Print knowledge, alphabet knowledge, and phonological awareness are combined within this stage. In the beginning and ending sounds, or phonetic stage, children demonstrate advanced emergent writing using close phoneme/grapheme representations as their phonological awareness skills increase (Cabell et al., 2013).

Using the documented and established stages, children’s writing development level can be identified based on the characteristics of their writing samples. Table 1 displays the detailed descriptions and examples of the early writing stages.

Table 1

Rubric of Emergent Writing Stages

Score	Stage	Description	Example
1	Drawing	<p>Draws a picture for the entire composition with generally no distinction between drawing and composition writing.</p> <p>“A funny rainbow.”</p>	
2	Scribbling	<p>Scribes irregular, horizontal, wavy left-to-right lines with or without breaks.</p> <p>“A spider is on a rainbow.”</p>	
3	Mock Letters	<p>Uses simple characters with features from letters and/or resembles manuscript letters created by a child.</p> <p>“Two secret spies.”</p>	

4	Random Letters	<p>Writes letters such as those in the child's name or generated at random without any sound/symbol connection.</p> <p>"Boy with the pink hair."</p>	
5	Semi-phonetic	<p>Writing contains incomplete phonetic relationship between sounds in the spoken words and the letters used to stand for those.</p> <p>"Bumble bee boy."</p>	
6	Phonetic	<p>Uses letters for all or almost all of the sounds in the spoken word.</p> <p>"A dragon fly."</p>	

Assessing emergent writing. Screening early literacy skills can identify children who have met established benchmarks and those who may be at risk for literacy challenges, in need of further assessment, and potentially additional detailed instruction (Invernizzi, Justice, Landrum, & Brooker, 2005; Pool & Johnson, 2015). Many early literacy screening and assessment tools include an own-name writing task; yet,

message writing is most often not included. As an example, the *Phonological Awareness Literacy Screening for Preschool (PALS-PreK)* includes an own-name writing component but does not assess letter writing or invented spelling (Pool & Johnson, 2015). Screening and assessment tools need to be further researched and developed to assess all foundational literacy skills including early letter writing and composition in addition to own-name writing.

Instruction and dosage. The development of oral language occurs naturally within nurturing and engaging, everyday interactions for most children (Hoff, 2006). In contrast, Graham and Perin (2007) stated that learning to read and write requires direct and intentional instruction. The results of a systematic review on early writing instruction effectiveness conducted by Hall, Simpson, Guo, and Wang (2015) with preschoolers indicated that teaching writing supports writing development and other literacy skills. The researchers determined that teachers who incorporated direct writing instruction with scaffolding facilitated early literacy skills. At-risk students particularly benefited from more explicit instruction. Cabell et al. (2013) recommended that writing instruction for preschoolers include interactions and discussions about writing as well as provide developmentally appropriate modeling and scaffolding. Advanced stages can, therefore, be targeted through instruction with scaffolding through the predicted and established developmental stages.

Writing in preschool is largely underrepresented in most classrooms and even non-existent in some, despite the evidence supporting direct writing instruction (Gerde et al., 2012). Pelatti, Piasta, Justice, and O'Connell (2014) analyzed how 81 early childhood educators approached language and literacy learning. Of this group, 51 early

educators provided writing learning opportunities in their classrooms with an average time of 3.28 minutes a day devoted to writing.

Intervention dosage is a growing topic in the field of communication disorders. Hall et al. (2015) examined time dedicated to writing instruction in preschool across numerous studies. They noted direct instruction and activities varied from 20-60 minutes a week for a duration ranging from eight weeks to seven months. They noted there was no clear consensus on the ideal dosage of preschool writing instruction. Determining appropriate dosage of a selected intervention could give speech-language pathologists and early childhood educators a better understanding of the optimal frequency and duration of service and appropriate instruction delivery.

The existing evidence leads to avenues of further research on preschool writing instruction, methods, and related factors such as critical age of development and related growth of other literacy skills. This study examined the effects of *modeled emergent writing* instruction, *modeled adult writing*, and *traditional* implicit instruction with preschoolers. The study presented the following research questions and hypotheses:

Does *modeled emergent writing* instruction result in greater written language improvement for preschool students compared to *modeled adult writing* instruction and *traditional* instruction, when delivered twice a week for ten weeks?

- Null hypothesis: Preschool children who participate in *modeled emergent writing* will not achieve greater improvement in written language skills in comparison to the preschool children participating in *modeled adult writing* or *traditional* writing instruction.

- Hypothesis: Preschool children who participate in *modeled emergent writing* will achieve greater improvement in written language skills than preschool children participating in *modeled adult writing* or *traditional* writing instruction.

Does *modeled emergent writing* instruction improve phonological awareness, letter knowledge, and print concepts compared to other instructional approaches?

- Null hypothesis: Preschool children who participate in *modeled emergent writing* instruction will not demonstrate an improvement in print concepts, letter knowledge, and phonological awareness skills compared to the participants receiving the other instructional approaches.
- Hypothesis: Preschool children who participate in *modeled emergent writing* instruction will demonstrate an improvement in print concepts, letter knowledge, and phonological awareness skills compared to the participants receiving the other instructional approaches.

Do three-, four-, and five-year-old children demonstrate different writing gains, suggesting an optimal age to acquire early writing skills?

- Null hypothesis: Three-, four-, and five-year-old children will not demonstrate an optimal age of writing development as measured by mean writing gains.
- Hypothesis. Three-, four-, and five-year-old children will demonstrate an optimal age of writing development as measured by mean writing gains.

Do three-, four-, and five-year-old children demonstrate trends in stages of writing development?

- Null Hypothesis: Three-, four-, and five-year-old children will not demonstrate trends in stages of writing development as observed by each group demonstrating different stages of writing development.
- Hypothesis. Three-, four-, and five-year-old children will demonstrate trends in stages of writing development as observed by each group demonstrating different stages of writing development.

Chapter 2: Methods

Experimental Design

Using the prospective cohort quasi-experimental design, the study investigated the impact on preschoolers' writing development and other early literacy skills comparing *traditional* implicit writing instruction, *modeled adult writing* instruction and *modeled emergent writing* instruction, which entails modeling the developmental stages of writing.

Participants

The participants of the study were recruited based on their enrollment in half-day preschool classrooms in a program serving low income families. All students in this study came from low socioeconomic backgrounds, which, as previous research has found, could have influenced the students' baseline measures and overall skills and outcomes. The data collection for this study took place in six preschool classrooms in a moderately-sized community in the northwest region of the United States during the 2015 spring semester. Within this sample, 51 girls and 42 boys enrolled in the study.

While the study began with 93 participants, 85 students completed the study. As reported by the classroom teachers, many of the students who did not complete the study moved from the area or discontinued enrollment in the preschool program. The final sample was 69% Caucasian, 12% Native American, 11% multiracial, 6% Hispanic, 1% African American, and 1% were unreported. Forty-five girls and 40 boys completed the study. All students within the classrooms were included within the study including those with Individual Education Plans (IEPs) (n=8). Table 2 shows the number of

students and attrition for each research group. Figures 1 and 2 illustrate gender and ethnic demographics for the students who completed the study.

Table 2

Participants in Each Research Group

Group	Average Age in Years	Initial N	Final N	Attrition Rate
Treatment	4.00	32	30	2
Comparison	4.13	31	31	0
Control	4.33	30	24	6
Total		93	85	8

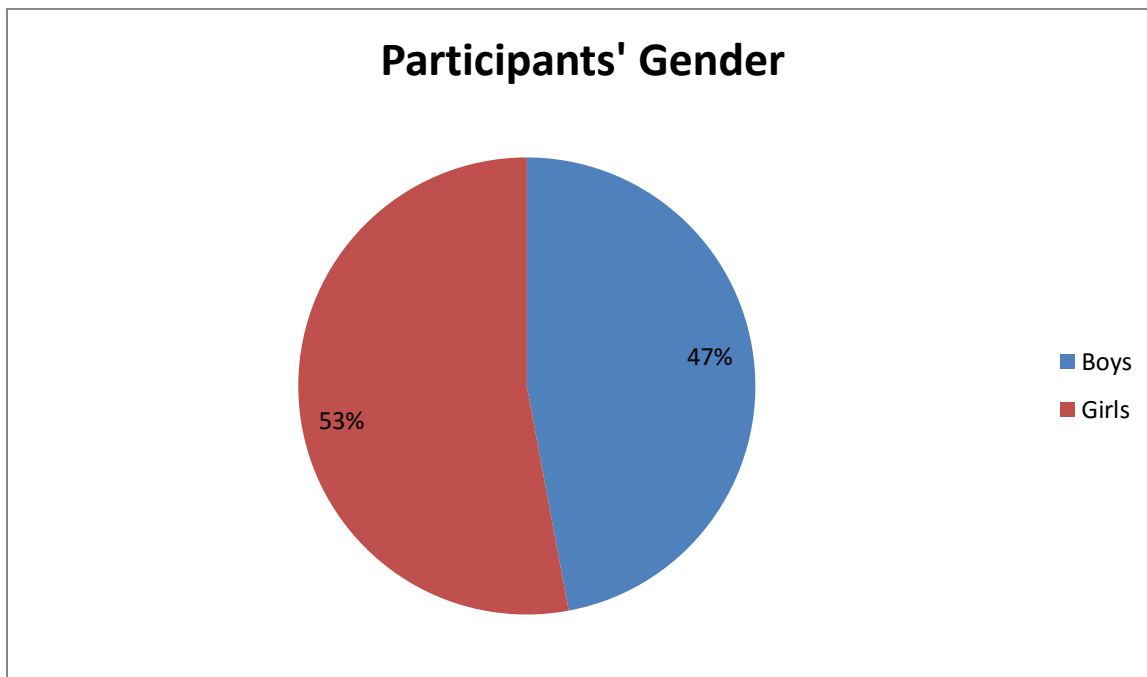


Figure 1. Gender demographics for participants who completed the study which included pre- and post-test measures.

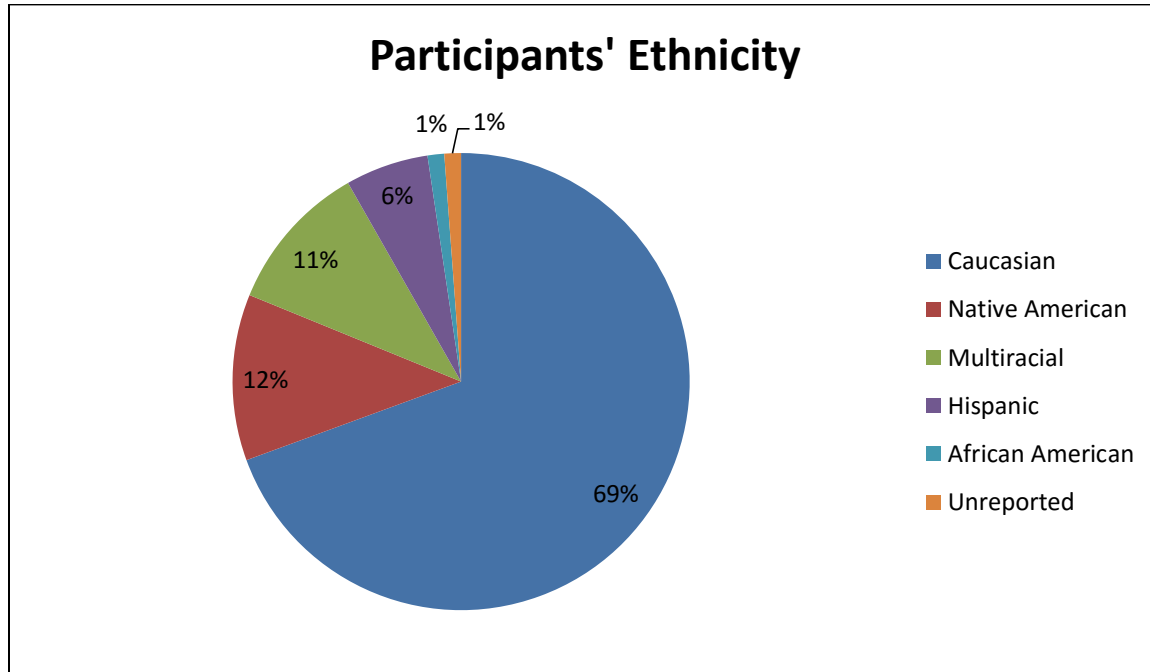


Figure 2. Ethnicity demographics for participants who completed the study which included pre- and post-test measures.

Prior to conducting statistical analysis for each research question, all three research groups were analyzed to determine any statistically significant differences in age. Statistical significance was defined at .05. Using a one-way ANOVA, the results indicated no statistical differences for the mean age of participants between the three research groups $F(2, 82) = 1.57, p = .214$; yet, a small margin was noted between the groups. The average age of participants increased from the treatment group ($M = 4.0, SD = .7$), to comparison ($M = 4.13, SD = .76$) to control ($M = 4.33, SD = .57$). Figure 3 illustrates the mean age for each research group.

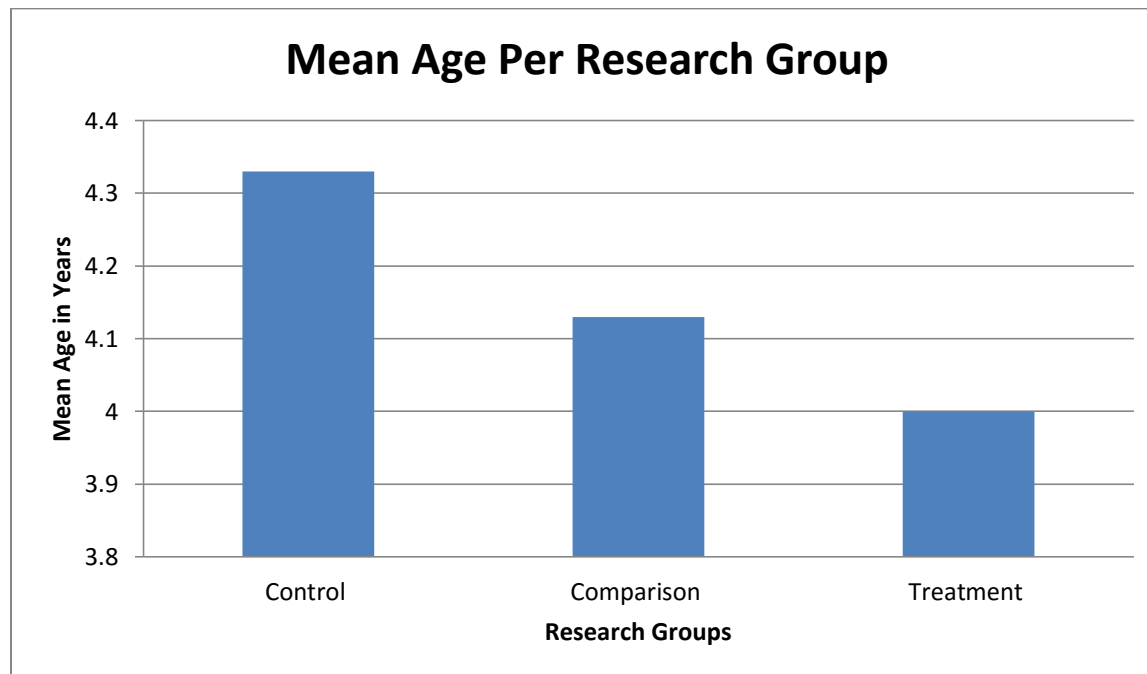


Figure 3. Mean age comparison for each research group.

Procedures

The participating six classrooms were assigned by the program administration to one of three groups: control, comparison, and treatment. Each group consisted of two classrooms. One classroom from each group was located within the main campus and one classroom from each group was housed in a satellite setting.

Through classroom teacher report, the control classrooms used implicit instruction of writing focusing mainly on own-name writing skills. The comparison and treatment groups received writing instruction twice a week for ten weeks. Each instruction session included a storybook reading experience, based on the classroom theme, followed by the researchers demonstrating the designated modeled writing by completing a "Picture-story/ Word-story", a preschool writing strategy described by Paulson and Moats (2010). For an example of a completed Picture-story/Word-story, see Appendix A. In this strategy, the adult draws a picture related to a recent event,

such as a favorite part of a story. Researchers used *modeled emergent writing* instruction for children in the treatment group, which consisted of modeling and describing the developmental stages of writing beginning with adult writing followed by semi phonetic, random letter strings, mock letters and scribbling). For the comparison group, researchers *modeled adult writing only*. After each instruction session, the children had an opportunity to write in their own journals during center time. The children's writing samples were collected and analyzed for every instructional session.

Over the course of the study, the comparison and treatment students were provided up to twenty opportunities of instruction and writing focused activities. Due to significant absences, most children participated in 10 writing opportunities.

Measures

Students in all of the groups were administered an early literacy screening to determine pre-intervention skills. The research team used a modified version of the Emergent Literacy Screening from *Building Early Literacy and Language Skills* (BELLS) (Paulson, Noble, Jepson, & van den Pol, 2001). A copy of the version used for this study can be found in Appendix B. The BELLS screening tool measured: print knowledge including book awareness, written name identification, letter naming, message writing; and phonological awareness skills including rhyme identification, blending syllables and beginning sounds, and segmenting syllables and beginning sounds. At the end of the study, all of the students were re-administered the modified BELLS screening to establish post-intervention skill development.

The students assigned to the comparison and treatment groups participated in the selected instruction (i.e. *modeled adult writing* or *modeled emergent writing*)

followed by a journal writing activity. To analyze the children's writing samples, a writing rubric was created by combining elements of Sulzby's Forms of Writing (Sulzby et al., 1998) and the Early Writing Framework (Cabell et al., 2013). The rubric scoring ranged from 1-6. Details about the rubric are in Table 3.

Table 3

Early Writing Rubric

Writing Score	Description of Writing Stage
1	Drawing with no distinction for writing
2	Scribbling
3	Mock letters
4	Random letters
5	Semi-phonetic
6	Phonetic

Three research judges, not affiliated with the data collection, were trained on identifying and scoring the stages of writing development using the modified rubric to provide a "blind" rating of the children's writing samples. The identifying information, treatment group, and the session number were not revealed to the judges to control for examiner bias. Prior to analyzing the students' writing samples, the judges completed an inter-judge reliability procedure and achieved at least 95% consistency when scoring unofficial writing samples. The judges scored the subjects' writing samples from their Picture-story/Word-story entries and BELLS writing samples.

Variables

The independent variables were the three classroom groups receiving different instructional approaches and the children's age. The dependent variables were writing

development and early literacy skills of print concepts, letter knowledge, and phonological awareness.

Statistical Methods and Analysis Procedures

Descriptive and inferential statistical analyses were completed using the Statistical Package for Social Sciences 23 (SPSS). Mean scores, standard deviations, and other descriptive statistics were calculated from the writing scores and early literacy scores, as measured by the BELLS screening. Gain scores were used to analyze between-group differences. Gain scores were calculated by subtracting baseline scores from post-treatment scores on each measure.

Histograms and boxplots of gain scores for each measure revealed approximately normal distributions allowing for parametric analysis. The one-way ANOVA test was used to determine if there was a significant difference between the groups on gain scores of all outcome measures (i.e., writing gains, letter knowledge, print concepts, and phonological awareness). To address the remaining research questions, age groups were established by sorting students in the following groups: 3-, 4-, and 5-year-olds. The students were placed within the age group based on their chronological age at the end of the study. A one-way ANOVA was also used to determine if a difference was present between age groups and gain scores, regardless of instruction type. In addition, a one-way ANOVA was used to determine if there was a difference with distinct writing stages demonstrated for each the age groups. Statistical significance was set at $\alpha = .05$.

When the ANOVA revealed a significant difference between the groups, the Tukey post-hoc test was used to determine specific differences between each group.

The research team deemed an important difference as a change in two levels of writing development based on the described rubric. Gaining two levels of writing development requires advancement in early literacy skill knowledge and understanding.

Chapter 3: Results

Assessment Results

The purpose of this study was to investigate the impact of three different writing instructional approaches on writing development, and other early literacy skills and to investigate age factors in preschool children. This study used multiple tools to examine skill areas and growth. The early literacy screening tool from BELLS was administered to all participants preceding the interventions and at the conclusion of the ten week study. The early literacy screening tool assessed each student's developmental stage of writing, knowledge and understanding of letter knowledge, print concepts, and phonological awareness skills of rhyming, blending, and segmenting. In addition, writing samples were collected from each student in the treatment and comparison classrooms after every instructional exposure. The samples were graded using the rubric based on previous research to track growth and progress. To address the research questions, data from the BELLS screening tool and writing samples were analyzed. The IBM SPSS Statistics version 23.0 was used to conduct descriptive and inferential statistical analyses. Qualitative measures were used to address each research question as well.

Modeled writing intervention. The primary research question of this study pertained to writing growth in three different writing instruction conditions. As explained in previous chapters, students in the control group received *traditional* implicit writing instruction with a focus on name writing. Students in the comparison group received biweekly *modeled adult writing* instruction, and students in the treatment group received biweekly *modeled emergent writing* instruction.

The net writing gain or loss was identified by subtracting each student's pre-test writing score from the BELLS screening from the post-test score or the highest writing level recorded through the students' writing samples at 10 instructional sessions. For example if a student earned a pre-testing score of 2 and a post-testing score of 4, the resulting writing growth score would be 2. It is important to note that while a net gain implies an improvement in abilities, a net loss value does not indicate regression, rather, a lower level of performance which may be related to factors such as willingness and/or interest to participate. Writing gain scores were .5, 1.26, and 1.43 for the control, comparison, and treatment groups (see Table 4 and Figure 4).

Table 4

Mean Writing Gain Scores and Standard Deviations for Each Group

Group	N	Mean	Standard Deviation
Control	24	.50	1.02
Comparison	31	1.26	1.18
Treatment	30	1.43	1.07

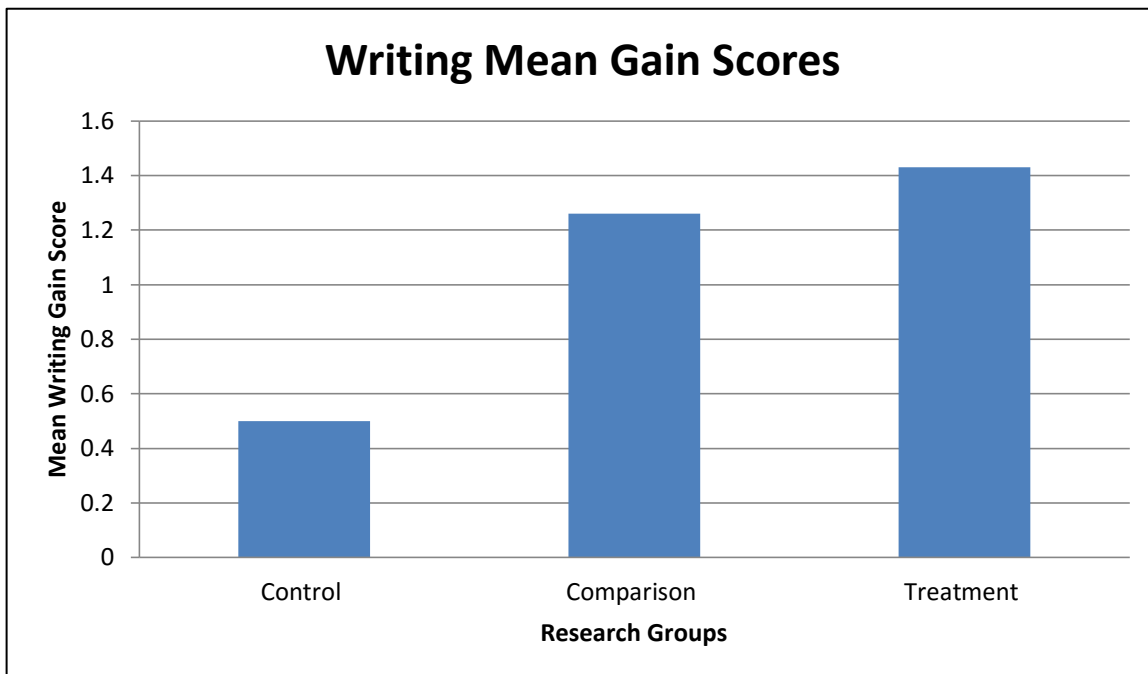


Figure 4. Writing mean gain scores by group.

A one-way ANOVA was conducted to determine if the amount of writing development (writing gain score) was different between groups. Homogeneity of variance was met ($p = .400$), as assessed by Levene's test. The test results are displayed in Table 5.

Table 5

Writing Growth Test Homogeneity of Variances

	Levene Statistic	df1	df2	Significance
Writing Growth	.927	2	82	.400

The difference between the research groups was statistically significant ($F(2, 82) = 5.26$, $p = .007$) using a one-way ANOVA. Tukey post hoc analysis revealed that the mean difference between the treatment and control groups (.93, 95% CI [0.21, 1.65]) was statistically significant ($p = .007$) as well as the mean difference between the

comparison and control groups (.76, 95% CI [0.04, 1.47] $p = .04$). The mean increase between the comparison and the treatment groups was not statically significant (.18, 95% CI [-.498, .85], $p = .81$). Table 6 shows results of the Tukey post hoc analyses.

Table 6*Writing Growth Post Hoc Test Results*

	Group	Group	Mean Difference	Significance	95% Confidence Interval	
					Lower Bound	Upper Bound
Tukey HSD	Treatment	Comparison	.18	.809	-.498	.848
		Control	.93	.007	.214	1.653
	Comparison	Treatment	-.18	.809	-.848	.498
		Control	.76	.035	.044	1.472
	Control	Treatment	-.93	.007	-1.653	-.214
		Comparison	-.76	.035	-1.472	-.044

Comparison of emergent literacy screening results. The second research question for this study aimed to identify early literacy skill improvement in relation to the provided instruction. The data for this question was collected from the BELL's early literacy screening tool pre and post-test scores in the areas of letter knowledge, print concepts, and phonological awareness. The area of letter knowledge had a total of 10 possible points; print concepts had 10 possible points; and phonological awareness had 25 possible points. Similar to measuring writing growth, a net gain or loss score was generated by subtracting the pre-test score from the post-test score from the BELL's early literacy screening subtests of letter knowledge, print concepts and phonological awareness. Again, it is important to note that net loss scores may not indicate skill regression, rather, reliability of performance.

Mean letter knowledge gain scores were .33, .81, and 1.37 for the control, comparison, and treatment groups. Mean print concept gain scores were .29, .39, and .80 for the control, comparison, and treatment groups. Mean phonological awareness gain scores were 3.03, 2.55, and 2.80 for the control, comparison, and treatment groups, respectively. Refer to Table 7 for the research group's descriptive statistics within each skill area.

Table 7*Mean Early Literacy Skills Gains and Standard Deviation for Each Group*

	Group	N	Mean	Standard Deviation
Letter Knowledge	Control	24	.33	1.09
	Comparison	31	.81	1.74
	Treatment	30	1.37	1.83
Print Concepts	Control	24	.29	1.00
	Comparison	31	.39	.95
	Treatment	30	.80	1.03
Phonological Awareness	Control	24	3.03	2.52
	Comparison	31	2.55	3.16
	Treatment	30	2.80	4.36

Homogeneity of variances was met, as assessed by Levene's test (letter knowledge $p = .075$; print concepts $p = .704$; and phonological awareness $p = .085$). Table 8 displays the results of the test of homogeneity of variance.

Table 8*Early Literacy Skills Test Homogeneity of Variances*

	Levene Statistic	df1	df2	Significance
Letter Knowledge	2.670	2	82	.075
Print Concepts	.352	2	82	.704
Phonological Awareness	2.539	2	82	.085

A one-way ANOVA was conducted to analyze differences between instructional groups on gain scores in letter knowledge, print concepts, and phonological awareness skills. Letter knowledge mean gain scores increased from the control ($M = .33$, $SD = 1.09$) to the comparison ($M = .81$, $SD = 1.74$), and the treatment ($M = 1.37$, $SD = 1.83$) research groups, in that order. Figure 5 compares the skill gains per research group. When examining letter knowledge, the gain scores approached a statistically significant difference between research groups, $F(2, 82) = 2.75$, $p = .07$.

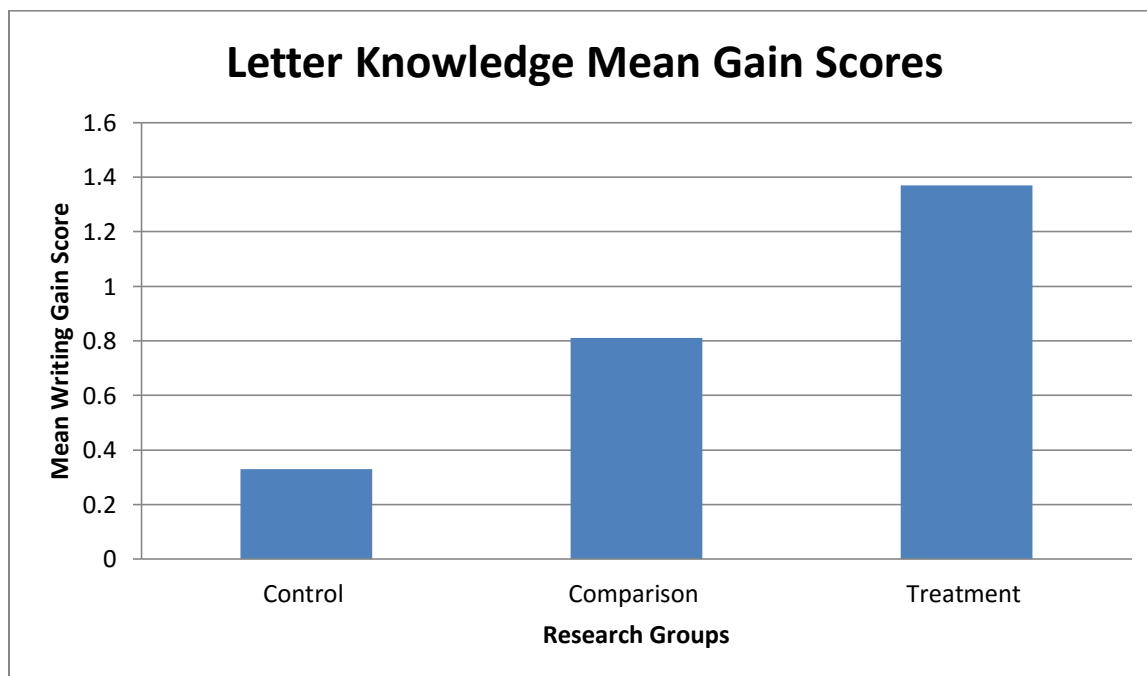


Figure 5. Mean gain scores in letter knowledge skills shown for each research group.

Print concept gain scores were not statistically significantly different between different research groups, $F(2, 82) = 2.09$, $p = .13$. See Figure 6 for an illustration of the comparison of the print concept mean gain scores between the control, comparison, and treatment groups.

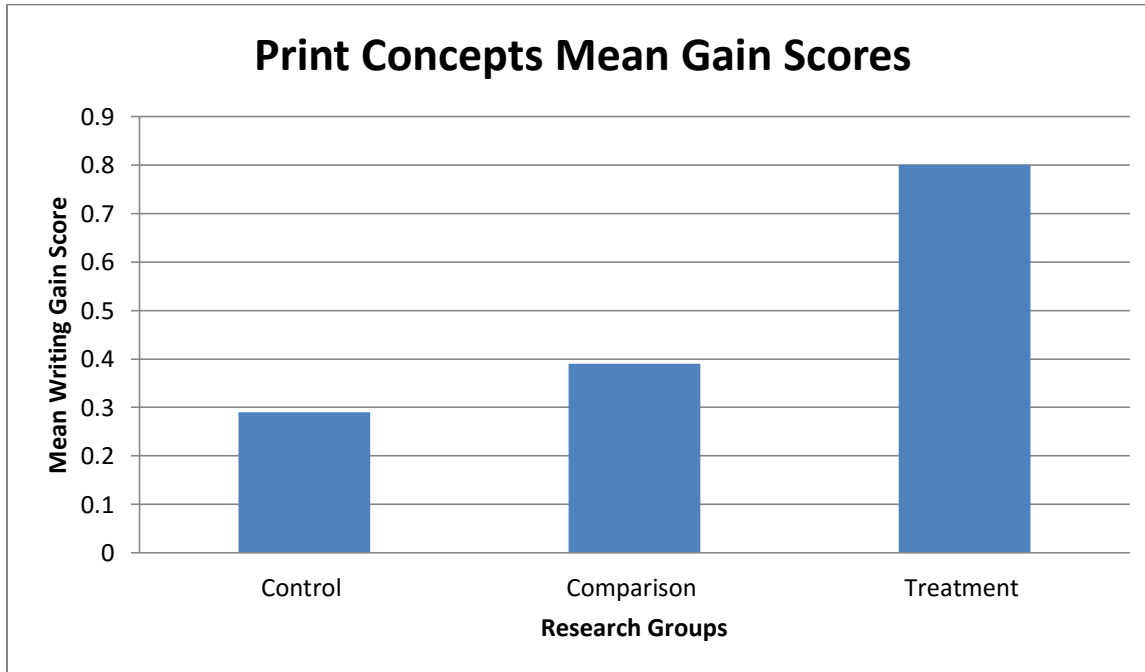


Figure 6. Mean gain scores in print concept skills shown for each research group.

Similarly, phonological awareness gain scores were not statistically significantly different between different research groups, $F(2, 82) = .16, p = .85$. See Figure 7 for the phonological awareness mean gain scores for the control, comparison, and treatment groups.

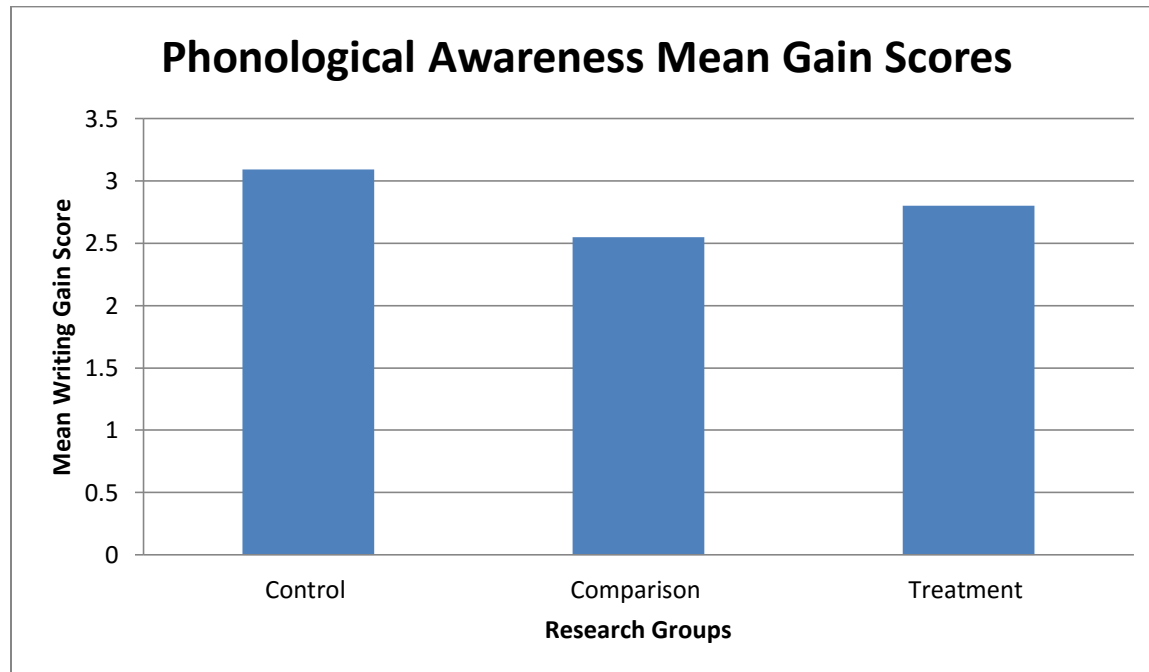


Figure 7. Mean gain scores in phonological awareness skills shown for each research group.

Comparing age and writing growth. The third research question in this study aimed to examine the possible difference between participant age and writing gains regardless of research group assignment. The relationship between writing gain scores and the age of participants was examined using a one-way ANOVA. Writing gain scores were generated through the procedures discussed previously in this chapter.

Participants were assigned to age groups based on the participant's chronological age at the end of the study. Participants were classified into three groups: three-year-olds ($n = 15$), four-year-olds ($n = 43$), and five-year-olds ($n = 27$). Table 9 displays the age group criteria and the number of participants for each age group.

Table 5

Participant Sample Size by Age Groups

Group	Age Range in Months	N
Three-year-olds	36-47	15
Four-year-olds	48-59	43
Five-year-olds	>60	27
Total		85

The mean writing gains were 1.00, 1.12, and 1.15 for 3-, 4-, and 5-year-olds, respectively (see Table 10 and Figure 8).

Table 10

Mean Writing Gains and Standard Deviation by Age

Age Group	N	Mean	Standard Deviation
Three-year-olds	15	1.00	1.00
Four-year-olds	43	1.12	1.14
Five-year-olds	27	1.15	1.29

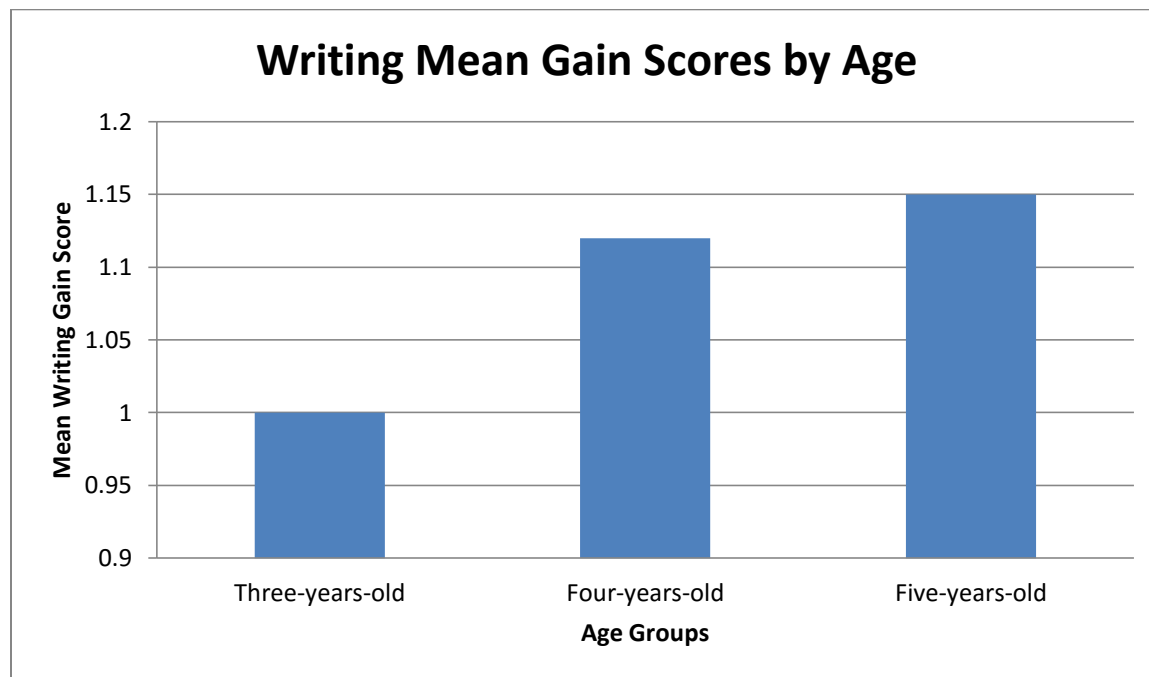


Figure 8. Mean writing gain scores for each age group.

There was homogeneity of variances, as assessed by Levene's test of homogeneity of variances ($p = .421$) allowing for parametric analysis (see table 11).

Table 11

Writing Gain by Age Test Homogeneity of Variances

	Levene Statistic	df1	df2	Significance
Writing Gain by Age	.874	2	82	.421

A one-way ANOVA was conducted to determine if improvement of writing skills (gain score) was different between the age groups. Gain scores were not statistically significantly different between different age groups, $F(2, 82) = .081$, $p = .922$.

Comparing age and writing stage. The fourth and final research question of this study aimed to investigate the possible difference between the age of the participants and the developmental writing stage achieved at post-testing. As previously described, the participants were assigned to age groups, 3-, 4- and 5-year-olds, based on the participants' chronological age at the end of the study. Refer to Table 9 for age group criteria and the number of participants per age group. The mean writing stages were 2.8, 3.79, and 4.07 for 3-, 4-, and 5-year-olds as seen in Table 12 and illustrated in Figure 9.

Table 12

Mean Writing Stage and Standard Deviation by Age

	Age Group	N	Mean	Standard Deviation
Mean Writing Stage	Three-years-old	15	2.80	.86
	Four-years-old	43	3.79	.89
	Five-years-old	27	4.07	1.14

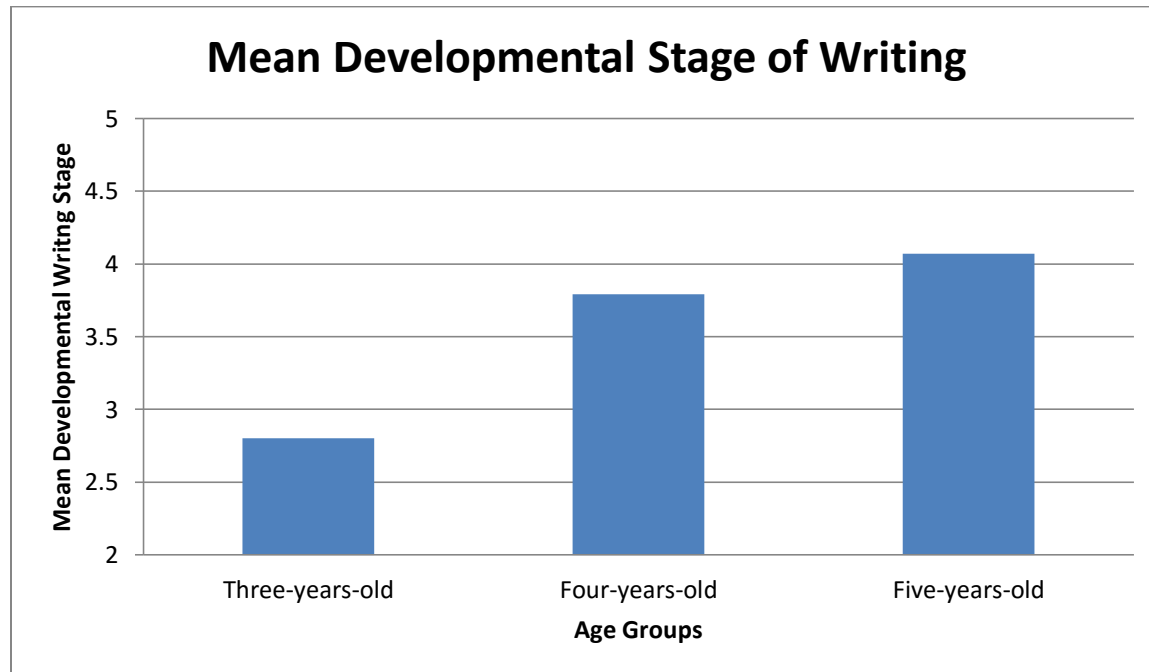


Figure 9. Mean of the highest developmental writing stage demonstrated displayed by age group.

Homogeneity of variances was met as assessed by Levene's test ($p = .395$) as seen in Table 13.

Table 13

Mean Writing Stage Test Homogeneity of Variances

	Levene Statistic	df1	df2	Significance
Writing Stage	.939	2	82	.395

A one-way ANOVA was conducted to determine if the developmental stage of writing (writing post-test score) was different for the established age groups. The developmental writing stage based on age was statistically significant between different age groups, $F(2, 82) = 8.627, p < .0001$. Tukey post hoc analysis revealed the difference between three- and four-year-olds (2.97, 95% CI [0.99, 4.96], $p = .003$), and three- and five-year-old groups (2.97, 95% CI [0.99, 4.96], $p < .0001$) were statistically

significant. Yet, the difference between four- and five-year-olds (2.97, 95% CI [0.99, 4.96], $p = .464$) was not statistically significant. Table 14 shows the post hoc analyses.

Table 14

Mean Writing Stage by Age Post Hoc Test Results

	Age Group	Age Group	Mean Difference	Significance	95% Confidence Interval	
					Lower Bound	Upper Bound
Tukey HSD	Three-year-olds	Four-	-.99	.003	-1.69	-.30
		Five-	-1.27	.000	-2.02	-.53
	Four-year-olds	Three-	.99	.003	.30	1.69
		Five-	-.28	.464	-.85	.29
	Five-year-olds	Three-	1.27	.000	.53	2.02
		Four-	.28	.464	-.29	.85

Reflective Observations. In addition to inferential statistics, qualitative data was collected and based on classroom teacher interviews and researcher observations. Throughout the study, researchers noted variance in teaching style, classroom expectations, behavior management, and curriculum implementation as expected when examining different early childhood education classrooms. For instance in some classrooms, children were expected to participate in group activities or centers regardless of interest level or challenging behaviors; while in others, children were free to participate or not. The variance in classroom dynamics could have impacted the students' skill growth and development. It is important to note that initially many students in the comparison and treatment groups required positive reinforcement and encouragement to attempt the writing activity as observed by the research team. When prompted to write, many of these students responded that they didn't know how. By the

end of the study, less prompting and encouragement was required as students appeared to gain confidence in their writing abilities.

The classroom teachers were surveyed to obtain information regarding teaching experience, philosophy of early writing, and the writing instruction implemented outside of the study. On average, the years of teaching experience held by the classroom teachers were 16.5, 14.5, and 5.5 years for the control, comparison, and treatment group. The teachers reported they provided writing instruction specifically for own-name writing. Furthermore, writing opportunities were presented in forms such as encouraging students to write their own-name on their work and/or providing centers which consisted of providing children with paper and writing utensils. In conclusion, the teachers did not implement intentional and explicit invented writing instruction or provide guided writing practice opportunities.

In summary, the data indicates that preschool writing instruction does in fact matter. Students who received either the *modeled emergent writing* or *modeled adult writing* instruction made significant writing gains in 10 exposures. Yet, the *modeled emergent writing* instruction did not produce a carry-over effect in improving letter knowledge, print concepts, and phonological awareness within this short study. Additionally when examining early writing growth, regardless of age, 3-, 4-, and 5- year-olds demonstrated gains in writing development. Each age group demonstrated writing skill gains; therefore, all children benefited from instruction with no age differences. Lastly, the data collected indicates the age does matter when considering expectations of appropriate developmental writing stages.

Discussion

Writing is an essential component of language development and early literacy. With the growing focus on national and state education standards, the early foundation of writing and literacy skills proves to be an area of importance and concern; however, limited research has been conducted in the area of preschool writing instruction and age expectations. This study examined the impacts of direct and explicit writing instruction on the development of writing and early literacy skills including letter knowledge, print concepts, and phonological awareness. In addition, the study investigated the relationship between the age of participants and their writing skill growth as well as their highest writing stage demonstrated.

When comparing writing instructional approaches and writing skill gains using descriptive and inferential statistics, it was hypothesized that the *modeled emergent writing* instruction would result in significant gain differences compared to the *modeled adult writing* instruction and *traditional* instruction method. The results indicate that children in the treatment and comparison research groups demonstrated significantly greater gains compared to the control group, indicating that providing intentional and explicit writing instruction, in combination with practice opportunities, resulted in greater growth for writing skill development. Thus both the *modeled emergent writing* instruction and *modeled adult writing* instruction demonstrated significant gains compared to children who did not receive direct and explicit instruction. As both approaches significantly increased writing skills, it can be concluded that direct writing instruction and practice influence skill gains. This finding suggests that early writing instruction and practice with preschoolers is influential and impacts performance. The treatment group

demonstrated a higher mean in writing gains compared to the comparison group; yet, the mean difference was not significant. Therefore, we cannot reject the null hypothesis and accept alternative hypothesis.

The teachers within this study reported they instructed and promoted own-naming writing on a daily basis; however, it is important to emphasize the distinct difference between message writing and own-name writing. Letter formation is needed for own-name writing; however, composition or message writing requires a broader and deeper understanding of print. Puranki, Lonigan, and Kim (2011) noted invented spelling should be considered as different skill sets. Other important factors to consider include that the treatment group had the youngest participants as well as the two teachers with the fewest years of experience and qualifications; yet, these students demonstrated the highest mean writing gains.

Furthermore, direct and explicit instruction targeting message writing with invented spelling should be incorporated into preschool curriculum through weekly implementation. The *modeled emergent writing* instruction, which incorporated the Picture-Story/Word-Story activity (Paulson & Moats 2010), served as an effective developmental writing instructional approach that could be easily implemented into the regular preschool curriculum and daily routine. After reading a story, the instruction took less than five minutes and the children spent about five minutes creating their own Picture-Story/Word-Story in their journals. The modeled emergent writing instruction would require teachers to participate in additional trainings and curriculum modifications to include the direct instructional approach; yet, the benefits outweigh the time and effort required to implement changes in the early childhood education setting.

When examining letter knowledge, print concepts, and phonological awareness, it was hypothesized that children who received the *modeled emergent writing* instruction would demonstrate significant differences in early literacy gains compared to the children who received the other instructional methods. No statistical significance in skill gains was identified between research groups implying, *modeled emergent writing* instruction does not directly or significantly impact the growth of these skill areas. Therefore, we cannot reject the null hypothesis and we cannot accept the alternative hypothesis. Yet, the students receiving the *modeled emergent writing* instruction did demonstrate the highest mean gains in letter knowledge and print concepts. The gains observed for all three groups could be described as developmental in nature rather than influenced by the implemented instructions. To address this question's results, it is important to discuss several factors that could have impacted the findings. At the pre and post-test, many students earned zero points in literacy skill areas which suggest an influential possible floor effect. Without an observable gain through the study's assessment measures, we cannot conclude that these students did not gain skills or grow. Additionally, the study took place over a short amount of time, ten weeks. Early literacy skill growth may require a longer acquisition period or more explicit instruction as well. Lastly, the students participating in this study were considered an at-risk population for overall language and literacy abilities due to their family's low socioeconomic status. A study of similar design should be conducted with a variety of socioeconomic backgrounds to further understand the impacts of writing instruction and other early literacy skill development. In conclusion, we found no evidence that the

modeled emergent writing instruction improved or other early literacy skills over the 10-week study.

The third question in this research study was to investigate the relationship between writing gains regardless of instruction provided but rather by age group. It was hypothesized that the age groups would demonstrate significant differences in writing skill gains, specifically that the older students would show greater skill gain. Age did not have a significant impact on the mean writing growth suggesting that even our youngest participants, three-years of age, demonstrates writing development and acquisition. Three-, four-, and five-year-olds gained on average about one development writing stage which implies that all children are capable to acquire emergent forms of writing. Although the growth slightly increased by year, the group means were not statistically significant different ($p > .05$); therefore, we cannot reject the null hypothesis and we cannot accept the alternative hypothesis.

When addressing the final research question, it was hypothesize that three-, four-, and five-year-old children would demonstrate trends in stages of writing development as observed by each group demonstrating different stages of writing development. Furthermore, the results indicated that the age groups did demonstrate distinct levels of emergent writing. Three-year-olds commonly scribbled while four-year-olds produced mock letters and five-year-olds wrote random letters. The results suggest lower level skills in writing achievement based on the early education standard expectations as preschoolers are expected to write familiar words in the semi-phonetic and phonetic stage (Montana Early Learning Standards Task Force, 2014). A gradual increase of skill

level was noted by increasing age; yet, not all the age comparisons were statistically significant. Therefore, we cannot reject the null hypothesis.

In conclusion, direct and explicit modeled writing instruction benefits early writing skills in the preschool population. Preschool children, regardless of age, can grow in their writing skills. Even some of the youngest children demonstrated early forms of writing including scribbling, mock letters, and random letters. This research contributes to the literature regarding the development and instructional approaches for emergent literacy skills.

Limitations. The study presented some limitations including student attendance and participation, socioeconomic status, and variance in classroom teaching styles and philosophy. Additionally, the research design did not control for a practice effect among the research groups. Both the treatment and the comparison groups received a combination of instruction and practice opportunities while the control did not receive either. Since the treatment and comparison groups both made significant writing gains, it is important to note that conclusions cannot be made that the writing gains were a result of the instruction, practice, or the combination. Students who attended school regularly may have demonstrated higher skill levels, while students with low attendance received less instruction and practice opportunities. Consequently, lower attendance may have impacted skill growth. Students' participation could have played a role in skill growth as well. Students who choose to intentionally participate in the instruction and activities may have demonstrated higher level skills compared to students who were less interested to partake. All students in this study came from low socioeconomic backgrounds, which, as previous research has found, could have influenced the

students' baseline measures and overall skills and outcomes. The classrooms were assigned to groups by the organization's administration to reduce the researcher bias; however, with a small sample of classrooms, the teacher's experience, understanding of early literacy, and styles of classroom management and instruction could have influenced the student literacy learning.

Implications for future research. To address this study's results, implications, and previously discussed limitations, a future research study regarding direct writing instruction and emergent literacy skills should be conducted. A future study focused on direct instruction should be expanded on larger scale with more participants of varying socioeconomic backgrounds to confirm or reject this study's findings. Additionally, the length of the study should be increased and/or the frequency of instruction should be increased which would allow the students more instructional exposures and period to retain and demonstrate skills. To reduce classroom variance, future studies could train and have the classroom teacher implement the instructional method. To further isolate the impacts of the instructional methods from practice effects, the control group should be provided practice opportunities. This could isolate the impacts of the instruction and reduce extraneous variables. Early writing and literacy skill development continues to need further investigation regarding the acquisition and instructional methods.

References

- Altemeier, L., Abbott, R., & Berninger, V. (2008). Executive functions for reading and writing in typical literacy development and dyslexia. *Journal of Clinical and Experimental Neuropsychology, 30*:5, 588-606. doi: 10.1080/13803390701562818
- American Speech-Language-Hearing Association. (2001). *Roles and responsibilities of speech-language pathologists with respect to reading and writing in children and adolescents*. Retrieved from <http://www.asha.org/policy/TR2001-00148.htm> doi:10.1044/policy.TR2001-00148
- Aram, D., & Biron, S. (2004). Joint storybook reading and joint writing interventions among low SES preschoolers: Differential contributions to early literacy. *Early Childhood Research Quarterly, 19*(4), 588-610.
- Bangert-Drowns, R. L., Hurley, M. M., & Wilkinson, B. (2004). The effects of school-based writing-to-learn interventions on academic achievement: A meta-analysis. *Review of educational research, 74*(1), 29-58.
- Berninger, V. W., Abbott, R. D., Jones, J., Wolf, B. W., Gould, L., Anderson-Youngstrom, M., Apel, K. (2006). Early Development of Language by Hand: Composing, Reading, Listening, and Speaking Connections; Three Letter-Writing Modes; and Fast Mapping in Spelling. *Developmental Neuropsychology, 29*(1), 61-92. doi: 10.1207/s15326942dn2901_5.
- Cabell, S., Tortorelli, L., & Gerde, H. (2013). How do I write? Scaffolding Preschoolers' Early Writing Skills. *International Reading Association, 66*:8, 650-669. doi: 10.1002/TRTR.1173

- Diamond, K. E., Gerde, H. K., & Powell, D. R. (2008). Development in early literacy skills during the pre-kindergarten year in Head Start: Relations between growth in children's writing and understanding of letters. *Early Childhood Research Quarterly, 23*(4), 467-478. doi: 10.1016/j.ecresq.2008.05.002
- Gerde, H. K., Bingham, G. E., & Wasik, B. A. (2012). Writing in early childhood classrooms: Guidance for best practices. *Early Childhood Education Journal, 40*(6), 351-359. doi: 10.1007/x10643-012-0531-z
- Graham, S., & R. Harris, K. (2000). The role of self-regulation and transcription skills in writing and writing development. *Educational psychologist, 35*(1), 3-12. doi: 10.1207/S15326985EP3501_2
- Graham, S., & D. Perin. (2007). A meta-analysis of writing instruction for adolescent students. *Journal of Educational Psychology, 99*(3), 445-476. doi: 10.1037/0022-0663.99.3.445
- Hall, A., Simpson, A. Guo, Y., & Wang, S. (2015). Examining the Effects of Preschool Writing Instruction on Emergent Literacy Skills: A systematic Review of the Literature. *Literacy Research and Instruction, 52*:2, 115-134. doi: 10.1080/19388071.2014.991883
- Hoff, E.(2006). How social contexts support and shape language development. *Developmental Review, 26*, 55-88. doi:10.1016/j.dr.2005.11.002
- Invernizzi, M., Justice, L., Landrum, T., & Booker, K. (2005). Early Literacy Screening in Kindergarten: Widespread Implementation in Virginia. *Journal of Literacy Research, 36*:4, 479-500.
- Montana Early Learning Standards Task Force, (2014). Montana Early Learning

Standards

National Center for Education Statistics, (2012). *The Nation's Report Card: Writing 2011* (NCES 2012-470). Institute of Education Sciences, U.S. Department of Education, Washington, D.C. Retrieved from website:
<http://nces.ed.gov/nationsreportcard/pubs/main2011/2012470.asp>http://www.nationsreportcard.gov/reading_math_2013/.

National Early Literacy Panel, (2008). *Developing early literacy: Report of the National Early Literacy Panel*. Washington, DC: National Institute for Literacy

National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010). *Common core state standards writing kindergarten*. National Governors Association Center for Best Practices, Council of Chief State School Officers, Washington D.C.

Paulson, L., & Moats, L. (2010). Written language connections. *LETRS for early childhood educators* (pp. 69-89) Cambium Learning Sopris West.

Paulson, L. H., Noble, L. A., Jepson, S., & van den Pol, R. (2010). *Building early literacy and language skills*, Sopris West, Longmont, Colorado.

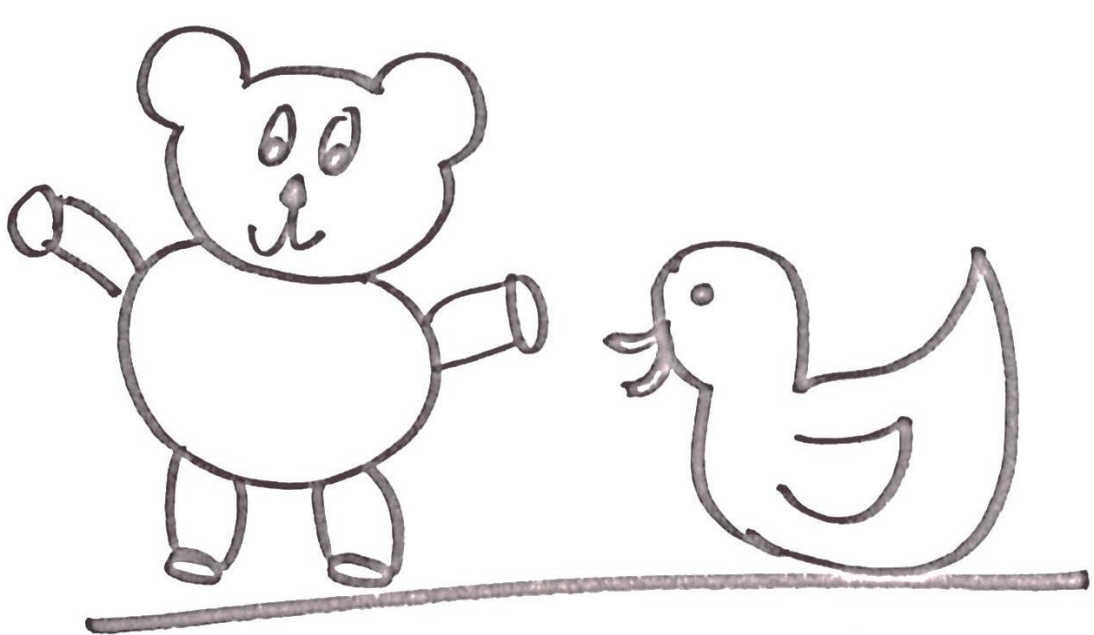
Pelatti, C., Piasta, S., Justice, L., & O'Connell, A. (2014). Language- and literacy-learning opportunities in early childhood classrooms: Children's typical experiences and within-classroom variability. *Early Childhood Research Quarterly*, 29, 445-456. doi: 10.1016/j.ecresq.2014.05.004

Pool, J., & Johnson, E. (2015). Screening for reading problems in preschool and

- kindergarten: An overview of select measures. Retrieved from <http://www.rtinetwork.org/essential/assessment/screening/screening-for-reading-problems-in-preschool-and-kindergarten>
- Puranik, C. S., & Lonigan, C. J. (2011). From scribbles to scrabble: Preschool children's developing knowledge of written language. *Reading and writing, 24*(5), 567-589. doi: 10.1007/s11145-009-9220-8
- Puranik, C., Lonigan, C., & Kim, Y. (2011). Contributions of emergent literacy skills to name writing, letter writing, and spelling in preschool children. *Early Childhood Research Quarterly, 26*, 465-474. doi: 10.1016/j.ecresq.2011.03.002
- Sulzby, E., Barnhart, J., & Heishim, J. (1988). *Forms of writing and rereading from writing: a preliminary report* (Technical Report No. 437). Retrieved from: https://www.ideals.illinois.edu/bitstream/handle/2142/18040/ctrstreadtechrepv01988i00437_opt.pdf?sequence=1
- Tseng, M. H., & Cermak, S. A. (1993). The influence of ergonomic factors and perceptual-motor abilities on handwriting performance. *American Journal of Occupational Therapy, 47*(10), 919-926.
- Tseng, M. H., & Murray, E. A. (1994). Differences in perceptual-motor measures in children with good and poor handwriting. *OTJR: Occupation, Participation and Health, 14*(1), 19-36.
- Weil, M. J., & Amundson, S. J. C. (1994). Relationship between visuomotor and handwriting skills of children in kindergarten. *American Journal of Occupational Therapy, 48*(11), 982-988. doi: 10.5014/ajot.48.11.982

Appendix A

Example Picture Story / Word Story



Brown Bear Saw A Duck
B B S A D.
X L M O A X X.
2 7 1 ~ 2 5.
~~~~~.

Appendix B

**BELLS Early Literacy Screening Scoring Form (Adapted)**

Child's Name \_\_\_\_\_ DOB \_\_\_\_\_ CA \_\_\_\_\_ Boy/Girl  
 Code # \_\_\_\_\_ Teacher \_\_\_\_\_ Classroom \_\_\_\_\_ Date \_\_\_\_\_

**Print Knowledge**

- 1. Book Awareness** 0 1 2 3 4 5
- \_\_\_\_\_ orients book
  - \_\_\_\_\_ identifies pictures and words in a book
  - \_\_\_\_\_ uses some finger tracking
  - \_\_\_\_\_ uses left to right sweeping
  - \_\_\_\_\_ uses 1:1 word correspondence

- 2. Own Name Writing:** 0 1 2 3 4 5
- \_\_\_\_\_ identifies name (in a field of 3)
  - \_\_\_\_\_ identifies initial letter in name
  - \_\_\_\_\_ identifies last letter in name
  - \_\_\_\_\_ writes 3 or more letters in name
  - \_\_\_\_\_ writes first name legibly

- 3. Uppercase Letter Naming:** 0 1 2 3 4 5
- A B C D E F G H I J K L M 6 7 8 9 10
- N O P Q R S T U V W X Y Z

- [Return to task following writing sample]
- 4. Writing Development:** 0 1 2 3 4 5
- \_\_\_\_\_ No distinction
  - \_\_\_\_\_ scribbles
  - \_\_\_\_\_ mock letters
  - \_\_\_\_\_ random letter strings
  - \_\_\_\_\_ semiphonetic spelling
  - \_\_\_\_\_ phonetic spelling

**Comments:**

**Print Knowledge Score:** \_\_\_\_\_ /25  
**Phonological Awareness Score:** \_\_\_\_\_ /25  
**Total Score:** \_\_\_\_\_ /50

**Phonological Awareness**

- 1. Rhyme Matching:** 0 1 2 3 4 5
- Example: KEY: tree – cup – sock
- \_\_\_\_\_ BAT: sun – rock – cat
  - \_\_\_\_\_ FISH: boat – dish – rake
  - \_\_\_\_\_ TRUCK: duck - moon – foot
  - \_\_\_\_\_ HOUSE: rope - mouse – glove
  - \_\_\_\_\_ FROG: boot - fire – dog

- 2. Blending Syllables:** 0 1 2 3 4 5
- Example: ba – by
- \_\_\_\_\_ ta – ble
  - \_\_\_\_\_ can – dy
  - \_\_\_\_\_ ba – na - na
  - \_\_\_\_\_ flow – er
  - \_\_\_\_\_ spa – ghe - tti

- 3. Blending Onsets:** 0 1 2 3 4 5
- Example: f - ish
- \_\_\_\_\_ d - og
  - \_\_\_\_\_ c – at
  - \_\_\_\_\_ m – an
  - \_\_\_\_\_ sh – ip
  - \_\_\_\_\_ s - ock

- 4. Segmenting Syllables:** 0 1 2 3 4 5
- Example: candy
- \_\_\_\_\_ pizza (2 syllables)
  - \_\_\_\_\_ dinosaur (3 syllables)
  - \_\_\_\_\_ spider (2 syllables)
  - \_\_\_\_\_ hamburger (3 syllables)
  - \_\_\_\_\_ peanut butter (4 syllables)

- 5. Segmenting Onsets:** 0 1 2 3 4 5
- Example: sun
- \_\_\_\_\_ book
  - \_\_\_\_\_ fish
  - \_\_\_\_\_ cow
  - \_\_\_\_\_ shoe
  - \_\_\_\_\_ mouse

---

NAME: \_\_\_\_\_