The Journal of Educational Research, 103:327–341, 2010

ISSN: 0022-0671 print / 1940-067 online
DOI:10.1080/00220670903383119

Routledge
Taylor & Francis Group

Comparing Two Methods of Writing Instruction: Effects on Kindergarten Students' Reading Skills

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ABSTRACT. This experimental study directly compared the effects of two prevalent forms of classroom writing instruction, interactive writing and writing workshop, on kindergarten students' acquisition of early reading skills. Repeated measures data was collected at four points over 16 weeks to monitor growth of 151 kindergarten students in phonological awareness, alphabet knowledge, and word reading. Results of this study showed students in both the interactive writing group and the writing workshop group demonstrated significant growth over time for each of the three outcome measures, with no statistically significant difference between groups for any of the outcome measures at any of the time points. This study provides evidence that, when consistently implemented during the first 16 weeks of kindergarten, interactive writing and writing workshop are equally effective in promoting acquisition of early reading skills.

Keywords: beginning reading skills, kindergarten, writing instruction

Writing is often the first indicator of a child's interest in print (Clay, 1975). Children as young as 1 year of age experiment with writing to create messages for others (Baghban, 1984; Lancaster, 2001). Young children quickly learn that lines and scribbles carry meaning. Sharing thoughts and getting their needs met through writing is important to young children, and so they begin to modify their writing to more closely resemble the written text they experience in their environment. For emergent literacy learners, writing is the foundation of reading (Bissex, 1980; Clay, 2002; Durkin, 1966; Hansen, 1987).

The concrete task of creating written text serves as a bridge to the more abstract task of reading. Luria and Yudovich (1971) explained that writing is a powerful cognitive procedure because it slows down and repeats the twin thinking processes of analysis and synthesis. As children write, they analyze thought and meaning, experiment with words and form, and learn concepts of directionality, sequencing, and spacing. By the very nature of the task, a writer is forced to act analytically on print, letter by letter (Clay, 2002). Indeed, the conventions of letter-sound correspondence cannot be learned outside the written system (Tolchinsky, 2006). Kindergarten students' early informal writing is predictive of their formal acquisition of reading even after controlling for socioeconomic status (SES) and IQ effects (Aram & Levin, 2001, 2004; Levin, Share, & Shatil, 1996; Shatil, Share, & Levin, 2000).

Research concerning the relationship between emergent and formal literacy has shown that helping a young child learn to write has positive effects on future literacy learning (Anderson, Heibert, Scott, & Wilkinson, 1985; Boscolo, 2008). In spite of the well-established relationship between reading and writing and a burgeoning national interest in early literacy instruction, writing is conspicuously absent in early literacy instruction (Halladay et al., 2007). Little is known about how present methods of early writing instruction may impact early reading growth. An important question arises: Are various methods of writing instruction more effective in promoting reading growth than others?

What Is the State of Writing Instruction in Kindergarten Classrooms?

Given the established importance of the writing for early literacy learners, there is a critical need for researchers to investigate the impact of writing instructional methods on the growth of early reading skills (Boscolo, 2008; Durkin, 1989; Farnan & Dahl, 2003; Jagger, Carrara, & Weiss, 1986; McCarthey, 2008; Stotsky, 1983). A recent review of research on writing found that only 5% of the total writing instruction studies examined were conducted with elementary school children, with even fewer studies employing experimental or quasi-experimental designs (Juzwik et al., 2006). Pressley and Fingeret (2007) called for direct evaluations of

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how writing instruction impacts early literacy acquisition. Shanahan (2006) also indicated a need for experiments that begin to unravel the complexities of how various writing instruction influences students' early literacy acquisition and growth. An investigation of how writing instruction impacts growth of early reading skills should begin with an examination of present classroom writing instruction. A review of approaches for teaching young children to write generally results in the identification of two prevailing instructional methods: interactive writing and writing workshop.

Interactive Writing

Interactive writing is a group writing experience that helps children attend to the details of letters, sounds, and words while creating meaningful text (Pinnell & Fountas, 1998). The focus of interactive writing is to provide young students with instruction on print concepts, phonemic awareness, phonics, and high-frequency words (Hammerberg, 2001; Tompkins, 2010). The main components of interactive writing instruction include negotiating, constructing, and rereading the text. During interactive writing, the students and teacher negotiate the writing topic and the detail of the text to be written. Next, the text is co-constructed as the teacher and students share the pen to create a sentence or brief story. Teacher guidance focuses student attention on applying letter–sound correspondence, segmenting and blending, letter identification and formation, and high-frequency word recognition. Mistakes students might make while sharing the pen in letter formations and spellings are corrected with teacher help. The group-created text is reread each time a new word is written for reading practice.

A review of research yielded more than 100 published works advocating and/or describing the use of interactive writing to build on the shared knowledge base of reading and writing (e.g., Biddle, 2007; Brotherton & Williams, 2002; Button, Johnson, & Ferguson, 1996; Herb & Bufalino, 1997; McCarrier, Pinnell, & Fountas, 2000; Patterson, Schaller, & Clemens, 2008; Pinnell & Fountas, 1998; Ritterskamp & Singleton, 2001; Rubadue, 2002; Sipe, 2001; Stachoviak, 1996; Williams & Lundstrom, 2007). Descriptive studies have suggested a positive impact of interactive writing instruction on the acquisition of reading skills among young students. Studies comparing the effects of interactive writing with comparison groups or with typical literacy growth of kindergarten students over time were very few.

Pinnell and McCarrier (1994) presented evidence on the potential of interactive writing using mean scores of kindergarten students involved in an instructional project involving six elements, one of which was interactive writing. The end-of-year spring scores of kindergarten students who participated in this project were compared to entry scores of students selected for Reading Recovery at the beginning of Grade 1. Pinnell and McCarrier provided the disclaimer: "The groups represented above are by no means comparable; therefore, no conclusions can be drawn from these data. For kindergarten classrooms, student gains could be attributed to the extra half day of instruction" (p. 168). Button et al. (1996) reported from a single-group, pre–posttest design growth in student mean scores for 17 kindergarten students in letter identification, word recognition, concepts about print, recognizing phonemes, and writing words. McCarrier et al. (2000) reported similar growth in mean scores for 60 third-grade students. Similar to the previous study, this study did not include the use of comparison groups or random assignment.

Only two published research studies were located that have experimentally examined the effects of interactive writing with primary grade students. The first study, O'Connor (2004), used a single-subject, multiple-baseline design to examine the effects of interactive writing on the phonological processing of five struggling first-grade students. Results of this study indicated that all children showed progress in concepts about print, recognizing phonemes, letter identification, word recognition, and writing words. The other published research study, Craig (2006), was a quasi-experimental comparison group study of interactive writing that compared the effects of interactive writing plus letter-sound instruction to a research-based program of phonemic awareness and alphabetic training instruction on student achievement in phonological awareness, alphabetic knowledge, and early reading for 87 kindergarten students in a predominantly White, middle-class school. Craig reported equivalent growth in phonological awareness and statistically significant results between groups, with the adapted interactive writing students demonstrating greater gains for word identification based on results for The Word Identification subtest of the Woodcock Reading Mastery Test–Revised (Woodcock, 1987) and word reading development based on ratings using Ehri's (1995, 1998) four phases of word reading development. Although limited, the previous research base has generally indicated benefits on early reading acquisition when using interactive writing instruction with young students.

Writing Workshop

Writing workshop is the most popular approach to writing instruction in the primary grades (Graham, Harris, & Mason, 2005) and is reported to be the best instructional method to implement the writing process for emergent writers (Atwell, 1998; Calkins, 1994; Fletcher & Portalupi, 2001; Graves, 1983). The writing process approach is validated by the International Reading Association and the National Council of Teachers of English (1996) and is mandated as the standard writing instructional approach in many states and districts (Patthey-Chavez, Matsumura, & Valdes, 2004). Because writing workshop is the most common approach to writing instruction, writing workshop has often been used as the control condition in experimental and quasi-experimental studies on writing instruction (Graham et al.,

2005; Harris, Graham, & Mason, 2006; Troia & Graham, 2002; Yeh, 1998).

The focus of the writing workshop is to provide students time and opportunities to use the writing process to create written text (Tompkins, 2008). The main components of the writing workshop include writing, conferencing, and sharing. During writing workshop, each student writes on a self-selected topic, negotiating the text with a focus on sharing personal experiences in a meaningful way. Students assume ownership of their writing and work at their own pace. Students are often encouraged to use invented spellings. Mistakes are not corrected and, in fact, serve as an indicator of student knowledge and progress. The created text is shared with the teacher and other students through conferencing, publishing, and sharing times. Writing workshop may include short teacher-directed minilessons about writing workshop procedures, writers' craft (e.g., strong leads and conclusions), and writing strategies (e.g., writing dialogue) (Au, Carroll, & Scheu, 1997; Calkins, 1994; Fletcher & Portalupi, 2007; Hoyt, 2000; Ray, 2002).

A review of research literature for writing workshop also resulted in many published works about writing workshop. However, in concordance with previous literature reviews of the writing process approach (Pritchard & Honeycutt, 2006; Stahl, Pagnucco, & Suttles, 1996), few evaluations of writing workshop or the writing process approach were located. Similar to the published works for interactive writing, many of the articles focused on describing instruction. Much of the research on writing workshop has focused on the impact of writing workshop on student acquisition of writing skills, with varying results.

Descriptive and correlational studies have provided some information about the influence of writing workshop. Calkins (1983) described how a child's writing improved as writing process strategies were internalized during a 2-year case study in a third- and fourth-grade writing workshop. Data from a one-group study involving 19 kindergarten students that had participated in writing process activities conducted by Hertz and Heydenberk (1997) indicated that students demonstrated improvement in writing skills and spelling ability. A correlation between writing process instruction and writing proficiency on National Assessment of Educational Progress (NAEP) writing assessments has been reported (Goldstein & Carr, 1996; Greenwald, Persky, Campbell, & Mazzeo, 1999). However, Dyson and Freedman (2003) noted that even though higher scores on the NAEP were associated with the use of the writing process approach to writing instruction, it was difficult to evaluate the degree to which the writing process approach has led to improvements in students' writing in the United States.

Some experimental design studies have also investigated the effects of writing workshop on writing skills. Hillocks (1984) conducted a meta-analysis of the results of 60 experimental writing studies published between 1962 and 1982 and reported a mean effect size of .19, $p = 20.08$, on the quality of student writing from instruction with the writing process approach. (It is worth noting that only two of these studies involved elementary students.) A subsequent examination of writing instruction variables, completed by Sadoski, Willson, and Norton (1997), reported a high correlation between quantity of writing and quality of writing for primary-grade students. However, many of the components of writing workshop (emphasis on writing, sharing, and conferencing) were not related to gains in writing quality.

A recent meta-analysis of experimental and quasi-experimental writing studies (Graham & Perin, 2007) included only three published studies that investigated instruction using the writing process approach. In two of these studies, writing process was the control method of instruction (Troia & Graham, 2002; Yeh, 1998). Varble (1990) conducted the third study included in the meta-analysis. This posttest-only study used nonrandomized groups in a quasi-experimental design to compare a writing workshop instructional approach to a traditional instructional approach, collecting writing samples from 120 second-grade students and 128 sixth-grade students. Analyses revealed writing samples from second-grade students in the writing workshop approach were stronger in meaning and content, with no differences in writing mechanics. There were no differences between groups in sixth-grade writing samples for meaning, content, or mechanics.

Although writing workshop has been identified as the gold standard approach for writing instruction in the primary grades (Pritchard & Honeycutt, 2006), research has not clearly demonstrated the efficacy of writing workshop in the primary grades. Moreover, few studies have examined how the writing workshop approach to writing instruction may affect growth of reading skills for early literacy learners. In fact, in this review of literature, no published studies were located that directly examined the effects of writing workshop on student acquisition of early reading skills.

Similarities Between Writing Instruction Approaches for Young Learners

These two writing instructional approaches, interactive writing and writing workshop, have some elements in common. Both interactive writing and writing workshop create a literacy environment that emphasizes the importance of writing by utilizing writing models, recognizing the unique contributions of each writer, and providing instruction in response to student needs.

The literacy environment for interactive writing and writing workshop is similar in design. Writing is valued and instructional time is dedicated to writing. Both methods build on the importance of writing in early literacy. Students are engaged in authentic writing tasks with a variety of genres. Students express their ideas through oral and written language. Text is constructed and problems are solved in a highly supported social context through group discussions during interactive writing or through conferencing during

writing workshop (Brotherton & Williams, 2002; Richgels, 2002).

Interactive writing and writing workshop both provide writing models that help create a print-rich literacy environment and that serve as motivating text for sharing and rereading. Construction of text in interactive writing is completed by the group, with each student focusing on the same writing task and skills. The class generates a common model of writing. Construction of text in writing workshop is completed by the individual, with potentially each student focusing on a different writing task. The class generates a variety of models of writing.

Both methods are responsive to children's development with the teacher providing instruction based on student needs. During interactive writing lessons, a teacher may choose a particular child to construct the text because that child already knows how to write the letter or word. For example, Robert may be asked to write the letter *R*, highlighting his proficiency at that task and also demonstrating for other students correct letter formation. A teacher can address specific immediate needs that may arise when constructing text during interactive writing, such as how to spell words with a vowel–consonant–silent *e* pattern. Similarly, during writing workshop, a teacher may choose a particular child to share his or her writing as an example of using descriptive words. Minilessons can focus on aspects related to a particular writing task, such as expository text structure, or to an identified need of students, such as staying on topic. Inclusion of writing instruction through the interactive writing approach or through the writing workshop approach yields important benefits to the literacy environment for young children.

Differences Between Writing Instruction Approaches for Young Learners

These two writing instructional approaches, interactive writing and writing workshop, differ from one another in several important ways. Instructional approaches to teaching writing can be categorized in regard to the: (a) content of the learning task, (b) sequencing of skills, and (c) role of the teacher (Berry, 2006; Collins, Brown, & Holum, 1991; Collins, Brown, & Newman, 1987; Graham, Harris, MacArthur, & Fink, 2002; Graham & Perin, 2007; Hillocks, 1981, 1984; Pollington, Wilcox, & Morrison, 2001; Varble, 1990). Based on these criteria, there are several notable differences between the instructional approaches of interactive writing and writing workshop.

Content of the learning task. Interactive writing and writing workshop differ in content of the learning task. Interactive writing is skills based, focusing on the declarative skills of writing, such as letter formation, phonics, syntax, and mechanics. Teaching writing is a structured situation in which children are conducted through the right steps (Boscolo & Cisotto, 1999). The goal of instruction is to teach students the specific skills needed to become competent writers (McCarrier et al., 2000). The content of interactive writing lessons includes emphasis on the concepts about print, sound–symbol relationships, core words, and construction of conventionally accurate text (Button et al., 1996; Pinnell & Fountas, 1998; Pinnell & McCarrier, 1994). Brotherton and Williams (2002) analyzed interactive writing lessons in a first-grade classroom and identified six categories of literacy concepts taught through interactive writing lessons: concepts about print, phoneme–grapheme correspondence, letter formation, strategies for spelling unknown words, literacy-related vocabulary, and strategies for composing. Interactive writing guides students through the detailed skills of creating written text. Hammerberg (2001) described interactive writing as a technique for understanding the technicalities of getting every word written correctly on the page.

In contrast, writing workshop is process based, focusing on the procedural or heuristic strategies of writing. Teaching writing means creating supportive conditions for writing (Boscolo & Cisotto, 1999). The goal of instruction is to teach students the generally applicable techniques to plan, organize, and accomplish a writing task (Calkins, 1994). The content of writing workshop includes emphasis on composing and sharing meaning through written text (Graves, 1983; McCarthey, 2008; Richgels, 2002). According to Atwell (1998), the hallmarks of writing workshop are self-selection, ownership, self-monitoring, feedback, and individualized instruction. Students work on their own writing pieces, generating ideas and criteria for their own work, progressing through the writing process stages at differing paces. Teachers promote use of trial and error letter–sound correspondence and invented spellings. Writing workshop seeks to allow students to concentrate more of their attention on content and composition than might otherwise be possible if focusing on conventional correctness.

Sequencing of skills. The two methods of writing instruction have a contrasting sequence of skills. Interactive writing presents writing skills using an analytical sequence or bottom-up processing; writing is built from its structural parts. In bottom-up processing, writing instruction is text based. It begins with letter or word identification and proceeds to progressively larger linguistic units, ending in meaning. In interactive writing, text is created by sounding out words, letter by letter, to create sentences. The teacher presents graphophonic, orthographic, and morphological concepts (Boscolo & Cisotto, 1999). Students learn to write by practicing these subskills of writing.

Writing workshop presents writing using a global sequence or top-down processing; the whole writing task is conceptualized before executing the parts. In top-down processing, writing instruction is student based. Writing begins with a message the writer needs to share (Graves, 1983). The teacher tries to make writing strategies meaningful by

helping children discover them (Boscolo & Cisotto, 1999). Students develop their own individual writing skills with guidance from the teacher.

Role of teacher. The role of the teacher differs in the level and degree of teacher support between interactive writing instruction and writing workshop. On a continuum of teacher guidance, interactive writing is a form of shared teacher–student writing, whereas writing workshop is based on independent student writing (Tompkins, 2008). During interactive writing, the teacher's role is to provide guidance to create written text. The teacher helps students generate ideas for writing and guides discussion to form consensus of text to be written. The teacher directs the actual construction of text: reiterating the specific words to be written, helping students sound out the words to identify the letters in the word, and identifying students to write the letters to create an accurate text (McCarrier et al., 2000). The teacher repeatedly identifies strategies and criteria for construction of text. Feedback from the teacher is immediate.

The teacher's role in writing workshop is to organize the workshop into a predictable structure and to provide modeling and support for individual writers (McCarthey, 2008). During conferences, the teacher focuses on helping the child as a writer in creating meaningful text (Calkins, 1994). The teacher is not an evaluator but an audience who guides students and supports their writing development during conferences with students (Bartlett, 1994; Boscolo, 2008). The teacher may offer suggestions for the writing piece, but these suggestions are not binding for the writer.

Research Questions

Research has established the importance of writing and writing instruction for early literacy learners (Bissex, 1980; Clay, 1975, 2002; Durkin, 1966; Farnan & Dahl, 2003; Hansen, 1987). However, research has not answered the question of which of the presently available and oft-used methods of writing instruction are more effective in helping young students acquire reading skills. Research is needed for educators, researchers, and policymakers to make informed decisions regarding which forms of writing instruction to use most effectively in kindergarten.

Interactive writing and writing workshop are two frequently recommended instructional methods. In the present study we directly compared in a true experiment the effects of interactive writing instruction to writing workshop instruction, the standard approach to writing instruction, on early reading skills. Evidence from research converges on a set of important skills for beginning readers that are also valid predictors of reading success: (a) phonological awareness, (b) knowledge of letter names and sounds, and (c) word reading (Adams, 1990; National Institute of Child Health and Human Development [NICHD], 2000; Scarborough, 1998; Snow, Burns, & Griffin, 1998; Vellutino & Scanlon, 2001). Because these skills are recognized as strong predictors of reading success, these three components of early literacy were used to evaluate growth of early reading skills. Importantly, two of these components, phonological awareness and alphabet knowledge, are also essential skills for beginning writers.

The principal research question addressed in this study was: Does it make a difference which writing instruction method is used in kindergarten, interactive writing or writing workshop, with regard to growth of kindergarten students' early reading skills in phonological awareness, alphabet knowledge, and word reading ability?

Method

Participants

Two elementary schools within a western city school district were randomly selected to participate in the study. The school district was selected for two reasons: (a) it had not yet established writing as a routine part of instruction in the kindergarten classrooms and (b) reading instruction followed evidence-based principles with a consistent time allocation for reading instruction and all teachers used the same core reading program in schools throughout the district. The selected school district was proportionally reflective of four of the five categorized U.S. ethnic subgroups (White, Hispanic, Asian/Pacific Islander, American Indian/Alaskan); this district was not reflective of the U.S. ethnic subgroup of Black, non-Hispanic. The district had approximately 33% diversity, with 44% of the school district students qualifying for free or reduced-price lunch under the National School Lunch Program.

All kindergarten teachers in the two randomly selected elementary schools participated, for a total of five teachers. Three teachers taught a full day with two half-day sessions of kindergarten students and two teachers taught a half day with one session each, for a total of eight sessions or classes of kindergarten students. All participating teachers in this study had a bachelor's degree in education with an early childhood endorsement. None of the kindergarten teachers had advanced literacy instruction training. Class size ranged from 19 to 21, with a mean of 20 students per kindergarten session ($SD = 0.84$). All classrooms followed a 9-month instructional schedule.

A total of 151 kindergarten students completed the study out of 156 enrolled kindergarten students. Two students did not complete the entire study due to relocation out of the district. Parents declined participation for three students. At the beginning of the study, participants ranged in age from 5 years 0 months to 5 years 11 months; the mean age was 5 years 4 months ($SD = .27$). In total, 53% of participants were boys, 47% were girls. Forty-three percent of the participants qualified for free or reduced-price lunch. Twenty-seven percent of participants were classified as English Language

Learners on school records; this was also confirmed by participating teachers.

Random Assignment

Before school began in August, each participating student was assigned a number, from 001–151. Using randomization software, the kindergarten students were randomly assigned either to interactive writing ($n = 75$) or to writing workshop ($n = 76$). Participants in the study formed eight instructional groups. Four groups received interactive writing instruction, and four groups received writing workshop instruction. Both interactive writing instruction groups and writing workshop groups were embedded within each of the two randomly selected elementary schools to control for potential school effects. Comparison of the interactive writing and the writing workshop groups using chi square and independent *t* tests showed no statistically significant differences between the groups for student characteristics, including gender ($p = .16$), ethnicity ($p = .75$), English Language Learners ($p = .57$), free and reduced lunch status ($p = .81$), and initial literacy levels ($p = .41$). The five kindergarten teachers were also randomly assigned either to the interactive writing instructional method ($n = 2$) or to the writing workshop instructional method ($n = 3$). Students received writing instruction from the teacher of their randomly assigned group.

Description of Intervention

This study began in August as students began the kindergarten year and concluded in December when students left school for winter break. During this 16-week period, students from within each of the kindergarten classes at a school met together to receive writing instruction from the teacher randomly assigned to their instructional group during a walk-to-write time. Two groups at each school received interactive writing instruction and two groups at each school received instruction with writing workshop. Fifteen minutes of each 2.5-hr kindergarten session was dedicated to writing instruction; this would be equivalent to 30 min of writing instruction in a full-day setting.

Prior to beginning this study, as is the nature of writing instruction in many kindergarten classrooms, time was not dedicated daily to writing instruction (Halladay et al., 2007; National Commission on Writing, 2003, 2006). The teachers reported they previously had "not scheduled a consistent time for writing" as "we didn't make it a priority in past years." As a result of this study, writing instruction occurred each day. Writing instruction prior to the study had typically followed a writing workshop approach. However, not all components of the writing workshop were implemented equally well. Because implementation of writing workshop may vary between teachers (Cutler & Graham, 2008; Troia & Graham, 2002), it was important to standardize implementation of the writing workshop, which also resulted in a more refined comparison of the effects of the two writing instructional approaches.

Reading instruction was similar in all participating kindergarten sessions and classrooms. Students received instruction in the district's adopted kindergarten core basal reading program. Time was allocated daily for 75 min of evidence-based reading instruction as: (a) word work, 15 min; (b) fluency, 15 min; (c) listening comprehension, 15 min; and (d) literacy centers, 30 min. Because the purpose of this study was to compare results of two writing instructional methods on reading, the walk-to-write time was initiated. This writing instruction time combined kindergarten students from different classes within a school for writing instructional groups, helping to account for potential differences in reading instruction or other classroom instruction. This isolated the instructional differences within writing instructional groups to the differences between the daily writing instruction.

Teacher Training

Prior to the beginning of the school year, all participating teachers received instruction and guidance for implementing their randomly assigned method of writing instruction. Training sessions included personal training meetings with one of the researchers, teacher viewing of videos showing implementation of the applicable writing instructional method, and model lessons presented in the classroom. Teachers were also given lesson plans, instructional ideas, and writing material to support writing instruction (paper, markers). All teachers received a small stipend for participating in the trainings and for maintaining confidentiality regarding writing instructional practices during the study. These procedures provided participants with a sense of comparable alternative writing instructional methods.

Fidelity of Implementation

Since all teachers used the same core reading program adopted by the school district and because students from classes within the school joined together for writing instruction, fidelity of implementation focused on the two differing forms of writing instruction. Several methods were used to monitor fidelity of implementation. First, a fidelity of implementation checklist was created for each of the writing instructional methods to assess adherence to quality and content of procedures. The fidelity of implementation checklist for interactive writing was developed using a list of teacher behaviors typically expected during interactive writing (Wold, 2003) and information from a published scale, *An Interactive Writing Analysis Scale* (Lyons & Pinnell, 2003). A similar fidelity of implementation checklist for writing workshop was created using the components of the writing workshop as described by Calkins (1994). Each fidelity of implementation checklist was integrated into a classroom observation form with a 5-point Likert-type scale to provide information on the quality of each instructional

component. For interactive writing, the fidelity of implementation classroom observation form included items such as counting the number of words to be written for a sentence, orally segmenting words to identify sounds and corresponding letters, examining construction of letters and words, and pointing to written text as students reread the passage. The writing workshop fidelity of implementation classroom observation form focused on inclusion of mini lessons, student writing, conferencing, and sharing. The fidelity of implementation checklists were used to monitor writing instruction during classroom visits. Classroom visits by the researcher were typically unannounced and averaged one per week over the 16-week duration of the study. Classroom observation forms were used for three formal observations of each participating teacher, occurring in September, October, and November of the 16-week study in the fall of the year. A pair of researchers, a literacy specialist and an early childhood specialist, completed the November observation. Reliability calculations for this paired observation using the fidelity of implementation checklist ranged from 95% to 98% agreement. Additionally, all teachers completed a daily instructional log that contained the fidelity of implementation checklist. This daily instructional log served as a self-check tool for teachers to monitor incorporation of the components during writing instruction. Each week, all teachers briefly described one of the week's writing lessons in these logs.

Finally, writing instruction was evaluated for length and duration of the interventions. Although time for the intervention was established as 15 min per day, the actual writing instruction time was detailed as part of the instructional log. Writing time at each school was coordinated between teachers in order for students to receive instruction in their randomly assigned group. Each teacher maintained separate logs, which provided a built-in check for comparing dedicated writing instruction time between teachers. The instructional logs showed that two teachers at one school (one teacher of interactive writing instruction and one teacher of writing workshop) taught five fewer writing lessons than teachers at the other school due to scheduling conflicts within the school (i.e., picture day or an assembly). Time dedicated to writing instruction for these participants was 89.9% compared with the other teacher participants.

Information from the classroom observations and the instructional logs was used to compute an implementation composite score. Implementation scores ranged from 81 to 100, with a mean of 89 and a standard deviation of 0.58. Results of a Mann-Whitney *U* indicated there was no statistically significant difference ($z = .15$, $p > .05$) for instructional fidelity between groups.

Classroom Environment

The classroom literacy environments that students experience can affect student literacy achievement outcomes (Clark & Kragler, 2005; Morrow & Weinstein, 1986; Neuman, 1999; Roskos & Neuman, 2001). Therefore, the Classroom Literacy Environment Profile (CLEP; Wolfersberger, Reutzel, Sudweeks, & Fawson, 2004) was used to gather information about classroom literacy environments to evaluate comparability of participating classrooms. Generalizability studies conducted with the CLEP showed an acceptable level (G coefficient = .85) is obtained with two raters on one occasion (Wolfersberger et al.). The CLEP was completed by a PhD early childhood specialist not associated with this study and a member of the research team. Results of the CLEP showed the classrooms to be relatively equal in classroom environment with ratings for the five classrooms in the average range for effective literacy environments. A Mann-Whitney *U* of the CLEP results indicated there was no statistically significant difference ($z = 1.73$, $p > .05$) in the literacy environment between classrooms.

Description of Instruction

Interactive writing. Daily interactive writing lessons took place when students gathered on the rug for writing time. The teacher or the students selected writing topics. If a book was read or additional information was needed to present content information on a topic, this typically happened on Monday. Once a topic for writing was identified, students, with the help of the teacher, suggested text to write. Students and the teacher would then share the pen to write the text on the large chart paper taped to the whiteboard. Depending on the specific word to be written and the knowledge of the student, a student might write just one letter of the word or the entire word. During the writing of text, the teacher and students would discuss letter–sound correspondence, sight words, irregular spellings, writing mechanics, and conventions. White editing tape was used to correct errors made in letter or word construction. As the text was composed on the chart paper, the other students would also write the text. Sometimes, the students would use "sky pencils" to write the letters in the air with their fingers; sometimes students would use markers to write the text on individual whiteboards. Words and sentences were reread for comprehension and text construction.

Writing workshop. Writing workshop involved students in independent writing with teacher guidance and monitoring. The components of writing workshop used for this study included minilessons, writing and conferencing, and sharing. Minilessons were usually presented for the first few minutes of writing workshop with students gathered together on the rug or at tables. If a book was read or a longer minilesson was needed to support a selected writing topic, this typically happened on Monday. Minilessons ranged from how to select a topic for writing to adding descriptive words to a sentence. After each minilesson, students returned to their tables for individual writing. Pencils, colored pencils, and markers were available at the tables. Students used a variety

of styles of paper and spiral-bound journals during the study. As students wrote, the teacher would conference with individual students about their writing. Teachers encouraged invented spelling. Short sharing segments were scheduled throughout the week, with more time allocated for sharing on Fridays. Each student was given an opportunity to share at least once a week; either the student or the teacher read the composition to other students in the class.

Because the emphasis of this study was on examining the differences between types of writing instruction, teachers within each school focused on the same thematic topics each week (e.g., autumn, farm animals). For example, any books that were part of a writing lesson were read to both instructional groups.

Measures

Assessment of early reading skills occurred frequently and included multiple measures in an effort to monitor student growth effectively. Participants were assessed using three nationally published, norm-referenced instruments to evaluate the impact of interactive writing and writing workshop on kindergarten students' acquisition of early reading skills: phonological awareness, alphabet knowledge, and word reading. Reflective of each student's age at each point of assessment during the study, student scores on each of the repeated reading measures were compared with the normative samples to characterize early reading growth for participants in this study.

Reading Assessment Procedures

The three reading measures were individually administered, by one of the researchers, to all participating students at four measurement periods scheduled at fixed occasions to equalize time intervals during the 16-week study. At each of the four measurement periods, reading measures were administered within a 10-day assessment window. Participants in one school were assessed in the first five days, followed by assessment of participants in the other school the next five days. Total testing time per student did not exceed 15 min. The order of test administration was counterbalanced for each child.

Phonological Awareness

Kindergarten students' phonological awareness was assessed using the Comprehensive Test of Phonological Processing (CTOPP; Wagner, Torgesen, & Rashotte, 1999). The CTOPP is a standardized, norm-referenced measure with a version specifically designed for 5–6-year-old students. Student performance was gauged by using the total score of correct responses given for three 20-item subtests: Elision, Blending Words, and Sound Matching. Concurrent validity for the CTOPP has been established with other well-established phonological awareness measures such as the Lindamood Auditory Conception Test (Lindamood & Lindamood, 1979) and the Woodcock Reading Mastery Test–Revised (Woodcock, 1987). Internal consistency reliability for the phonological awareness subtests ranged from .84 on the blending words subtest to .89 for the elision and segmenting words subtests (Rashotte, MacPhee, & Torgesen, 2001).

Alphabet Knowledge

Student knowledge of letter names and sounds was evaluated using the Letter Identification task, a subtest from the Observation Survey of Early Literacy Achievement (OSELA; Clay, 2002). Students completed the assessment by first providing letter names and then providing letter sounds. The total number of correct letter names and letter sounds was used in the analyses. Denton, Ciancio, and Fletcher (2006) reported a .65 Pearson correlation with the Woodcock-Johnson III Letter-Word Identification subtest. Reliability coefficients for the OSELA Letter Identification task are reported as .97 (Clay, 1993) and .95 (Pinnell, McCarrier, & Button, 1990).

Word Reading

Reading sight words and decoding phonemic nonwords were measured using the Test of Word Reading Efficiency (TOWRE; Torgesen, Wagner, & Rashotte, 1999). The TOWRE Sight Word Efficiency subtest measures the number of sight words accurately identified in 45 s. The Phonetic Decoding Efficiency subtest measures the number of accurately decoded nonwords in 45 s. Extensive validity for the TOWRE test has been well established; the internal consistency reliability coefficient for the sight word subtest is .93 and .94 for the nonword decoding subtest (Rashotte et al., 2001).

Analyses

Data were analyzed using a two-level mixed-effects or multilevel model. Three separate analyses were completed, one each for the three early reading skills dependent variables. The dependent variable for the Level 1 models was student growth over time on each of the three reading skills based on individual student outcomes from the repeated measures: (a) phonological awareness ($n = 604$), (b) alphabet knowledge ($n = 604$), and (c) word reading ($n = 604$). The dependent variable for the Level 2 models was student growth based on random assignment either to the interactive writing group or to the writing workshop group. This model also examined the interaction between time and writing instructional group. The multilevel model accounted for the nuisance variable of classroom grouping through the specification of a cluster variable in the analyses. The intercept and slope coefficients were allowed to randomly vary across students. SPSS (Version 15) was used to center continuous data in

TABLE 1. Standardized Results for Multilevel Models

	Growth Model				Writing Instruction Model			
	Coefficient	*SE*	*t*	*p*	Coefficient	*SE*	*t*	*p*
Phonological awareness								
Fixed effects								
Time	2.62	.23	11.61	.0001	2.53	.16	16.16	.0001
Writing instruction					−0.02	.10	−0.21	.8300
Time × Treatment					0.08	.12	0.66	.5100
Random effects								
Variance estimates								
Intercept			1.00				1.00	
Slope			1.00				0.99	
Correlation between random slopes and intercepts			0.03				0.03	
Alphabet knowledge								
Fixed effects								
Time	1.81	.08	23.65	.0001	1.83	.08	24.48	.0001
Writing instruction					−0.02	.09	−0.16	.8700
Time × Treatment					−0.02	.07	−0.25	.8000
Random effects								
Variance estimates								
Intercept			1.00				1.00	
Slope			1.00				1.00	
Correlation between random slopes and intercepts			−0.85				−0.85	
Word reading								
Fixed effects								
Time	1.66	.22	7.47	.0001	1.76	.01	29.77	.0001
Writing instruction					0.04	.06	0.62	.5300
Time × Treatment					0.00	.04	−0.05	.9600
Random effects								
Variance estimates								
Intercept			1.00				1.00	
Slope			1.00				1.00	
Correlation between random slopes and intercepts			−1.00				−1.00	

preparation for multilevel modeling and for descriptive statistics. Dichotomous data were coded as dummy variables using 0 and 1. Multilevel analyses were conducted using Mplus (Version 5.0; Muthén & Muthén, 2007).

Results

Phonological Awareness

Examination of the CTOPP (Wagner et al., 1999) score distributions revealed this outcome variable was acceptably distributed and results were analyzed as a normal distribution. CTOPP score correlations across the four points of data assessment were high (ranging from 0.90 between Time Points 1 and 2 to 0.76 between Time Points 1 and 4), indicating a large degree of stability in scores across time. Results of the growth model showed student growth over time to be significant, $t(150) = 11.61$, $p = .0001$. Results of the phonological awareness instructional model showed the differences between the two writing instruction groups to be nonsignificant, $t(149) = –0.21$, $p = .83$. Table 1 summarizes the results of the phonological awareness models. Table 2 displays the means, standard deviations, and gain scores for the two writing instructional groups on phonological awareness for each measurement period. Figure 1 compares the mean growth over time for students in the interactive writing group with students in the writing workshop group.

Alphabet Knowledge

Distribution of scores for the Letter Identification Task, a subtest of Clay's (2002) Observation Survey of Early Literacy Achievement, exhibited skewness for Time Points 3 (–1.29) and 4 (–2.45). Because no data transformation could alleviate the nonnormality of the data, analyses proceeded with normally distributed outcome assumptions. Correlations across the four time points of data assessment for alphabet knowledge showed stability across time, ranging from a high of 0.89 between Time Points 1

TABLE 2. Descriptive Statistics for Early Reading Measures by Instructional Treatment Across Measurement Periods

	Interactive Writing				Writing Workshop			
n	75	75	75	75	76	76	76	76
Measurement period	1	2	3	4	1	2	3	4
Phonological awareness (CTOPP)								
Mean	12.15	17.07	21.53	27.72	12.58	16.71	22.09	26.87
SD	8.74	9.28	10.66	11.03	8.29	8.56	10.26	9.79
Mean gain score		4.92	9.38	15.57		4.13	9.51	14.29
Alphabet knowledge (OSELA letter identification)								
Mean	40.31	60.39	79.97	92.93	42.20	60.38	81.41	94.93
SD	34.39	34.80	29.08	21.28	32.81	35.29	26.66	16.98
Mean gain score		20.08	39.66	52.62		18.18	39.21	52.73
Word reading (TOWRE)								
Mean	1.64	2.93	5.59	9.81	1.05	2.03	4.62	8.75
SD	5.74	8.45	11.22	13.21	4.23	6.35	8.69	11.35
Mean gain score		1.29	2.66	8.17		0.98	3.57	7.70

and 2 to a low of 0.59 between Time Points 1 and 4. Results of the growth model for alphabet knowledge showed student growth over time to be significant to be significant, $t(150) = 23.65$, $p = .0001$. Results of the alphabet knowledge instructional model indicated differences between writing instruction groups was nonsignificant, $t(149) = -.16$, $p = .87$. Table 1 summarizes the results of the alphabet knowledge models. Table 2 displays the means, standard deviations, and gain scores for the two instructional treatment groups on alphabet knowledge for each measurement period. Figure 2 compares the mean growth over time for students in the interactive writing group with students in the writing workshop group.

Word Reading

Score distributions for TOWRE (Torgesen et al., 1999) were not normally distributed and exhibited skewness and kurtosis for each of the four time points. As was expected, this outcome measure resulted in a large proportion of scores of zero for several time points. Therefore, a zero-inflated Poisson distribution was thought to be a better fit for these data because the results were nonnegative whole numbers (counts) and the distribution was positively skewed (Atkins & Gallop, 2007; Long, 1997). Correlations for word reading ranged from 0.83 between Time Points 1 and 2 to 0.76 between Time Points 1 and 4, indicating stability in scores across time for this measure. Results of the word reading growth model showed student growth over time to be

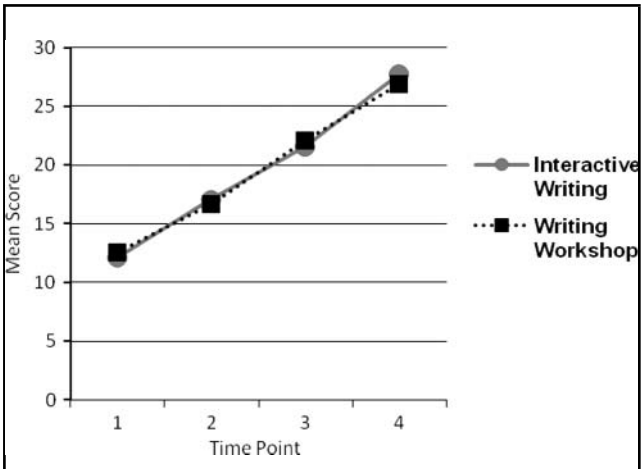

FIGURE 1. Growth over time in phonological awareness, by instructional treatment group.

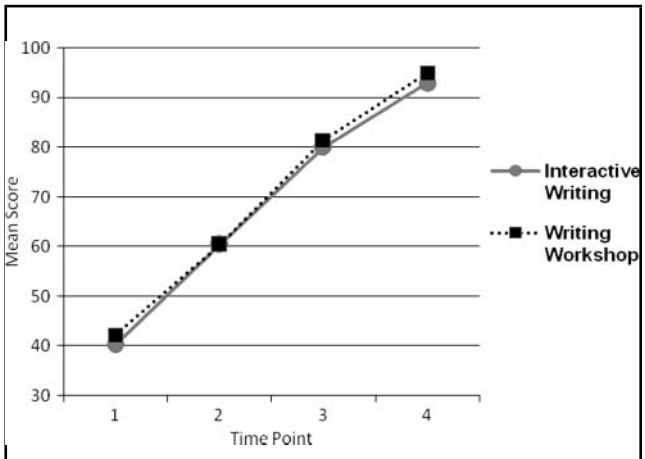

FIGURE 2. Growth over time in alphabet knowledge, by instructional treatment group.

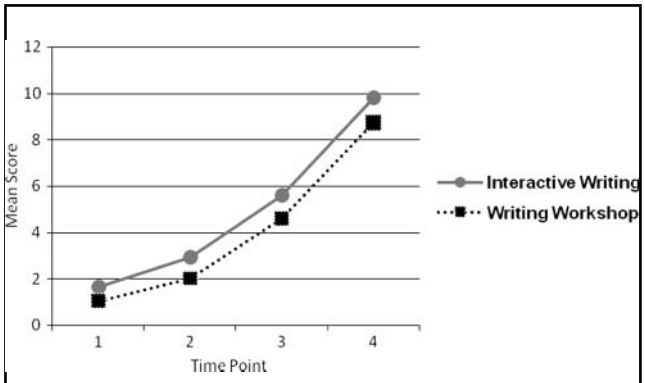

FIGURE 3. Growth over time in word reading, by instructional treatment group.

significant, $t(150) = 7.47$, $p = .0001$. Differences between writing groups were nonsignificant, $t(149) = 0.21$, $p = .83$, in the instructional model. Table 1 summarizes the results of the word reading models. Table 2 displays the means, standard deviations, and gain scores for the writing instructional treatment groups on word reading for each measurement period. Figure 3 compares the mean growth over time for students in the interactive writing group with students in the writing workshop group.

Discussion

Educational Implications

The purpose of this study was to compare the effects of two prevailing writing instructional methods for early literacy classrooms, interactive writing and writing workshop, with regard to growth of kindergarten students' early reading skills. Results of this study showed student growth in phonological awareness, alphabet knowledge, and word reading ability over time to be significant. Students in both the interactive writing group and the writing workshop group demonstrated equivalent growth over time for each of the three outcome measures, with no statistically significant difference between the interactive writing group and the writing workshop group for any of the outcome measures at any of the time points. Although these two methods of writing instruction are often presented as diametrically opposing instructional approaches, both methods of writing instruction appear to be equally effective at promoting growth of early reading skills.

It seems that oftentimes in education, a dichotomy is established pitting one method of instruction against another. The dichotomous thinking is also highlighted in the debate between process- and skills-based, global and analytical methods of writing instruction and has occupied much of the emotional energy and attention of writing research for over 50 years (Parker, 1979; Roen, Goggin, Clary-Lemon, 2008). Unfortunately, by characterizing writing instructional methods as dichotomous, writing instruction has tended toward extremes running the gamut from one method to another (Hagemann, 2003).

By presenting these two methods of writing instruction as mutually exclusive, we may actually discourage some teachers from fully engaging in writing instruction because it appears that there is no end to the interminable debate of extremes. Writing instruction is affected by teachers' attitudes, beliefs, and knowledge of writing instructional methods (Cutler & Graham, 2008; Juzwik et al., 2006; Rowe, 2008). Pajares (1992) reported that the planning and instructional effort teachers expend on a particular subject is influenced by teacher affect and that understanding the belief structures of teachers is essential for improving teaching practices. Teachers can have similar knowledge of a subject but teach very differently (Ernest, 1989). In an analysis of instructional activities commonly used when teaching first-grade students to write, Boscolo and Cisotto (1999) found that teachers clearly preferred or rejected particular writing activities, distinctly differentiating activities typical of the two methods of writing instruction. Berry (2006) noted that instruction may be less effective in achieving the intended outcomes when it is incongruent with the teacher's beliefs. In confining choice of writing instructional methods to one or the other instead of embracing a "both–and" view, teachers may be less dedicated to writing instruction.

Conversely, choice is a motivating factor. Several researchers have argued for a more interactive approach to writing instruction. In a study comparing a process-based approach and a skills-based approach, Berninger, Abbott, Whitaker, Sylvester, and Nolen (1995) found that writing instructional methods benefited different aspects of writing skill acquisition. Berninger et al. (2002) also reported that combining instructional approaches aimed at low-level skills closely in time with instruction aimed at high-level skills was most effective for increasing student writing skills, especially when instructional time was limited. A model of simple writing posits process-based (high level) abilities and skills-based (low level) abilities as the dual bases of a triangle supporting text generation at the top vertex (Wong & Berninger, 2004). By recognizing both methods as practices that are equally effective for writing instruction with young students, as shown in this study, teachers are able to choose writing instructional methods and activities that are in congruence with their attitudes and beliefs about writing instruction.

In addition, these findings promote flexibility in writing instruction. Teachers are free to use a range of writing instructional methods to engage children in writing, an important factor because no single method of writing instruction best fits the needs of every student and teacher (Harris & Graham, 1995; Traw, 1996). The instructional advantages of writing workshop and interactive writing can be blended in an interactive model of writing instruction. For some lessons, the shared experience of

interactive writing may more appropriately reflect the learning goals; other lessons may require the time spent in the individual conferences of writing workshop. Interactive writing could be used for writing about topics when a common knowledge base is already in place or when a common knowledge base needs to be established. Writing workshop could be used to explore topics of personal interest or to evaluate student personal knowledge of a topic. Teachers can use interactive writing to teach a minilesson, followed by independent writing in writing workshop. Importantly, by recognizing the value of both writing instructional approaches, writing instruction can be designed to best meet the educational context, the specific learning objectives, and the differences in students' abilities, prior knowledge, and motivation.

Writing is a prisoner of time in early literacy instruction, and teachers may be concerned that time dedicated to writing is time stolen from reading instruction (National Commission on Writing, 2003, 2006). However, writing instruction is most effective when teachers fully implement well-designed writing lessons. Consistency of effective writing instruction is crucial if students are to become skilled writers. A lack of consistency in writing instruction does not allow students to learn, adequately practice, and fully develop proficiency of writing skills. In reality, students may not regard writing as a truly important skill to master until writing instruction becomes part of the daily curriculum. Results of this study showed significant growth over time in kindergarten students' early reading skills even though a portion of literacy instructional time was dedicated specifically to writing instruction. Students in both the interactive writing group and the writing workshop group demonstrated significant growth over time for phonological awareness, alphabet knowledge, and word reading ability.

Early literacy instruction in only reading is not enough if students are to read and to write well (Shanahan, 2006). Writing is an integral component of language. When a child writes, thoughts and knowledge are synthesized to create a unique message. A moment of time is captured in written text. If children are to progressively develop writing skills and an understanding of writing functions, there must be continuity of writing instruction (Boscolo, 2008). Before entering school, young children frequently experiment with the subtle features of creating written text as a way to interact with others. The task of writing serves as a natural bridge from a child's early literacy experiences to formal literacy instruction in kindergarten. Effective writing instruction is not built from stolen moments, but as an essential component of early literacy. Perhaps, in kindergarten it is most important that we *do* writing.

Limitations

This study has limitations that should be recognized when considering the results. First, the duration of the study was 16 weeks. A logical next step would be to extend the duration of the study to a full year to allow greater time for potential effects of writing instruction to more fully emerge. Second, the study was limited to a particular sociocultural context, kindergarten classrooms in schools in a midsized western city with about 33% diversity. Results therefore should not be generalized to locations and populations with vastly different demographic characteristics. Third, as this study was a comparison of two methods of writing instruction, it did not include a status-quo control group. In order to establish conditions consistent with each method of writing instruction, it was necessary to provide training and monitor implementation of each instructional method. Future researchers could consider comparing either method against a status-quo writing control group. However, this may pose potential problems due to the nature of writing instruction in many kindergarten classrooms. Additionally, as these two methods are the prevalent approaches to writing instruction, the resulting study could potentially be a comparison of a particular method of writing instruction against versions of itself. In spite of these limitations, we believe this study provides evidence that, when consistently implemented during the first 16 weeks of kindergarten, interactive writing and writing workshop are equally effective in promoting acquisition of the early reading skills of phonological awareness, letter knowledge, and word reading ability.

ACKNOWLEDGMENTS

The authors express their gratitude to the kindergarten teachers and students who participated in this study. They also thank the district literacy coach, and the principals, faculty, and staff of the participating schools. Finally, the authors extend appreciation to the Emma Eccles Jones Center for Early Childhood Education and to the Payne Foundation for their support of this research study.

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