IMPLEMENTATION OF A WRITING INTERVENTION: IMPACT ON EARLY WRITING DEVELOPMENT IN KINDERGARTEN AND FIRST GRADE WRITERS

A Dissertation

by

KELLIE CARPENTER CUDE

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2011

Major Subject: Curriculum and Instruction

Implementation of a Writing Intervention: Impact on Early

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ABSTRACT

Implementation of a Writing Intervention: Impact on Early Writing Development in Kindergarten and First Grade Writers. (May 2011)

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Process writing research began with adult writers, eventually expanding to include school age children and more recently, emergent writers. Research at the early childhood level has often been directed at specific aspects of writing development rather than an examination of process writing development. This study used pre-existing writing samples to examine writing development in kindergarten and first grade over the course of the school year following the district-wide implementation of a writing process based intervention. The intervention utilized a writing workshop approach to teach the writing process with the addition of two elements: picture plans were used to support emergent writers' prewriting plans, and teachers focused on a single teaching point to target writing instruction. Beginning and end of year samples from 138 kindergarten and 106 first-grade students from three elementary schools in a medium-sized, public school district in the southwestern United States were used for this study, yielding a total of 488 samples. The samples were scored to investigate the change over time on four outcome measures: quantity of words produced, attributes of prewriting picture plan,

developmental level, and handwriting. In addition, the impact of fidelity to the intervention features was explored in relation to the four outcome measures. Fidelity to implementation was scored on each of the 10 separate aspects of the intervention: student choice for topics, reading-writing connections, prewriting, peer conferencing, teacher conferences, minilessons, revision, editing, publishing, and modeling.

Overall, the study found that the greatest change over time in kindergarten and first grade was in the developmental level. There were also large effects for quantity of words produced and handwriting. A regression analysis was conducted to determine which aspects of the intervention feature were most critical to early writing development. Student choice had a significant positive association with all four dependent measures. Minilessons had a significant association with developmental level and handwriting; other significant positive associations included revision with quantity of words produced, and editing with planning. The findings suggest these features of writing workshops should be included in interventions designed to foster early writing development.

DEDICATION

To my family

ACKNOWLEDGEMENTS

I would like to start by thanking my committee chair, Dr. Erin McTigue, for her unyielding support and encouragement. There are no words to express the depth of my gratitude and respect. I would also like to thank my committee members; it was a privilege to work with you and learn from you. Dr. Dennie Smith, thank for you the opportunity to serve as your research assistant for my first two years on campus. Your mentorship and leadership were invaluable and inspiring. Dr. Hersholt Waxman, thank you for your impressive patience and willingness to be in conversation about the work. Dr. Cynthia Riccio, thank you for agreeing to step in so late in the process and serve as my out of department member. Your comments and input were much appreciated. I must also acknowledge the unique contributions of Dr. Mark Sadoski; his input was seminal in the development of the study.

Thanks also go to my friends at Texas A&M University and the faculty and staff of the department of Teaching, Learning, and Culture for helping me to have the full graduate experience. I also want to thank my friends and colleagues at Tarleton State University and Texas A&M University-Central Texas for their unending support, encouragement, and willingness to share the trials and triumphs. A special thanks to Dr. Deborah Jinkins, without whom this study would not have been made possible.

Finally, thanks to my family for their encouragement and faith, and to my husband for his patience, love, and willingness to tolerate the number of items that were moved to the backburner.

NOMENCLATURE

BOY	Beginning-of-Year
BWC	Beginning Writer's Continuum
EOY	End-of-Year
IRA	International Reading Association
NAEP	National Assessment of Educational Progress
NAEYC	National Association for the Education of Young Children
NWP	National Writing Project
NWREL	Northwest Regional Education Laboratory
SES	Socioeconomic Status
SPSS	Statistical Package for the Social Sciences

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CHAPTER I

INTRODUCTION

Of the traditional three Rs (reading, writing, and arithmetic), writing is often the overlooked middle child. However, when it comes to research, writing could arguably be categorized as the baby of the family. Prior to 1969, writing was examined almost wholly in terms of the final product; empirical research on the writing process began in earnest just over 40 years ago (Nystrand, 2006; Perl, Pekala, Schwartz, Graves, Silver, & Carter, 1983).

Much of this early research into the writing process focused on comparisons between novice and expert writers from college age or adult populations (e.g., Emig, 1971; Shaughnessy, 1977). More recent studies have included school age children (e.g., Aulls, 2003; Graham & Perin, 2007; Matsumura, Patthey-Chavez, Valdes, & Garnier, 2002), but the early childhood population has been less studied, particularly in regards to normal development and the subsequent implications for classroom practice (Clay, 2001; Harrison, Ogle, McIntyre, & Hellsten, 2008). In those studies that included early childhood age groups, most researchers focused on a single aspect of writing development such as spelling or handwriting, rather than the process as a whole (e.g., Gentry, 1982; Graham, Harris, & Fink, 2000; Treiman, 1993).

This dissertation follows the style of *Reading and Writing Quarterly*.

The purpose of the present study was to investigate holistic early childhood writing development following a district wide implementation of a writing intervention. Writing samples from kindergarten and first grade students were utilized to examine the changes in the quantity and quality of the writing over the course of a school year. Additionally, the nature of the relationship between those changes and fidelity to the features of the intervention were explored.

Background

The rationale for this current study developed largely as a result of my earlier research (Cude, 2008). The previous project examined the effect of a prescribed daily writing experience on the reading achievement of kindergarteners. The study population included two matched classrooms, each with 20 students, following the same instructional practices in literacy. For an 11-week period during the spring semester, one classroom received an additional daily writing intervention while the other served as a control. Pre- and posttest measures for word recognition and reading comprehension were collected. Following the post-test data collection, an analysis of covariance (ANCOVA) was performed. Although the treatment class began with lower scores on both word recognition and reading comprehension, the students scored significantly higher on both post-tests. While the intervention yielded a significant impact on reading achievement, any impact on writing development was not examined.

Recently, the same writing experience was expanded and implemented throughout all elementary schools in a district. The writing intervention was in place over the course of the entire school year and writing samples were collected by the

district. This rich pre-existing data allowed for the work of the earlier study to be extended due to the increased length of treatment, the larger sample size, and the availability of writing samples; however, a lack of control classrooms precluded the experimental design employed in the first study. Therefore the analysis of this study was an examination of changes in the quality and quantity of the writing samples.

Additionally, in the broader context of the field, there was an opportunity to further examine concerns about what constitutes developmentally appropriate practices in early literacy and the subsequent implications for classroom practice. There is no clear directive on when and how to teach writing in early childhood. For example, in the 1998 joint position statement issued by the International Reading Association (IRA) and the National Association for the Education of Young Children (NAEYC), guidance is provided to characterize best practices in early literacy instruction. The majority of the recommendations focus on learning to read, while writing instruction receives little attention. The position statement does advocate shared writing; however, the impetus is on fostering growth in reading skills. The panel specifically recommends opportunities to write daily for varied purposes, but stops short of elucidating specific recommendations, particularly as to how instruction should be undertaken in the early childhood classroom (Learning to Read and Write, 1998). In the 1998 revisions of both the Assessment Program for Early Childhood Education and the Early Childhood Environment Rating Scale, teachers are urged to encourage students' writing efforts and model literate behavior; yet no specific strategies or activities are delineated (Dickinson, 2002). The implementation of the Reading First initiative may have also decreased the

focus on writing instruction as the five pillars of the literacy initiative did not include writing.

In total, more research on writing development is critical, particularly concerning which instructional practices may serve to foster growth and development in early writing. The few previous studies conducted at these grade levels have often focused on a single aspect of writing and typically included small sample sizes and limited length of treatment. This study was designed to help to fill those gaps in early literacy research, not only in regard to sample size and length of intervention, but also by examining post-intervention growth in the quality and quantity of writing. Analysis was both holistic and across a number of discrete variables.

Theoretical/Conceptual Framework

The marked shift in research focus from product to process developed out of the cognitive perspective in the 1970s. In the 1980s researchers began to delve into the social and cultural aspects of writing as well and there was an expansion of sociocultural theories in the 1990s. Cognitive and social theories led to more research into the role of discourse, motivation, and the impact of the environment on the writing process. The cognitive and sociocultural theories also opened new areas of research into several aspects of writing development. Relationships between oral language, reading, and writing and their respective stages of development are of interest from both theoretical perspectives.

While appreciation of writing development is important from a theoretical perspective, there is also a critical need to understand how to best foster development in

early writing. In order to adequately define what is developmentally appropriate practice in writing development, more intervention studies are needed to identify effective and appropriate instructional practices.

Hillocks (1986) reviewed some 2000 experimental studies spanning two decades to conduct a meta-analysis of the impact of instructional activities and modes of instruction on writing quality. Following his analysis of the 60 included studies, Hillocks identified six main activities and one primary mode of instruction as producing the greatest effects. These activities for teaching writing (grammar, models, sentence combining, scales, inquiry, and free writing) as well as the instructional modes are described later in the literature review. A decade later, Sadoski, Willson, and Norton (1997) explored Hillock's findings using a nonexperimental methodology in 16 elementary and middle school classrooms.

Specifically, Sadoski et al. examined student compositions to evaluate the effectiveness of various writing activities at promoting improvement in the writing quality. Following training at a summer institute, the classroom teachers participating in the study provided 10 weekly self-reports on a total of 17 instructional variables. The written compositions were scored using scales for prewriting, handwriting, holistic quality, and number of words produced. Utilizing a pretest/posttest design, six grade levels ranging from first to eighth were included. Significant gains in both quantity and quality of the compositions were noted in the lower grades (1, 3, and 4). Following factor analysis, the authors ascribed the gains in quality to the use of inquiry, prewriting, literature, and scales. The current study builds upon the research on writing

improvement from Sadoski et al. by examining writing development at the early childhood level.

Objective

While the aforementioned writing improvement study included two first grade teachers and 26 first-grade students, the present study focused specifically on early elementary students. The current study included data from 12 first grade classrooms (106 first grade students), as well as 12 kindergarten classrooms (138 kindergarten students). The larger sample pool and extended length of treatment in the current study offered an opportunity to extend the observations from the Sadoski et al. (1997) study. The objective of this study was to revisit some of the questions posited by the aforementioned study and add to the relatively young and limited research base on early writing development.

Research Questions

The purpose of the present study was to examine the effectiveness of a district wide writing intervention recently implemented in kindergarten and first grade. To that end, two main questions were examined: (a) What changes in prewriting, handwriting, number of words produced, and writing development occur over the course of the school year in kindergarten and first grade? and (b) What is the nature of the relationship between those changes and the features of the intervention?

CHAPTER II

LITERATURE REVIEW

In American education, reading and writing have historically been separate subjects, although both are regarded as language processes. Some researchers have sought to account for this separation by recounting historically different traditions for each subject (Langer & Allington, 1992; Langer & Flihan, 2000). Reading was primarily viewed as a vehicle for learning, regardless of whether the focus was religious instruction or academic knowledge. In contrast, writing emanated from the traditions of Aristotelian rhetoric and this focus on rhetoric persisted well into the middle of the last century. Another explanation for this separation was based on the construct that writing ability was dependent on reading ability. This construct meant that responsible practice required "delayed writing instruction until reading behaviors were firmly established" (Fitzgerald & Shanahan, 2000, p.39; see also Applebee, 1974). However, delaying writing instruction until mastery of reading lacks support in both research and in practice.

Writing Development

Many children come to school as writers. The pencil scribbling on paper and the crayon marks on the walls are first attempts to record their presence. In a recent review of the research, Tolchinsky (2006) described current understandings of writing development prior to formal instruction. Children as young as 15 months show a preference for tools that produce a mark on paper (see Gibson & Levin, 1980). By two to

three years of age children understand the difference between writing and drawing and demonstrate physical motor changes in the production of each by ages three to four (see Brenneman, Massey, Machado, & Gelman, 1996).

Not long after, by age five according to Marie Clay (2001), children come to understand that the marks on the paper are purposeful. This cognitive shift leads to the emergence of writing development. While there are many cognitive models of writing (e.g. seminally Hayes & Flower, 1980; also Bereiter & Scardamalia, 1987; Chenoweth & Hayes, 2003; Hayes, 1996; Kellogg, 1996, 2001; Sadoski & Paivio, 2001), most were developed from a novice-expert rather than an emergent writer perspective. In contrast, Juel, Griffith, and Gough (1986) created a Simple View of Writing model of early literacy acquisition which encompasses development from first to second grade. In the model they propose that writing is the product of spelling and the generation of ideas. Spelling was influenced by cipher knowledge resulting from phonemic awareness, and lexical knowledge as a result of both phonemic awareness and exposure to print.

In an effort to move beyond this model, Abbott and Berninger (1993) also examined the developmental skills needed by emergent writers, although they considered transcription and text generation separately. The major findings for first grade indicated the impact of handwriting fluency and orthographic coding tasks on writing. In addition, oral language was identified as exerting a direct influence on compositional fluency. Additional research on handwriting, the development of alphabetic, phonological, and orthographic knowledge, and the relationship to oral language is described next.

Handwriting. Recently, Clark and Kragler (2005) specifically studied the impact of writing materials in the classroom on hand written text production. Their sample included 34 students, age four to five, from low-income families. The mixed methods study included qualitative data from observations and interviews, as well as quantitative data from standardized testing and the scoring of writing samples. Findings indicated that students wrote more when given greater access to writing materials. Unfortunately, there were insignificant changes in the quality of the writing. The researchers concluded that the increased availability of materials was not sufficient for comprehensive improvement in writing and that teacher modeling is likely essential.

Dyson (1985) also noted insignificant changes to student development when kindergarten students were left to independently copy text. Three students were observed two to three times per week for 14 weeks. Analysis revealed that only one child monitored comprehension during the copying of the text. The aforementioned child was already in the free-writing stage. The other two students did not demonstrate any significant growth with regard to the writing process or comprehension. Copying text only served to improve letter formation.

Two other studies found handwriting did impact writing ability, although both studies included direct teacher instruction. Graham, Harris, and Fink (2000) used an experimental design with 38 first graders identified as being at-risk in both writing and handwriting. The treatment group received handwriting instruction, while the control group received phonological awareness instruction. In addition to pre- and post-test measures, maintenance was examined six months after the instruction was completed.

The results indicated that the handwriting instruction group showed significant positive effects on handwriting, letter knowledge, and compositional fluency. There was no significant effect for writing quality. Interestingly, with the exception of the students with disabilities in the phonological awareness group, writing attitude was positively impacted for all students in the study.

In related work, Jones and Christensen (1999) examined the relationship between automaticity in handwriting and text generation. In an initial study of 114 first grade students, orthographic-motor integration accounted for a large variance (67%) in written expression. A lack of automaticity in handwriting appeared to negatively impact text production. A second experimental study was conducted to determine if handwriting intervention could improve text generation. The treatment group received 10 minutes of handwriting instruction per day for a total of eight weeks. Handwriting skills were demonstrated to have a significant effect on text generation, with a correlation of .73. In summary, handwriting instruction for young students may help with quantity of written text produced, but not necessarily with quality.

Alphabetic, phonological, and orthographic knowledge. Handwriting is only one aspect of written discourse. While many children begin by copying text, transcription requires knowledge of alphabetic, phonological, and orthographic principles. Transcription occurs when ideas are moved from language representations into written text. This translation requires interplay from a number of cognitive sub-processes for writing as well as long-term and working memory (Berninger, 1999; Bourke & Adams, 2010; Kellogg, 1999). Development of the requisite abilities and

understandings is not linear and likely develops in many areas simultaneously, although not at similar rates of growth.

Emergent writers move from the understanding that print carries meaning (Clay, 2001) to increasingly sophisticated levels of alphabetic, phonological, and orthographic knowledge. Much of this knowledge is readily evidenced in Gentry's (1982) stage model of spelling. In the pre-communicative stage, the child uses alphabetic symbols to represent written language, sometimes relating length of text to physical characteristics of the word (Ferreiro & Teberosky, 1982) or using a single symbol to represent a syllable (Ferreiro, 1988, as cited in Tolchinsky, 2006; Schickedanz, 1990). During the semi-phonetic stage some letters are used to represent sounds. Initial consonants are normally acquired first, and then final consonants. As the child moves to the phonetic stage, alphabetic knowledge is coupled with phonological knowledge. The final stages of transitional and conventional spelling mark the acquisition of orthographic conventions (McCutchen, 2006). It is also important to note that while these skills are precursors to conventional writing/spelling, students do not need to be at the final stage in order to produce meaning.

Oral language. Research, although limited, indicates that children with good oral language development were better writers, and writing may serve to strengthen some aspects of oral language development (Shanahan, 2006). Unfortunately, there is a paucity of rigorous research on the relationship between writing and oral language in general (Shanahan, 2006), and even less on early writing and oral language. Reasons for

the lack of research included the limited attention on both oral language development and writing instruction individually in schools (see Clifford, 1989).

Loban (1976) found that written and oral language develop in a parallel fashion, although from third grade and higher written discourse lags about a year behind oral language development. Research on narrative discourse (Benson, 1993; Botvin & Sutton-Smith, 1977) indicated development as early as two and a half years of age. Genre knowledge is well established for most four and five year olds (Donovan & Smolkin, 2002; Ferriero & Teberosky, 1979, as cited in Tolchinsky, 2006; Pappas, 1993). Current understandings indicate the development of oral language, narrative discourse, and genre knowledge all begin before formal instruction and vary largely based on the child's literacy experiences.

Writing Instruction for Emergent Writers

Clearly children come to school with varied backgrounds and abilities. The students in kindergarten may range developmentally from three to eight years of age (Learning to Read and Write, 1998). Obviously, many of these children are ready for a curriculum geared towards early literacy instruction (Nielsen & Monson, 1996). Regardless of where the student begins, effective writing instruction is vital. As Tolchinsky (2006) writes:

> Throughout the development of writing, there are more opportunities for interaction and more developmental time, but the main source of this development is the act of writing, the interpretation and the uses of writing to which children are exposed. The conventions of writing – letter-sound

> correspondences, word separation – cannot be learned outside the written system. There is no way to acquire the conventions of a particular system except by discovering them in the system. (p. 94)

The question then becomes- Which practices are effective and developmentally appropriate in fostering this discovery? Much of the research on writing development in school-age populations has focused on adolescents (Graham & Perrin, 2007; see also The National Commission on Writing in America's Schools and Colleges, 2003) rather than early childhood students. Arguably, this focus on adolescent writing development may encourage interest in early writing development as practitioners look for ways to prepare students for the writing demands placed on the upper grade levels. Unfortunately assessments indicate that upper grade students are not mastery writing. For example, in 2002, the most recent assessment to include fourth grade writing, the National Assessment of Educational Progress (NAEP) found only 58% of the students met basic expectations for writing competence, with another 14% falling below basic level. Improving early writing instruction may serve to raise the percentage of students in the proficient range, and process writing is one way to deliver that instruction.

Process writing. Process writing instruction is based on the recursive cycle of composing text and includes five parts: planning/prewriting, composing/drafting, revising/editing, publishing, and sharing. During the planning/prewriting phase, the author must consider the topic, audience, purpose and genre or format of the proposed text. The composing/drafting phase involves writing the text down and usually includes some revision and editing as the text is being created. Following the initial draft, the

author next revises for clarity or elaboration and then edits for grammar and mechanics. During the publishing phase, a final copy is produced and illustrations may be added. The final phase entails sharing with an audience appropriate to the form of the published work.

This process writing approach is advocated by the National Council of Teachers of English and the International Reading Association (Pritchard & Honeycutt, 2006) as being both effective and developmentally appropriate. In elementary classrooms, this approach often takes the form of a Writing Workshop. In Writing Workshop, students utilize the writing process to produce text, but with some additional features. Writing Workshop usually begins with the teacher modeling as an expert writer working through the writing process cycle. This modeling may include a mini-lesson on one aspect of the process. These mini-lessons are intended to scaffold the students' needs (Calkins, 2003). Students are then given time daily to write, normally on self-selected topics. During this writing time, students may participate in either peer or teacher conferences. These conferences primarily focus on revisions needed to either clarify or elaborate on the topic. When the revisions are completed, the piece is edited and then shared. Sharing may range from reading the piece to one other person or publishing the piece for a wider audience.

Writing Workshop benefits the students through the opportunity to self-select topics, work with their peers, have one-on-one time with their teacher, and receive direct instruction on the writing process (Calkins, 2003; Fletcher & Portalupi, 1998). Teachers are better able to differentiate instruction by focusing on one aspect of a student's

writing, often through the use of the 6+1 Trait® Writing Model developed at the Northwest Regional Education Laboratory (NWREL). Writing Workshop can function as a platform for instruction in process writing, collaborative writing, and strategy instruction; each of which is an effective practice for teaching writing (Berninger, Abbot, Abbott, Graham, & Richards, 2002).

Reviews of the Writing Research

In an effort to identify effective practices for teaching early writing, researchers from two university sites collaborated to conduct a systematic review of early writing literature (Harrison, Ogle, McIntyre, & Hellsten, 2008). The purpose of the review was to synthesis current (1980-2007) evidence-based research to examine the relationship between writing and early literacy development and to identify the most effective types of writing interventions for children ages three to eight years of age. From a pool of 1354 articles, 40 studies were identified as pertinent.

One of the main themes that emerged from the systematic research synthesis was that operationally *early writing* is largely defined as spelling or invented spelling, although it may also include name writing. Only three studies in the review included composition (Abbott, Reed, Abbott, & Berninger, 1997; Berninger, Abbott, Abbott, Graham, & Richards, 2002; Berninger et al., 2002) and one utilized interactive writing (Craig, 2006) as the writing intervention. All of the written responses were prompt driven; none of the topics were student generated. Following the review, Harrison et al. (2008) noted the lack of research on writing interventions at the early childhood level. Other major findings proposed were that early writing impacts literacy development

through increased understanding of the alphabetic principle, that spelling predicts phonological processing, and that instruction in writing influences reading skills.

Hillocks' meta-analysis. Hillocks (1986) examined research into writing interventions and instruction for the two decades prior to the systematic review by Harrison and colleagues. The Hillocks meta-analysis surveyed research on writing composition and instruction from 1962 through 1982. A total of 60 studies were included. Four modes and six instructional methods were identified, each of which will be briefly described and discussed here.

The four modes included presentational, natural process, environmental, and individualized. The presentational mode is teacher directed with much of the focus on correct writing skills. Direct instruction on grammar rules and examination of writing models are the predominant characteristics of this approach. Feedback is largely relegated to written comments concerning correctness, which support the assignment of a grade on the piece.

The natural process mode focuses more on revision, rather than the editing favored by the first mode. Grading is less important here; emphasis is on frequent writing for personal expression. With this mode, feedback is often provided through the use of writing conferences with peers as well as teachers.

The environmental mode includes direct instruction on specific skills, as in the presentational mode, but the instruction is selected to foster inquiry by the students or to model skills necessary for authentic writing purposes. This approach does include discussion and peer interaction, as seen in the natural process mode. In addition to

sharing some aspects of the two previously described modes, the environmental approach also encompasses some characteristics of the writing workshop, including attention to the writing process. However, one important difference between the environmental mode and a writing workshop model is a diminished emphasis on revision.

The final approach is the individualized mode. This mode focuses on one-on-one instruction, including the use of programs and tutorials. The benefit of this approach is the targeted objectives based on individual need. This mode was comparable to the natural process mode in regard to effect size, .17 and .19 respectively. The environmental mode was the most effective, with an average effect size of .44 as compared to the presentational mode with an effect size of .02.

The six instructional methods identified by Hillocks (1986), in order of effectiveness, are grammar, free writing, models, sentence combining, scales, and inquiry. Grammar was the least effective method and Hillocks noted a significant decrease in writing quality accompanying an emphasis on mechanics and syntax. Free writing allows students to write on self-selected topics and is often part of a process writing approach. Models incorporate good pieces of writing to provide representative forms for students to emulate in their own writing. The free writing method (at .16) and models method (at .17) were very similar in terms of effect size. Sentence combining to create more complex sentences, and the use of scales to establish criteria for evaluating writing, were both more effective than the aforementioned instructional methods, albeit with little difference between the two at .35 and .36 respectively. By far the most

significant method, with an effect size of .57, was the one labeled inquiry. The inquiry method does not entail students exploring self-selected topics independently. Rather, this method is very structured; the teacher prepares the task or the environment in order to promote the use of strategies that facilitate effective question generation and discussion. The goal of inquiry is to teach students how to collect and transform information to improve the quality of their writing.

Writing improvement study. In an effort to explore the findings reported in the meta-analysis, Sadoski et al. (1997) designed a study to examine the effectiveness of Hillock's (1986) four modes and six instructional methods in actual classroom practice. In addition, several other instructional variables from the meta-analysis were addressed, including many involving conferencing and teacher feedback. Sadoski and colleagues also included variables such as quantity of text composed, literature use, and the impact of time allowed for composition, resulting in a sum of 17 variables related to quantity or quality of text produced. The study also included a number of non-instructional variables, three of which, socioeconomic status (SES), gender, and handwriting, were included in the current study.

The 1997 study investigated to what extent these variables affected writing quality. Of secondary interest was an evaluation of the effectiveness of a summer training institute conducted prior to the study. The current study also primarily focused on the impact of the variables on writing development and the quantity of text produced. The secondary purpose was also similar in that the effectiveness of the writing intervention initiated by the district was of interest. Many of the variables of interest, as

well as the environmental mode favored in Hillock's meta-analysis and the Sadoski et al. (1997) study, have aspects incorporated in the major components of the intervention.

CHAPTER III

METHODOLOGY

This exploratory study used a non-experimental pretest-posttest mixed methods design. The methodology is described in four sections: subjects, procedure, instrumentation, and data analysis.

Subjects

Writing samples were obtained from a medium-sized, public school district in the southwestern United States. The samples were produced by a total of 138 kindergarten and 106 first-grade students from three elementary schools.

Procedure

Pre-existing data were acquired for this study. The data included writing samples from the four elementary schools in the district. The data were sorted first by campus, then grade level, then classroom. A database was created to facilitate identification of complete data sets, and every writing sample was marked in the database. Writing samples were indicated in the database as being composed in the beginning-of-year (BOY) or end-of-year (EOY). A complete set consisted of a beginning and end-of-year sample. In addition, the subject must have remained in the same classroom for the entire year. Incomplete data sets were then removed from further consideration for the purpose of this study. Finally, demographic data was matched to the remaining subjects. One campus had to be removed as it was not possible to match the samples to a particular subject, rendering the data unusable for this study. Therefore, the preliminary database

contained a total of 244 subjects (488 samples) representing kindergarten and first-grade classrooms from three separate elementary schools. Each writing sample was then assigned a unique study identifier using a random number generator.

Intervention description. The intervention examined for the purpose of this study was designed to be accomplished during the literacy block. The block began with the teacher reading aloud a book purposefully selected to emphasize a particular aspect of the writing process, e.g. idea generating as part of prewriting. A Write-To, lasting five to seven minutes, followed. The purpose of the Write-To was to model the writing process while utilizing a think-aloud strategy. The teacher would brainstorm a topic, draw a simple picture plan about the intended story, and then begin drafting. After the Write-To, the students were provided with time to write about self-selected topics in their draft books. Completion of the entire writing process through to the publication phase could transpire over multiple days, depending on the length of the piece. It is important to note that the use of writing prompts or stems is not promoted by this intervention. In kindergarten, 20-30 minutes was provided for drafting, while first grade allotted 30-40 minutes. At the end of the drafting time, the students moved to various literacy centers. Revision, editing, and publishing conferences were conducted during the center rotations. Students were seen individually during these conferencing sessions. Revision conferences addressed elaboration and clarity, editing conferences on mechanics, and publishing on presentation.

Regardless of the type of conference, the focus was identified using the Teacher Decision Making Cycle (see Appendix A). First the teacher assesses the piece, looking

initially for strengths and then approximations. The approximations are what the student can almost accomplish independently. In other words, what the student does suitably on a fairly consistent basis and falls in the Zone of Proximal Development. The approximations become the teaching points and one is selected for targeted instruction. For example, if a student is using spaces, but is not consistent, the importance of spacing may be selected as a teaching point. This allows students to work on a single aspect of their writing at a level already approaching independence. The intent is to provide success and promote rapid growth as the student is only working on one aspect of the writing and that aspect is one s/he is already close to mastering.

After a teaching point is selected, the teacher moves to planning and preparing for instruction. One factor that may be considered is whether any other students are ready for the same teaching point; if so, small group instruction may be planned. Regardless of whether one-on-one or small group is warranted, a mini-lesson is provided. The teaching point may be adequately addressed in one lesson, or require additional instruction. Following instruction, the student is responsible for correcting the identified teaching point. The teacher corrects the balance of the piece, ideally while modeling and thinking aloud for the student. The purpose is to hold the student responsible for applying new understandings while offering modeling by an expert, and allow the student to move on to a new piece without becoming overwhelmed or discouraged by continual corrections of the same piece. The Teacher Decision Making Cycle aids teachers in effectively targeting their instruction to individual needs rather than relying solely on whole class instruction.

The use of the Teacher Decision Making Cycle was the primary underpinning of the intervention. Other non-negotiables included a requirement to have students write every day, to model a Write-To for five to seven minutes daily, and to teach the writing process. All of these critical aspects were explicitly addressed during the intervention training.

Intervention training and implementation. The spring semester prior to the fall implementation of the intervention, some foundational literacy training was conducted. At that time, the district curriculum focused on the use of basal readers, learning the Dolch lists (i.e. high-frequency words), and the completion of stems (i.e. My favorite animal at the zoo was the _____). There was no writing program in the lower grades. The Assistant Superintendent of Curriculum set a goal for the district to move to a balanced literacy format in the elementary grades, including the use of readers' and writers' workshops. The intervention examined in this study focused on writing. This effort began with two after-school training sessions lasting for two hours each. Two campuses met at a time. The participants included the kindergarten, first grade, and second grade classroom teachers and the reading specialists from the respective campuses. As the instructional leaders on the campuses, the principals from each elementary school in the district were required to attend a separate three hour meeting on the same topic. In the fall, the principals attended a second three hour in-service; this time the training focused on what they should see when visiting and observing classrooms.

The classroom teachers and reading specialists also received inservice training in the fall. The first session was a full day of training prior to the first day of school. The day began with a review that focused on the Teacher Decision Making Cycle, and the reading process. The morning concluded with a one hour session on the writing process.

The afternoon session focused on assessment that included training and practice on the evaluation of writing samples. First the participants were taught how to conduct a reading running record. The process was modeled by the trainer on an overhead, with attention to marking of the record and use of the cueing systems, comprehension check, identification of strengths and approximations, and the selection of a teaching point. Samples were then analyzed in whole group with feedback from the trainer. After additional practice in small groups, samples were analyzed independently and then peer checked. The same process was repeated with a focus on identifying teaching points for revision, for editing, and to identify words for spelling lists. Following the training, the participants met in small groups created by grade level and campus for the purpose of planning and organizing for the implementation of the writing intervention.

Following this training, a total of seven full days of observation and feedback was accomplished with each campus being visited on a monthly basis. All participants were observed individually a minimum of six times followed by a dialogue session with the intervention facilitator. Each teacher was responsible for creating an action plan for classroom implementation, based on the individual's professional growth needs. The principals and trainer also met monthly to discuss campus needs, classroom observations, and any areas of intervention requiring additional attention.

Intervention fidelity. The trainer rated fidelity to the intervention in ten areas that are described below. Each area received a score ranging from one (little or no fidelity to intervention) to four (high degree of fidelity), for a maximum combined total fidelity score of 40. The fidelity measures were adapted for the intervention by some of the practice descriptions from the National Writing Project (NWP) website, especially a report by Swain, Graves, and Morse (2006). Similarly, the identified separate aspects commonly found in writing workshops (e.g., Calkins, 2003; Fletcher & Portalupi, 1998; Swain et al., 2006) were adapted to appropriately reflect the grade levels and intervention in the current study.

Choice refers to allowing students to self-select topics, rather than the use of prompts. The teacher is also expected to make connections for the students between reading and writing. This may include the use of the language experience approach, sharing literature to provide examples of good writing, et cetera. Prewriting entails brainstorming as well as the progression of planning from a single picture to three part plans (beginning, middle, and end) to webs, lists, and outlines. In peer conferencing, students are provided opportunities to discuss their writing with peers, and the teacher has taught how to give proper feedback. Teacher conferences allow for one on one conversations with students about all aspects of the writing process. Minilessons are explicit instruction targeting a specific teaching point and are brief in duration. Revision is for clarity and/or elaboration of the piece. Editing concerns the mechanics or correctness of the piece and covers capitalization, punctuation, spelling, and grammar. Publishing is the creation of a final, illustrated copy designed to be shared. Finally, the

teacher is expected to model the writing process. This modeling may include keeping a writer's notebook, writing in front of students, sharing personal writing, and thinking aloud in order to make the process more visible. All ten of these were included as dedicated aspects of the intervention training and implementation.

During the course of the writing intervention's implementation, a total of seven after-schools sessions were also held on each campus. The one hour sessions were designed to discuss any issues and identify any necessary retraining objectives in order to hone and refine the implementation. Initially, the objectives were very process oriented and primarily involved correctness of procedures. As the process became more familiar, the objectives became more metacognitive in nature and the emphasis shifted to various aspects of the teachers' decision making process. Writing every day became more consistent as the benefits of the process became apparent to the teachers, and through the employment of the follow-up training.

Instrumentation

Following the writing improvement study from Sadoski et al. (1997), the writing samples were scored using scales for prewriting, handwriting, and number of words produced. Additionally, a score for writing development was also included.

Prewriting. The prewriting scale (see Appendix B) was used to examine how well the picture plan matched the final text. Picture plans were used for prewriting. The students were encouraged to use simple drawings to serve as a plan or outline for the ensuing written text.

Handwriting. The handwriting score was determined using the 5-point Presentation rubric (see Appendix C) from the Beginning Writer's Continuum (BWC). The 6+1 Traits Assessments were developed by Education Northwest, formerly named Northwest Regional Education Lab. The research-based rubrics, in use for more than two decades, were originally developed for grades 3-12 and have been extensively field-tested. Later, the Beginning Writer's Continuum (BWC) rubrics were developed specifically for use in kindergarten through second grade. The Presentation rubric included criteria for handwriting and the five point scale was more specific than the three used in the Sadoski et al. study.

Number of words produced. Quantity was reflected by a simple word count where every written word is counted (regardless of spelling correctness). In order to account for developmental stages of spelling and concepts about print (i.e., spaces between words) the writing was mapped to spoken language for the words count. For instance, D bs iz yelo would be counted as four words after mapping to spoken language as *The bus is yellow.* For the majority of the samples where this was necessary, the classroom teacher noted what the student reported he/she had written. Any samples found to require transcription were reviewed by two independent scorers before being returned to the data pool for word count.

Writing development. Rather than the 0-5 holistic scale described by Spandel and Stiggens (1990) in the Sadoski et al. (1997) study, the Blackburn-Cramp Developmental Writing Scale (see Appendix D) was used to obtain a developmental score. This scale was selected as it includes eight levels specifically intended to span

pre-school to early second grade. It was anticipated that this scale would be more sensitive to small changes in development expected at this level and to ameliorate the floor effect likely with the use of scales developed for primary grade levels.

Interscorer agreement. For each of the four variables, three people were trained to score. This allowed for two primary scorers, with a third available in the event the two primary scores differed by more than one level on the scales or one word on the word count for quantity. A training session was held to familiarize the scorers with the instrumentation. Following the training, scorers individually scored a practice sample set (n = 30) on each of the four variables (prewriting, handwriting, quantity, and developmental level). The practice set was randomly selected utilizing samples dropped from the original data pool. Following the sample scoring, interscorer agreement was calculated. The level of agreement ranged from the .86 level to .92 level, so no further training was conducted. This initial interscorer agreement was conducted during the training phase. The study samples were then independently scored. The samples were masked so the scorers were unable to discern whether the samples scored were from BOY, EOY, kindergarten, or first grade. A minimum of 20% (n = 100) of the writing samples included in the study were later assessed by a second scorer in order to verify the acceptable agreement level (> .80) on the actual study writing samples was maintained.

Data Analysis

Descriptive analysis was reported for each of the four measurement scales as well as the variables of grade level, ethnicity, gender, socio-economic status, and fidelity

to intervention. Next, multiple regression was employed to address the first research question. The data was screened for outliers prior to running the regression. The samples were examined by grade level rather than campus level due to the disparate numbers by campus (kindergarten: 66, 114, 96; first grade: 86, 54, 72). Ethnicity, gender, socioeconomic status, and fidelity of implementation were also included as independent variables. To address the second research question, the nature of the relationship between the changes in writing development and the features of the intervention was explored through the use of a separate multiple regression analysis.

CHAPTER IV

RESULTS

The results are presented in three sections. The first section focuses on the pre- and post-intervention differences in writing quantity, planning, developmental level, and handwriting. The second section documents the results of a linear regression analysis after accounting for the impact of gender, ethnicity, socioeconomic status, and intervention fidelity on post-intervention measures of writing quantity, planning, developmental level, and handwriting. The third section describes the relationship between 10 distinct aspects of the intervention and the adjusted scores in writing quantity, planning, developmental level, and handwriting.

Pre- and Post-Intervention Differences

The first research question was - What changes in number of words produced, prewriting, writing development, and handwriting occur over the course of the school year in kindergarten and first grade? This question was first addressed by examining selected descriptive statistics. Table 1 displays the pre- (beginning of year) and post- (end of year) intervention and adjusted score means and standard deviations, as well as effect sizes, for writing quantity, planning, developmental level, and handwriting measures. The grade level adjusted scores from Table 1 were next examined for differences by gender, ethnicity, and socioeconomic status.

It should be noted that the sample sizes were consistent ($N = 244$) in the overall quantity, development, and handwriting samples. However, sample sizes did vary for

planning. The majority of the samples ($N = 224$) had a plan at the beginning of the year, but an additional 48 students ($N = 176$) did not include a plan with the end of year sample. If there was not a visual plan included in the writing sample, the cell was coded as missing data. The rationale being that the absence of a plan did not indicate a student was incapable of planning, only that a plan was not included.

Table 1

Pre- and Post-Intervention Differences by Grade and Overall

	Beginning of Year		End of Year		Adjusted Score		Effect Size
	M	*SD*	*M*	*SD*	*M*	*SD*	Cohen's *d*
Kindergarten							
Quantity	**.29**	.95	**12.87**	8.85	**12.58**	8.94	2.00
Planning	**1.30**	.51	**1.92**	.82	**.62**	.99	.91
Development	**1.70**	.95	**4.96**	1.74	**3.28**	1.76	2.33
Handwriting	**1.17**	.52	**2.99**	1.12	**1.82**	1.15	2.08
First Grade							
Quantity	**10.42**	7.29	**47.40**	32.81	**36.70**	32.53	1.56
Planning	**2.20**	.73	**2.33**	.73	**-.99**	1.64	.18
Development	**4.61**	1.16	**6.82**	1.17	**2.21**	1.47	1.90
Handwriting	**2.53**	.93	**3.80**	.87	**1.28**	1.04	1.38

Table 1 (continued)

Pre- and Post-Intervention Differences by Grade and Overall

	Beginning of Year		End of Year		Adjusted Score		Effect Size
	M	*SD*	*M*	*SD*	*M*	*SD*	Cohen's *d*
Overall							
Quantity	**4.69**	6.98	**27.87**	28.34	**23.06**	25.41	1.12
Planning	**1.69**	.76	**2.03**	.82	**-.08**	1.53	0.43
Development	**2.97**	1.78	**5.77**	1.78	**2.81**	1.72	1.57
Handwriting	**1.76**	.99	**3.34**	1.09	**1.59**	1.13	1.52

Outcome measures. The outcomes are detailed in the four sections below. The sections describe the change over time by grade level in writing quantity, planning, developmental level, and handwriting.

Writing quantity. In kindergarten, the mean number of words produced increased by 4338%. Despite the large percentage, the actual average growth in quantity was between 12 and 13 words per sample. In first grade, the increase averaged 355%, or more than 36 words per sample.

Planning. There was a 48% increase in score on the four point scale for kindergarten planning, with more than 72% scoring 1 at the beginning of year, and more than 64% scoring ≥ 2 at end of year. In first grade, there was a 6% increase in the overall mean adjusted score. However, any inferences must take into consideration the 9

beginning of year missing cases and the 60 cases in the end of year samples in first grade; 11 and 8 respectively in kindergarten.

Developmental level. There was a 192% score increase for developmental level (eight point scale) in kindergarten, with the majority of the students moving from the prewriting/drawing or pretend writing stage (levels one and two) to the independent writing stage (level five). The average first grade student moved from dictation or independent writing (levels four and five respectively) to multiple sentences (level seven), a 48% increase in mean score over the course of the intervention.

Handwriting. In kindergarten, 89% of the beginning scores were at the experimenting stage, level one. By the end of year, the average score was at the developing stage (level three), a 156% increase. In first grade, there was a 51% increase post-intervention, with 89% at or below developing (level three) at the beginning of the year and 67% of the samples scored as capable or experienced (level four and five respectively) at the end of year.

Learner characteristics. The change over time by grade level is described in the three sections below in terms of the characteristics of gender, ethnicity, and socioeconomic status. Table 2 provides an overview of the student demographics.

Table 2

Student Demographics

	Kindergarten	First Grade	Total
Gender			
Male	56	52	108
Female	82	54	136
Ethnicity			
American Indian	2	1	3
Asian Pacific Islander	1	0	1
Black, not Hispanic	2	4	6
Hispanic	50	28	78
White, not Hispanic	83	73	156
Socioeconomic Status			
Free Lunch	61	35	96
Reduced Lunch	18	13	31
Not Disadvantaged	59	58	117

Gender. There were no significant differences by gender in kindergarten, although quantity, planning, and handwriting approached significance at the $p = .058$, .056, and .052 levels respectively, with females scoring higher on all measures. In first

grade, there was a significant difference in planning, with males scoring higher at the $p < .01$ level.

Ethnicity. The only significant difference in ethnicity, $p < .01$, was found in kindergarten planning. Post hoc testing did not include American Indian (N=2), Asian-Pacific Islander (N=1), or Black (N=2), due to the small samples. A t-test was conducted between Hispanic and White samples; however, there was no significant difference between groups, $t(131) = 1.25$, $p = .22$.

Socioeconomic status. There was no significant difference by socioeconomic status, although first grade adjusted score in quantity approached significance at $p = .056$. Post hoc tests indicated no significant difference between free and reduced lunch, $t(46) = 1.35$, $p = .19$, or free and not economically disadvantaged, $t(91) = 1.24$, $p = .22$. There was, however, a significant difference between reduced lunch and not economically disadvantaged, $t(69) = 2.51$, $p = .02$, with the not economically disadvantaged group scoring higher.

Post-Intervention Regression

To further investigate the first research question concerning what changes in the dependent variables occur over the course of the school year in kindergarten and first grade, regression analysis was performed. The dependent variables analyzed were: Quantity, Planning, Developmental Level, and Handwriting. Included in the independent variables was an overall score that measured the fidelity to the intervention. Each classroom teacher was rated on each aspect of the intervention using a four-point scale;

one indicating little/no fidelity to four indicating high fidelity. The overall fidelity score for each classroom teacher was calculated by adding the scores for each of 10 measures.

Outcome measures. The post-intervention regression results are reported in the four sections below for each of the dependent variables: quantity, planning, developmental level, and handwriting. For each regression, the independent variables in the regression equations were (a) pre-intervention score relevant to the dependent variable, (b) fidelity score, (c) gender, (d) ethnicity, (e) socioeconomic status, and (f) grade. The dependent variable was the post-intervention score.

Quantity. A multiple regression analysis was conducted to examine the extent that the six independent variables predicted quantity of words produced. Prior to conducting the analysis, a casewise diagnostic was run to identify outliers, resulting in the removal of five cases ($N = 239$). The linear combination of independent variables was significantly related to the quantity score, $F(6, 232) = 31.99$, $p < .01$. The coefficient of determination was .45, indicating that approximately 45% of the variance of quantity of words produced can be accounted for by the linear combination of the independent variables. Table 3 displays the means, standard deviations, and correlation matrix for the independent variables and end-of-year quantity. Table 4 shows the regression analysis summary. Four of the six independent variables were significantly related with the dependent variable. The end-of-year score in quantity had a significant small negative association with the fidelity score. The end-of-year score in quantity had a significant small positive association with socioeconomic status and a significant medium positive association with pre-intervention score, and grade level.

Table 3

Means, Standard Deviations, and Intercorrelations for the Independent Variables and End-of-Year Score in Quantity

Variable	*M*	*SD*	1	2	3	4	5	6
End-of-Year Score	25.91	24.98	.60**	.27**	-.01	.09	.23**	.61**
Independent Variables								
1. Beginning-of-Year Score	4.71	7.03	--	.41**	-.03	.06	.12*	.74**
2. Fidelity Score	24.30	8.09		--	-.09	.08	.12*	.57**
3. Gender	.56	.50			--	-.04	-.07	-.09
4. Ethnicity	4.58	.66				--	.40**	.09
5. Socioeconomic Status	2.09	.93					--	.13*
6. Grade Level	.42	.50						--

* $p < .05$, ** $p < .01$

Table 4

Regression Analysis Summary for Variables Predicting End-of-Year Scores in Quantity

Independent Variables	*B*	*SEB*	β	*t*
1. Beginning-of-Year Score	1.11	.26	.31	4.35**
2. Fidelity Score	-.37	.18	-.12	-2.03*
3. Gender	1.65	2.46	.03	.67
4. Ethnicity	-.91	2.00	-.02	-.45
5. Socioeconomic Status	4.19	1.43	.16	2.92**
6. Grade Level	21.85	4.02	.43	5.44**

Note. $R^2 = .45$ ($N = 239$). * $p < .05$, ** $p < .01$

Planning. A multiple regression analysis was conducted to examine the extent the independent variables predicted planning score. Prior to conducting the analysis, a casewise diagnostic was run, resulting in the removal of one sample. Missing data (no plan included in the sample) further reduced the sample size ($N = 160$). The linear combination of independent variables was significantly related to the planning score, $F(6, 153) = 3.83$, $p < .01$. The coefficient of determination was .13 indicating that approximately 13% of the variance of planning can be accounted for by the linear combination of the independent variables. Table 5 displays the means, standard deviations, and correlation matrix for the independent variables and end-of-year planning. Table 6 shows the regression analysis summary. Three of the six independent variables were significantly correlated with the dependent variable. The end-of-year score in planning had a significant small positive association with the pre-intervention score, fidelity score, and gender. Ethnicity, socioeconomic status, and grade level were not significantly related to the end-of-year score in planning.

Table 5

Means, Standard Deviations, and Intercorrelations for the Independent Variables and End-of-Year Score in Planning

Variable	*M*	*SD*	1	2	3	4	5	6
End-of-Year Score	2.04	.80	.25**	.21**	.12	-.13*	-.08	.20**
Independent Variables								
1. Beginning-of-Year Score	1.52	.71	--	.17*	-.06	-.19**	.01	.53**
2. Fidelity Score	22.59	8.14		--	-.14*	-.04	.06	.43**
3. Gender	.58	.49			--	-.02	.02	-.16*
4. Ethnicity	4.58	.57				--	.43**	-.01
5. Socioeconomic Status	2.03	.93					--	.09
6. Grade Level	.26	.44						--

* $p < .05$, ** $p < .01$

Table 6

Regression Analysis Summary for Variables Predicting End-of-Year Scores in Planning

Independent Variables	*B*	*SEB*	β	*t*
1. Beginning-of-Year Score	.22	.10	.20	2.15*
2. Fidelity Score	.02	.01	.18	2.13*
3. Gender	.27	.12	.17	2.15*
4. Ethnicity	-.07	.12	-.05	-.59
5. Socioeconomic Status	-.07	.07	-.08	-.90
6. Grade Level	.10	.18	.-05	.54

Note. $R^2 = .13$ ($N = 160$). * $p < .05$, ** $p < .01$

Developmental level. A multiple regression analysis was conducted to evaluate how well the independent variables predicted developmental level. No samples were identified for exclusion following the casewise diagnostic ($N = 244$). The linear combination of independent variables was significantly related to the developmental level, $F(6, 237) = 19.40$, $p < .01$. The coefficient of determination was .33, indicating that approximately 33% of the variance of developmental level can be accounted for by the linear combination of the independent variables. Table 7 displays the means, standard deviations, and correlation matrix for the independent variables and end-of-year developmental level.

Two of the six independent variables were significantly correlated with the dependent variable. The end-of-year score in developmental level had a significant medium positive association with the pre-intervention score and a small positive association with grade level. Fidelity score, gender, ethnicity, and socioeconomic status were not significantly associated with the end-of-year score in developmental level. Table 8 shows the regression analysis summary.

Table 7

Means, Standard Deviations, and Intercorrelations for the Independent Variables and End-of-Year Score in Developmental Level

Variable	*M*	*SD*	1	2	3	4	5	6
End-of-Year Score	5.77	1.78	.54**	.32**	.08	-.01	.13*	.52**
Independent Variables								
1. Beginning-of-Year Score	2.97	1.78	--	.44**	-.01	.03	.09	.81**
2. Fidelity Score	24.34	8.01		--	-.09	.07	.12*	.56**
3. Gender	.56	.50			--	-.05	-.07	-.09
4. Ethnicity	4.57	.67				--	.37**	.08
5. Socioeconomic Status	2.09	.93					--	.12*
6. Grade Level	.43	.50						--

* $p < .05$, ** $p < .01$

Table 8

Regression Analysis Summary for Variables Predicting End-of-Year Scores in Developmental Level

Independent Variables	*B*	*SEB*	β	*t*
1. Beginning-of-Year Score	.31	.09	.31	3.42**
2. Fidelity Score	.01	.01	.04	.65
3. Gender	.38	.19	.11	1.96
4. Ethnicity	-.20	.15	-.07	-1.28
5. Socioeconomic Status	.20	.11	.10	1.80
6. Grade Level	.87	.36	.24	2.46*

Note. $R^2 = .33$ ($N = 244$). * $p < .05$, ** $p < .01$

Handwriting. A multiple regression analysis was conducted to examine whether the independent variables explained the handwriting score. No samples were identified for exclusion following the casewise diagnostic (N = 244). The linear combination of independent variables was significantly related to the handwriting score, $F(6, 237) = 11.30$, $p < .01$. The overall coefficient of determination was .22, indicating that approximately 22% of the variance of handwriting can be accounted for by the linear combination of the independent variables. Table 9 displays the means, standard deviations, and correlation matrix for the independent variables and end-of-year handwriting. Table 10 shows the regression analysis summary. Three of the six independent variables were significantly correlated with the dependent variable. The end-of-year score in handwriting had a significant medium positive association with the beginning-of-year score and a significant low positive association with gender. The end-of-year score in handwriting had a significant small negative association with ethnicity. Fidelity score, socioeconomic status, and grade level were not significantly related to the end-of-year score in handwriting.

Table 9

Means, Standard Deviations, and Intercorrelations for the Independent Variables and End-of-Year Score in Handwriting

Variable	*M*	*SD*	1	2	3	4	5	6
End-of-Year Score	3.34	1.09	.41**	.25**	.12*	-.07	.10	.37**
Independent Variable								
1. Beginning-of-Year Score	1.76	.99	--	.40**	.02	.04	.12*	.68**
2. Fidelity Score	24.34	8.01		--	-.09	.07	.12*	.56**
3. Gender	.56	.50			--	-.05	-.07	-.09
4. Ethnicity	4.57	.67				--	.37**	.08
5. Socioeconomic Status	2.09	.93					--	.12*
6. Grade Level	.43	.50						--

* $p < .05$, ** $p < .01$

Table 10

Regression Analysis Summary for Variables Predicting End-of-Year Scores in Handwriting

Independent Variables	*B*	*SEB*	β	*t*
1. Beginning-of-Year Score	.30	.09	.27	3.41**
2. Fidelity Score	.01	.01	.07	.93
3. Gender	.29	.13	.13	2.28*
4. Ethnicity	-.21	.10	-.13	-2.10*
5. Socioeconomic Status	.12	.07	.10	1.66
6. Grade Level	.35	.19	.16	1.82

Note. $R^2 = .22$ ($N = 244$). * $p < .05$, ** $p < .01$

Fidelity Regression

In order to address the second research question, the nature of the relationship between the adjusted scores and the features of the intervention, a multiple regression analysis was conducted to evaluate how well the fidelity measures explained the adjusted scores for writing. For these regressions, the separate fidelity ratings for each of the 10 indices were used, rather than an overall fidelity score.

Outcome measures. The independent variables were the 10 fidelity indices, while the dependent variables were the adjusted scores in writing quantity, planning, developmental level, and handwriting. Table 11 displays the means, standard deviations, and correlation matrix for the fidelity independent variables and the adjusted scores for all of the dependent variables. The results of the correlation analyses presented show that all of the correlations were statistically significant and were greater than or equal to .59 which indicates that they were highly related to each other.

Table 11

Means, Standard Deviations, and Intercorrelations of the Fidelity Variables with Adjusted Scores in Quantity, Planning, Developmental Level, and Handwriting

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
Quantity Gain	23.06	25.41	.20**	.18**	-.06	.18**	.12*	.23**	.19**	.14*	.22**	.12*
Planning Gain	-.08	1.53	-.082	-.34**	-.17**	-.27**	-.28**	-.22**	-.22**	-.15*	-.31**	-.26**
Developmental Level Gain	2.81	1.72	-.07	-.19**	-.13*	-.22**	-.17**	-.06	-.07	-.09	-.14*	-.10
Handwriting Gain	1.59	1.13	-.03	-.17**	-.10	-.12*	-.17**	.04	-.06	-.09	-.11*	-.10
Independent Variable												
1. Choice	1.93	.73	--	.76**	.73**	.66**	.63**	.59**	.65**	.66**	.64**	.70**
2. Rdg-Wrtg Connect	2.77	.95		--	.86**	.83**	.90**	.77**	.81**	.88**	.84**	.90**
3. Prewrite	2.39	.86			--	.72**	.85**	.69**	.81**	.85**	.74**	.88**
4. Peer Conferencing	1.73	.69				--	.81**	.77**	.73**	.73**	.76**	.66**
5. Tchr Conference	2.52	1.01					--	.71**	.88**	.85**	.90**	.82**
6. Minilessons	2.61	.96						--	.79**	.80**	.81**	.81**
7. Revision	2.28	.80							--	.84**	.87**	.83**
8. Editing	2.77	.92								--	.78**	.90**
9. Publishing	2.32	.96									--	.83**
10. Modeling	3.03	1.02										--

* $p < .05$, ** $p < .01$

Quantity. The linear combination of fidelity measures was significantly related to adjusted score in quantity, $F(10, 233) = 10.87$, $p < .01$. Table 12 provides the regression analysis summary. The overall R-square was .32, indicating that 32% of the variance in adjusted score in quantity can be accounted for by the linear combination of the fidelity measures. Three of the 10 fidelity aspects were significantly related with the dependent variable. The adjusted score in quantity had a significant medium positive association with choice and a significant low positive association with revision. The adjusted score in quantity had a significant large negative association with prewriting. Reading-writing connections, peer conferencing, teacher conferences, minilessons, editing, publishing, and modeling were not significantly related to the adjusted score in quantity.

Table 12

Regression Analysis Summary for Fidelity Variables Predicting Adjusted Scores in Quantity

Fidelity Variables	*B*	*SEB*	β	*t*
1. Choice	11.46	3.44	.33	3.33**
2. Reading-Writing Connection	9.25	7.07	.35	1.31
3. Prewrite	-35.01	5.28	-1.18	-6.63**
4. Peer Conferencing	1.88	5.62	.05	.34
5. Teacher Conference	-.93	6.87	-.04	-.14
6. Minilessons	1.54	3.71	.06	.42
7. Revision	11.90	4.72	.38	2.52*
8. Editing	4.52	4.54	.16	1.00
9. Publishing	-.82	5.33	-.03	-.15
10. Modeling	3.38	7.12	.14	.48

Note. $R^2 = .32$ ($N = 244$). * $p < .05$, ** $p < .01$

Planning. The linear combination of fidelity measures was significantly related to adjusted score in planning, $F(10, 233) = 11.51$, $p < .01$. Table 13 displays the regression analysis summary. The sample multiple correlation coefficient was .58, indicating that approximately 33% of the variance in adjusted score in planning can be accounted for by the linear combination of fidelity measures. Three of the 10 fidelity aspects were significantly related to the dependent variable. The adjusted score in planning had a significant medium positive association with choice and a significant large positive association with editing. The adjusted score in planning had a significant large negative association with reading-writing connections. Prewriting, peer

conferencing, teacher conferences, minilessons, revision, publishing, and modeling were not significantly related to the adjusted score in planning.

Table 13

Regression Analysis Summary for Fidelity Variables Predicting Adjusted Scores in Planning

Fidelity Variables	*B*	*SEB*	β	*t*
1. Choice	1.03	.21	.49	5.02**
2. Reading-Writing Connection	-2.14	.42	-1.33	-5.07**
3. Prewrite	.20	.32	.11	.63
4. Peer Conferencing	-.24	.34	-.11	-.71
5. Teacher Conference	.64	.41	.42	1.55
6. Minilessons	.19	.22	.12	.87
7. Revision	-.42	.28	-.22	-1.49
8. Editing	1.23	.27	.73	4.51**
9. Publishing	-.34	.32	-.22	-1.08
10. Modeling	-.25	.43	-.16	-.58

Note. $R^2 = .33$ ($N = 244$). * $p < .05$, ** $p < .01$

Developmental level. The linear combination of fidelity measures was significantly related to adjusted score in developmental level, $F(10, 233) = 3.44$, $p < .01$. Table 14 displays the regression analysis summary. The sample multiple correlation coefficient was .36, indicating that approximately 13% of the variance in adjusted score in developmental level can be accounted for by the linear combination of fidelity measures. Three of the 10 fidelity aspects were significantly related with the dependent

variable. The adjusted score in developmental level had a significant small positive association with choice and a significant medium association with minilessons. The adjusted score in developmental level had a significant medium negative association with peer conferencing. Reading-writing connections, prewriting, teacher conferences, revision, editing, publishing, and modeling were not significantly related to the adjusted score in developmental level.

Table 14

Regression Analysis Summary for Fidelity Variables Predicting Adjusted Scores in Developmental Level

Fidelity Variables	*B*	*SEB*	β	*t*
1. Choice	.61	.26	.26	2.33*
2. Reading-Writing Connection	-.92	.54	-.51	-1.71
3. Prewrite	-.33	.40	-.16	-.81
4. Peer Conferencing	-.94	.43	-.38	-2.18*
5. Teacher Conference	.62	.53	.36	1.18
6. Minilessons	.65	.28	.37	2.30*
7. Revision	.39	.36	.18	1.09
8. Editing	.14	.35	.08	.41
9. Publishing	-.64	.41	-.36	-1.58
10. Modeling	.09	.54	.06	.17

Note. $R^2 = .13$ ($N = 244$). * $p < .05$, ** $p < .01$

Handwriting. Table 15 displays the regression analysis summary. The linear combination of fidelity measures was significantly related to adjusted score in

handwriting, $F(10, 233) = 3.76$, $p < .01$. The overall coefficient of determination was .14, indicating that approximately 14% of the variance of handwriting can be accounted for by the linear combination of the independent variables. Three of the 10 fidelity aspects were significantly correlated with the dependent variable. The adjusted score in handwriting had a significant small positive association with choice and a significant medium positive association with minilessons. The adjusted score in handwriting had a significant medium negative association with reading-writing connections. Prewriting, peer conferencing, teacher conferences, revision, editing, publishing, and modeling were not significantly related to the adjusted score in handwriting.

Table 15

Regression Analysis Summary for Fidelity Variables Predicting Adjusted Scores in Handwriting

Fidelity Variables	*B*	*SEB*	β	*t*
1. Choice	.41	.17	.26	2.39*
2. Reading-Writing Connection	-.72	.35	-.60	-2.03*
3. Prewrite	.03	.26	.03	.13
4. Peer Conferencing	-.28	.28	-.17	-1.01
5. Teacher Conference	.21	.34	.19	.61
6. Minilessons	.67	.19	.57	3.58**
7. Revision	.11	.24	.08	.47
8. Editing	-.07	.28	-.05	-.29
9. Publishing	-.34	.27	-.29	-1.28
10. Modeling	-.04	.36	-.07	-.11

Note. $R^2 = .14$ ($N = 244$). * $p < .05$, ** $p < .01$

CHAPTER V

CONCLUSIONS

This chapter is divided into four sections. The first section provides an overview of the study, including purpose and methodology. The next section details a review of the findings; the third section a discussion of conclusions and implications drawn from the findings. The final section reflects on limitations and recommends areas for future research.

Summary of the Study

This study examined early childhood writing development following implementation of a district wide writing intervention. The intervention employed a writing workshop approach to teach the writing process, and included a focus on teacher decision making as the assessment used to drive instruction. The district provided training and support before and during the year long implementation. Writing samples were collected over the course of the school year.

These pre-existing writing samples were used for this study. For the purpose of this study, a complete data set consisted of a beginning and end of year sample. A total of 138 kindergarten students (276 samples) were included from 12 classrooms across three campuses. The same three campuses provided 212 first grade samples, from 106 students enrolled in 12 separate classrooms.

The samples were scored on four measures; number of words produced (quantity), prewriting plan, developmental level, and handwriting. A pre-established

minimum interscorer agreement of .80 on all measures was achieved prior to scoring; a random sampling taken after scoring indicated the acceptable agreement level was maintained. Descriptive statistics were obtained utilizing Statistical Package for the Social Sciences (SPSS) software. The same software was then employed to run a post-intervention regression analysis. For the regression analysis, the four measures just described (quantity, plan, developmental level, and handwriting) were the dependent variables, while gender, ethnicity, socioeconomic status, and overall intervention fidelity were the independent variables. Descriptive and regression analyses were selected to answer the first research question - What changes in prewriting, handwriting, number of words produced, and writing development occur over the course of the school year in kindergarten and first grade?

In order to answer the second research question about the nature of the relationship between those changes and the features of the intervention, a second regression analysis was conducted. For each of the 24 classrooms with student samples in the data set, fidelity to the intervention was measured. Ten separate aspects of the intervention were defined, with the score ranging from 1 (little to no fidelity) to 4 (high degree of fidelity). While total fidelity score was used in the post-intervention regression to address the first research question, the second question required the score for each intervention feature be considered in the fidelity regression.

Findings

The findings are presented in relation to the two research questions: What changes in prewriting, handwriting, number of words produced, and writing

development occur over the course of the school year in kindergarten and first grade? and, What is the nature of the relationship between those changes and the features of the intervention?

The first question was addressed using descriptive statistics and a post-intervention regression analysis. The descriptive statistics for the kindergarten population indicated the greatest effect over time was in the area of developmental level, which was expected given the scale used is intended to gauge writing growth. The average student moved from level one to level five (from scribbling to conveying short, simple messages). Large effects were also found in handwriting and quantity of words produced. The smallest amount of growth was seen in planning, with the majority of students moving from either a *missing* or *non identifiable* plan to a *single picture* plan. In first grade, the effect size was again greatest for developmental level, with quantity of words produced and handwriting also exhibiting large effect sizes. There was no practical significance for planning, but this may be a consequence of the missing cells for the planning measure.

In addition to the four dependent variables, three non-instructional variables were also considered when examining the grade level changes over time. In regards to gender, there were no significant differences in kindergarten, although all but developmental level approached significance, with p values ranging from .052 to .058. On the three measures approaching significance (quantity, planning, and handwriting), females scored higher in each area. Planning was the only measure with a significant difference in first grade, with males scoring higher. There were no significant differences by ethnicity

except for kindergarten in the area of planning. However, of the five identified ethnicities, three had only two or fewer subjects. Therefore, a *t* test was conducted on the remaining groups, which indicated no significant differences between the two. There were no significant differences by socioeconomic status, although quantity in first grade approached significance at $p = .056$. Post hoc testing revealed a significant difference between students on reduced lunch and those categorized as not economically disadvantaged. This was surprising as there was not a significant difference between students receiving free lunch and either reduced lunch or not economically disadvantaged.

Next, a multiple regression analysis was conducted for each of the dependent measures. The dependent variable for each was the post-intervention score; the independent variables for each were the pre-intervention score, total fidelity score, gender, ethnicity, socioeconomic status, and grade. The independent variables were significantly related to the post-intervention scores, $p < .01$, for quantity, planning, developmental level, and handwriting. The independent variables accounted for 45% of the variance in quantity, 13% in planning, 33% in developmental level, and 22% of the variance in the post-intervention scores for handwriting. As expected, the pre-intervention score was a significant predictor for each dependent variable. Grade level significantly impacted both quantity of words produced, and developmental level. Planning and handwriting measures were significantly impacted by gender; females had higher gains (and end-of-year scores) on both measures in kindergarten, while males showed greater gains on both in first grade (although females were still higher in terms

of end-of-year scores in handwriting). Fidelity score had a significant low positive association with planning, but a low negative association with quantity. The only other negative association concerned ethnicity and handwriting. Only Hispanic and White groups had sufficient sample numbers; Hispanics showed greater gains in kindergarten and first grade, as well as higher end-of-year scores in kindergarten. The only significant result for socioeconomic status was a high positive association with quantity.

The second research question was addressed using regression analysis to examine the impact of the intervention features on early writing development. The dependent variables were the adjusted scores (the difference between the beginning and end of year scores) in writing quantity, planning, developmental level, and handwriting. The independent variables were the ten intervention fidelity indices; choice, reading-writing connections, prewriting, peer conferences, teacher conferences, minilessons, revision, editing, publishing, and modeling. The intervention features were significantly related to the adjusted scores, $p < .01$, for quantity, planning, developmental level, and handwriting. The independent variables accounted for 32% of the variance in quantity, 33% in planning, 13% in developmental level, and 14% of the variance in the adjusted scores for handwriting. For the adjusted scores in quantity, choice, prewriting, and revision were significant predictors. For planning, choice, reading-writing connections, and editing were significant. Choice, peer conferencing, and minilessons were significant for developmental level. Choice, reading-writing connections, and minilessons were significant for handwriting. In the following sections, these results are framed by considering previous research in writing development and student learning,

followed by a brief section of recommendations for teachers of emergent and beginning writers.

Discussion

Following Sadoski et al. (1997), this study examined change over time in quantity and quality, as well as the effectiveness of instruction on writing development. The results indicated significant gains over time, with pre-post effect sizes exceeding 2.0 in kindergarten and 1.0 in first grade for quantity, developmental level, and handwriting.

The effect size for planning in kindergarten remained high at .91, but was only .18 in first grade; very likely a result of the absence of a visible plan, particularly for the end-of-year samples, that resulted in a large number of missing cells and a negative adjusted score. Sadoski et al. (1997) also noted an absence of prewriting, and reported no significant relationship between planning and quality (any relationship to quantity was not reported).

Prewriting includes any planning carried out prior to drafting such as idea generation in the forms of brainstorming, picture plans, outlines, et cetera. Taking the time to consider what is known about the topic and organizing the approach should lead to having more to write about, thereby allowing for an increase in text produced. It is possible the strategy was not explicitly taught or sufficiently modeled; therefore it was either frustrational or considered to be less important in the writing process. Alternately, students who engage in extensive prewriting, particularly if using a picture plan, may go beyond the simple line drawings used as visual placeholders. In other words students who focused on detailed illustrating during planning (rather than in the publishing

phase), may have had less time or energy for the main writing project of the actual verbal text.

Non-instructional variables were included in both studies. The findings were generally congruent with those from Sadoski and colleagues, with the exception of socioeconomic status; in this study it was significantly related to quantity of words produced.

The primary purpose of both studies was the investigation of instructional practices to foster writing development. Here the subjects and findings varied for the two studies in several important ways. First, Sadoski et al. (1997) study included both upper and lower grades. The major findings supported those from Hillock's (1986) meta-analysis; specifically, instructional practices reflecting the environmental mode, including the use of literature, inquiry, prewriting, and scales.

In the current study, the use of literature (reading-writing connections) had only one significant relationship, and it was a small negative association with handwriting. This aspect of the intervention includes teachers sharing literature for the purpose of presenting examples of good writing. While this type of literature use for writing instruction has been shown in previous research to significantly improve writing quality (e.g., Hillocks, 1986), the majority of those studies were conducted in older writers. There may have been less impact from using published writing as models for younger writers because their current writing levels are greatly lower than published writing.

Prewriting had significant negative associations with both quantity of words produced and planning. As previously noted, the results may be confounded by the

missing cells and should be considered before drawing any conclusions. This study found that revision, editing, and minilessons all had significant associations with gains in either quantity or quality of the writing; these practices were not identified as significant in the Sadoski et al. (1997) study.

Only one aspect of the intervention had a significant impact on growth in quantity, planning, developmental level, and handwriting. Choice had a significant high positive association with quantity and planning, and a significant low positive association with developmental level and handwriting. Choice entails the student being allowed to self-select the writing topic, rather than relegated to writing from a prompt.

Choice has long been advocated as contributing to student motivation for both reading and writing (e.g., Gambrell, 1996; Spaulding, 1992) because children naturally select to read and write about topics that are most interesting to them. As expected, allowing choice had a significant impact on quantity. Children should produce more text when the topic is familiar and of interest. Choice was also significantly related to the other measures of writing improvement. This is exciting because over the course of the year, an increased quantity of text produced could be expected to foster growth in developmental level and handwriting. It was anticipated that having more to say on a topic might also prompt the need for a more detailed plan. Of course, it could also be argued that a plan would be less necessary when a topic, particularly a self-selected topic, is familiar.

Unfortunately, no studies including choice were found in the literature, including the systematic review by Harrison et al. (2008), so current research does not further

elucidate the finding about the impact of choice. In addition to experimental studies which include choice, types of choice should also be explored. Options for choice may range from the completely free choice offered in the current study, to managed choice and the use of open-ended prompts. This is an area of research requiring further investigation.

It was unexpected to find that several features of the intervention were not significantly associated with gains on the dependent variables. Within this intervention, peer conferencing and teacher conferences were aspects of the writing intervention anticipated to be related to students' writing development. There are many research-validated reasons for this expectation. Peer and teacher conferences both provide opportunities to discuss the writing process. Students can benefit from discussing topics, obtaining feedback on revision or editing, or simply sharing their writing. Here again, the common thread running throughout all the measures is likely text production. The act of talking about the writing can be generative and more text means growth in quantity, planning, development, and handwriting.

While providing specific feedback is often expected in the upper grades, in early childhood it is primarily accomplished through teacher conferences. Feedback has been found to be particularly powerful within learning cycles. The forum of one-on-one teacher conferences, rather than whole class instruction, gives teachers an opportunity to use feedback most effectively by making feedback specific (Johnston, 2005) and accurate (Linnenbrink & Pintrich, 2003). The logistics of whole class instruction often reduce teachers' abilities to focus specifically on the learning strengths of one student. In

addition to feedback and talking about the writing, individualized instruction frequently occurs during these one-on-one meetings, which should also serve to foster growth and development.

Another minor finding concerns the absence of a significant relationship between minilessons and both quantity and planning. Minilessons consist of brief, explicit instruction targeting one teaching point and are often considered the hallmark of writer's workshop (e.g., Calkins, 2003; Fletcher & Portalupi, 1998). In this intervention, the teaching points from minilessons are identified from ongoing assessment, which insures that the minilessons were relevant to students' learning needs. The purpose is to identify one aspect of the writing that is an approximation, that is, something the student is almost able to do independently. The intent is to always be teaching at the point where, with a little scaffolding, the student can be successful rather than frustrated, which allows for constant growth. The use of teaching points is an important aspect of this intervention; however, it is unclear if teaching points were used properly and consistently during the implementation of the intervention.

Publishing is another form of sharing writing; the same generative benefits could be expected. At the early childhood level, published work is more often handwritten than electronically produced, which provides practice and impetus to produce a legible product. Furthermore, publishing is a more permanent form of sharing, meant to be communicated with a larger audience than would be present in a peer or teacher conference.

Of additional interest was the absence of a significant relationship between modeling and growth in writing development. It was anticipated that the daily modeling of the writing process would lead to increased text production (impacting both quantity and handwriting development) and the subsequent need for planning required by longer drafts. Additionally, models potentially provide motivation for young writers, encouraging persistance in the writing process, yielding more complete writing products.

In summary, only seven of the 10 aspects of the intervention were significantly associated with writing development; teacher conferences, publishing, and modeling did not have a significant relationship with any of the dependent variable. Four of the independent variables had a significant relationship with only one dependent variable; two aspects of the intervention were significantly associated with two dependent variables. Only choice was significant on all four measures. It is not clear if the lack of significance on many of the measures could be ascribed to instrumentation or implementation. Limitations due to both are discussed in the next section.

Limitations and Recommendations

Further research on early writing intervention is needed to examine the findings of the study. While there were significant gains over time and the intervention was developmentally appropriate for the early childhood grades represented in the study; replication is not suggested. Rather, several issues must first be addressed.

Of primary importance, the use of a control group, precluded by the use of pre-existing data utilized here, would have strengthened the study. Growth is expected over the course of a school year, and without a control any additional growth is not clearly

delineated. Additionally, multiple measures over the course of the year, for both writing and fidelity measures, are also suggested. How writing quality is defined, particularly at the early childhood level, must be considered from both a theoretical and practical standpoint before it can be measured systematically.

Handwriting was included as a dependent measure in this study as one facet of writing quality. With the increased use of technology and computers in early grades the centrality of handwriting for writing production may not be as critical as in previous decades; it was included due to its consideration in the Sadoski et al. study (1997) and because of the literature indicating that handwriting automaticity impacts text production. For that reason, the relationship between the handwriting and quantity measures should also have been examined. These issues notwithstanding, many of the reasons to avoid replication lie with instrumentation; the major issues concerned the scales for writing development and fidelity measures.

There is a decided lack of scales intended for use at the early childhood writing level. The 6+1 Traits rubrics are used extensively and are readily available, but were designed for grades three through twelve. Although the Beginning Writer's Continuum scales were later developed by the Northwest Regional Education Lab for use in kindergarten through second grade, there are no validity and reliability measures for the instruments, arguably because those grade levels are not subject to high stakes testing. Also, the 6+1 rubrics were designed to measure separate traits of writing, not to provide a holistic measure of writing quality. The Blackburn-Cramp Developmental Writing Scale is holistic in nature, but designed to distinguish development levels. While the

scorers did not have any trouble meeting the agreement levels using the Blackburn-Cramp, the scale has several areas of overlap between levels that inherently give rise to subjectivity by the scorers. The scorers noted a lack of sensitivity to change, not only at the lower end of the scale, but in large jumps in development at the upper end. This may be due to inconsistent stage development. For example, part of the scale appears to consider the spelling stages, but the strand is not found at each level. One solution may be to identify strands from the literature such as understanding of alphabetic principle, orthographic patterns, conventions, syntax, et cetera. Additionally, a minimum number of descriptors could be established to standardize what constitutes achievement of a level; e.g. at least three of the five must be present to be considered as achieving level seven. Despite these concerns, the scale was the only true early childhood holistic scale identified in the instrumentation search.

There were also issues with the fidelity measure. Analysis of the scores indicated there was a lack of clear distinction between the levels, most notably at level two where it appeared there was not a clear separation between one and two or two and three. Again, following a continuum along strands and setting a minimum number of descriptors observed could serve to alleviate some of the problems with the rubric. The number and type of features included should also be examined. Many of the intervention features have overlap. For example, minilessons often target specific components of the writing process such as revision and editing, which are also separate items. Most revision decisions occur during peer or teacher conferences, which are again separate features. Fidelity should also be measured during each sample collection window. The

overall fidelity score will not likely represent implementation at the beginning or mid-year points, rather it is more likely to be representative of end of year practices when the intervention is more embedded. Finally, not all of the aspects of the study intervention were represented on the fidelity measure. In any measure of a writing intervention, the frequency and duration of the intervention should be examined. This intervention called for daily writing but that aspect of fidelity was not examined. The two most unique aspects of the intervention were the promotion of picture plans, which may fall under general prewriting, and the use of teaching points to drive instruction. Whether the teacher identified a teaching point, the appropriateness of that selection, and its implementation needed to be considered when examining fidelity to implementation. Any future intervention studies will need to consider when and how to measure fidelity, which must include identification and description of the critical features. Attention to the issues raised must be considered when conducting early writing intervention studies so replication is possible and practical, as more research is needed before any findings can be generalized to larger populations.

Despite the many issues uncovered in this exploratory study, several implications for classroom practice are offered. The National Council of Teachers of English and the International Reading Association both advocated the process approach as being effective and developmentally appropriate (Pritchard & Honeycutt, 2006). The implementation of this intervention, which is based on the use of the writing process, supported that position. The writing workshop format of the intervention included

several of the key components identified as best practice (Calkins, 2003; Fletcher & Portalupi, 1998).

Several features of the intervention warrant inclusion in writing interventions intended to foster early writing development; most critically, the inclusion of student choice of topic. Prompts and stems are used extensively in early childhood classrooms. Clearly choice is an appropriate and desirable alternative that can be readily included in writing process instruction. In addition to a significant increase in quantity of text produced, choice also facilitated significant gains in level of planning, developmental level, and handwriting. Recursively, gains in handwriting have been linked in the research to increased quantity of text produced as well as improvement in quality (Graham et al., 2000; Jones & Christensen, 1999).

These findings also indicate that, beyond choice, other aspects of process writing were effective with this age group. Minilessons should be included; the practice of brief, targeted instruction was second (only to choice) for significant relationships to growth. Explicit instruction in revision and editing were also found to have an impact on writing development, and again, can be implemented through modeling, conferences, and minilessons. All of these features can be readily included in daily writing experiences as an integral part of the literacy block in early childhood classrooms.

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APPENDIX A

TEACHER DECISION MAKING CYCLE

- Assess
- Analyze
    - Strengths
    - Approximations
    - Determine Teaching Point
- Plan/Prepare
    - Grouping
    - Pacing
    - Materials/Resources
    - Approach
        - Gradual Release of Responsibility
- Teach
    - Orchestrate
    - Monitor
    - Adjust
- Assess

APPENDIX B

PREWRITING SCALE

1 = picture does not reflect written text or is not identifiable

2 = picture matches writing

3 = multiple picture elements

4 = organized picture plan, i.e. beginning and end of story

APPENDIX C

HANDWRITING SCALE

Presentation: Beginning Writer's Continuum

1 EXPERIMENTING	2 EMERGING	3 DEVELOPING	4 CAPABLE	5 EXPERIENCED
PRESENTATION — Letters and words are strings with no spacing — There is no consistent shape to letters — Letters are scattered randomly on the page — Pictures are placed randomly on the page — There is no connection between words and pictures	PRESENTATION — An attempt is made to group letters into words — Many letters are consistent shape, with few that are unreadable — There are some examples of letters grouped to make words — An attempt is made to group pictures with text — Some words are used to enhance the meaning of pictures, e.g., captions	PRESENTATION — Most letters and words are readable with an attempt at spacing — There are some discrepancies in letter shape, but they are easily identifiable — Letters are grouped to make distinguishable words and phrases — Placement of pictures reflects the meaning of the text — Pictures are placed with an attempt to connect them to captions or text	PRESENTATION — Words are easily readable with a consistent attempt at words spacing — Handwriting begins to show style, with consistent letter shape — An attempt is made to group words into identifiable sentences — Pictures are used to clarify meaning in text — Most pictures are located with meaningful text or captions	PRESENTATION — Style of handwriting is consistent and words evenly spaced — Letters are well-formed and easy to read — Words are grouped by sentence or paragraph for easy understanding — Pictures and maps are used effectively to enhance understanding — Pictures are located with text to create alignment and flow of meaning

APPENDIX D

BLACKBURN-CRAMP DEVELOPMENTAL WRITING SCALE

Level 1
Child attempts to write scribbles or draws picture.
Uncontrolled scribbling.

Level 2
Child writes alphabet and/or mock letters, often in a string.
Child pretends to write.

Level 3
Letters do not match sounds.
Child writes letter strings.
Child copies words she/he sees around the room.

Level 4
Child writes letters in word grouping.
Child writes letters to convey message.

Level 5
Child begins to use spaces between words.
Child uses familiar words and invented spelling to convey a short simple message.
Child uses initial consonants to represent words.
Child uses labels for his/her pictures.
Child writes familiar words.

Level 6
Child begins to write 2-3 sentences using a simple pattern of 3-4 words.
Child uses invented spelling and some conventional spelling.
Child writes a single, factual, understandable sentence independently.

Level 7
Child begins to use capitalization & simple punctuation, often in random fashion.
Child uses both phonetic and sight strategies to spell words.
Child writes some sentences related to topic and some not related to topic.
Child writes short, simple sentences that are not in a pattern form.
Child writes sentences of more than 4 words following a pattern.

Level 8
Child writes the start of a story.
Mistakes in grammar, mechanics and usage may detract from clarity & meaning.
Child begins to regularly use more conventional spelling.
At least two thoughts follow one another in logical sequence.
Child writes sentences with random ideas related to prompt.

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