Improving Kindergarten Phonics Performance through Cooperative Learning

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A Special Project

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Improving Kindergarten Phonics Performance through Cooperative Learning

A Master's Special Project

by

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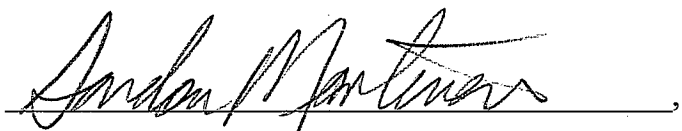
Approved for the Faculty

 , Faculty Advisor

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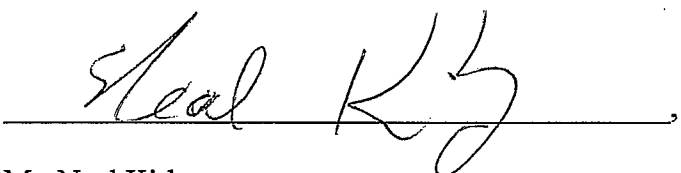 , School Principal

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ABSTRACT

Phonics skills, particularly letter-sound recognition, are crucial foundation literacy skills for emergent readers. Many children enter kindergarten without the developing literacy skills needed to successfully tackle kindergarten reading curriculum. This study measured the phonics performance of 36 kindergarteners during the 2006-2007 and 2007-2008 school years. The 2006-2007 control group received phonics instruction as described by the district adopted reading curriculum. The 2007-2008 control group received the same phonics instruction as the control group, plus weekly phonics-focused cooperative learning activities designed by the researcher. A t-value of -2.63 resulted from the comparison of the phonics scores of both groups. The treatment, as designed, was not successful because control group performed significantly better than the treatment group on the measured assessment.

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CHAPTER 1

Introduction

Background for the Project

In the fall, children who turned five during the past year enrolled for their first year of formal schooling in public schools throughout the United States. During this back-to-school season, magazines and newspapers published articles addressing school readiness, parents considered their child's social and academic strengths and weaknesses, and teachers prepared versatile instructional strategies for one of the most unknown groups of students in any elementary school, kindergarten. While this cohort of brand new students was similar in chronologic age, the group possessed a vast range of academic and social/emotional skills. Unlike other grade levels, all kindergarten students had not received a similar education prior to enrolling in school. Some students entered kindergarten with one or more years of formal pre-schooling, others attended daycare, and some spent their early childhood years at home.

Academic standards for kindergarten children in public schools were far more rigorous than they were when many parents of kindergarteners were in school. In an era of federal education reform and high-stakes testing, teachers in grades K-12 used learning standards developed at the state level to drive instruction. These standards were designed to help each student achieve the Adequate Yearly Progress (AYP) required by the state. Students who did not

meet learning targets in reading, writing, or math while in kindergarten, faced the daunting task of mastering kindergarten and first grade material before they exited the first grade. Some schools attempted to avoid imposing such stresses upon children, parents, and teachers by retaining students who did not meet grade level standards for an additional year.

Statement of the Problem

During the 2006-2007 school year, a number of kindergarten students at Edison Elementary performed below standard on a mid-year phonics assessment. These students scored poorly because they did not possess a complete understanding of all phonetic letter sounds. Students who did not perform at standard on the December phonics assessment had more difficulty reading words composed of multiple phonetic sounds as the demands of the kindergarten reading curriculum increased.

Purpose of the Project

The purpose of this study was to determine the effectiveness of phonics-focused cooperative learning activities upon the letter-sound recognition of kindergarten students. The effectiveness of this instructional strategy was measured by a mid-year, district phonics assessment.

Delimitations

This project included a single, full-day kindergarten classroom of 19-25 students at Edison Elementary School in the Centralia School District. Regular

phonics instruction followed the Fast Track Phonics curriculum, a component of the Success for All reading program. This project was conducted between September 4th 2007 and March 30th 2008.

Assumptions

The researcher assumed that each student performed to the best of their abilities on the mid-year phonics assessment, administered to each student individually, in December of 2006 and 2007. The researcher assumed that the score of each individually assessed student was recorded accurately by the administrator of the phonics assessment. Another assumption identified in this study was that each student in the 2007 experimental group participated in regular phonics-focused cooperative learning activities organized by the classroom teacher. It was also assumed, that the classroom teacher was appropriately trained in cooperative learning instructional strategies and believed such strategies to be a worthwhile tool for improving student performance.

Hypothesis

Kindergarten students who participated in phonics-focused, cooperative learning activities performed higher on mid-year phonics assessments than kindergarten students who did not participate in such cooperative learning activities. Students who did not participate in phonics-focused, cooperative learning activities performed lower on mid-year phonics assessments than students who did participate in such activities.

Null Hypothesis

Kindergarten students who participated in daily, phonics-focused cooperative learning activities showed no significant difference in performance on mid-year phonics assessments than kindergarten students who did not participate in such cooperative learning activities. Significance was determined at the critical levels of .05, .01, and .001.

Significance of the Project

The purpose of this project was to provide a factual base of information regarding the effect of cooperative learning upon the academic performance of kindergarten students. This project was important to the Centralia School District as it strived to meet AYP in the areas of reading, writing, and math. In 2006, five out of 25 kindergarten students had not mastered all letter sounds tested by the December phonics assessment. This fact was of concern because the demands of the kindergarten reading curriculum increased significantly after the December assessment. In January, students were required to use their knowledge of the phonetic rules learned to decode words and read stories. Students who did not have a complete understanding of letter-sound associations had more difficulty with the new phase of the reading program. This project was important, as the researcher worked to increase academic performance in the classroom by carefully selecting effective instructional strategies to use with the young learners.

Procedure

For the purpose of this project, the following procedures were implemented. Permission to conduct the following study was granted by the building principal. Upon written permission to conduct this study, the researcher located phonics assessment data for 18 students from the 2006 kindergarten cohort. This group of students did not participate in regular, phonics-focused cooperative learning activities and became the control group for the experimental study. During September of 2007, the researcher began to include regular, phonics-focused cooperative learning activities in the weekly instructional planning. The 18 students in the 2007 kindergarten cohort practiced phonics skills through cooperative learning and became the treatment group. In February of 2008, the mid-year phonics assessment scores of both the 2006 control group and the 2007 treatment group were compared.

Definition of Terms

For the purpose of this study, the following words were defined:

high-stakes tests. High-stakes tests were assessments that received a score that determined a student's achievement of a significant goal such as a high-school diploma.

phonics. Phonics was the study of the relationship between the visual representation of a letter and the sound it was associated with in any given written alphabet.

cooperative learning. Cooperative Learning was an instructional strategy in which students learned academic content from their peers through intentionally structured activities.

retention. Retention was a student's lack of promotion to the next consecutive grade level due to lack of social or academic readiness.

Full-Day Kindergarten. Full-day kindergarten was a kindergarten program attended by students for 6.5 hours per day, 5 days per week. This schedule was the same as for grades 1-12.

Head-Start. Head-Start was a federally funded school readiness program for low-income pre-school age children.

Early Childhood Education and Assistance Program. The Early Childhood Education and Assistance Program was a state-funded pre-school program for low-income and at-risk children

Acronyms

NCLB. No Child Left Behind

AYP. Adequate Yearly Progress

CSD. Centralia School District

EES. Edison Elementary School

EALR. Essential Academic Learning Requirement

CL. Cooperative Learning

SES. Socio-economic Status

IEP. Individualized Instructional Plan

ELL. English Language Learner

ECEAP. Early Childhood Education and Assistance Program

KDS. Kindergarten Data Sheet

NAEYC. National Association for the Education of Young Children

CHAPTER 2

Review of Selected Literature

Introduction

This chapter provided a discussion of subsets of literature directly connected to the problem statement in Chapter 1. In Chapter 1, the author explained that each year, several exiting kindergarten students were unprepared for the demands of first grade because they had difficulty mastering basic literacy skills. Letter-sound correspondence was a primary focus of instruction in kindergarten. Students who did not proficiently associate printed letters with sounds at the beginning of their kindergarten year, struggled to read words and build the fluency skills necessary for first grade.

The research that formed the foundation for this project included: (a) kindergarten readiness, (b) reading instruction in the primary grades, (c) cooperative learning instructional practices, and (d) grade retention. Kindergarten readiness was critical to the problem stated in Chapter 1 because a child's lack of readiness skills prior to kindergarten made it difficult to tackle academic information in a school environment. Primary reading instruction and cooperative learning practices were relevant to the problem statement because they were the methods in which instruction was commonly provided to young students. Finally, grade retention was explored because it was often an intervention for students who, after all instructional efforts, were unprepared for the next grade level.

Kindergarten Readiness

A child's readiness for kindergarten was a topic of interest for both parents and educators. Many parents were concerned that their child may not possess the academic and social skills needed to cope with the expectations of a kindergarten curriculum. Kindergarten teachers particularly, were interested in the concept of kindergarten readiness as they designed their curriculum to bridge the gap between what children knew when they entered kindergarten and what they were expected to know by the time they left. School districts were also interested in the general school readiness of their incoming kindergarten population as they made decisions about half-day versus full-day kindergarten programs.

In an effort to quantify the concept of kindergarten readiness from the perspective of parents, Diamond, Reagan, and Bandyk (2000) designed a 168 item school readiness interview. Items on the interview were selected to explore steps parents were planning to prepare their child for kindergarten. The survey also included questions to determine the participants' demographic characteristics such as family income, level of higher education, and race/ethnicity. From this study, Diamond et al. (2000) found that parents believed that children required certain experiences and types of learning that they as parents were able to provide. Parents felt that this pre-academic exposure was important for their child to experience success in kindergarten. Results from this study revealed that parents prepared their child for kindergarten by reading to their child, selecting

educational television programs for their child to watch, and considering their child's age and developmental abilities when deciding the best time to enroll their child in kindergarten (Diamond et al., 2000).

According to Diamond et al., (2000) parents considered their child's academic skills over social/behavioral skills when they decided whether to enter their child in kindergarten when they turned five (age-eligible), or wait a year. The survey results also showed that parents more readily considered delaying their child's enrollment in kindergarten if they had access to quality pre-kindergarten alternatives (Diamond et al., 2000). Nancy Frey (2005) suggested that affluent families delayed their child's enrollment in kindergarten because they were financially able to arrange alternate care and schooling for their child.

In contrast to Diamond et al., (2000) Sandra Rief (2001) explained kindergarten readiness from the perspective of a kindergarten teacher in her book *Ready, Set, School.* Rief stated that kindergarten teachers tended to view a child's social and behavioral skills as more crucial to their success in kindergarten than their incoming academic abilities. Children who developed interpersonal skills prior to kindergarten were more prepared for the structured expectations they encountered in the school environment (Rief, 2001).

The purpose of Rief's (2001) book was to provide families with helpful information that prepared their young child for a successful start to the school years. Rief discussed the choice parents faced regarding the best time to enroll

their child in kindergarten. According to Rief (2001), it was better to wait a year before enrolling a child in kindergarten if families questioned their child's developmental abilities or were concerned about immaturity due to a late birth date. Social skills were also an important factor in determining a child's readiness for school (Rief, 2001). Rief (2001) explained that children who demonstrated positive social awareness and self-management skills had a more positive kindergarten experience than students who did not possess such skills.

Cassidy, Mims, Rucker, and Boone (2003) explained that while parents played a substantial role in preparing their child for school, the schools themselves were responsible for creating a learning environment ready to accept each child along with their varying set of skills and attitudes. These authors advocated for a child-centered pre-school environment staffed by knowledgeable and observant teachers instead of the "back to the basics…highly structured approach to early childhood education" (Cassidy et al., 2003, p. 195). Many public kindergarten and pre-school classrooms set students up to fail when the curriculum was structured, rigid, and required educators to teach to the test (Cassidy et al., 2003). Cassidy et al. (2003) suggested that developmentally appropriate, child-centered curriculum measured by portfolio-style documentation was the most authentic and accepting method for determining a student's readiness for school. These authors summarized their philosophy regarding kindergarten readiness by stating that "all too often, children are forced to be "ready" for an inappropriate environment that

contains few of the components that would make it "ready" for them" (Cassidy et al., 2003, p. 199). This statement illustrated the authors' ideas that a child's readiness for school was developed through a partnership between family and school.

Rief's (2001) thoughts regarding kindergarten curriculum echoed those of Cassidy et al. (2003). She stated that children enter kindergarten with a wide variety of skills and attitudes. It was necessary for kindergarten teachers to assess each student's unique skill sets to determine the most appropriate next instructional steps (Rief, 2001).

School readiness was a hot topic of discussion among early childhood educators. Often, pre-school and kindergarten teachers were asked to determine the readiness of their students (Mashburn and Henry, 2004). While these determinations by a child's teacher provided information for both parent and future teacher, these authors questioned the validity and reliability of such assessments. Among affluent families, a child's substandard results of such a readiness screening tool were influential in the decision to delay the child's enrollment in kindergarten (Frey, 2005).

In a 2004 study, Mashburn and Henry asked both pre-school and kindergarten teachers to rate the same group of incoming kindergarten students according to their readiness skills. The researchers independently assessed this group of students as a measure for evaluating the consistency of pre-school and

kindergarten teachers' readiness ratings (Mashburn and Henry, 2004). They found that teachers rated students differently depending upon their teaching position and years of higher education. According to the study, the readiness ratings of kindergarten teachers were more valid than the pre-school teachers' ratings. Teacher's with few years of education rated students higher than teachers with more years of education (Mashburn and Henry, 2004). These findings suggested that teacher ratings of kindergarten readiness would be a useful tool for comparison only if measures were taken to increase the reliability and validity of the rating procedure. Mashburn and Henry (2004) suggested that a shared definition of kindergarten readiness along with opportunities for teacher collaboration on this subject was a possible method for increasing the validity and reliability of kindergarten readiness rating activities.

Primary Reading Instruction

During the past decades, reading instruction was the focus of every primary classroom. In these early grades, all but the most advanced students used literacy skills taught in class to learn to read. In later grades, students used their knowledge of written language to read information for the purpose of learning new skills, often in other content areas such as math or science (Hus, 2001). According to a position statement published in 1998 by the National Association of Young Children (NAEYC), the primary years during which a child was typically ages five to eight were the most crucial for mastering basic literacy

skills. The NAEYC states that a child's successful development of basic literacy skills early in their education had a strong relationship with their overall academic success in their later school years (National Association for the Education of Young Children [NAEYC], 1998).

Most emergent reading instruction in primary classrooms consisted of varying amounts of explicit phonics instruction, shared use of authentic literature, and oral language development. The amount and frequency of each component varied between district, teacher, and the specific needs of the student population. Students who learned basic reading skills during their primary school years benefited from instruction that emphasized whole language skills. Yvette Hus (2001) noticed that many low socio-economic status, (SES) and minority students did not master letter sound associations and decoding skills early in their education. These children required reading instruction focused upon the explicit teaching of phonetic rules (Hus, 2001). In Hus' 2001 study, the researcher noticed that without the deliberate teaching of letter sounds, students from low SES and or minority backgrounds did not perform as well as other students on assessments measuring phonics skills (Hus, 2001).

Rief (2001) supported Hus' 2001 work regarding the necessity of teaching phonetic rules to primary students. Rief stated that solid phonetic skills were not learned simply through exposure to a variety of printed words and text. She found that phonetic rules must be taught and practiced using a student's auditory senses.

Assessments of struggling older students revealed that they had not learned phonemic awareness skills described by Rief during their early years in school (Rief, 2001).

While Hus and Rief's independent works supported the benefits of direct explicit phonics instruction for young learners, a different study demonstrated the importance of balancing direct phonics instruction with active student participation (Keaton, Palmer, Nicholas, and Lake, 2007). These "playful extensions," as referred to by the authors of this study, consisted of various student-directed phonics and literacy activities available to children in the classrooms studied (Keaton et al., 2007). The authors stated that "learning strategies that allow children to construct knowledge though active participation increase their motivation for reading and writing" (Keaton et al., 2007). These researchers found that kindergarten students demonstrated higher motivation for and better performance in reading and writing when direct instruction included a creative, student-component, than kindergarten students who received only direct instruction (Keaton et al., (2007). Reading instruction was effective when it demonstrated relevance to a student's life experiences and a practical application to real-world situations (Willis, 2007).

Students who did not meet learning targets as the result of regular classroom instruction required some type of intervention. One intervention for young readers focused upon developing phonemic awareness skills. Such focus

raised the performance of struggling students to the standard for their grade level (Allor, Gansle, and Denny, 2006). In one study, the phonemic awareness intervention was provided to kindergarten students in a "game-based" format in which students performed tasks with the assistance of a trained paraprofessional (Allor et al., 2006). The incorporation of game-based phonics intervention supported the findings of Keaton, Palmer, Nicholas, and Lake (2007) regarding the benefits of creative participation in a child's learning of phonetic rules.

The absence of such creative, active participation in a child's learning had a profound negative effect upon the cognitive development of young students (Willis, 2007). In the article, *Preserve the Child in Every Learner,* Willis shared her understanding that public instruction in the United States was driven by such strict standards that educators felt immense pressure to teach information in a repetitive, direct format. Willis (2007) observed that direct instruction denied children the opportunity to develop important higher level thinking skills. Willis commented that without regular opportunities to develop cognitive processing skills in a school environment, "this generation of students could become the most tested, least knowledgeable generation of public school students in decades" (Willis, 2007, p. 34).

Cooperative Learning

The benefits of learning cooperative skills often appeared in literature addressing reading instruction. In a 1988 issue of *The Reading Teacher*, Timothy

Rasinski explained his opinion that reading instruction should not require students to work individually. Rasinski (1988) observed that students who were encouraged to read and practice literacy skills with other children became better readers while they learned vital cooperative and interpersonal skills. Although Rasinski's commentary regarding the integration of cooperative skills and academic skills was dated, his opinions were quite contemporary. A study conducted more recently in primary classrooms in the Netherlands demonstrated the positive effect cooperative learning had upon student achievement and student behavior (Veenman, Kenter, and Post, 2000). In this study, teachers and students self-reported high levels of satisfaction with cooperative learning techniques used in their schools. Conclusions drawn from brain research named cooperative learning a beneficial instructional strategy for student learning. Students allowed to discuss content in small groups tended to share more information and higher quality information than in a whole-group setting (Willis, 2007).

Criticism of cooperative learning occurred when parents and educators looked at specific practices often associated with this type of learning. Group grades, assigned equally to each member of a cooperative group, did not necessarily promote equal participation or transfer of knowledge between students (King and Behnke, 2005). King and Behnke's study revealed that group grades encouraged students with skills to perform more of the task than students who lacked skills. An exchange of information did not necessarily occur between

students who possessed skills or information and those who knew less. Research on cooperative learning that included gifted students showed limited benefits for this group. Gifted students did not necessarily benefit from cooperative learning activities, especially if these activities required lower level thinking skills such as the drill and practice of basic skills (Patrick, Bangel, Jeon, and Townsend, 2005). For gifted students to benefit from cooperative learning, the cooperative task needed to allow students to demonstrate higher-level thinking skills such as explaining their reasoning (Patrick et al., 2005).

Grade Retention

The retention of students not meeting academic standards for a grade level was common practice in kindergarten programs across the country. A sample of standards students were expected to master by the end of kindergarten included: (a) identifying letter sounds, (b) oral story telling and re-telling, (c) understanding concepts of print, and (d) beginning to blend sounds and decode printed words (Rief, 2001). Much research acknowledged the fact that standards for kindergarten and early grades were higher than in years past. Student demographics tended to be a predictor for student retention in primary grades. Male students, students categorized as low SES, and students who struggled academically due to health problem related absences were often candidates for retention (Hong and Raudenbush, 2005). Another predictor for future retention was a student's performance at the beginning of the school year. Hong and

Raudebush (2005) explained their finding that disadvantaged students who possessed poor social and academic skills early in the year were also identified by teachers as candidates for retention.

A relationship existed between students who were retained and hardships later in life. According to Frey (2005), students who were retained were less likely to graduate from high school and more likely to earn low wages than students were not retained. Higher incidences of substance abuse and time in jail occurred for students who were retained (Frey, 2005). Although it was difficult to tell whether the act of retaining the student early in their education directly led to future hardships, research established a link between the two.

A 2006 study regarding reading intervention strategies noted that a kindergarten student was retained despite the progress made with intervention. The student's low performance in reading and math (paired with his behavior) was significant enough to suggest that the student would not yet be successful in first grade (Allor et al., 2006). In another study, teachers perceived tough standards to be the cause of higher rates of retention in kindergarten (Okpala, 2007). Survey results from Okpala's study revealed teachers' attitudes that retention of kindergarten students was a reasonable and often necessary practice in cases of low academic achievement or social immaturity.

Unfortunately, teacher acceptance of district retention policies did not mean that the retention of a student in kindergarten caused them to learn

information missed the first time. Nor did data support that these students would perform at grade level the following year or in later grades (Balitewicz, 1998). In fact, Balitewicz found that struggling kindergarten students retained in districts with pro-retention policies, performed nine to thirteen months behind similar students who were promoted to first grade in a district that did not typically retain students (Balitewicz, 1998). A study examining the timing of a child's retention during their elementary years concluded that retaining a student in their early elementary years did not result in the acceleration of academic performance many had hoped (Silberglitt, Jimerson, Burns, and Appleton, 2006). Rather, the data collected did not demonstrate positive effects of grade retention during early or late elementary years (Silberglitt et al., 2006).

Okpala concluded her study with comments suggesting that retention should not be the catch-all intervention for struggling students. Rather school interventions should be varied and include a focus on quality, developmentally appropriate instructional strategies delivered by highly-qualified professionals (Okpala, 2007).

Summary

This project addressed the instructional problem of students who experienced difficulty learning letter-sound correspondence in kindergarten. Each subset of reviewed literature related to this problem. Kindergarten readiness was the preventative measure for social and academic difficulties in the school setting.

While school readiness was a concept of frequent discussion, it often was not clearly defined (Mashburn and Henry, 2004). Parents believed that children must acquire readiness skills if they were to have a successful kindergarten year. Many parents felt that they had provided their children with these skills in the home or by enrolling them in pre-kindergarten programs (Diamond et al., 2000). Cassidy et al. (2003) discussed that kindergarten readiness was not the sole responsibility of the student and family. These authors felt that the curriculum used in kindergarten must be flexible and child-centered for it to be able to accommodate every child. In contrast to the beliefs of Cassidy et al. (2003) regarding a child-ready kindergarten program, direct instruction was a common instructional strategy for teaching reading to primary students in many classrooms around the country (Hus, 2001). Direct instruction alone however, did not demonstrate academic gains as significant as did direct instruction paired with active engagement and cooperative components (Keaton et al., 2007). Although the literature reviewed disagrees as to the most effective literacy instruction techniques, their effort to improve early literacy skills for young students is a common goal. The literature suggested that cooperative learning was an effective tool for increasing overall student participation in learning tasks, but was not without some criticism (Veenman et al., 2000), (King and Behnke, 2005). Grade retention, a common intervention for students not achieving academic benchmarks, was explored in this discussion. Although many schools practiced

and supported grade retention, the literature reviewed did not support its use for academic or social emotional purposes (Silberglitt et al., (2006).

CHAPTER 3

Methodology and Treatment of the Data

Introduction

Students who did not master the early literacy skill of letter-sound correspondence while in kindergarten, were less prepared for the demands of the first grade reading curriculum. In an effort to improve the phonics performance of a select group of kindergarten students at EES, the researcher designed phonics-focused cooperative learning treatment to supplement the existing reading curriculum. This chapter has been organized around the following topics: (a) methodology, (b) participants, (c) instruments, (d) design, (e) procedure, (f) treatment of data, (g) summary. Two cohorts of 18 kindergarten students were selected to participate in this quasi-experimental study. Data was collected for each cohort between the school months of September and December in the forms of a pre-test and post-test. Test data was measured upon analysis of each child's responses to items on the phonics assessment.

Methodology

A nonequivalent control group design was used to compare the phonics performance of the two groups studied. A quasi-experimental design was selected because the classroom setting of this action research study did not allow for the random selection of individual participants. Following the parameters of the nonequivalent control group design, individual participants in each group were

given a pre-test and a post-test to determine the effectiveness of the unusual treatment.

Participants

Thirty-six kindergarten students were selected to participate in this study. Each student was enrolled as a full-time kindergarten student in the researcher's class at Edison Elementary School (EES) during the 2006-2007 or 2007-2008 school years. Eighteen students were part of the 2006-2007 control group. Eighteen students were part of the 2007-2008 experimental group.

A convenience sample was the sampling technique used in the study. With the size of each kindergarten class less than 30, nearly every student in each original classroom population was sampled. A student was included in the study only if pre and post phonics assessment data was available. Assessment data was available for 18 students in the control group and 18 students in the treatment group. The original size of each class was higher than the number included in the sample. Students were not included in the convenience sample if they: a) were not enrolled in the sampled classroom for the post-test, or b) enrolled in another school at the end of their 2006-2007 kindergarten year, thus making their assessment results unavailable to the researcher.

During both the 2006-2007 and 2007-2008 academic years, the author's class was one of three kindergarten classrooms in the K-3 elementary school. Each year, students were assigned to the class non-randomly. It was common at

EES to consider unique student variables when placing children in classrooms. An effort was made to evenly distribute male and female students, those classified as English Language Learners (ELL), and those with Individual Education Plans (IEP's) between the three classrooms. This effort allowed the researcher's classes to represent a cross-section of all the kindergarten students enrolled at EES during the years included the study even though it was not considered a random sample.

The control group included 18 students. Ten students were girls, eight were boys. Three students were classified as ELL. No students were enrolled with an IEP or received an IEP during their kindergarten year. The experimental group included 18 students with an equal number of girls and boys. Eight students were classified as ELL. Two students had IEPs, one for Speech and Language, the other for Speech and Language, Occupational Therapy, and Academics.

Data describing the pre-kindergarten education for both groups was not known for all students. Through parent reports and contact with some pre-kindergarten programs, the researcher learned that student education prior to kindergarten varied. Some students had attended the federal and state funded Head-Start and ECEAP programs. Many students attended some form of privately funded pre-school or day-care. Some students spent their time at home with a babysitter or their parent(s).

Instruments

The data for this study was collected in the form of a phonics pre-test and post-test. The cognitive test(s) measured each student's ability to memorize letter sounds. It was administered individually to each student by a single, trained kindergarten assistant teacher. The phonics assessment results were recorded (along with other assessment data for the child) on a Kindergarten Data Sheet (KDS). The KDS was developed by the Centralia School District (CSD) and was the primary document used to record literacy and mathematic assessment information for kindergarten students during the years included in the study.

After the phonics assessment data was collected for each student, the researcher used the data recorded on the KDS to measure the phonics performance of each child. The data was measured by counting the number of correctly identified letter sounds. Students who correctly identified a high number of letter sounds scored better on the phonics assessment than those who identified less.

The test used in this study was designed to assess a student's ability to orally produce the letter sound that corresponded to a printed letter on a paper card. The test was administered to each child individually. The testing procedure was simple and the test administrator was well practiced in proctoring the test. The consistency of the test administrator paired with the straightforward design of the test allowed the researcher to be reasonably sure that the test measured the skill it was designed to measure.

In the study, a child's ability to recognize letter sounds was tested in a quite location by a trained adult. The administrator asked the student to say the sound that corresponded with the grapheme on a paper card. The administrator then recorded the student's correct response by marking a plus symbol in the corresponding box on the KDS. Incorrect responses were noted by the absence of any mark in the box. The reliability of this testing process was supported by the fact that the administrator asked test questions in the same manner, with the same testing materials, each time she tested a student. The administrator tested each student in the control group and treatment group in this study. The reliability of this test was also supported by the fact that the administrator also tested all students enrolled in the two other kindergarten classrooms during the 2006-2007 and 2007-2008 school years.

The validity and reliability of the testing instrument was also supported by the knowledge that the test was used in each kindergarten classroom in the CSD. Teachers in these classrooms used the testing instrument year after year, and viewed it as a valid and reliable source of information about their students.

Design

The study design for this project was quasi-experimental. The non-equivalent control group design included a pre-test and post-test for both the control and treatment groups. A strength of the design was that it controlled for many sources of internal validity including: (a) history, uncontrollable events that

may have affected the dependent variable over time, (b) maturation, the changes that occurred in a cohort over time independent from the treatment, (c) testing, an improved ability to perform well on a test due to experience not the treatment, (d) instrumentation, the possible inconsistency of testing instruments and methods (e) selection, the sampling of dissimilar participants, and (f) mortality, the loss of participants from the original sample. Two sources of internal invalidity not controlled for with the design were regression, the movement of the highest and lowest scores towards the mean over time, and selection interactions, the varying maturation rates of participants in the treatment group. Another strength of the study was that the design controlled for multiple-X interference, a source of external invalidity. A weakness of the design was that pre-test-X interaction was not controlled for as a source of external invalidity. It must be considered that a student's test score could be influenced by the skills learned from taking the pre-test.

Procedure

To begin this study, the researcher sought permission to conduct the study in a kindergarten classroom at EES. Permission was granted and a quasi-experimental test design was decided upon. In September of 2007, the researcher began to include phonics-focused cooperative learning activities in her weekly phonics instruction.

Kindergarten students in the researcher's classroom worked cooperatively

in pairs to complete phonics-focused assignments. Due to the age and developmental level of the students in the classroom, the researcher felt it was most appropriate for the students to work with only one other individual on these tasks. During the fall of 2007, students in the treatment group learned how to follow procedures for the cooperative learning tasks taught in class.

The researcher referenced internet websites and curricular texts specializing in CL to plan for and design the treatment. Three primary CL activities (Partner Whisper, Rally-Robin, and Fan-and-Pick) were chosen to form the core of the intervention for the treatment group. Many activities were modified by the researcher in order to best meet the needs of the young students. Partner Whisper was invented by the researcher. In this activity, students sat on the floor, across from their partner. The teacher presented a card with a printed letter to the group. Instead of answering the teacher, students leaned towards their partner to share the answer. If answers differed, the teacher supported the discussion.

Fan-and-Pick was modified slightly from an activity published in Spencer Kagan's 1993 book, *Cooperative Learning*. To perform this activity, students were provided with a set of letters printed on paper cards. One student held the cards in a fan shape in their hands with the letters facing them. Their partner chose a card from the fan of cards, showed it to the holder and told them the sound. The holder's job was to coach the chooser by confirming the answer if it

was correct and encouraging their partner to try again if their answer was incorrect. When the chooser picked the last card, students switched roles and repeated the procedure.

The third CL activity used, Rally-Robin, was also discovered in Spencer Kagan's book, *Cooperative Learning*. To perform this activity, students stood facing their partner. The teacher gave them a topic relevant to phonics instruction such as letter sounds, letter names, or words that started with a specific initial sound. The teacher also stated the time limit for the activity to encourage a quick pace. Partners took turns thinking of and sharing an answer with their partner. The structure of this activity was organized. Students were taught that they had to wait for a response from their partner before they could suggest another answer.

This intervention was the treatment provided to the experimental group. Students in the control group the year prior did not receive the treatment. While treatment was occurring in the experimental group, the researcher collected pre and post phonics test data from the 2006-2007 control group. This data had been recorded the school year prior and was on file at EES. The phonics-focused CL treatment continued for the experimental group through December of 2007. In mid-December a mid-year phonics assessment was administered to each student in the experimental group just as it had been administered to the control group the year before. The test data was recorded and measured. In February of 2008, the test results of the treatment group were compared to the mid-year phonics test

results of the control group.

Treatment of the Data

Mid-year phonics assessment data was collected for both the control and treatment groups. The researcher used Statpak 6.0.0 (1985) to perform the appropriate statistical calculations. Students' raw test scores were used to perform a t-test for independent samples. Significance was determined at the critical levels of .05, .01, and.001.

Summary

During the 2007-2008 school year, Eighteen students from the researcher's 2006-2007 class were selected as the control group for the study. Eighteen students in the researcher's 2007-2008 class were selected to be the treatment group. Students in the treatment group received specific, phonics-focused cooperative learning intervention designed for the purpose of improving their mid-year phonics test scores. Both the pre and post phonics tests were administered by the kindergarten assistant. Test results were recorded on each student's KDS, a district and teacher approved tool for measuring student performance. The researcher analyzed the data using an electronic statistics program.

CHAPTER 4

Analysis of the Data

Introduction

The researcher was concerned that several students in her 2007-2008 cohort would perform below standard on their mid-year phonics assessments. It was common for students who struggled with letter-sound correspondence early in the year to have great difficulty decoding words later in their kindergarten year. Choices for students unable to proficiently decode words by the end of kindergarten included placement in first grade with sub par skills or repetition of their kindergarten year. This project examined the degree to which cooperative learning improved student phonics performance when integrated with existing kindergarten reading curricula.

This chapter included: (a) description of environment, (b) hypothesis, (c) results of the study, (d) findings, and (e) summary. The purpose of this chapter was to describe the data found in this study. The purpose of the data analysis was to determine the degree to which the treatment was effective for the students in the treatment group.

Description of the Environment

This project occurred in a full-day kindergarten classroom at EES in Centralia, Washington. 36 students participated in the study. Participants were either part of the 2006-2007 control group, or the 2007-2008 treatment group.

This study was conducted between September 4, 2007 and December 30, 2007. The data compared in the study was collected between September 7, 2006 and December 30, 2007.

Hypothesis

Kindergarten students who participated in daily, phonics-focused, cooperative learning activities performed higher on mid-year phonics assessments than kindergarten students who did not participate in such cooperative learning activities. Students who did not participate in phonics-focused, cooperative learning activities performed lower on mid-year phonics assessments than students who did participate in such activities.

Null Hypothesis

Kindergarten students who participated in daily, phonics-focused cooperative learning activities showed no significant difference in performance on mid-year phonics assessments than kindergarten students who did not participate in such cooperative learning activities. Significance was determined at the critical levels of .05, .01, and .001.

Results of the Study

In December of 2006, phonics test data for the control group was collected. The control group consisted of the students in the researchers' class during the 2006-2007 school year. These students did not receive the unusual treatment. The data for this group was collected during each student's individual

phonics assessment. The test administrator recorded each student's response on their KDS.

In October of 2007, the researcher gained permission and accessed student records to collect phonics test data for the control group. The 2006-2007 control group had not participated in the treatment designed by the researcher. In December of 2007, phonics test data for the treatment group was collected. The treatment group consisted of the students in the researchers' class during the 2007-2008 school year. These students did receive the unusual treatment.

Data for both groups was recorded during each student's individual phonics assessment. The test administrator recorded each student's response on their KDS.

Table 1 contained the raw test scores for each student sampled in the 2006 control group and the 2007 treatment group.

Table 1

Control Group Phonics Test Scores

Student #	Raw Score	Student #	Raw Score
S1	19	T1	4
S2	19	T2	15
S3	17	T3	16
S4	19	T4	26
S5	14	T5	24
S6	20	T6	9
S7	16	T7	8
S8	26	T8	13
S9	18	T9	17
S10	26	T10	14
S11	26	T11	23
S12	19	T12	18
S13	22	T13	13
S14	19	T14	10
S15	16	T15	10
S16	14	T16	12
S17	8	T17	12
S18	16	T18	3
	$\bar{Y}$=18.65		$\bar{X}$=13.72

Table 2 displayed the results from the t-test for independent samples. These results were calculated using Statpak version 6.0.0. The t-value for the two independent sets of raw data equals -2.63. This value showed significant failure at the critical value of .05. No significance was found at the critical values of .01 or .001. At all levels, the null hypothesis was accepted and no support existed for the hypothesis.

Table 2 contained the results from the t-test for independent samples as calculated by Statpak version 6.0.0.

Table 2

t-Test for Independent Samples

Statistic	Values
No. of Scores in Group X (Treatment)	18
Sum of Scores in Group X	247.0000
Mean of Group X	13.72
Sum of Squared Scores in Group X	4067.00
SS of Group X	677.61
No. of Scores in Group Y (Control)	18
Sum of Scores in Group Y	334.0000
Mean of Group Y	18.56
Sum of Squared Scores in Group Y	6554.00
SS of Group Y	356.44
t-value	-2.63
Degrees of freedom	34

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left(\frac{SS_1 + SS_2}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

$$t = \frac{13.72 - 18.56}{\sqrt{\left(\frac{4067 + 6554}{18 + 18 - 2}\right)\left(\frac{1}{18} + \frac{1}{18}\right)}}$$

$$t = -2.63$$

(Gay, Mills, and Airasian, 2006, p. 349)

Analysis of the data presented yielded a value of -2.63. Significance was determined for this value at the critical levels of .05, .01, and .001. Significant failure was found at the critical value of .05. At this value, the null hypothesis that no significant difference in mid-year phonics scores existed between students who received cooperative learning intervention and those who did not was accepted. No support existed for the hypothesis that students who participated in cooperative learning performed higher on mid-year phonics assessments than students who did not receive such intervention. At the critical levels of .01 and .001 the researcher found no significance. At these levels, the null hypothesis was accepted and no support existed for the hypothesis. Table 3 noted distributions of t at the critical values of .05, .01, and .001. There were 34 degrees of freedom.

Table 3

Distributions of t

	p		
df	.05	.01	.001
34	2.04	2.75	3.65

(Gay et al., 2006)

Findings

The mean phonics test scores of the treatment group were lower than the average of the raw scores of the control group. When the two sets of scores were compared, Statpak calculations revealed a t-score of -2.63. This significance for t was determined at the critical levels of .05, .01, and .001. The distribution for t showed significant failure at the level of .05. At this value, the null hypothesis was accepted and no support existed for the hypothesis. Since t = -2.63, the null hypothesis was accepted at .01 and .001. No support was demonstrated for the hypothesis. Overall, the study determined that cooperative learning activities implemented in the researcher's classroom did not improve the mid year phonics scores of the students in the treatment group.

Discussion

These findings contradicted much of the existing literature regarding best-practices for phonics instruction and cooperative learning. The cooperative learning activities practiced by the treatment group in the study were designed to provide another facet to phonic instruction beyond direct instruction and independent practice. Veenman, Kenter, and Post (2000) suggested that student achievement as well as behavior improved as a result of cooperative learning activities in the classroom. The work of Timothy Rasinski (1988) explained his understanding that students' reading ability improved when they had opportunities to practice literacy skills with other children.

The study findings better reflected the ideas held by critics of cooperative learning. Patrick, Bangel, Jeon and Towsend (2005) discussed the implications of cooperative learning and gifted students. Their research suggested that gifted students did not make significant academic gains as a result of cooperative learning. The authors offered the explanation that for gifted students to benefit from CL, the tasks would need to encourage such students to use higher level thinking skills.

This researcher speculated that perhaps the findings regarding gifted students and CL should be applied to every student. The results of this study did not find that the cooperative learning intervention designed for the treatment group improved their phonics performance. Considering the work of Patrick et al.

(2005), it was possible that the activities designed for the treatment group did not require students to use the higher level thinking skills that would be necessary for gains in phonics performance to be measured.

The author of this study hypothesized that student performance as measured by phonics assessments would be better for students who regularly engaged in the cooperative learning treatment. The findings suggested that the cooperative learning treatment did not make a significant difference for students in the treatment group. It was unexpected when the author learned that the mean of the test scores for the control group was higher that the mean of the test scores for the treatment group.

Summary

The study was developed for the purpose of investigating the effectiveness of cooperative learning upon a student's phonics performance. The author stated the hypothesis that students who participated in cooperative learning performed higher on mid-year phonics assessments than students who did not receive the treatment. The null hypothesis stated that no significant difference in phonics scores existed between students who participated in cooperative learning and those who did not.

A t-test for independent groups was used to evaluate the degree to which a significant difference existed between the treatment group and the control group. The results of the study show very little difference in the phonics performance of

the two cohorts. The author found that the control group had a higher average phonics score that the treatment group. At all levels, the null hypothesis was accepted and the hypothesis was not supported.

CHAPTER 5

Summary, Conclusions and Recommendations

Introduction

During the 2006-2007 school year, the researcher noticed that several kindergarten students performed poorly on the section of the mid-year phonics assessment that measured letter sound correspondence. Typically, children who did not readily recognize the relationship between printed letters and sounds had difficulty learning to read later in their kindergarten year. The intention of this project was to improve student performance on the mid-year phonics assessment by including phonics-focused cooperative learning activities in kindergarten reading instruction.

Summary

The researcher hypothesized that students would perform better on their mid-year phonics assessments if they engaged in regular, cooperative learning activities. The null hypothesis stated that no significant difference in mid-year phonics scores existed between students who engaged in the cooperative learning treatment and those who did not. The project was designed with the hope of offering cooperative learning as a strategy to improve the letter-sound correspondence of kindergarten students. A student's proficiency in matching printed letters with sounds was crucial for the successful development of later reading skills.

Current research regarding kindergarten readiness was reviewed because of the direct relationship the concept had in terms of preparing a student for kindergarten reading instruction. Primary reading instruction and cooperative learning were included in the review of literature because both types of instruction were utilized to teach letter-sound correspondence to kindergarten students. The subset of grade retention was important to the project because it was the last resort of intervention for students who struggled to master academic skills (including letter-sound correspondence) before the end of their kindergarten year.

Thirty-six study participants were selected for this project by convenience sample. Each student was a member of one of the two groups studied. Treatment was provided and the participants' test results were collected in accordance with a non-equivalent control group design. The researcher compared the mid-year phonics scores of the two cohorts of children at the conclusion of the data collection period. The validity and reliability of the data gathering instrument was supported by the consistent manner in which the test was administered to each child and the fact that the testing instrument was peer reviewed and approved by fellow CSD teachers. The study was conducted between the months of September and December, 2007. Cooperative learning phonics intervention was provided to the 18 students in the treatment group during this time. In December, the researcher compared the mid year phonics scores of the 18 students in the 2006-2007 control group to the same test scores for the 2007-2008 treatment group.

The relationship between cooperative learning as an instructional practice and higher mid-year phonics scores was not significant at the critical values of .05, .01 and .001. At all levels, the null hypothesis was accepted and no support was evident for the hypothesis. Students who received the cooperative learning treatment performed more poorly on their mid-year phonics assessments than the control group. The treatment provided to these children failed as it did not produce a cohort of students with phonics scores higher than the previous cohort.

Conclusions

The research data collected in this study did not support the author's hypothesis. Students who received the cooperative learning treatment did not perform better on the mid year phonics assessment than the control group. In fact, the treatment group performed more poorly than the control group. Review of the data led the author to conclude that this particular cooperative learning treatment designed to test the hypothesis should not be used for the purpose of improving student phonics scores.

Recommendations

Although the author concluded that the cooperative learning treatment did not improve the phonics test scores of the treatment group, the author does not believe that the treatment was the sole cause of the lower mean test scores of this group. The author recommends that future studies on this topic account for the following points.

At the onset of this study, the author selected two consecutive cohorts of children enrolled in the researcher's elementary classroom as the convenience sample for the study. The author presumed that these two groups would be similar in terms of their range of abilities and demographic characteristics. Analysis of the two cohorts of children at the conclusion of this study revealed that the treatment group had a higher percentage of students with limited English language skills. It is common for students who speak a native language other than English to experience more difficulty learning beginning phonetic rules than children who have been in an English language environment since birth. The author recommends that the reliability of future studies will be improved by initially selecting more similar cohorts of children for comparison.

Due to the nature of the variable daily schedule in a kindergarten classroom, the frequency of the treatment delivered to the treatment group in this study varied from one to three times per week. A high frequency of school vacation days, early release days, and all school assemblies between the months of September and December limited the frequency within each week and the duration of the CL treatment. Considering this, the author recommends that the reliability of the study design would be improved by designing a schedule in which the treatment could be delivered, without difficulty, on a daily basis and for a consistent duration.

The author also considered the time of year in which the treatment was

provided to the treatment group. The first few months of the school year was a time for the explicit teaching of classroom expectations and routines. During these months, kindergarten children spend much of their energy learning basic school procedures such as managing classroom supplies, forming a line, and returning from recess at the sound of the bell. This year, the treatment group also learned procedures for various cooperative learning activities during these months. The cooperative routines learned by the children included: locating a single partner to work with, obtaining the needed materials, and carrying out the activity with little adult assistance. The author recommends that in a similar study, the data should be collected only after the students are proficient at the cooperative activity routines. The author believes that the validity of the cooperative activities would be improved by collecting data after the first trimester of the school year. In this case, the researcher could be more certain that students were learning from the activity not just learning how to perform the activity.

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Kindergarten Data Sheet

Centralia School District

Name _____ Birthdate _____ School Year _____

Upper case recognition

M	A	S	D	T	I	N	P	G	O	C	K	U	B	F	E	L	H	R	J	V	Y	W	Q	Z	X

Lower case recognition

m	a	s	d	t	i	n	p	g	o	c	k	u	b	f	e	l	h	r	j	v	y	w	q	z	x

Letter sounds

m	a	s	d	t	i	n	p	g	o	c	k	u	b	f	e	l	h	r	j	v	y	w	q	z	x

Prints name in D'Nealian				
Cuts on a line				
Controls pencil and crayons				

Orders Numbers (10, 20, 31)				
Matches number to sets (10, 20, 31)				
Writes numbers (10, 20, 31)				
Builds number sentences (0-5)				
Uses measurements				
Uses math knowledge				
Creates a pattern				
Interprets graphs				

Identifies colors

Red				
Blue				
Green				
Yellow				
Brown				
Orange				
Purple				
Black				

Writing					
	Scribble				
	Random				
	Pre-phonetic				
	Phonetic				
	Transitional				

Number recognition

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Shapes	△	○	□	▭	◊

Grading Key:

+ Consistently Meets Expectations

✓ Doing Satisfactorily

– Improvement Needed

Counts by:	1's	10's	5's	2's
1				
2				
3				
4				

4.06