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Andrea R. van der Laan

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The Effects of the Lindamood Phoneme Sequencing Program on Reading Fluency and
Comprehension of At-Risk First-Graders

By

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Dissertation

Submitted to the Department of Leadership and Counseling

Eastern Michigan University

in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

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October 10, 2006

Ypsilanti, Michigan

Dedication

This dissertation is dedicated to
my mother, Miriam Eucce,
for her strength, her constant support,
and her encouragement.
I have succeeded in life because of you.

Acknowledgements

To Dr. Ronald Williamson (EMU), chairperson of my dissertation committee, a special thank-you for your friendship, for your guidance, and for your continued encouragement. Your patience with constant revisions and questions went above and beyond.

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To my father, thank you for instilling in me a way to set goals, a way to manage time, and a sense of work ethic! I miss you!

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Life is a journey made up of experiences. This has been one more adventure along the way. Thank you for your constant encouragement and for coming along for the ride. I couldn't have done this without any of you!

Abstract

The primary purpose of this research study was to determine the impact of the Lindamood-Bell Phoneme Sequencing Program on phonemic awareness, reading fluency, and comprehension of at-risk first graders in one southwestern Michigan school district.

In the first phase of this research, baseline data in phonemic awareness and fluency scores were collected from two different first-grade classrooms to determine which students would be chosen for the study. The final study included 32 students, 16 from the experimental school and 16 from the control school. Both schools had similar demographic populations. In the second phase of the study, data were collected on phonemic awareness and fluency scores after the Lindamood–Bell Phoneme Sequencing Program was implemented with the first graders in the experimental school. In addition, comprehension scores were collected at two different times near the end of the study in order to compare reading gains in both school settings.

The data indicated that there were statistically significant relationships between the Lindamood–Bell Phoneme Sequencing Program and phonemic awareness. However, it was also noted that the experimental group had high phonemic awareness scores when baseline data were originally collected. There were also statistically significant relationships between the Lindamood–Bell Phoneme Sequencing Program and reading fluency and comprehension. The results suggested that if students understood phonemic awareness, reading fluency would also be gained, and in turn, reading comprehension would be greater. Therefore, phonemic awareness skills would eventually lead to greater comprehension. Results supported these conclusions.

Because this sample was small, the research study was considered a pilot. Further research recommendations included using the Lindamood–Bell Phoneme Sequencing Program with a larger population.

Table of Contents

	Page
Dedication.....	ii
Acknowledgements.....	iii
Abstract.....	vi
List of Tables.....	xi
List of Figures.....	xii
Chapter 1: Introduction	1
Statement of the Problem	4
Purpose of the Study	5
Hypotheses	5
Significance of the Study	6
Assumptions of the Study	6
Limitations	7
Delimitations	7
Bias	8
Definition of Relevant Terms	8
Methods	9
Instrumentation	10
Implications to Practice	11
Organization of the Document	11
Summary	11
Chapter 2: Review of the Literature	13

Introduction	13
Educational Leadership	13
The Reading Process that Leads to Comprehension	19
Phonemic Awareness	23
The Lindamood Phoneme Sequencing Program	34
Chapter 3: Research Design and Methodology	38
Introduction	38
Research Design	39
Instrumentation	40
Selection of Subjects	42
Limitations and Delimitations	43
Procedures	44
Data Analysis	45
Validity and Reliability	46
Importance of Findings	48
Conclusions	48
Chapter 4: Findings	49
Introduction	49
Purpose	49
Description of the Study.....	50
Description of the Sample	51
Descriptive Analysis	53
Research Questions and Hypotheses	55

Research Question One and Hypothesis One	56
Research Question Two and Hypothesis Two	59
Research Question Three and Hypothesis Three	61
Summary	67
Chapter 5: Summary, Conclusions, Implications and Recommendations	
for Further Study.....	68
Introduction	68
Background	68
Procedures Followed	70
Sample Population	71
Discussion	72
Inferences	74
Implications	76
Recommendations for Future Research	78
Summary.....	79
References	81
Appendices	88
Appendix A: Informed Consent Form	89
Appendix B: The Human Subjects Review Board Approval Letter.	92
Appendix C: District Phonemic Awareness Test	94
Appendix D: Rigby Fluency Test	98
Appendix E: Steiglitz Informal Reading Inventory	100

List of Tables

<u>Table</u>		<u>Page</u>
1	Demographic Characteristics of the Sample Population.....	52
2	Age of School Entry of Sample Population.....	53
3	Student Test Scores – First Assessment and Final Assessment for Phonemic Awareness, Fluency, and Comprehension.....	55
4	Analysis of Variance for Phonemic Awareness.....	56
5	Interactions of Phonemic Awareness Test Scores Between the First and Second Administrations.....	57
6	Analysis of Variance for Reading Fluency.....	59
7	Interactions of Fluency Test Scores Between the First and Second Administration.....	61
8	Analysis of Variance for Reading Comprehension in March.....	63
9	March Comprehension Scores – Results of the Mann-Whitney.....	64
10	Analysis of Variance for Reading Comprehension in June.....	65
11	June Comprehension Scores – Results of the Mann-Whitney.....	67

List of Figures

<u>Figure</u>		<u>Page</u>
1	Model of schema theory.....	21
2	Interactions of Phonemic Awareness test scores between the first and second administrations.....	58
3	Interactions of fluency test scores between the first and second administrations.....	61
4	Analysis of comprehension scores – March 06.....	64
5	Analysis of comprehension scores – June 06.....	66

Chapter 1

Introduction

Leadership is the guidance of instructional improvement (Elmore, 2000, p. 13). With the enactment of the Federal No Child Left Behind (NCLB) Act of 2001, Education YES! (Education Yardstick for Excellent Schools and Michigan's initiative in response to NCLB) (2002), and the standards movement, the focus was on the quality of teaching, the accountability of reaching stated expectations, and improved student achievement.

The academic standards movement also has amplified the call for improved instruction. Student achievement is at the center of the national dialogue about the effectiveness--indeed, the viability--of public schools. (National Association of Elementary School Principals [NAESP], p. 1)

However, it is not the educational leader, alone, who accomplishes this task. The school improvement team, with input from the staff, is responsible for establishing, implementing, and monitoring learning goals. Learning goals are data driven and are established through the analyzation of needs assessment data, demographic characteristics of the school district and community, test outcomes, and other objective sources of information (Reeder, 2005). The role of the educational leader is to create the conditions, encourage changes that focus on improvement in student learning, and to support school improvement efforts set forth by the team. Deming (n.d.) stated,

Improvement of education, and the management of education, requires application of the same principles that must be used for the improvement of any process leaders. He or she must actively and continually encourage and nurture the school improvement efforts. (p. 3)

The educational leaders in these organizations are the force behind school improvement, continuous learning, instructional improvement and student achievement (Lambert, 2003; NAESP, 2001; Schmoker, 1999; Schwahn & Spady, 1998; Senge, 1994).

When the 2004 data from the Michigan Education Assessment Program (MEAP), the state-testing program, indicated that only 54% of 4th-grade students in one southwestern Michigan elementary school were reading on level (a decrease of 34% in a five-year period), the researcher and educational leader of this school initiated conversations with the parents, teachers, and support staff that make up the school improvement team. Together they reviewed the data and developed a plan with the focus on increasing student learning in the area of reading. The researcher knew the success of any plan would require their input and include new initiatives based on researched methods for reading acquisition, providing professional development, and establishing a way to assess how the plan was working.

Because the state of Michigan requires that new school improvement strategies be based on scientific research, one of the first sources of information reviewed by the staff was the report from the National Reading Panel (1998).

The powerful document that is usurping our expertise as professionals is *The Report of the National Reading Panel: Teaching Children to Read*, often referred to as the NRP report. It is the so-called “scientific” research of the National Reading Panel that drives the recommendations of President Bush’s education plan, No child Left Behind. (Garan, 2002, p. 2)

One section of the National Reading Panel (NRP) plan discusses phonemic awareness (PA) and its importance in reading for all children. PA is the awareness of the sounds (phonemes) that make up spoken words (Harris & Hodges, 1995). It is the ability to rhyme, recognize onset/rime, hear, change, substitute, and manipulate/delete individual sounds, segment, or blend sounds in a word. The premise is that beginning readers need to have the ability to hear the individual sounds even though they are blended into one word (Adams, 1990; Hempenstall, 2003; Stahl, Duffy-Hester, & Stahl, 1998; Torgesen, 1998; Yopp, 1992; Yopp & Yopp, 2000).

Beginning readers who understand that individual sounds go with individual letters are able to break the alphabetic code; they have an easier time with phonics and sight-word acquisition. Lyon (1998) wrote,

In an English alphabetic system, the individual letters on the page are abstract and meaningless, in and of themselves. They must eventually be linked to equally abstract sounds, called phonemes, blended together, and pronounced as words, where meaning is finally realized. This understanding that written spellings systematically represent the phonemes of spoken words (termed the alphabetic principle) is absolutely necessary for the development of accurate and rapid word reading skill. (p. 3)

Once a child understands and can utilize phonemic awareness skills, the skills help him/her decode words and recognize sight words more readily. When fluency in reading is achieved, children no longer have to spend time sounding out words but can instead focus on comprehension (Adams, 1990; National Research Council, 1998).

After learning about PA, the staff believed they might be able to prevent reading difficulties by focusing on PA strategies in the classroom, beginning at the first-grade level. Articles from the *Journal of Educational Psychology* (Wagner, Torgesen, Laughon, Sommons, & Rashotte, 1993) from the *New England Journal of Medicine* (Shaywitz, 1998), and from the *National Association of School Psychologists* (Young, 2000) all mention PA as a strategy to help struggling readers, and several research studies have indicated that the best predictor of reading acquisition is phonemic awareness (Ball & Blachman, 1991; Bishop, 2003; Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg & Poe, 2003; Lundberg et al., 1998; Mann & Foy, 2003; Scarborough, 1998; Wagner, Torgesen, Laughon, Sommons, & Roshotte, 1993).

On the basis of these data, the staff began to learn about reading acquisition and began to work together to implement new reading strategies in order to improve student achievement in reading.

This chapter will briefly describe the study conducted in one southwestern Michigan school district to learn about the impact of the Lindamood - Bell Phoneme Sequencing Program on selected at-risk first graders.

Statement of the Problem

Now that the No Child Left Behind Act (2002) and Education Yes! (2002), Michigan's initiative to satisfy the No Child Left Behind legislation, have been enacted, educators must be proactive and find ways to intervene before children fall behind in reading.

Purpose of the Study

The purpose of this study was to determine the impact of the Lindamood–Bell Phoneme Sequencing Program on the reading fluency and comprehension of first graders in one southwestern Michigan elementary school. Children were assessed with the district PA test (see Appendix C), the Rigby fluency test (see Appendix D) and the Steiglitz comprehension assessment (see Appendix E) to determine whether the treatment had worked.

By examining the implementation of the Lindamood–Bell Phoneme Sequencing Program (LiPs), this study addressed the following questions:

1. Will the application of LiPs lead to greater phonemic awareness among at-risk first-grade readers?
2. Will the application of LiPs affect fluency skills among at-risk first-grade readers?
3. Will the application of LiPs affect comprehension among at-risk first graders?

Hypotheses

After the students had instruction in LiPs, the following hypotheses were investigated, and any differences were tested for significance at ($p < .05$):

1. The Lindamood–Bell Sequencing Program will have no impact on children in the in the area of phonemic awareness according to district standards.
2. The Lindamood–Bell Sequencing Program will have no impact on children in the area of reading fluency according to district standards.
3. The Lindamood–Bell Phoneme Sequencing Program will have no effect on children in the area of reading comprehension according to district standards.

Significance of the Study

The southwestern Michigan elementary school district is made up of seven elementary schools, two middle schools, and two high schools. This study was expected to provide data that this southwestern Michigan school district could use to reduce the number of children with reading difficulties and the amount of remediation services needed, thus conserving resources. If a positive relationship were found between PA and reading acquisition, the district might choose to adopt the intervention across the entire elementary population, positively impacting students, and, at the same time, the resources currently used for remediation.

Assumptions of the Study

The following assumptions were made for this study:

1. Educational leaders in public schools are attempting to use research-based methods to improve reading comprehension in students.
2. The district curriculum was designed to be successful in helping students learn reading strategies.
3. First-grade teachers in this public school system are using the district curriculum to teach reading strategies to students.
4. Teachers in the targeted schools have the knowledge and skills to successfully teach students reading strategies.
5. Teachers involved in the study are using the same teaching methods and have the same instructional skills.

Limitations

This study was constrained by the following limitations:

1. Teachers whose students were not scoring very well on district standards might not want to participate in the study.
2. Teachers who were uncomfortable with a building principal's analyzing and comparing student scores with another teacher's/school's scores might not want to participate in the study.
3. Parents of children who should be part of the study might not participate.
4. Even though teachers might have had the same training, implementation of strategies might be different.

Delimitations

The following delimitations were present in this study:

1. Schools were purposely chosen for this research because beginning reading instruction is taught in the primary grades.
2. The study examined the implementation on only one small group of students, thereby limiting the ability to generalize from the results.
3. This study was time bound and occurred during the 2005-2006 school year.
4. The study did not account for differences in teacher instruction that might impact student learning and thus reading fluency and comprehension.
5. This study did not account for other forms of reading instruction in the control classroom.
6. The study did not attempt to ascertain differences that may arise because of the educational background of parents, student poverty level, or gender.

Bias

Because the researcher is the principal of the school where the study was conducted, she recognized the potential for biasing the research. In order to minimize bias, the researcher did the following:

1. Interventions were provided by the speech pathologist and classroom teachers.
2. Teachers were volunteers who were not being evaluated.
3. The researcher did not evaluate teaching and solely examined student data.

Definition of Relevant Terms

For purposes of this study, the following definitions were used:

1. Articulation: in phonetics, the physiological process of producing speech sounds in the throat or mouth (Harris & Hodges, 1995)
2. Comprehension: phonological (auditory/phonetic) processors, orthographic (visual) processors, and contextual (language processors) working together for reading comprehension to occur (Adams, 1990; Lindamood & Lindamood, 1998)
3. Contextual Meaning: the interpretation of a linguistic unit as affected by the text in which it occurs, as the meaning of a sentence in a larger discourse (Harris & Hodges, 1995)
4. Fluency: the freedom from word-identification problems that might hinder comprehension in silent reading or the expression of ideas in oral reading; the ability to produce words or larger language units in a limited time interval (Harris & Hodges, 1995)

5. Orthography: the study of the nature and use of symbols in a writing system (Harris & Hodges, 1995)
6. Phoneme: a minimal sound unit of speech that, when contrasted with another phoneme, affects the meaning of words in a language, as /b/ in *book* contrasts with /t/ in *took*, /k/ in *cook*, /h/ in *hook* (Harris & Hodges, 1995)
7. Phonemic Awareness: the awareness of sounds (phonemes) that make up spoken words and the ability to manipulate sounds (Harris & Hodges, 1995)
8. Phonics: a way of teaching reading and spelling that stresses symbol-sound relationships, used especially in beginning instruction (Harris & Hodges, 1995)
9. Phonology: the study of speech sounds and their functions in a language or languages (Harris & Hodges, 1995)

Methods

An experimental, quantitative research design was used to compare phonemic awareness, reading fluency, and reading comprehension scores of first-grade children from two schools. Children who scored a 2 or lower on the phonemic awareness test or who scored a level 3 or lower on the Rigby fluency test were asked to participate in the study. Children from one school were matched with children from the second school on the basis of gender, age on the date of school entry, and reading fluency level. Data were collected from district assessments based on phonemic awareness, the Rigby Fluency test, and the Steiglitz reading inventory for comprehension. SPSS – Windows, ver. 13.0,

was used to analyze data. Both descriptive and inferential statistics were used for this purpose.

Secondary, quantitative data from district measures on phonemic awareness and fluency were gathered for the first quarter of the school year. The group that was studied was composed of students who were not competent in the areas of phonemic awareness or fluency on district standard measures. Students from the experimental group were then matched with students from the control group so that reading gains could be compared. Quantitative data on comprehension were also collected for the third and fourth quarters of the school year for comparison purposes.

LiPs was administered to small groups of students in the experimental school 2-3 times weekly by the speech pathologist and classroom teachers. Teachers integrated LiPs lessons into regular reading instruction throughout the rest of the week. The students in the control building proceeded through the district curriculum as expected.

Instrumentation

Reading gains were measured by using three different assessments. The district phonemic awareness test was adapted from the Michigan Literacy Progress Profile and consisted of onset-rime, phoneme blending, and phoneme segmentation. The Rigby P.M. Benchmark Kit was used to measure reading fluency. This fluency assessment was used to determine each student's skills with phonemic awareness. The Steiglitz Informal Reading Inventory indicated the student's level of literal, interpretive, and inferencing skills.

Implications to Practice

The goal of the study was to prevent early learning failure through the use of LiPs in conjunction with authentic reading and writing activities. Olson & Wise (1995) concluded,

The results suggest that good reading programs should include instruction in phonological awareness, decoding, and comprehension, and should include opportunities for accurate practice reading in context. (p. 120)

If the data were to show that LiPs strategies helped first graders with reading fluency and comprehension, the data would be helpful to district administrators. Because this was a study with a small sample of the population, results might lead to a larger study within the school system.

Organization of the Document

The remainder of this study is organized into several chapters. Chapter 2 reviews the role of today's educational leader and the literature related to phonemic awareness and the acquisition of reading fluency and comprehension. Chapter 3 describes the research design for the study, description of the sample students, and the data collection process. Chapter 4 presents the data and the analysis of these data. Chapter 5 summarizes the results, discusses the findings, makes inferences and gives recommendations for further research.

Summary

This chapter presented a description of the role of the educational leader in the school setting, an overview of the research study, and the research questions that were investigated. Subsequent chapters will review literature related to phonemic awareness,

will describe the methodology and design used in this study, and will present the results and statistical analysis. The last chapter will summarize the findings of the study and will include recommendations for further research.

Chapter 2

Review of the Literature

Introduction

The role of the educational leader has changed during the past several decades. Instructional leaders are responsible for influencing staff in the areas of school improvement and student learning. In chapter one, a brief overview of a study done in one southwestern Michigan school district was described. The purpose of this chapter is to discuss changes of educational leadership, to show how leadership can influence reading intervention, and to review research in regard to the reading process as it relates to the Lindamood - Bell Phoneme Sequencing Program (LiPs).

Educational Leadership

Over the course of the last 40-50 years, three leadership roles have emerged and have exerted their influence on educational leadership: those of a program manager, the instructional leader, and the transformational leader (Hallinger, 1992). In the mid-1960s and 1970s, leadership in schools was that of program manager and resembled the industrial model of organizations. Organizations took on a resemblance to corporate management. (Cuban, 1988; Patterson, 1993; Senge, 2000; Tyack & Honsot, 1982). The role of the program manager was to determine the work to be done, to explain how the job was to be carried out, and to supervise and monitor the work. Leadership was about power and control, and decisions were made in isolation. Bosses (program managers) are in charge of the workers; they tell them what, when, and how to do their jobs. They have the power to reward them for doing a good job and to punish them for not doing what they are told to do. (DuFour & Eaker, 1998; Glasser, 1990) It was the program manager's

job to monitor compliance with federal regulations. The program manager's role was to implement initiatives whose goals and procedures were designed by others. They assisted with staff development and provided classroom support to teachers. The focus was on school improvement and change through meeting criteria for compliance and program implementation rather than on improving learning for students (Fullen, 1991; Leithwood, Begley, & Cousins, 1992; Leithwood & Montgomery, 1992).

By the mid-1980s instructional leadership became the new standard for educational leaders and was a characteristic of instructionally, effective schools (Murphy, 1991; Wimpelberg, 1990). The instructional leader was expected to develop the educational program, be knowledgeable about curriculum, and be able to assist teachers in making instructional improvements (Edmonds, 1979; Hallinger & Murphy, 1985; Leithwood & Montgomery, 1992). Hallinger (1992) stated,

Principals, described as the catalysts for change in effective schools, were viewed as the key figures in the successful implementation of the effective schools model. Staff development programmes outlined clear, sequential steps for managing school-based improvement teams led by the principal. While instructional leadership demanded a new focus and set of work activities from the principal, the role conceived for the principal was still inherently managerial in nature. (p. 4)

Four dimensions of an instructional leader were defined by Smith & Andrews (1989): resource provider, instructional resource, communicator, and visible presence. The instructional leader's role is to make sure staff have materials, training, and adequate budgets to perform their jobs; they are responsible for supporting instructional programs

and modeling desired behaviors; they are seen frequently in classrooms and are available to staff.

Unfortunately, there were few resources allocated for coaching and on-site assistance for a behavior change in instructional leaders (Crandall, Eiseman, & Louis, 1986; Smylie & Conyers, 1991). Even though the picture of instructional leadership had become defined, actual practice of the concepts was less evident.

Transformational leadership emerged as the role of the educational leader in the 1990s. The emphasis was on site-based decision making, with more involvement of teachers and parents in the decision-making process. The assumption was that those closest to the students were in the best position to make decisions about changes needed in the educational program and about changes needed in approaches to teaching and learning (Elmore, 1990; Murphy, 1991; Rowan, 1990). In transformational schools, the educational leader helps generate and develop solutions to problems facing the school. The focus is on the importance of collegiality, experimentation, teacher reflection, and school-based staff development. The transformational leader relies on the expertise and leadership of staff.

Today, leadership is defined as “the process of influencing others to achieve mutually agreed upon purposes for the organization (Patterson, 1993, p. 3). The focus is on school improvement, and the work focuses primarily on improving potential strategies, on monitoring stated goals, and on increasing accountability for results. In such results- driven environments, educators strive to find a link between interventions and student learning (Lezotte, 1992; 1997, 1999).

In these organizations, school leadership involves multiple leaders and is sometimes referred to as distributed leadership. Distributed leadership is seen as a product of the interaction of school leaders, followers, and their situation (Spillane, 2006). For example, if the situation revolves around literacy, the leadership team may consist of the literacy coach, the principal, and a teacher. They would be responsible for collecting and analyzing data, researching appropriate teaching strategies to implement, reassessing students, and evaluating the results to see if the strategy had worked. According to Beachum and Denitith (2004), “School leaders have to build more collaborative and democratic arrangements with teachers and others to achieve the enormous ambitions of schooling and respond to students’ diverse needs.” (p. 278)

Similar organizations are known as professional learning communities. These communities are responsible for improving instruction and student achievement. Professional learning communities are characterized by continuous learning, by data analyzation used as a diagnostic tool to design strategies for improvement, by professional development and collaboration, and by high expectations and standards for students and adults (Lambert, 2003; NAESP, 2001; Schmoker, 1999; Schwahn & Spady, 1998; Senge, 1994).

It was with today’s leadership model in mind that the researcher and staff at one school in southwestern Michigan began to look at school-wide reading scores. Data revealed that reading scores as reported by the Michigan Education Assessment Program (MEAP) had declined since 1995. Winter reading scores from MEAP 2004 indicated that only 54% of fourth graders could comprehend at grade level. Guided by these data and the interpretation of action research by Calhoun (1991) and Glickman (1990), the

researcher influenced the staff to select reading comprehension as a problem of collective interest. Together they embarked on a school-wide action-research plan and began to take action.

At about the same time, the district began restructuring the curriculum to include research best practices. The first curricular area to be rewritten was literacy. The district used *The Report of the National Reading Panel: Teaching Children to Read* (1998) as the foundation on which to build a new literacy curriculum. One section of the National Reading Panel (NRP) plan discusses phonemic awareness (PA) and its importance in reading for all children. PA was to become a major focus of this new curriculum.

PA is the awareness of the sounds (phonemes) that make up spoken words (Harris & Hodges, 1995). It is the ability to rhyme, recognize onset/rime, hear, change, substitute, manipulate/delete individual sounds, segment, or blend sounds in a word. Beginning readers who understand that individual sounds go with individual letters are able to break the alphabetic code: They have an easier time with phonics and sight-word acquisition. Lyons (1998) wrote,

In an English alphabetic system, the individual letters on the page are abstract and meaningless, in and of themselves. They must eventually be linked to equally abstract sounds, called phonemes, blended together, and pronounced as words, where meaning is finally realized. This understanding that written spellings systematically represent the phonemes of spoken words (termed the alphabetic principle) is absolutely necessary for the development of accurate and rapid word reading skills. (p. 3)

The premise is that beginning readers need to have the ability to hear the individual sounds even though they are blended into one word. (Adams, 1990; Hemenway, 2003; Stahl, Duffy-Hester, & Stahl, 1998; Torgesen, 1998; Yopp, 1992; Yopp & Yopp, 2000).

Although some experts believe that phonemic awareness can be acquired naturally (Fletcher & Lyon, 1998), others believe that phonemic awareness is learned through specific instruction (NRP, 1999). The NRP report (1999) stated,

It is essential to teach letters as well as phonemic awareness to beginners.

Phonemic awareness training is more effective when children are taught to use letters to manipulate phonemes. This is because knowledge of letters is essential for transfer to reading and spelling. (pp. 2-41)

Once a child understands and can utilize phonemic awareness skills, these skills help him/her decode words and recognize sight words more readily. When fluency in reading is achieved, children no longer have to spend time sounding out words but can instead focus on comprehension (Adams, 1990; National Research Council, 1998)

The researcher worked and learned to understand early literacy acquisition with the staff in this southwestern Michigan school. As the educational leader of the school, the researcher understood leadership is about learning, about constructing meaning and knowledge, and about implementing strategies together (Lambert, 1998). The collective knowledge acquired for this venture would have impact on student learning at this school and help to inform district school-improvement efforts. This led to the current research project with a focus on phonemic awareness.

In order to understand the Lindamood Phoneme Sequencing Program and its importance to reading, it is necessary to understand reading comprehension. Reading

comprehension is the reconstruction of the intended meaning of a communication, that is, accurately understanding what is written or said (Harris & Hodges, 1995). It is the only purpose for reading, and, thus, the overall goal of all reading instruction (Lindamood & Lindamood, 1998). In this chapter, the researcher will review the reading process, phonemic awareness, research studies focused on phonemic awareness, and the Lindamood–Bell Phoneme Sequencing Program (LiPs).

The Reading Process that Leads to Comprehension

Reading is the process of constructing meaning from written texts (Anderson et al., 1985). It is a message-getting, problem-solving activity that increases in power and flexibility the more it is practiced (Clay, 1991). In order to comprehend or make meaning from text, the reader relies on orthographic knowledge, phonological knowledge, and contextual knowledge. These parts of the reading system do not work in a systematic order but work simultaneously, relying on information from each other in order to create meaning. (Adams, 1990; Bear, Invernizzi, Templeton, & Johnston, 2004; Clay, 1991; Lindamood & Lindamood, 1998; National Research Council, 1998; Routman; 1988).

As defined by Harris and Hodges (1995), *orthography* is the study of the nature and use of symbols in a writing system. English orthography is based on the alphabetic principle (the principle that each individual speech sound or phoneme has its own graphic representation). English orthography begins with individual letter recognition, progresses to letter patterns, and then uses these patterns to make meaning (Bear et al., 2004).

When a learner first begins to recognize our orthographic system, the learner begins to match letters and sounds in a left-to-right progression. However, the English

language does not always have a 1:1 correspondence between letters and sounds. Sometimes more than one letter represents one sound, or another letter in the word affects the sound. For instance in the word *read*, the long /e/ is heard and the /a/ is silent. In the word *take*, the silent /e/ acts on the /a/ making it a long /a/ sound. The more a student sees similar letters or letter patterns, the more responsive the student becomes to frequent spelling patterns (Adams, 1990; Bear et al., 2004). When the learner begins to understand that groups of letters can represent meaning, he/she will be more successful when encountering an unusual spelling pattern. The learner will be able to make connections between the patterns he/she knows and the new pattern. This leads to expanding vocabulary and to greater comprehension (Bear et al., 2004).

In order to comprehend in reading, students must also be taught the relationship of print to speech so that they can focus their attention on making meaning (Fletcher & Lyon, 1998). Letter–sound correspondences, phonics, spelling patterns, high-frequency word recognition, decoding, word meanings, and other word attributes are the basis of written-word knowledge (Bear et al., 2004). This study of speech sounds and their functions in a language or languages is known as *phonology* (Harris & Hodges, 1995). It is the sound structure of one’s oral language and is used in the processing of written and oral information (Allor, Fuchs, & Mathes, 2001; Wagner et al., 1993).

Phonemic awareness is part of phonology. It is the awareness that the English orthographic letter symbols represent speech sounds. *Phonemic awareness* refers to the understanding and conscious awareness that speech is composed of identifiable units, such as spoken words, syllables, and sounds (National Association for the Education of Young Children, 1998). It is the awareness of sounds (phonemes) that make up spoken

words (Harris & Hodges, 1995). Students who understand this and perceive the correspondence between sequences of sounds in spoken words and sequences of letters in written words have a base for becoming independent in reading and spelling (Lindamood & Lindamood, 1998, p. 5).

Contextual meaning is defined as the interpretation of a linguistic unit as affected by the text in which it occurs, such as the meaning of a sentence within a larger discourse (Harris & Hodges, 1995). In other words, contextual meaning is the interpretation of a word based on the rest of the text surrounding it. The more rapidly a reader can identify the orthographic units, recognize patterns, and interpret the meaning of the word within text, the faster the reader can comprehend--the goal of reading.

Comprehension occurs when the orthographic, phonological, and contextual processes work together (see Figure 1).

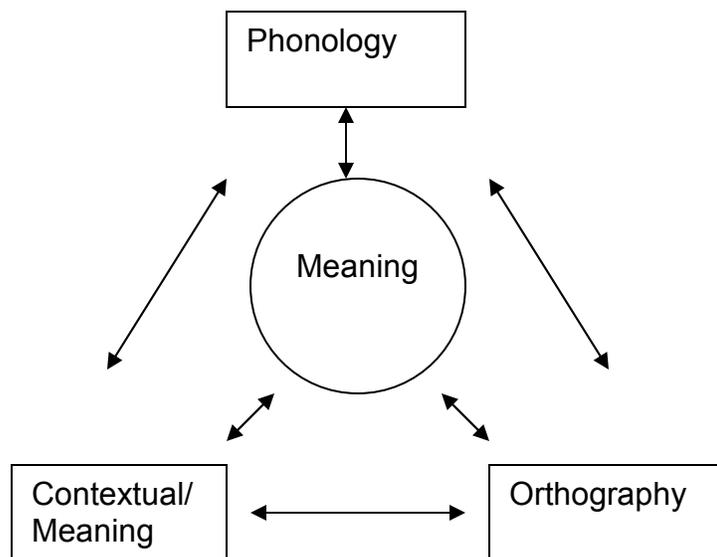


Figure 1. Model of schema theory.

The process of reading begins with the visual--the orthography. Skillful readers do not recognize the letters independently of one another; they look for associations between letter and letter patterns. The strength of the associations reflects the frequency with which the corresponding letters have been seen together in particular order and combinations (Adams, 1990). If the word encountered does not make sense, the reader uses phonology and orthography to help with the interpretation of the word. Letters of the printed word (orthography) correspond to phonologic segments of the spoken word (Shankweiler et al., 1994). At the contextual/meaning level, the reader must retrieve the meaning of each individual word encountered (Adams, 1990). When the reader looks at word, sometimes the word can have more than one meaning. This forces the reader to look at the rest of the text in order to find the meaning that makes the most sense. An example might be when the reader sees the word *cat*. This could be a house cat, a member of the cat family, or a CAT truck. The reader makes contextual meaning when he/she looks at the text to figure out which *cat* is being referenced. Sometimes this means the reader not only has to read the sentence that contains the word, but he/she might also have to read the sentence that comes before or after the sentence that contains the word. Readers combine their understanding of the just-interpreted phrase or clause with their overall interpretation of the text so as to revise and update their understanding of what the text means and where it is going (Adams, 1990). The reader looks at the letters and looks for letter patterns (orthography), checks the letter/sound relationship (phonology), and then tries to figure out the word (contextual/meaning) on the basis of the overall text. For purposes of this study, the researcher's focus was on phonemic awareness and the effect it has on the reading process.

Phonemic Awareness

Phonemic awareness, the ability to analyze words into consonant and vowel segments, is necessary for mastery of an alphabetic writing system. Phonemic awareness is the awareness of sounds (phonemes) that make up spoken words (Harris & Hodges, 1995). In research conducted by Liberman (1994) and Shankweiler et al. (1994), it was suggested that measures of phonemic awareness constitute the strongest single correlate of reading success. Other research indicates that explicit training of phonemic tasks improves reading achievement. (Allor, Fuchs, & Mathes, 2001; Ball & Blachman, 1991; Bishop, 2003; Craig, 2003; Ehri et al., 2001; Lundberg, Frost, & Petersen, 1998; Mann, 2003; Nichols, Rupley, Rickelman, & Algozzine, 2004; Snider, 1997; Wagner et al., 1993; Wise, Ring, & Olson, 1999).

Phonemic awareness has become so important in literacy studies that in 1997, Congress authorized the National Institute of Child Health and Human Development (NICHD) to create a panel charged with finding research-based strategies to help children learn to read. The NICHD formed the National Reading Panel (NRP) to conduct the study. The NRP concluded that alphabetic (phonics and phonemic awareness), fluency, and comprehension are all critical elements for children when learning to read. Phonemic awareness (PA) is thought to be a prerequisite to successful reading acquisition. Chapter two of the NRP report (1999) stated,

Early PA instruction cannot guarantee later literacy success. The most reasonable conclusion from the findings of the NRP analysis is that adding well-designed PA instruction to a beginning reading program or remedial reading program is very

likely to yield significant dividends in the acquisition of reading, and writing skills. (p. 7)

Several experts in the field of reading support the NRP's recommendations to teach phonemic awareness skills. Marilyn Jager Adams, Ph.D, a visiting scholar at the Harvard University Graduate School of Education, suggested that children need to be aware of phonemes in order to move into invented spelling and reading (Adams, Foorman, Lundberg, & Beeler, 1998). Although many children begin school with the ability to communicate effectively orally, they do not often know how the letters and sounds are put together. Children who come from less literate backgrounds do not have the same linguistic ability as those who come from more literate backgrounds; these children have difficulty with phonemes and may have difficulty learning to read and write. Adams et al. (1998) wrote,

Research indicates that, without direct instructional support, phonemic awareness eludes roughly 25% of middle-class first graders and substantially more of those who come from less literacy-rich backgrounds. Furthermore, these children evidence serious difficulty in learning to read and write. (p. 1)

In order to make sense of the alphabetic principle in the English language, one must understand that sounds in speech are the same sounds that are paired with letters. Each sound that is paired with a letter is called a *phoneme*. A phoneme is a minimal sound unit of speech that, when contrasted with another phoneme, affects the meaning of words in a language, as /b/ in book contrasts with /t/ in took, /k/ in cook, and /h/ in hook (Harris & Hodges, 1995).

The abilities to segment (the ability to say each phoneme one by one), to blend (the ability to combine phonemes into meaningful spoken words), to substitute (the ability to exchange a phoneme for another phoneme to pronounce a new word), and to delete (the ability to take a phoneme out of a word to form a new word) are abilities to develop or demonstrate phonemic awareness in beginning readers (Fox, 2005).

Hempenstall (2003) described the stages of PA development in the following way:

1. Recognition that sentences are made up of words
2. Recognition that words can rhyme – then production thereof
3. Recognition that words can begin with the same sound – then production thereof
4. Recognition that words can end with the same sound – then production thereof
5. Recognition that words can have the same medial sound – then production thereof
6. Recognition that words can be broken down into syllables – then production thereof
7. Recognition that words can be broken down into onsets and rimes – then production thereof
8. Recognition that words can be broken down into individual phonemes – then production thereof
9. Ability to blend sounds to make words
10. Ability to segment words into constituent sounds

What is clear is that phonemic awareness concerns the structure of words rather than meaning. (p. 2)

Children move from learning one-to-one correspondence between sounds and letters to more abstract relationships between letter patterns and sounds (Bear et al., 2004). For instance, children may first learn the alphabet and the corresponding sounds to each letter (orthography-phonology connection). Then they begin to string the letters and sounds together to make words such as *in*. These two letters become a pattern for words such as *p/in*, *b/in*, *t/in*, etc., and children begin to understand onset (the consonant that preceded the vowel) and rime (the vowel and any consonant sounds that come after it).

As the student's word knowledge (vocabulary) begins to build, a *pin* may be a safety pin, a clothespin, a bobbie pin, or a bowling pin. Depending on contextual clues (contextual/meaning), the student will decide which *pin* makes sense in the text. Thus, it stands to reason that phonemic awareness is the basis for reading, spelling, word meaning, and vocabulary acquisition (Adams, 1990; Bear et al., 2004; Lundberg, Frost, & Petersen, 1998; Wagner et al., 1993).

Phonemic awareness is also important because it focuses on individual phonemes that lead the reader to *phonics*. Phonics is a way of teaching reading and spelling that stresses symbol-sound relationships (Harris & Hodges, 1995). Some refer to this as decoding. The National Research Council (1998) wrote,

Phonics is the term that has long been used among educators to refer to instruction in how the sounds of speech are represented by letters and spellings; for instance, that the letter M represents the phoneme /m/ and the various conventions by which the long sounds of vowels are signaled. (p. 55)

If children lack phonemic awareness, the results may include difficulties in sounding and blending new words, in retaining words from one encounter to the next, and in learning to spell. Although phonics helps children decode words, this does not mean they will be fluent readers. It is assumed that using their knowledge of phonemic awareness, phonics, and how the alphabetic principle works in the English language, children will read more fluently: They will have the freedom from word-identification problems that might hinder comprehension in silent reading or the expression of ideas in oral reading (Harris & Hodges, 1995). The more fluently children read, the less likely it is that they will lose the meaning of the text while reading, thus leading to greater comprehension. As Lyon (1998) suggested,

If the reader does not recognize words quickly enough, the meaning will be lost. Although the initial stages of reading for many students require the learning of phoneme awareness and phonics principles, substantial practice of those skills, and continual application of those skills in text, fluency and automaticity in decoding and word recognition must be acquired as well. (p. 4)

Because the ultimate goal of reading is to construct meaning from the text (Anderson et al., 1985), it is assumed that with the help of phonemic awareness and phonics, children will be able to decipher the words more quickly so that the meaning of the text is not lost. However, decoding and fluency do not guarantee meaning. Children have to be able to relate the words and context to their own experiences in order for them to make sense of the text. The National Academy of Education's Commission on Education and Public Policy (1985) wrote, "Reading is the process of constructing meaning from written texts. It is the coordination of a number of interrelated sources of

information” (p. 7). By teaching phonemic awareness strategies, the hope is that students will be fluent with text. This will free them from having to segment phonemes in order to figure out the words. If students can see words as wholes, they can concentrate on what each word means within the text.

Phonemic awareness can be assessed with activities that focus on phoneme isolation, phoneme identity, phoneme blending, phoneme segmentation, and phoneme deletion (Ehri et al., 2001; National Reading Panel, 2000; Snider, 1997; Torgesen, 1998; Yopp, 1992). Three ways to test a child’s knowledge about English orthography are through the observations of his/her reading and spelling and through commercial screening measures.

While reading, children use visual clues in order to recognize words. Observations of phonemic awareness in reading may include listening to see if the child is using initial sounds to figure out words, is sounding out each letter, or is relying on visual clues to guess at the word (National Institute for Literacy, 2001; Stahl, Duffy-Hester, & Stahl, 1998).

The spelling patterns of children tell us what they understand about consonants, vowels, letter patterns, blends, etc. (Bear et al., 2000; Craig, 2003; Ball & Blachman, 1991). Spelling inventories (measures that use specially chosen words to represent different spelling patterns at increasing levels of difficulty) can also be used to assess a child’s understanding of English orthography.

There are also several commercial assessments used to test a child’s knowledge of phonemic awareness. Some that are commonly used are the Lindamood Auditory Conceptualization (Lindamood & Lindamood, 1971), the Michigan Literacy Progress

Profile (Michigan Department of Education, 2000), the Test of Phonological Awareness – Early Elementary Version (TOPA; Torgesen & Bryant, 1994), and the Dynamic Indicators of Basic early Literacy Skills (DIBELS; Shinn, 1998).

Several research studies support the idea that there is a causal link between explicit training of phonemic awareness tasks and reading achievement (Ball & Blachman, 1991; Bradley & Bryant, 1983; Lundberg et al., 1988; Nichols, et al., 2004; Snider, 1997).

In a study conducted by Bradley and Bryant (1983), the relationship between phonological skills and reading was measured. The study included 403 children and measured their progress over a four-year period. A subsample was given instruction in sound categorization. The subsample included 65 children who scored more than 2 deviations below the mean; they were divided into four groups. Groups I and II received training in sound categorization at the beginning of the second year of the study and lasted for 2 years. Group I was taught that words could be categorized according to similar beginning sounds, middle sounds, and end sounds. Group II was taught the same categorization skills as Group I and, in addition, was taught how each sound correlated to a letter. Group III was taught how the same word could be categorized in several ways, and Group IV had no training at all. At the conclusion of the study, Group I was ahead of Group III in reading and spelling, and Group II was ahead of Group I in spelling. There was no significant difference between Group I and Group II in reading. Group II significantly outperformed both Groups III and IV in reading and spelling. Group I was ahead of Group III for several months although the difference was not significant. Group I significantly outperformed Group IV in both reading and spelling. Overall, Group II

outperformed the other three groups in the areas of sound categorization and how sounds correlate to letters and outperformed Groups III and IV in reading. This project indicated there is a strong causal effect between the training of sound categorization and the acquisition of reading comprehension.

Lundberg, et al. (1988) conducted a longitudinal study of students from preschool to grade two in order to determine the effects of phonological awareness on reading and spelling acquisition. A total of 390 children from 22 different kindergarten classrooms were included in this study. Of the 390 children, 235 of them were part of the experimental group, and the remaining 155 children were part of the control group. The pretest for preschoolers included prereading measures, letter knowledge, language comprehension (following-directions activities), vocabulary, and metaphonological tests that included rhyming, segmentation of sentences, syllable synthesis, syllable segmentation, deletion of initial phonemes, and phoneme segmentation. At the beginning of first grade, students were given pretests that consisted of rhyming tasks, initial sound analysis, syllable and phoneme segmentation, and a mathematics test to see general effects. A reading test and spelling test were administered seven months after the start of first grade and again at the beginning of second grade. At the preschool level, the posttest for letter knowledge and language comprehension indicated that there was no significant difference between the experimental group and the control group. The posttest for vocabulary and for metaphonology showed a significant difference between the two groups. At the beginning of first grade, the measures used to indicate metaphonological transfer showed that the experimental group significantly outperformed the control group. Both reading and spelling acquisition at second grade continued to show significant

differences between the experimental group and control group. The conclusions from this study support the idea that phonemic awareness has a significant effect on learning to read and spell in school.

In 1991, Ball and Blachman investigated whether phoneme awareness training in kindergarten would make a difference in early word recognition and early developmental spelling. Students from three urban public schools were given the Peabody Picture Vocabulary Test – Revised (PPVT-R) and the Word identification Subtest of the Woodcock Reading Mastery Test (Woodcock). Students who scored 1.5 standard deviations below the mean on the PPVT-R, students who were already reading, and students who received raw scores greater than 3 on the Woodcock were not included in the study. The study included 89 students from three urban public schools. Students were randomly assigned to one of the three groups. One group received training in letter names and sounds and also in segmenting words into phonemes (phoneme awareness group). The second group only received training in letter names and sounds (language activity group). The third group served as the control group and received no training. Results of the study indicated that the phoneme awareness group scored significantly higher in phoneme segmentation activities than did the language activity or control group. There was no significant difference between the language activity and the control group in phoneme segmentation. Scores on the letter–sound assessment showed that the phoneme awareness group and the language activity group achieved significantly higher scores than the control group. They were not significantly different from one another. Follow-up scores on the Woodcock and spelling scores showed significant differences among the phoneme awareness group, the language activity group, and the control group. There was

no significant difference between the language activity group and control group. This research indicates that phoneme segmentation activities may have effects on reading.

Snider (1997) conducted two longitudinal studies to examine the relationship between phonemic awareness and reading achievement. In the first study, scores from a phonemic awareness test given to 73 kindergartners were compared to reading scores when they were in second grade (only 50 of the 73 original scores could be compared). Kindergartners were given a phonemic awareness test that included five subtests: phoneme segmentation, initial consonant, substitution, rhyme, and deletion. In second grade, students were given the Iowa Test of Basic Skills and the California Achievement Test in order to compare reading scores. The results indicated that phonemic awareness ability was correlated to later reading achievement. The second study was a qualitative analysis with the 12 students from the first study who scored in the lowest quartile. The phonemic awareness test was readministered to the students when they were in second grade, and they were also interviewed about their school experience. The phonemic segmentation and manipulation tasks showed improvement. Performance on rhyme supply and initial-consonant tests were inconsistent. Second-grade students were also given instruction on phonemic segmentation and spelling that could account for their high scores in these areas on the phonemic awareness test. The researcher concluded that perhaps second grade was too late to teach phonemic skills as it relates to reading: Children who begin school with little phonemic awareness have difficulty with the alphabetic principle. The researcher related this to the *Matthew effects* described by Stanovich (1986): Children who practice reading and are exposed to reading skills will improve; the poor reader is exposed to less print, practices less, and has a difficult time

with fluency and comprehension. Overall, the researcher suggested that her quantitative and qualitative data supported other research that predicted the positive relationship between phonemic awareness and future reading achievement.

More recently, Nichols et al. (2004) studied 145 kindergarten students from three urban schools in the Southeast over a two-year period. Students were given the district's Literacy Assessment, which included segments of Clay's (1993) Observation Survey. The test for kindergartners measured alphabetic knowledge, word recognition, concepts about print, and listening comprehension. The assessment was given at the beginning of instruction so that teachers could use the results to guide their instruction. The data indicated that all students in kindergarten could recognize and name letters at a proficient level by October. Further analysis indicated that kindergarten students needed a better understanding of the functions of print, letter and sound recognition, and comprehension of narrative text and a better ability to recognize rhyme. Teachers were then trained in sound-matching activities, word-family activities, and how to use read-aloud books to develop phonemic awareness. When the assessment was readministered at the end of the kindergarten year, results showed that regardless of socioeconomic status or preschool experience, students did well on all subtests except for recognizing patterns and initial onsets. Hispanic children continued to score lower than other ethnic groups, especially in the area of rhyme, but made considerable gains nonetheless. A follow-up study done a year later with new kindergartners indicated that Hispanic children scored lower in all areas of phonemic awareness. The Nichols et al. (2004) study indicated that when teachers use data to guide instruction and when students are exposed to phonemic awareness and concepts of print, the development of reading is successful.

As the staff in this southwestern Michigan elementary school learned about the importance of phonemic awareness and read the research studies regarding phonemic awareness, they decided to try the Lindamood–Bell Sequencing program at the first-grade level to see what effect it would have on reading fluency and comprehension for our at-risk students (those with low phonemic awareness scores and low fluency scores).

The Lindamood Phoneme Sequencing Program (LiPS)

Developed by Nanci Bell, Patricia Lindamood, and Phyllis Lindamood, the Lindamood–Bell foundation focuses on helping students speak, spell, and read successfully. Phyllis Lindamood introduced the Lindamood Phoneme Sequencing Program (LiPs) in order to help students think about sensory–cognitive connections. The students focus on the integration of sensory information (hearing, seeing, and feeling) and on getting feedback from these senses to help with the development of phonological/phonemic awareness (Lindamood & Lindamood, 1998).

LiPs is connected to speech in that it helps the reader understand articulation, the physiological process of producing speech sounds in the throat or mouth (Harris & Hodges, 1995) The purpose of this approach is to train students who have difficulty perceiving differences between speech sounds and who do not understand the order of sounds in syllables and words. These are students who typically memorize words but have no understanding of how or why words are put together. LiPs helps students be aware of what they see, hear, and feel when producing speech sounds. They begin to think about the phonemes and how they are used in spoken patterns. This program helps students to be aware of what happens when producing a sound and to be aware of how the sound contrasts with what they see in print. Throughout the program, the instructor’s

job is not only to teach the concepts but also to continue to ask questions of students so that they learn to self-correct their speech, their spelling, and, eventually, their reading (Lindamood & Lindamood, 1998).

At the beginning of the program, an individual is taught to be aware of the oral–motor activity of how a sound looks, feels, and is heard. Students explore the English sound units of our language by focusing on the similarities and differences in the places and manners in which they are produced. When a speech sound is produced, students feel where the tongue is positioned in relation to his/her teeth, how the mouth appears, and how the sound is heard.

Consonants are the first letters identified in this program and are introduced in pairs according to similarities in the ways they are produced. For instance, the /b/ and /p/ are considered *lip poppers* (bilabials in linguistics) because of the way the mouth looks when the sound is produced. One sound is voiced and one is unvoiced. *Tip tappers* are letters /d/ and /t/ because when these sounds are produced, the tip of the tongue taps the back of the upper teeth. Letters /m/ and /n/ are called *noseys* because the sound resonates in the nose. These consonant pairs are partnered with pictures of a mouth. When students produce sounds, they use a mirror to check the formation of their mouths and then compare their mouth formations with the picture representations.

As students progress through the program, they begin to learn vowels through a *vowel circle*. The vowel circle is a half circle that contains pictures of the mouth arranged in a sequence around the circle to show students the positions of the mouth as vowels are pronounced. Lindamood (1998) described the vowel circle in this way:

For example, the first three vowels at the front of the circle (/ee/ as in eek!,

/i/ as in it, and /e/ as in Ed) are produced with the tongue high toward the front of the mouth and dropping in very small steps. In progressing around the half circle, the tongue continues to gradually move down (with /ae/ and in ate, /a/ as in at, and /u/ as in up), moves to the bottom of the mouth (with /o/ as in Bob and /au, aw/ as in Paul), and then rises toward the back of the mouth (with /oe/ as in toe, /uu/as in foot, and /oo/ as in boot). (p. 10)

Once students begin to identify these phonemes, students begin tracking exercises by using colored blocks. Each block represents one sound. If there is a sequence of sounds, different-colored blocks are used for each individual sound; the same color represents the same sound, and a different color represents a different sound. As tasks become more difficult, students are asked to segment phonemes in words, substitute phonemes, and delete and manipulate phonemes. When students become proficient, letters replace the colored blocks, and students begin to work with letter–sound correspondence and letter patterns. These activities eventually lead to spelling and sight words.

As stated before, the job of Educational Leaders in a public school building is to analyze data, evaluate which learning strategies are working, and plan for school improvement. These leaders are responsible for improving instruction and student achievement. Staff are encouraged to become continuous learners, to develop and implement improvement strategies, and to set high expectations for student learning. The educational leader’s role is to hold staff accountable for results. It was with this thought in mind that the researcher took the time to involve the staff in learning and in action research. The expectation of this program was to help at-risk first graders with phonemic

awareness, fluency, and comprehension and also to provide data for the district to utilize for school improvement.

This chapter reviewed the changes in the role of the educational leader, the reading process, phonemic awareness, the Lindamood–Bell Sequencing Program (LiPs), and previous research studies in the area of phonemic awareness. Subsequent chapters will discuss the methods used for this study, the results of the study, and the implications for future studies.

Chapter 3

Research Design and Methodology

In this chapter, the researcher will briefly explain the job of the educational leader and the influence that the No Child Left Behind (NCLB) Act and Educational Yardstick for Excellent Schools (Education YES!) have had on instructional decisions. This chapter describes the methodology used to address the research questions presented in chapter one. The research design, instrumentation, selection of subjects, limitations and delimitations, procedures, data analysis, validity and reliability, and importance of findings are discussed.

Introduction

According to Haller and Kleine (2001), “The competent practice of school administration requires practitioners to be sophisticated and critical consumers of educational research” (p. xv). In other words, research should inform instructional practice and be used to solve problems in schools. It is the administrator’s job to encourage and facilitate the study of teaching and learning, facilitate collaborative efforts among teachers, establish coaching relationships among teachers, and use instructional research to make decisions (Blase & Blase, 1999). It is about learning together in order to improve the education of our children and about creating an environment where everyone is encouraged to contribute ideas and their skills to the organization. (Joiner, 1985; Lambert, 1998; Reeves, 2006).

Now that the No Child Left Behind Act (2002) and Education Yes! (2002), Michigan’s initiative to satisfy the No Child Left Behind legislation, have been enacted, educators must be proactive and find ways to intervene before children fall behind in

reading. The purpose of this study was to determine the impact of the Lindamood–Bell Phoneme Sequencing Program on reading fluency and comprehension of at-risk first graders in one southwestern Michigan elementary school.

Research Design

Because this research study consisted of data from district assessments, this researcher used an experimental, quantitative design. According to Haller and Kleine (2001), an experimental quantitative design manipulates one group of variables and compares it to another group of variables that have not been manipulated. The researcher examined the effects of the Lindamood–Bell Sequencing Program on at-risk first graders. The relationship between the independent variables of an experimental group and a control group were examined. In addition, the dependent variables of phonemic awareness, fluency, and comprehension were also examined.

The advantages of this research design were that district data were available. First-grade assessments scores in the areas of phonemic awareness and reading fluency are collected quarterly in the district. In addition, district comprehension scores are collected in the third and fourth quarters. Other advantages of the research were that both schools had similar populations (54% free/reduced-price lunch populations), both used the same first-grade language arts curriculum, and both were in the same district.

A weakness of this study is that it did not account for differences in teacher instruction that might impact student learning. The study also did not take into account the educational backgrounds of parents, the differences in gender, or the socio-economic status of students.

Instrumentation

For purposes of data collection, the district's phonemic awareness test (PA), the Rigby fluency test, and the Steiglitz Informal Reading Inventory tests were utilized.

The district's PA test is based on the Michigan Literacy Profile (MLPP). MLPP was developed by the Michigan Department of Education Early Literacy Committee (2000) and is based on the work of such researchers as Marilyn Jager Adams (a cognitive and developmental psychologist in the University of Illinois Center for Study of Reading), Lucy Calkins (founding director of the Teachers College Writing Project), Marie Clay (past president of the International Reading Association and developer of Reading Recovery), Patricia Cunningham (professor of education at Wake Forest University in Winston Salem, North Carolina), Irene C. Fountas (Guided Reading expert and professor at Lesley University in Cambridge, Massachusetts), and Gay Su Pinnell (professor in the School of Teaching and Learning of the College of Education at Ohio State University). The PA test at first grade assesses onset and rime, phoneme blending, and phoneme segmentation. Onset is the beginning of a syllable, and rime is a vowel and any following consonants of a syllable, such as b/ook in book (Harris & Hodges, 1995). Phoneme blending is the ability to combine the sounds represented by letters in order to pronounce a word (Harris & Hodges, 1995). Phoneme segmentation involves breaking a word up into sounds (Stahl et al., 1998). As Yopp and Yopp (2000) suggested,

The awareness that the speech stream is made up of a sequence of small units of sound and the ability to manipulate those small units—phonemic awareness—appears to be critical for readers of an alphabetic orthography. An alphabetic orthography maps speech to print at the level of the phoneme. In other words,

users of an alphabetic written system record the smallest units of sound of their spoken language in print. In order for a beginning reader to capture the logic of this written system, it appears that he or she must notice that running speech is made up of a sequence of small sounds. Without this insight – without phonemic awareness – the symbol system is arbitrary. (p. 131)

The PA test has 24 questions and is based on a 4-point rubric. The expectation for students in first grade is to obtain a 3 (85% accuracy). The PA assessment was given at the beginning and at the end of the treatment to determine whether a child had gained phonemic awareness skills.

The Rigby P.M. Benchmark kit (Nelley & Smith, 2000) is an assessment of reading fluency. Fluency is the freedom from word-identification problems that might hinder comprehension in silent reading or the expression of ideas in oral reading (Harris & Hodges, 1995). In other words, the assessments measure the automaticity of a student's skills in phonemic awareness. If a student uses phonemic awareness skills quickly, students begin to recognize words as wholes, and comprehension comes much more quickly. The Rigby fluency test is based on running record analysis (Clay, 2000) and measures how well the student can figure out words on the basis of contextual clues, whether the student recognizes correct syntax, and how the student does with visual clues. Analysis of the running record tells the teacher how students are problem solving, what reading strategies students understand, and what reading skills/strategies they don't understand. On the basis of the percentage of the test, the teacher knows whether the student is reading independently at that level and whether the text is at the student's instructional level. The expectation for first-grade readers is to be at a level 16 by the end

of the year. The Rigby assessments from the first quarter and the end of the fourth quarter were analyzed for gains in reading fluency.

The Steiglitz Informal Reading Inventory (Steiglitz, 2002) is a comprehension diagnostic tool that assesses both fiction and nonfiction texts. Both types of texts measure a student's literal skills, interpretive skills, and inferencing skills. The Steiglitz is based on a 4-point rubric with the expectation that students will obtain a 3 by the end of the year. The Steiglitz Informal Reading Inventory is given the third and fourth marking periods so we can determine how many first graders are comprehending text on level by the end of the year.

Selection of Subjects

The population for this study consisted of 32 first graders from two different schools within the same southwestern Michigan school district. Both schools had similar environments.

Students were asked to participate in the study on the basis of their phonemic awareness or reading fluency scores at the beginning of the year. Students scoring a 2 or lower on the district PA test (see Appendix C) or a level 3 or lower on the Rigby fluency test (see Appendix D) were invited to be part of the study. Students in the experimental group received treatment from the speech pathologist and from teachers in small-group settings. The Steiglitz comprehension test was administered to students from both schools in both the 3rd quarter and 4th quarters of the school year. Students in the control group were taught with the district curriculum and were assessed with the same district instruments.

At the end of the treatment, an analysis of covariance (ANCOVA) was used to investigate hypotheses on the PA tests and on the Rigby fluency tests. The ANCOVA and the Mann-Whitney test were used on the Steiglitz comprehension assessments.

Limitations and Delimitations

The researcher was aware of the following limitations:

1. Teachers whose students were not scoring very well on district standards might not want to participate in the study.
2. Teachers who were uncomfortable with a building principal's analyzing and comparing student scores with another teacher's/school's scores might not want to participate in the study.
3. Parents of children who should be part of the study might not participate.
4. Even though teachers might have had the same training, implementation of strategies might be different.

The following delimitations were identified by the researcher:

1. Schools were purposely chosen for this research because beginning reading instruction was taught in the primary grades.
2. The study examined the implementation on only one small group of students, thereby limiting the ability to generalize from the results.
3. This study was time bound and occurred during the 2005-2006 school year.
4. The study did not account for differences in teacher instruction that might impact student learning and thus reading fluency and comprehension.
5. This study did not account for other forms of reading instruction in the control classroom.

6. The study did not attempt to ascertain differences that might arise because of the educational backgrounds of parents, the student poverty level, or gender.

Procedures

Before students were invited to participate in the study and before district data were analyzed, the researcher gained permission from the Institutional Review Board of Human Subjects Research at Eastern Michigan University (see Appendix A). The Human Subjects Informed Consent Letter from Eastern University was given to parents for their approval. Follow-up phone calls and parent conferences were offered to parents to provide for better understanding of the interventions. Parents had the right to withdraw their child from the study at any time.

Once the researcher gained permission from parents, student's PA scores, reading fluency scores, and comprehension scores were gathered from district data. Numbers were assigned to students for confidentiality purposes. Student gender and age at school entry were obtained from district's cumulative records.

Teachers in the school district assessed first graders with the district phonemic awareness tests and the Rigby fluency test during the first quarter of the school year. Tests were analyzed, and research subjects were identified on the basis of results. Research subjects from the control school were selected on the basis of results from the district phonemic awareness tests and the Rigby fluency test taken during the first quarter of the school year. Once subjects were identified, parents were informed of our research, and final subjects were selected on a voluntary basis.

Descriptive and inferential statistics were used in this study. Descriptive statistics were used to describe the population sample, and inferential statistics were used to

analyze the data related to phonemic awareness, reading fluency, and reading comprehension gains.

The researcher's elementary school student's results were compared to identified student results of the control school. District data from identified students in the experimental group were compared to district data from identified students in the control group in the areas of phonemic awareness and reading fluency. In addition, both the experimental group and the control group subjects were tested on the Steiglitz Informal Reading Inventory for Comprehension (see Appendix E) in the third and fourth quarters. Test results from these assessments were also analyzed, and results were compared in order to see if comprehension had been affected by the treatment.

Data Analysis

The software package SPSS, version 13 for Windows, was used to analyze data collected from district assessments. The analysis of covariance (ANCOVA) was used to analyze all three assessments in order to support or refute the null hypotheses. The purpose of the assessments was to compare the effects of the different treatments between two independent groups. In this study, the researcher was concerned that the different ages of entry might have influenced the test scores. The ANCOVA assesses the effects of treatments under the assumption that all children have the same age of entry into the school setting. In addition, because the distributions from the independent samples for comprehension indicated nonnormality and unequal variances with outliers, the Mann-Whitney U test was used. The purpose was to confirm the results of the ANCOVA.

Validity and Reliability

Validity and reliability are two components used to determine the quality of a study. Validity is defined as the evidence that the inferences drawn from tests are accurate (Harris & Hodges, 2005). Reliability is determined by the degree to which a test is free of measurement error. (Gall, Gall, & Borg, 2005, p. 139)

The district curriculum and district assessments for both groups were used to establish content validity. Each assessment used was related to a specific curriculum standard. In this experiment, the PA test assessed the standards from PA1:1; the Rigby test assessed standard RD:1, and the Steiglitz Informal Reading Inventory assessed standards RD:2 and RD:3. All three district-standards and all three assessments were used with both groups. Because the teachers were more familiar with the district standards and had been trained in how to administer the tests, the teachers were responsible for the assessments.

External validity is described as the ability to extend research findings to a broad range of subjects and settings beyond the sample itself (Haller & Kleine, 2001, p. 104). Because the sample for this project was small, this research study controlled external validity by considering this study as a pilot with the understanding that the district might do a follow-up study with a larger sample population.

Internal validity was established through the partnering of two schools in the same district with a socioeconomic status of 54% (considered to be representative of the poverty level) and through the use of the district curriculum and district assessments in both buildings. The researcher also considered gender and age of entry into school when comparing test results.

Reliability was established through the use of three district measurements: the phonemic awareness test (adapted from MLPP; see Appendix C), the Rigby P.M. Benchmark Kit (see Appendix D), and the Steiglitz Informal Reading Inventory (see Appendix E).

In 2002, the MLPP documents were evaluated by Robert D. Carpenter from the University of Michigan and the Center for The Improvement of Early Reading Achievement (CIERA). During the first year of the evaluation, test–retest reliability was studied. In the spring and fall of 2001, data were collected. More than 700 K-3 students were selected from four sites across the state of Michigan. At the end of year one, enabling skills, including phonemic awareness and the PA test, were found to have high reliability (Carpenter, 2002).

The Rigby Benchmark Kit has been adapted from Marie Clay’s *An Observation Survey of Early Literacy Achievement* (1993). In the article “Validity, Reliability, and Utility of the Observation Survey of Early Literacy Achievement” (International Reading Association, Jan/Feb/March 2006), Clay reported that all of the subtests, including running records, had internal consistency and/or test–retest reliability coefficients.

In order to determine reliability with the Steiglitz Informal Reading Inventory, a study was conducted to determine whether parallel forms of expository and narrative passages tests produced equivalent results.

A nonparametric test of correlation revealed that this comparison was significant beyond the .01 level. The same kind of comparison was made with two narrative forms. A nonparametric test of correlation indicated that these comparisons were

significant beyond the .001 level. The results of these two comparisons show good alternate form reliability of the Graded Reading Passages Test. (Steiglitz, 2002, p. 323)

Importance of Findings

Educational leaders of today are expected to use research to inform instructional practices within the school setting. The goal of this study was to determine if using LiPs in conjunction with authentic reading and writing activities had an effect on first-graders' reading skills. If the data from the intervention with LiPs strategies were to have a positive effect, results might lead to a larger study within the school system.

Conclusions

This chapter discussed the research design and methods. Chapter four presents the results of the data analysis used to address the research questions of this study, and chapter five summarizes the research study and the data analyses, and chapter five also provides recommendations for further study.

Chapter 4

Findings

Introduction

“Everything a principal does in school (whether observing instruction or ordering materials) must be focused on ensuring the learning of students and adults (NAESP, 1998, p vi). With this in mind, the researcher worked with the staff in one southwestern Michigan elementary school on a project to improve reading among early elementary students.

In previous chapters, an overview of the research project, the literature review, and the method and design for this study were discussed. This chapter reports the findings from this study.

Purpose

The purpose of this study was to examine the effect of the Lindamood–Bell Phoneme Sequencing Program on at-risk first graders in the areas of phonemic awareness, reading fluency, and reading comprehension as defined by the assessments of one southwestern Michigan school district.

By examining the implementation of the Lindamood–Bell Phoneme Sequencing Program (LiPs), this study evaluated the following questions:

1. Will the application of LiPs lead to greater phonemic awareness among at-risk first grade readers?
2. Will the application of LiPs affect fluency skills among at-risk first grade readers?
3. Will the application of LiPs affect comprehension among at-risk first graders?

After the students had instruction in LiPs, the following hypotheses were investigated, and any differences were tested for significance at ($p < .05$):

Hypothesis One: The Lindamood–Bell Sequencing Program will have no impact on children in the in the area of phonemic awareness according to district standards.

Hypothesis Two: The Lindamood–Bell Sequencing Program will have no impact on children in the area of reading fluency according to district standards.

Hypothesis Three: The Lindamood–Bell Phoneme Sequencing Program will have no effect on children in the area of reading comprehension according to district standards.

In this chapter, the data were analyzed to determine whether the effects of LiPs were significant.

Description of the Study

The researcher used an experimental, quantitative design for this study in order to determine the effects of the Lindamood–Bell Phoneme Sequencing Program on at-risk first graders. Because the population for this study consisted of 32 first graders from two different schools within the same southwestern Michigan school district, the researcher was able to use district data for analyzation purposes.

Students were asked to participate in the study on the basis of their phonemic awareness or reading fluency scores at the beginning of the year. Students in the experimental group received treatment from the speech pathologist and from teachers in small-group settings. Students in the control group were taught the district curriculum and were assessed with the same district instruments. The relationship between the independent variables of an experimental group and a control group were examined. In

addition, the dependent variables of phonemic awareness, fluency, and comprehension were also examined.

At the end of the treatment, the researcher matched pairs of students on the basis of phonemic awareness scores, fluency scores, and age of entry into the school setting. An analysis of covariance (ANCOVA) was used to investigate hypotheses on the PA tests and on the Rigby fluency tests. The ANCOVA and the Mann-Whitney test were used on the Steiglitz comprehension assessment.

Description of the Sample

The two researched schools in this study were from the same southwestern Michigan school district, and both had an overall socioeconomic (SES) population (as defined by free/reduced-price lunch count) of 54%. The total SES status of all the students in the study was 59%. The experimental group had 9 students who qualified for free lunch and 2 students who qualified for reduced price lunch. The total SES status of the experimental group was 68.75%. The control group had 6 students who qualified for free lunch and 2 students who qualified for reduced-price lunch. The total SES status of the control group was 50%.

Participants for this study included 32 first graders from two different schools within the same southwestern Michigan school district. The experimental group consisted of 16 students who were taught the district curriculum and, in addition, had the Lindamood–Bell Phoneme Sequencing Program intervention. The control group consisted of 16 first graders who were taught the district curriculum but did not have instruction in the Lindamood–Bell Phoneme Sequencing Program.

These two groups of first-grade readers were not randomly assigned to the schools and classrooms but were in similar environments within the same district. The demographics for the schools involved in the study were cross-tabulated by gender and ethnicity (see Table 1)

Table 1

Demographic Characteristics of the Sample Population

Personal characteristics (N = 32)	Experimental group (N = 16)		Control group (N = 16)		Total	
	Number	Percent	Number	Percent	Number	Percent
Gender						
Male	8	50.0	8	50.0	16	100.0
Female	8	50.0	8	50.0	16	100.0
Ethnicity						
African American	3	19.0	0	0.0	3	9.4
Native American	0	0.0	1	6.0	1	3.0
Caucasian	10	62.0	10	62.5	20	62.5
Asian	0	0.0	1	6.3	1	3.1
Hispanic	1	6.0	1	6.3	2	6.0
Other	2	13.0	3	19.0	5	16.0

As illustrated by Table 1, both groups consisted of eight females and eight males. Furthermore, the experimental group consisted of three African American children and no Native American or Asian children. The control group consisted of no African American children and one each of Native American and Asian children. Both groups included 10 Caucasian children and 1 Hispanic child.

Table 2

Age of School Entry of Sample Population

Age of entry	Mean	Number	Std. deviation	Minimum	Maximum
Experimental group	5.375	16	.4879	4.1	6.3
Control group	5.251	16	.7191	4.1	6.5
Total	5.313	32	.6078	4.1	6.5

As indicated by Table 2, the age of entry was cross tabulated by information from the experimental group and the control group. Each group consisted of 16 children, 8 male and 8 female. The minimum age for entry into school was 4.1 years of age for both groups. The maximum age of entry for the experimental group was 6.3 years of age, and the maximum age of entry for the control group was 6.5 years of age. The children in the experimental group entered school at a mean of 5.375 years of age, and the children in the control group entered school at a mean of 5.251 years of age. The combined mean age of school entry for all participants in the study school was 5.313 years old.

Tables 1 and 2 describe the characteristics of the sample with regard to gender, ethnicity, and age. These data indicate that both the experimental and control groups had similar characteristics within the same school district.

Descriptive Analysis

At the beginning of the 2005-2006 school year, children in both groups were administered the phonemic awareness test (PA Fall) and the Rigby Fluency test (Fluency Fall). The PA test scores ranged from 1 to 4, in which a higher score indicated a better understanding of phoneme segmentation, blending, and onset and rime. The fluency test ranged from 0 to 30, in which a higher score demonstrated a faster, smoother rate of reading. Both tests were administered again at the end of May 2006 (PA spring and

Fluency spring). The Steiglitz comprehension test was administered in March 2006 (Comp March) and again in June 2006 (Comp June). The comprehension test scores ranged from 0 to 4. A score of 3 or higher was the goal for first-grade comprehension.

The phonemic awareness test, the Rigby Fluency test, and the Steiglitz Informal Reading Inventory are district measures and are also commonly accepted research measures of phonemic awareness, fluency, and comprehension.

The district PA test is based on the Michigan Literacy Profile (MLPP). MLPP documents were evaluated and were found to have high reliability by Robert D. Carpenter (2002) from the University of Michigan and the Center for the Improvement of Early Reading Achievement (CIERA).

The Rigby fluency test has been adapted from *An Observation Survey* by Marie Clay and measures how well a student can figure out words on the basis of contextual clues, whether the student recognizes correct syntax, and how the student does with visual clues. Clay reported that all of the subtests, including running records, had internal consistency and/or test-retest reliability coefficients (International Reading Association, 2006).

The Steiglitz Informal Reading Inventory (Steiglitz, 2002) is a comprehension diagnostic tool that assesses both fiction and nonfiction texts. In order to determine reliability with the Steiglitz Informal Reading Inventory, a study was conducted to determine whether parallel forms of expository and narrative passages tests produced equivalent results. The results of this study showed good alternate-form reliability for the Graded Reading Passages Test (Steiglitz, 2002, p. 323).

Table 3

Student Test Scores – First Assessments and Final Assessments for Phonemic Awareness, Fluency, and Comprehension

	PA fall	PA spring	Fluency fall	Fluency spring	Comp. March	Comp. June
Experimental group						
Mean	03.810	03.810	01.810	17.440	03.060	03.750
N	16.000	16.000	16.000	16.000	16.000	16.000
Std. deviation	00.403	00.403	01.276	03.521	00.998	00.775
Minimum	03.000	03.000	00.000	13.000	01.000	01.000
Maximum	04.000	04.000	03.000	30.000	04.000	04.000
Control Group						
Mean	01.940	03.060	02.060	14.630	01.250	02.250
N	16.000	16.000	16.000	16.000	16.000	16.000
Std. deviation	00.772	00.772	01.063	03.263	01.342	01.528
Minimum	01.000	02.000	01.000	05.000	00.000	00.000
Maximum	04.000	04.000	04.000	17.000	03.000	04.000
Total						
Mean	02.880	03.440	01.940	16.030	02.160	03.000
N	32.000	32.000	32.000	32.000	32.000	32.000
Std. deviation	01.129	00.716	00.162	03.632	01.483	01.414
Minimum	01.000	02.000	00.000	05.000	01.000	01.000
Maximum	04.000	04.000	04.000	30.000	04.000	04.000

Table 3 shows the mean, standard deviation, and range of each test score for students in both the experimental and the control groups. The table indicates the scores from the first administration of the assessments and from the final administration of the assessments for phonemic awareness, fluency, and comprehension.

Research Questions and Hypotheses

Three research questions and three hypotheses guided this study. The results of the analyses used to address these questions and hypotheses are presented in this section. Through the use of inferential statistics, hypotheses were investigated, and any differences were tested for significance at ($p < .05$). SPSS, version 13, was used to analyze the data.

Research Question One and Hypothesis One

Research question one: Will the application of LiPs lead to greater phonemic awareness among at-risk first grade readers?

Hypothesis 1: The Lindamood–Bell Phoneme Sequencing Program will have no impact on children in the area of phonemic awareness according to district standards.

An analysis of covariance (ANCOVA) was used to investigate this hypothesis. The two dependent variables were the repeated measures of phonemic awareness scores (within-subjects factors) obtained in fall 05 and again in spring 06. The independent variables (between-subject factors) were the experimental group and the control group of children. The covariate was the age of entry of children. Results of these analyses are explained in Table 4.

Table 4

Analysis of Variance for Phonemic Awareness

Source	Time	Type III sum of squares	df	Mean square	F	Sig.
Within subjects						
Time	Linear	00.035	1	00.035	00.153	00.698
Time * Age of entry	Linear	00.194	1	00.194	00.844	00.366
Time *group	Linear	05.215	1	05.215	22.638	00.000
Error (time)	Linear	06.681	29	00.230		
Between subjects						
Intercept		11.737	1	11.737	21.973	00.000
Age of entry		00.384	1	00.384	00.719	00.403
Group		27.942	1	27.942	52.309	00.000
Error		15.491	29	00.534		

The within-subject test results of $F = 22.638$ with associated p value of .000 indicates significant evidence against the null hypothesis. Upon rejecting the null hypothesis, one can conclude that there was a significant impact of the Lindamood – Bell Phoneme Sequencing Program on the area of phonemic awareness of children, according to district standards. The age of entry between subjects was not a significant factor in the change according to the test statistic of $F = 0.719$ with its associated p value of 0.403.

The researcher was also interested in the interactions in PA from fall 05 to spring 06 PA (PA score change = PA spring – PA fall). Because the PA of fall 05 was considered a baseline score, the researcher examined the interactions between the first time and the second time the test was administered (see Table 5 and Figure 1).

Table 5

Interactions of Phonemic Awareness Test Scores Between the First and Second Administrations

	Mean	Std. error	5% Confidence interval	
			Lower bound	Upper bound
Experimental group				
First test administration	3.826 ^a	.153	3.513	4.139
Second test administration	3.815 ^a	.157	3.494	4.136
Control group				
First test administration	1.924 ^a	.153	1.611	2.237
Second test administration	3.060 ^a	.157	2.739	3.381

^aCovariates appearing in the model are evaluated at the following values: Age of Entry = 5.313.

Figure 1 illustrates the difference between the phonemic awareness scores of the experimental group and the control group from the first time the test was administered to the second time the test was administered.

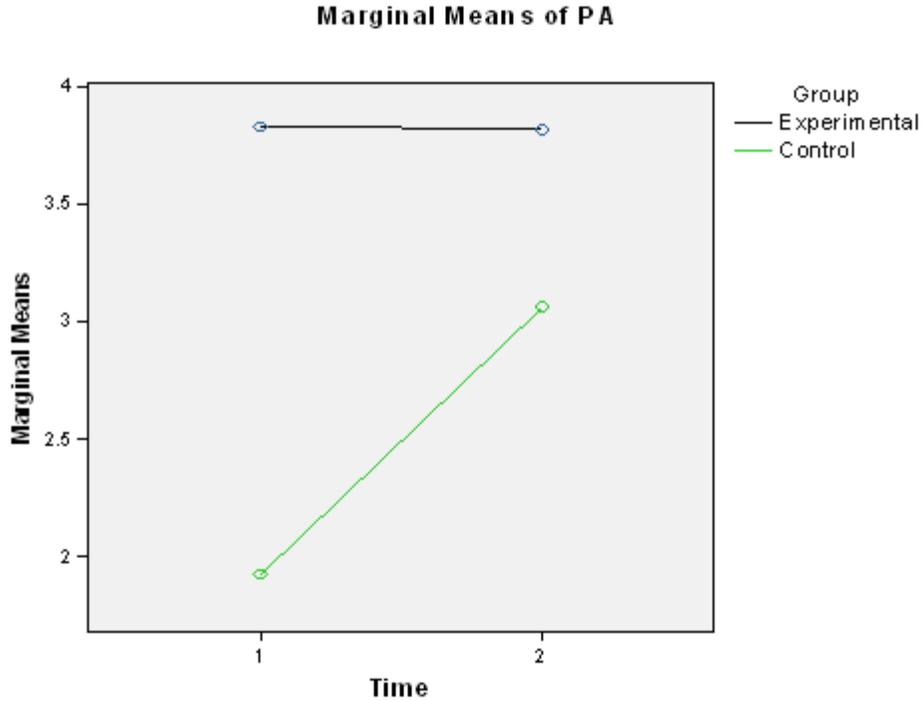


Figure 2. Interactions of phonemic awareness test scores between the first and second administrations.

As indicated by Table 5, the experimental group's mean score changed very little (from 3.826 for the first administration of the test to 3.815 for the second administration of the test); however, the mean score of the control group's PA scores indicate a greater change than for the experimental group (from 1.924 for the first administration of the test to 3.060 for the second administration of the test). Still, the experimental group had a greater mean score on the second administration of the test (3.815 for the experimental group as compared to 3.060 for the control group). Even though test results indicated that PA scores were significant as evidenced by $F = 22.638$ with associated p value of .000 (see Table 4), these results can be deceiving because the majority of the experimental

group's PA fall 05 scores were already at 4s, the highest score possible on the test (see Figure 2).

Research Question Two and Hypothesis Two

Research question two: Will the application of LiPs affect fluency skills among at-risk first grade readers?

Hypothesis 2: The Lindamood–Bell Phoneme Sequencing Program will have no impact on children's reading fluency according to district standards.

The district data were analyzed with the analysis of covariance (ANCOVA). The two dependent variables (within-subjects factors) were repeated measures of fluency scores obtained in the fall and again in the spring. The independent variables (between-subjects factors) were the experimental group and the control group of children. The covariate is the age of school entry of children. Test results were analyzed and are presented in Table 6.

Table 6

Analysis of Variance for Reading Fluency

Source	Time	Type III sum of squares	df	Mean square	F	Sig.
Within subjects						
Time	Linear	019.324	1	19.324	3.076	.090
Time * Age of entry	Linear	003.571	1	03.571	0.568	.457
Time *group	Linear	034.755	1	34.755	5.530	.026
Error (time)	Linear	182.273	29	06.285		
Between subjects						
Intercepts		045.671	1	45.671	6.634	.015
Age of entry		001.559	1	01.559	0.226	.638
Group		024.675	1	24.675	3.584	.068
Error		199.660	29	06.885		

The within-subjects test statistic of $F = 5.53$ with associated p value of .026 indicates significant evidence against the null hypothesis. Upon rejecting the null hypothesis, one can conclude that there was a significant impact by the Lindamood – Bell Phoneme Sequencing Program on the reading fluency of children according to district standards.

In addition, one can say that the experimental group of children improved more than did the control group of children in the area reading fluency. The age of entry was not a significant factor on the change according to the between-subjects test statistic of $F = 0.226$ with its associated p value of 0.638.

The researcher was also interested in the change in fluency from fall 05 to fall 06. (Fluency score change = Fluency spring–Fluency fall). Because the fall 05 fluency was considered a baseline score, the researcher examined the interactions between the time and the group (see Table 7 and Figure 3)

Table 7

Interactions of Fluency Test Scores Between the First and Second Administrations

	Mean	Std. error	5% Confidence interval	
			Lower bound	Upper bound
Experimental group				
First test administration	01.821 ^a	.229	01.210	02.432
Second test administration	17.396 ^a	.859	15.639	19.154
Control group				
First test administration	02.054 ^a	.299	01.443	02.665
Second test administration	14.666 ^a	.859	12.909	16.423

^aCovariates appearing in the model are evaluated at the following values: Age of Entry = 5.313.

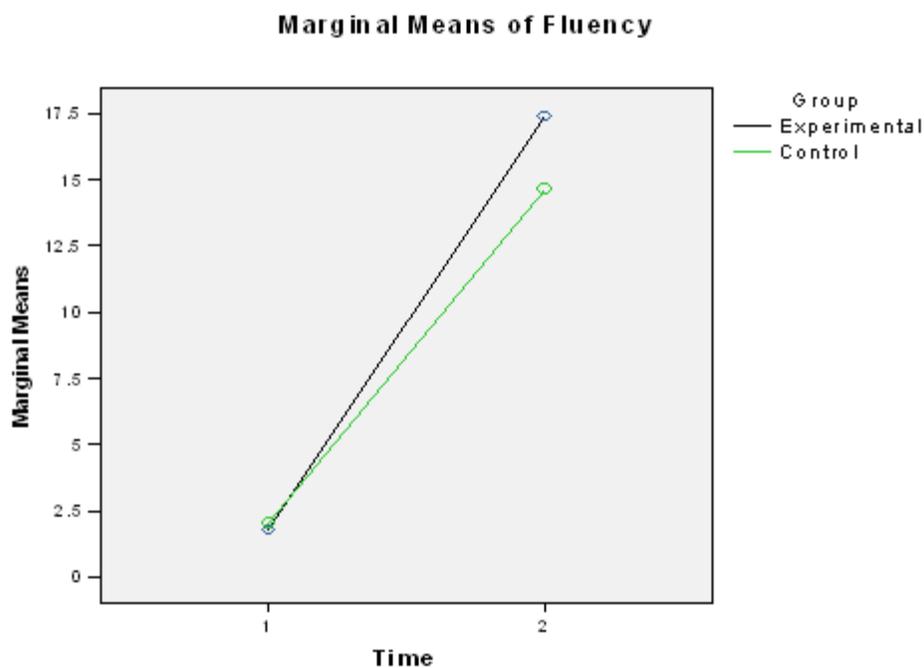


Figure 3. Interactions of fluency test scores between the first and second administrations.

As indicated by Table 7, the experimental group's mean score of 1.821 after the first administration of the fluency test changed to a mean score of 17.396 after the second administration of the test. The control group's mean score 2.054 at the first administration of the fluency test changed to a mean score of 14.666 after the second administration of the test. Table 7 suggests that even though the experimental group had a lower mean score after the administration of the first test, they had a higher mean score after implementation of LiPs and after the second administration of the test. Figure 2 illustrates the changes and differences in mean scores between the two groups.

Research Question Three and Hypothesis Three

Research question three: Will the application of LiPs affect comprehension among at-risk first graders?

Hypothesis 3: The Lindamood–Bell Phoneme Sequencing Program will have no impact on children’s reading comprehension according to district standards.

The analysis of covariance (ANCOVA) was used to analyze the district data. The two dependent variables are the repeated measures of the comprehension scores obtained in March and June. In this study, the researcher was interested in comparing the two groups of children on their reading comprehension performance. The researcher examined the differences between the two groups on two separate reading comprehension scores, unlike hypothesis one and hypothesis two.

The independent variables (between-subject factors) were the experimental group and the control group. The covariate was the age of entry of children. The dependent variable of age and entry into school could be a factor in the level of comprehension; therefore, a statistical formula was used to compensate for the dependent variable in order to determine if the differences in the comprehension scores of the two groups was statistically significant.

Table 8

Analysis of Variance for Reading Comprehension in March

Source	Type III sum of squares	df	Mean square	F	Sig.
Between subjects					
Model	028.213 ^a	2	14.106	10.226	.000
Intercepts	007.500	1	07.500	05.437	.027
Group	027.491	1	27.491	19.928	.000
Age of entry	001.932	1	01.932	01.400	.246
Error	040.006	29	01.380		
Total	217.000	32			
Total	068.219	31			

^aR²= .414 (Adjusted R²= .373).

The test statistic of $F = 19.928$ with its associated p value of .000 indicates significant evidence against the null hypothesis. Upon rejecting the null hypothesis, one can conclude that there was a significant impact of the Lindamood–Bell Phoneme Sequencing Program on the children’s reading comprehension.

In addition, one can say that the experimental group of children scored higher than the control group of children in reading comprehension in March 06. The age of entry was not a significant factor according to the test statistic of $F = 1.4$ with its associated p value of 0.246 (see Table 8).

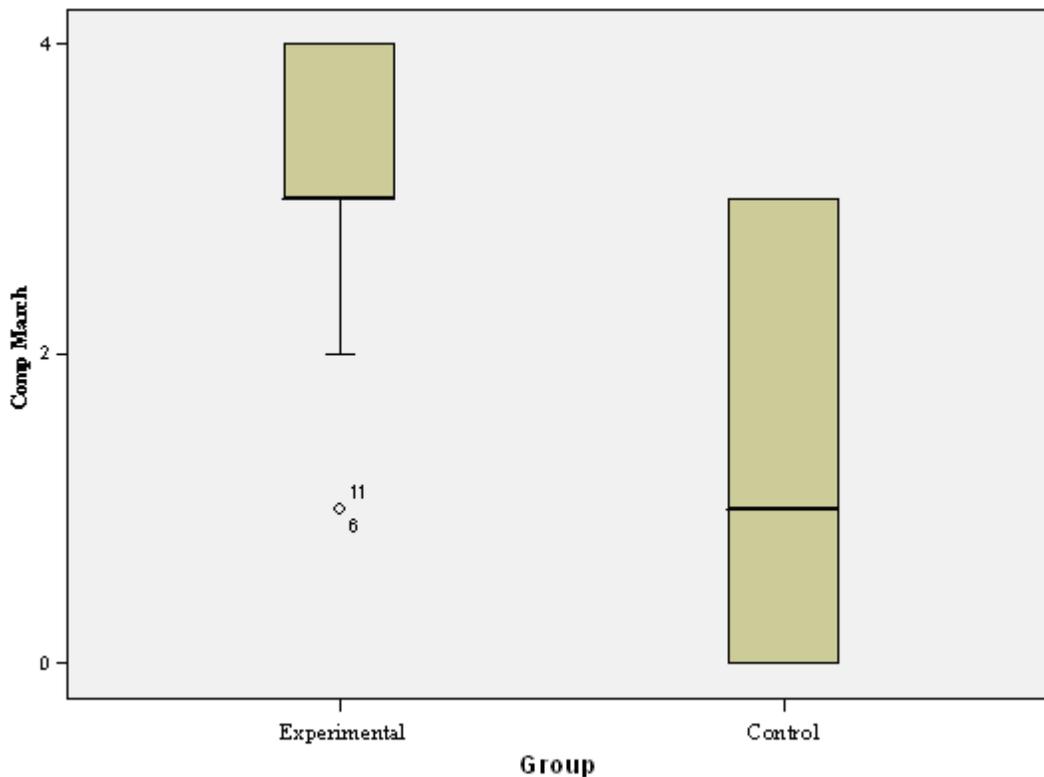


Figure 4. Analysis of comprehension score – March 06.

The box plot (Figure 4) shows the distribution of comprehension scores. The underlying assumption of a one-way analysis of variance is that the two variances are equal and their distributions are normal. The box plot suggests the underlying assumption of the one-way analysis is not correct. Because the box plot indicates nonnormality and unequal variances with a presence of an outlier, a nonparametric technique, the Mann-Whitney test, was performed to confirm the results. Results of the Mann-Whitney test are presented in Table 9.

Table 9

March Comprehension Scores – Results of the Mann-Whitney

Test	Comprehension – March
Mann-Whitney U	038.000
Wilcoxon W	174.000
Z	-003.523
Asymp.sig. (2-tailed)	000.000
Exact sig. [2* (1-tailed Sig.)]	000.000 ^a

^aNot corrected for ties

According to the data reported in Table 9, the result of 38 and its associated p value, 0.000, resulted in the same conclusion: The Lindamood–Bell Phoneme Sequencing Program had a significant impact on children’s reading comprehension.

Because the researcher was also interested in comparing the two groups on reading comprehension scores, the effects were tested between the groups (see Table 10).

Table 10

Analysis of Variance for Reading Comprehension in June

Source	Type III sum of squares	df	Mean square	F	Sig.
Between subjects					
Corrected model	019.870 ^a	2	09.935	06.839	.004
Intercepts	010.547	1	10.547	07.260	.012
Group	019.025	1	19.025	13.096	.001
Age of entry	001.870	1	01.870	01.287	.266
Error	040.000	29	01.380		
Total	350.000	32			
Corrected total	062.000	31			

^aR² = .320 (Adjusted R² = .274).

The test statistic of $F = 13.096$ with associated p value of .001 indicates significant evidence against the null hypothesis. Upon rejecting the null hypothesis, one can conclude that there was a significant impact of the Lindamood–Bell Phoneme Sequencing Program on the children’s reading comprehension.

In addition, one can say that the experimental group of children scored higher than the control group of children in the reading comprehension assessed in June 06. The age of entry was not a significant factor according to the test statistic of $F = 1.287$ with its associated p value of 0.266 (see Table 10).

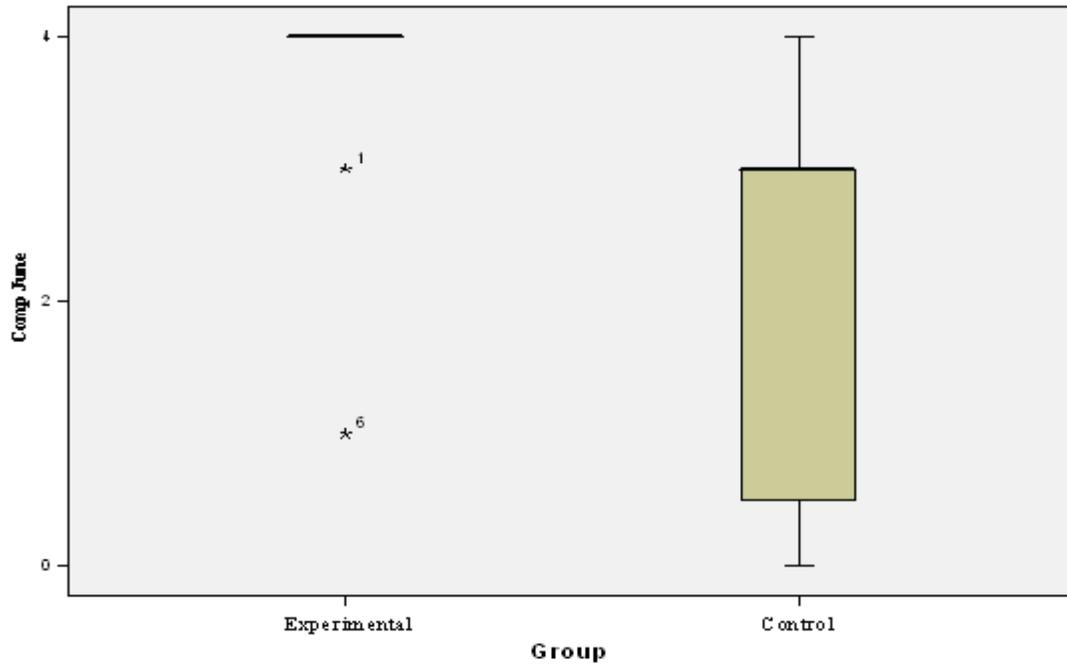


Figure 5. Analysis of comprehension scores – June 06.

The box plot (Figure 5) shows the distribution of comprehension scores in March. Because the box plot indicates nonnormality and unequal variances with a presence of outliers, a nonparametric technique, the Mann-Whitney test, was performed to confirm the results.

Table 11

June Comprehension Scores – Results of the Mann-Whitney

Test	Comprehension – March
Mann-Whitney U	039.000
Wilcoxon W	175.000
Z	-003.675
Asymp.sig. (2-tailed)	000.000
Exact sig. [2* (1-tailed Sig.)]	000.000 ^a

^aNot corrected for ties

According to the data reported in Table 11, the result of 39.000 and its associated $p = 0.000$ resulted in the same conclusion: The experimental group of children scored higher than the control group of children in reading comprehension in June 06.

Summary

This chapter briefly described the findings of the study of the effects of the Lindamood–Bell Phoneme Sequencing Program on at-risk first graders. In addition, the analyzed data were summarized and reported. Further, this chapter discussed each hypothesis and whether it was supported or rejected by the data. Chapter 5 presents the summary of this study and makes recommendations for future study.

Chapter 5

Summary, Conclusions, Implications, and Recommendations for Further Study

Introduction

The purpose of this study was to examine the impact of the Lindamood–Bell Phoneme Sequencing Program on phonemic awareness, reading fluency, and comprehension of at-risk first graders in one southwestern Michigan school district. In previous chapters, the study was introduced, the related research on the reading process and the impact of phonemic awareness on reading comprehension was presented, the research design and methodology were outlined, and the data from the study were analyzed. In this chapter, a brief description of the study will be provided, procedures for the study will be described, findings from the study will be reviewed, inferences from the study will be discussed, and recommendations for future study will be suggested.

Background

During the past 40 years, researchers have identified the characteristics of effective schools. The central focus of effective schools is on analyzing data, identifying and implementing school improvement goals, and accepting accountability for student learning (Lezotte, 1992, 1997, 1999; Reeder, 2005). According to Elmore (2003), schools and students don't fail because administrators and teachers don't work hard enough, it is the lack of focus on "right work." Elmore concluded that

knowing the right thing to do is the central problem of school improvement.

Holding schools accountable for their performance depends on having people in schools with the knowledge, skill, and judgment to make the improvements that will increase student performance. (p. 9)

In these types of schools, the leader, with input from the staff, parents, and community, is responsible for developing, implementing, and monitoring effective goals in order to increase student learning.

As a result of the federal No Child Left Behind Act (NCLB, 2002), data measurement in the state of Michigan includes the Michigan Educational Assessment Program (MEAP) and Education YES! (Yardstick for Excellent Schools). Data may also include district assessments based on content standards defined in the Michigan Curriculum Framework. Both evaluation and accountability measures may be based on one or more of these assessments.

When data from MEAP 2004 indicated a decrease in reading scores in one southwestern Michigan School District, the leader engaged the school improvement team and staff in a discussion about reading improvement. Once the MEAP data were analyzed, the staff began working on a school improvement plan that focused on providing intervention to at-risk first graders.

School Improvement plans have been required of Michigan schools since the Michigan Legislature passed Public Act 25 in 1990, and since the inception of NCLB (2002), school improvement goals have had to be supported by scientifically based research. Scientifically based research has been defined as “well-designed and implemented randomized controlled trials: studies that randomly assign individuals to an intervention group or to a control group, in order to measure the effects of the intervention.” (NCLB, 2002, p. 8)

Researched methods for reading acquisition were studied, school improvement goals were written, professional development was provided, and an assessment plan was

developed. The goal was to implement reading strategies to prevent early reading difficulty. The role of the educational leader was to facilitate the school improvement effort.

This study examined the impact of the Lindamood–Bell Phoneme Sequencing Program on reading fluency and comprehension of first graders in one southwestern Michigan elementary school. Using tests based on the district curriculum, phonemic awareness, fluency, and comprehension were assessed. The null hypotheses for this study were

1. The Lindamood–Bell Sequencing Program will have no impact on children in the area of phonemic awareness according to district standards.
2. The Lindamood–Bell Sequencing Program will have no impact on children in the area of reading fluency according to district standards.
3. The Lindamood–Bell Phoneme Sequencing Program will have no effect on children in the area of reading comprehension according to district standards.

Procedures Followed

An experimental quantitative research design was used for this study. The study analyzed data from two schools within the same school district. The independent variables were two first-grade classrooms, the experimental group and the control group. The dependent variables were phonemic awareness, reading fluency, and comprehension. Three district instruments, the PA test (Appendix C), the Rigby fluency test (Appendix D), and the Steiglitz comprehension test (Appendix E) were used to gain information on the effects of the Lindamood–Bell Sequencing Program on at-risk first graders.

The PA test assessed onset and rime, phoneme blending, and phoneme segmentation skills. Onset is the consonant that precedes a vowel, and rime is the vowel and any consonant sounds that come after it. Students were required to make words using onset and rime by orally blending sounds. Phoneme blending is when two or more sounds are put together to make a word, and phoneme segmentation is the ability to pull apart a word into individual speech sounds (see Appendix C).

The Rigby fluency test measured a student's ability to recognize sight words as wholes. Fluency is the automaticity of a student's skills with phonemic awareness. It is the ability to recognize words quickly without having to sound out each individual phoneme. The test is based on running record analysis (Clay, 2000). Analysis and percentage scores give the teacher information on an independent and instructional reading level (see Appendix D).

The Steiglitz comprehension test measures both fiction and nonfiction texts and assesses a student's literal, interpretive, and inferencing skills. It indicates the student's ability to construct meaning from written texts and is scored on a 4-point scale (see Appendix E).

Sample Population

A total of 32 first graders from two schools within the same school district participated in the study. Both the experimental group and the control group consisted of 16 students, 8 male and 8 female. The control group proceeded through the district curriculum with no intervention. The experimental group was taught the district curriculum and in addition received intervention with the Lindamood–Bell Sequencing Program.

The PA test and the Rigby fluency test were administered in the fall, and the results were considered baseline data. Students scoring a 2 or lower on the PA test or a 3 or lower on the Rigby fluency test became part of the study. The PA test and Rigby fluency test were administered again in the 4th quarter of the school year, and results were analyzed with an ANCOVA for significance at $p < .05$. The Steiglitz comprehension tests were given during the 3rd and 4th quarters, and results between the control and experimental groups were analyzed with an ANCOVA and a Mann-Whitney test for significance at $p < .05$.

Discussion

The two groups of first-grade students were not randomly divided into experimental and control groups. They were, however, taught within similar environments within the same district. Both schools in the study reported a 54% free/reduced-price lunch count. Free/reduced-price lunch counts indicate socioeconomic status levels according to federal law and suggest similar populations. The combined mean age for participants' entry into school was age 5.313 years. Overall, both the students in the experimental school and the students in the control group school comprised 50% female, 50% male, approximately 62% Caucasian and 38% minority children. The demographics of the individual schools suggested similar populations.

An analysis of covariance (ANCOVA) and the software package SPSS, Version 13 for Windows, were used to analyze the differences in PA and fluency gains between the experimental group and the control group. The ANCOVA and the Mann-Whitney test were used to analyze comprehension scores between the experimental group and the control group.

The first question the researcher wanted to answer was whether the application of LiPs led to greater phonemic awareness among at-risk first-grade readers. The hypothesis was that LiPs would have no impact on children in the area of phonemic awareness according to district standards. The two dependent variables for this hypothesis were the repeated measures of phonemic awareness scores obtained in fall 05 and again in the spring of 06. According to the ANCOVA, there was indication of significant impact by the Lindamood–Bell Phoneme Sequencing Program on the area of phonemic awareness. At the end of the intervention, the ANCOVA showed significance as evidenced by $F = 22.638$ with an associated p value of .000. Therefore, the null hypothesis was rejected. However, it was also noted that the experimental group had high scores on the first administration of the test. In other words, before the intervention of LiPs, the majority of the experimental group already had mastered the rubric criteria for mastery. Because of the high scores, the researcher then questioned whether the Lindamood–Bell intervention had had the same degree of impact on phonemic awareness.

The second question the researcher wanted to answer was whether the application of LiPs would affect fluency skills among at-risk first grade students. The two dependent variables for this hypothesis were the repeated measures of fluency scores, one obtained in fall 05 and one obtained in spring 06. According to the ANCOVA there was significant evidence against the null hypothesis on the basis of the test statistic of $F = 5.53$ with an associated p value of .026. It should also be noted that even though the experimental group had higher PA scores in fall 05, their fluency 05 mean scores of 1.821 were lower than the control group's fluency 05 mean scores of 2.054 (see chapter 2, Table 7). When the fluency scores were again collected in spring 06, the control group mean score of

14.666 was lower than the experimental mean score of 17.396 (see chapter 2, Table 7). Knowing that the activities in LiPs move from letter–sound correspondence to segmentation, substitution, deletion, and manipulation of phonemes to spelling patterns and, then, to sight words, one could conclude that the additional intervention strategies led to higher proficiency in fluency skills with the experimental group (Lindamood, 1998).

The third question the researcher wanted answered was whether the Lindamood–Bell Phoneme Sequencing Program would affect comprehension in at-risk first graders. The two dependent variables for this hypothesis were the repeated measure of the comprehension scores obtained in March 2006 and in June 2006. The independent variables were the control group and the experimental group; the covariate was the age of children. Once again, there was significant evidence against the null hypothesis on the basis of the test statistic of $F = 19.928$ with its associated p value of .000. Because this test was different in that the two groups were compared on two, separate reading comprehension scores, a box plot was used to determine the distribution of those scores. Because of nonnormality and unequal variances with the presence of an outlier, the Mann-Whitney test was performed on the comprehension tests to confirm the ANCOVA results. The same conclusion for comprehension was drawn from these tests. On the basis of these results, one could conclude that the intervention of LiPs with the experimental group had significant impact on reading comprehension skills.

Inferences

The participants in this study were a small representation of first-grade classrooms across the school district. The researcher hypothesized that the Lindamood–

Bell Phoneme Sequencing Program would indicate significant differences between the control and experimental groups in the areas of phonemic awareness, reading fluency, and comprehension. The premise was that if beginning readers understood that individual sounds go with individual letters (phonological/orthographic connection), they would have an easier time with phonics and sight-word acquisition. Understanding and utilizing phonemic awareness skills would help readers decode words and recognize sight words more readily, thus increasing reading fluency. Without students' or readers' having to spend time sounding out words, comprehension would come more readily. In other words, if A (phonemic awareness) = B (fluency), and B (fluency) = C (comprehension), then A (phonemic awareness) = C (comprehension).

Even though results from hypothesis one showed significant results indicating that LiPs did have an effect on phonemic awareness with the experimental group, the results also indicated that phonemic awareness scores were already high when the first assessment was taken. Therefore, no conclusion could be drawn from these results. However, if phonemic awareness leads to fluency, it would stand to reason that the experimental group would have higher fluency scores when the assessments were first given. This was not the case. The results from hypothesis two showed that the experimental group's mean scores for fluency were lower than the control group's mean scores for fluency when the first assessment was taken. However, when the fluency scores were again taken, results indicated that the LiPs intervention had had significant impact on the experimental group. These results suggest that higher phonemic awareness scores lead to greater fluency scores (A = B). This conclusion is supported by research conducted by Ball and Blachman (1991). Their study investigated phoneme awareness

training and whether the training would make a difference in early word recognition and early developmental spelling. Their research indicated that phoneme awareness segmentation activities might have effects on reading.

Hypothesis three was analyzed not only with the ANCOVA but also with the Mann Whitney. Both data sets indicated that LiPs had had a significant impact on comprehension. . Therefore, one could conclude that higher fluency leads to greater comprehension (B = C). Research conducted by Ball and Blachman (1991) and Snider (1997) found similar results.

On the basis of the analyses of all three hypotheses, one could conclude that A = C. In other words, phonemic awareness skills lead to greater comprehension. Because LiPs intervention bases its program on letter–sound correspondence, onset/rime, segmentation, deletions, manipulations, and substitutions, it stands to reason that phonemic awareness is the basis for reading, spelling, word meaning, and vocabulary acquisition. This conclusion is supported by the study done by Lundberg et al. (1998). Their research was a longitudinal study of students from preschool to grade two, and their conclusions suggested that phonemic awareness has a significant effect in learning to read and spell in school.

Implications

Since the inception of the Federal NCLB act (No Child Left Behind, 2002) and Michigan’s Education Yes! (Yardstick for Excellent Schools), it has been important that educational leaders understand the reading process and interventions that lead to greater reading achievement. NCLB requires all students to reach high standards in reading/language arts by 2013-2014, and Michigan’s Education Yes! focuses on the

quality of teaching, the accountability of reading expectations, and improved student achievement. In regards to these initiatives, educational leaders are responsible for understanding the reading process, for providing information on researched best practices, for school improvement strategies, and for measures of student learning.

Because findings of the study indicate that phonemic awareness strategies influence reading achievement and similar previous studies support these results (Ball & Blachman, 1991; Bradley & Bryant, 1983; Lundberg et al., 1998; Nichols et al., 2004; Snider, 1997), it is the researcher's obligation to advocate for at-risk students with other elementary school administrators in the district.

With an overall district socioeconomic status of 54% free/reduced-price lunch, this program could be one way to intervene with at-risk learners in order to prevent early reading failure. Currently, because of declining reading results as assessed by the Michigan Education Assessment Program (MEAP), 3 of the 7 elementary buildings in this southwestern Michigan school district are undergoing state restructuring measures. Two of these buildings are also the district's bilingual centers. Because the researcher used a sample from this district's student population to conduct this study and because the study was done with 2 buildings in the district with similar populations, sharing the results and applying the strategies to the school improvement process could help prevent early reading/learning difficulties.

The Lindamood–Bell Phoneme Sequencing Program indicated that phonemic awareness tasks lead to fluency and greater comprehension skills. Several research studies support the idea that when students develop phonemic awareness and reading fluency, they no longer have to focus on the structure of the word, and can, instead, focus

on the meaning within the text. (Ball & Blachman, 1991; Bradley & Bryant, 1983; Lundberg et al., 1988; Nichols et al., 2004; Snider, 1997)

Within individual elementary buildings, the educational leader is responsible for providing professional development on how to use data analyzation as a diagnostic tool, to influence staff in using research to guide their decisions on instructional strategies, and to hold staff accountable to student learning on the basis of researched-based interventions (Lambert, 2003; NAESP, 2001; Schmoker, 1999; Schwahn & Spady, 1998; Senge, 1994). Educational leaders and staff need to learn together in order to improve the education of our children (Joiner, 1985; Lambert, 1998; Reeves, 2006).

Recommendations for Further Research

The purpose of this study was to determine the impact of the Lindamood–Bell Phoneme Sequencing Program on the reading fluency and comprehension of first graders in one southwestern Michigan school district. If the data showed that LiPs strategies helped first graders, the results might lead to a larger study within the school system. On the basis of the data analyses from this study, the following recommendations for future study are suggested:

1. Because this was a small pilot study with few participants, it is recommended that a larger study within the district be done.
2. Because the experimental group started with high phonemic awareness skills, it is recommended that the study be repeated with two groups of students who start with similar phonemic awareness skills.

3. Continue this research with a longitudinal study to see if students in the experimental group continue to have significant reading gains as compared to the control group.
4. Because the district has a large bilingual population and because orthography and phonology differ between languages, it is recommended that a study be done with bilingual students.

Summary

This study has been a lesson in using research to guide practice. Even though this research focused on reading, the process is the same when making decisions about instruction in the classroom. Today's educational leaders are required to be informed about current research. It is their job to influence policy makers and staff to do what is best for children.

According to Achilles and Nye (1996-97),

If the administrator/teacher does not know the current research, that person is uninformed, lazy, and unprofessional. If that person knows but does not use the basics of the profession, or does not encourage and enforce that those she/he works with do what is best, that person is lazy, unprofessional, and is engaging in unethical behavior – if not malpractice. (p. 32)

Results of this study may influence this southwestern Michigan school district in using LiPs interventions with a larger population. In addition, as the population in this southwestern Michigan school district continues to change, the researcher will have to continue to work with her staff, using data to inform the selection of instructional strategies, in using research to implement good teaching practices, and in helping to

create an environment of support as changes take place. The researcher will also have to use her leadership skills to influence policy makers and to advocate with other district administrators on behalf of the total student population. The student population will reap the benefits.

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Appendices

Appendix A
Informed Consent Form

INFORMED CONSENT FORM:

To: Wyoming Public School Parents

From: Andrea R. van der Laan
Huntington Woods Principal
4334 Byron Center Road
Wyoming, Michigan 49519
Re: Permission to Conduct Research

Research Title: “The Effects of Lindamood Bell Phoneme Sequencing Program on Reading Fluency and Comprehension of At-Risk First Graders.”

By signing this form you agree to have your child participate in Andrea van der Laan’s doctoral dissertation research at Eastern Michigan University and consent to be a part of this study.

The purpose of the study is to see if early intervention with the Lindamood - Bell Phoneme Sequencing Program during literacy instruction will increase the reading fluency and comprehension of first graders. There are no risks to your child. By agreeing to participate in the above stated research project, you have agreed to let us use your child’s phonemic awareness and reading scores from the 2005-2006 school year. In order to make sure that the data is accurate, we may also ask you for your child’s birthdate and whether they speak a language other than English in the home.

You understand that your child’s participation in this research is voluntary, and that you may choose to withdraw your child from the study at any time if you wish to do so, without any penalty. By agreeing to participate in this research, you understand that you and your child’s confidentiality will be protected at all times, and your child’s name will not be used in any written or oral report without your written permission. Students will be identified as student #1, student #2, etc. throughout the study.

Anticipated benefits of this study will be to gain knowledge on how to intervene early with struggling readers and to incorporate new literacy strategies into the district curriculum for future first grade students

The Eastern Michigan University Human Subjects Review Committee has approved this research project. If you have any questions regarding the approval process, please contact either Dr. Patrick Melia or Dr. Steven Pernecky at 734-487-0379. Also, I’ve included the name of my EMU advisor, Dr. Ronald Williamson, if he can be of assistance.

Andrea R. van der Laan
616 – 530 – 7537 (work)
616 – 249 – 7837 (home)

Huntington Woods Elementary
4334 Byron Center Road SW
Wyoming, Michigan 49519

Ronald Williamson Ed.D
(734) 487-0255

Eastern Michigan University
304 Porter Building
Ypsilanti, MI 48197

Subject _____

Date _____

Researcher _____

Date _____

Appendix B

The Human Subjects Review Board Approval Letter



EASTERN MICHIGAN UNIVERSITY

June 21, 2006

Andrea van der Laan
Leadership & Counseling

Dear Ms. van der Laan:

The Human Subjects Institutional Review Board (IRB) of Eastern Michigan University has granted approval to your proposal, "The Effects of Lindamood Phoneme Sequencing Program on Reading Fluency and Comprehension of At-Risk First Graders."

After careful review of your completion application, the IRB determined that the rights and welfare of the individual subjects involved in this research are carefully guarded. Additionally, the methods used to obtain informed consent are appropriate, and the individuals participating in your study are not at a risk.

You are reminded of your obligation to advise the IRB of any change in the protocol that might alter your research in any manner that differs from that upon which this approval is based. Approval of this project applies for one year from the date of this letter. If your data collection continues beyond the one-year period, you must apply for a renewal.

On behalf of the Human Subjects Committee, I wish you success in conducting your research.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Holkeboer", with a long horizontal flourish extending to the right.

Robert Holkeboer
Associate Vice President
Graduate Studies & Research
Human Subjects Committee

Copy: Ronald Williamson, Leadership & Counseling

Appendix C

District Phonemic Awareness Test

Phonemic Awareness Rubric (PA 1:1)

Report Card Rubric:

4	Student demonstrates ability to onset and rime, phoneme blending and phoneme segmentation with 100% accuracy.
3	Student shows 85% accuracy in demonstrating onset and rime, phoneme blending and phoneme segmentation.
2	Student inconsistently shows ability to onset and rime, blend and segment phonemes.
1	Student demonstrates minimal ability to onset and rime, blend or show segment phonemes. Discontinue assessment with 3 <u>consecutive</u> errors, per subtest.

First Grade Assessments

LANGUAGE ARTS

PA 1:1 (Phonemic Awareness)

ACADEMIC STANDARD: TLW orally blend sounds to make words using onset and rime, and segment words into individual phonemes.

ONSET AND RIME

What word would I have if I put together these sounds:

- | | |
|--------------------|---------------------|
| 1. /t/ /ake/ _____ | 5. /d/ /ust/ _____ |
| 2. /p/ /in/ _____ | 6. /j/ /ump/ _____ |
| 3. /d/ /og/ _____ | 7. /m/ /ouse/ _____ |
| 4. /t/ /ea/ _____ | 8. /sl/ /eep/ _____ |

PHONEME BLENDING

(Provide no additional help from this point)

What word would I have if I put together the sounds:

- | | |
|----------------------------|---------------------------------|
| 1. /t/ /a/ /p/ (tap) _____ | 5. /l/ /i/ /d/ (lid) _____ |
| 2. /p/ /e/ /n/ (pen) _____ | 6. /b/ /i/ /k/ (bike) _____ |
| 3. /j/ /o/ /g/ (jog) _____ | 7. /w/ /a/ /v/ (wave) _____ |
| 4. /c/ /u/ /t/ (cut) _____ | 8. /s/ /o/ /f/ /t/ (soft) _____ |

Recording: Indicate correct responses with a check (☑). If child gives incorrect response, write that response. If the child gives only a sound, write the letter that sound represents between two slash marks, e.g., /t/. Write (•) if the child cannot or will not give a response.

Discontinue: Discontinue testing if the child misses 3 consecutive items or appears confused or frustrated.

Total number correct _____

(16 possible)

PHONEME SEGMENTATION

Assessment Items:

(Provide no additional help from this point.)

What is the sound you hear first? The sound you hear next? The sound you hear last?

- | | |
|------------------------------|--------------------------------|
| 1. pat (/p/ /a/ /t/) _____ | 5. sock (/s/ /o/ /k/) _____ |
| 2. lip (/l/ /i/ /p/) _____ | 6. mean (/m/ /e/ /n/) _____ |
| 3. red (/r/ /e/ /d/) _____ | 7. joke (/j/ /o/ /k/) _____ |
| 4. tub (/t/ /u/ /b/) _____ | 8. fight (/f/ /î/ /t/) _____ |

Recording: Indicate correct responses with a check (☑). If child gives incorrect response, write that response. If the child gives only a sound, write the letter that sound represents between two slash marks, e.g., /r/. Write (•) if the child cannot or does not give a response.

Discontinue: Discontinue testing if the child misses 3 consecutive items or appears confused or frustrated.

Total number correct _____

(8 possible)

Appendix D
Rigby Fluency Test

Report Card Rigby Benchmark PM Rubric

- 4= Beyond rubric specifications
- 3= 95% for Rigby P.M. Benchmark
- 2= Student is inconsistent in fluency.
- 1= Student is progressing slowly and is significantly below rubric specifications.

RD K:1

Rigby PM Benchmark:	F & P
Quarter 3= level 1	A
Quarter 4= level 2	B

RD 1:1

Rigby PM Benchmark:	F & P
Quarter 1= level 4	C
Quarter 2= level 8	E
Quarter 3= level 12	G
Quarter 4= level 16	I

RD 2:1

Rigby PM Benchmark:	F & P
Quarter 1= level 18	J
Quarter 2= level 20	K
Quarter 3= level 21	L
Quarter 4= level 22	M

RD 3:1

Rigby PM Benchmark:	F & P
Quarter 1= level 23	N
Quarter 2= level 23	
Quarter 3= level 24	O
Quarter 4= level 25	P

RD 4:1

Rigby PM Benchmark:	F & P
Quarter 1= level 26	Q
Quarter 2= level 26	
Quarter 3= level 27	R
Quarter 4= level 28	S

RD 5:1

Rigby PM Benchmark:	F & P
Quarter 1= level 29	T
Quarter 2= level 29	
Quarter 3= level 30	U
Quarter 4= level 30	

Appendix E

Steiglitz Informal Reading Inventory

Report Card Rubric for Oral Reading Comprehension
(fiction and non-fiction)

Score based on District Informal Reading Inventory: (Stieglitz) - Grades 2-5

4	scoring independent beyond current grade level.
3	scoring independent at their current grade level.
2	scoring instructional/questionable at their grade level.
1	scoring frustration at their grade level.

Grade 1: Rigby Fiction and Non-Fiction PM Books
 Level 4, 8, 12 and 16 (Stieglitz) Quarter 3 and 4

Important:

***Student should be doing the Informal Reading Inventory at their current reading level, not necessarily their current grade level!!!

For example:

If you teach 3rd grade and have a student reading at the 1st grade level, you will still mark their report with a 4,3,2,or 1. However, the standard will be the first grade standard (RD 1:2).

Fiction/Narrative B & D

Non-Fiction/Expository A & C

1st grade= RD 1:2 (fiction)

1st grade= RD 1:3 (non-fiction)

2nd grade= RD 2:2

2nd grade= RD 2:3

3rd grade= RD 3:2

3rd grade= RD 3:3

4th grade= RD 4:2

4th grade= RD 4:3

5th grade= RD 5:2

5th grade= RD 5:3

Standard Rubric for RDK:2 and RDK:3

Fiction and Non-Fiction Comprehension and Oral Retell

4	Retells story in sequence providing more than three-events/details.
3	Retells story in sequence with three events/details.
2	Retells story including two events/details.
1	Unable to retell more than one event/detail.