

2004

The influence of spelling strategy use on student achievement and attributions

Lisa Lynn Ludwig
University of Northern Iowa

Let us know how access to this document benefits you

Copyright ©2004 Lisa Lynn Ludwig

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



Part of the [Education Commons](#)

Recommended Citation

Ludwig, Lisa Lynn, "The influence of spelling strategy use on student achievement and attributions" (2004). *Dissertations and Theses @ UNI*. 1147.
<https://scholarworks.uni.edu/etd/1147>

This Open Access Thesis is brought to you for free and open access by the Student Work at UNI ScholarWorks. It has been accepted for inclusion in Dissertations and Theses @ UNI by an authorized administrator of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.

Copyright by
LISA LYNN LUDWIG
2004
All Rights Reserved

THE INFLUENCE OF SPELLING STRATEGY USE ON STUDENT
ACHIEVEMENT AND ATTRIBUTIONS

An Abstract of a Thesis

Submitted

In Partial Fulfillment

of the Requirements for the Degree

Specialist in Education

Lisa Lynn Ludwig

University of Northern Iowa

May 2004

ABSTRACT

This study investigates the relationships between spelling strategy instruction and use, student attributional beliefs, and achievement. Nineteen fifth grade students from the same classroom were taught three different strategies to remember their spelling word lists over the three-week intervention. The students reported their attributional beliefs relating to the causes of their spelling performance at the beginning and end of each week. They reported to what extent they agreed that luck, ability, effort, and task difficulty are the cause of their spelling performance.

A different strategy was taught to the classroom of students at the beginning of each week by the classroom teacher, and the students were encouraged to use those strategies to learn their spelling words. After taking their final spelling test on Friday of each week, the students not only reported their attributions, but also their frequency and accuracy of spelling strategy use throughout the week.

The data analyses investigated whether or not students who attributed their performance to effort had higher spelling achievement. Additionally, the study looked at the effect of student attributions on spelling strategy use. Do students who attribute their performance to effort tend to use the spelling strategies well and often each week? Do

students who attribute their performance to luck or task difficulty fail to use the strategies well and often?

Results suggest that students with high spelling achievement do tend to attribute their performance to effort. Additionally, those that attributed their performance to effort were more likely to use the strategies frequently and accurately. No difference was found in the use of strategies among students who attributed their performance to either luck or task difficulty. Limitations, implications, and future research ideas are given regarding this research.

THE INFLUENCE OF SPELLING STRATEGY USE ON STUDENT
ACHIEVEMENT AND ATTRIBUTIONS

A Thesis

Submitted

In Partial Fulfillment

of the Requirements for the Degree

Specialist in Education

Lisa Lynn Ludwig

University of Northern Iowa

May 2004

This Study by: Lisa Lynn Ludwig

Entitled: The Influence of Spelling Strategy Use on Student
Achievement and Attributions

has been approved for meeting the thesis requirement for the
Degree of Specialist in Education

3/22/04

Date

Dr. Radhi Al-Mabuk, Chair, Thesis Committee

3-22-04

Date

Dr. Barry Wilson, Thesis Committee Member

3.22.04

Date

Dr. Charlotte Haselhuhn, Thesis Committee Member

4/7/04

Date

Dr. John W. Somervill, Dean, Graduate College

ACKNOWLEDGEMENTS

I would like to thank my professors, Dr. Radhi Al-Mabuk, Dr. Charlotte Haselhuhn, and Dr. Barry Wilson, for their immense amount of assistance, support, and patience in my completion of this project. I would also like to thank the classroom teacher who carried out the intervention, as this project took some of her precious time away from her students. Thanks also goes to the students who completed the surveys and used the strategies throughout the intervention.

TABLE OF CONTENTS

LIST OF TABLES	v
CHAPTER 1. INTRODUCTION	1
CHAPTER 2. REVIEW OF LITERATURE	6
CHAPTER 3. RESEARCH METHODOLOGY	24
CHAPTER 4. RESULTS	32
CHAPTER 5. DISCUSSION.....	44
REFERENCES	54
APPENDIX A: CONSENT FORMS.....	58
APPENDIX B: SPELLING WORDS.....	62
APPENDIX C: PRETEST QUESTIONS	65
APPENDIX D: POST-TEST QUESTIONS.....	67
APPENDIX E: SPELLING STRATEGY INSTRUCTION RUBRIC	69
APPENDIX F: SPELLING STRATEGY LESSON PLANS.....	71

LIST OF TABLES

1. Means and Standard Deviations for Each Variable Across the Three Weeks	34
2. Means and Standard Deviations of Frequency and Accuracy for Effort Attribution Groups	36
3. Means and Standard Deviations of Frequency and Accuracy for Luck Attribution Groups	38
4. Means and Standard Deviations of Frequency and Accuracy for Task Difficulty Attribution Groups	38
5. Summary of Linear Regression Analysis for Attributions Predicting Student Spelling Achievement.....	40
6. Means and Standard Deviations of Number of Words Spelled Incorrectly at Pretest and Post-test.....	42

CHAPTER 1

INTRODUCTION

Purpose of Study

Humans interpret events and behaviors in many ways. They provide explanations for their own and other's actions, which in turn affect future behavior and decisions. This general tendency to explain events is observed among students of all ages. Individuals in academic settings explain their successes and failures in various ways. The explanations of their performance tend to affect future performance in the classroom. The explanations, or attributions, can be self-handicapping, such as when a student attributes failure to something they have no control over such as luck, task difficulty, or ability, tending to bring about future failure, or they can be adaptive, such as when attributions are made to effort, making future success more likely. The four most common explanations that students give for academic performance are ability, effort, luck, or difficulty of the task (Alderman, 1999, 2004; Nicholls, 1979; Weiner, 1972, 1974, 1979, 1985).

Students may say to themselves that they did well on a task because they are naturally good at it, which is likely to bring about future success. On the other hand, students may think that they did poorly on a task because they do not have the ability to do well, which becomes a self-fulfilling prophecy, and is likely to bring about future

failure. Attributions to effort are more likely to bring about future success in all situations. A successful student can explain their success because they worked hard at it, whereas an unsuccessful student may explain his or her failure to lack of effort. Both of these students are likely to put forth the effort it takes to be successful in future circumstances (Alderman, 1999, 2004; Weiner, 1985).

Luck attributions are most often debilitating to the future success of students. If one performs well or poorly on a task, and attributes performance to bad luck or good luck, the student tends to think that he/she has no power over his/her achievement, and in turn is not as likely to put effort into future academic work. Students also tend to think that they have no control over the level of difficulty of the work they are asked to do. Therefore, the explanation of the difficulty of the task causing success or failure also tends to be a non self-enhancing attribution, as these students are not likely to put effort into future work (Alderman, 1999, 2004; Weiner, 1985).

Several studies have examined the effect of attributions on academic performance. Mason and Stipek (1989) studied explanations students give for the cause of their performance in math and reading, and found that attributions tend to be stable over time and correlate with actual performance. Schmitz and Skinner (1993) determined that

students who believed they had more control over their performance put more effort into their work, and in turn performed better.

Research completed by Borkowski, Weyhing, and Carr (1988), Corral and Antia (1997), Schunk (1986), and Sexton, Harris, and Graham (1998) lead to the conclusion that attribution training, along with learning strategy instruction, results in better student performance. The focus of the present study is to determine the relationship between spelling strategy instruction and use, student's spelling performance, and attributions of their success and/or failure.

Significance of Study

In classroom spelling instruction, teachers sometimes emphasize that students should use rehearsal and memory to learn spelling words. This is also the traditional method of spelling instruction (Horn, 1969). While this may be effective for some students to remember word spellings for the spelling tests, it oftentimes fails to result in generalization to other academic situations. Additionally, this type of memorization often does not result in long-term memory (Henderson, 1990; Templeton & Morris, 1999).

Educators now understand that memory does not play the only role in spelling instruction. Whereas rehearsal and memorization has been found to be effective for some students, the combination of memorization and spelling strategies often results in faster learning,

greater generalization, and lifelong knowledge (Fulk, 1997; Fulk & Stormont-Spurgin, 1995; Gentry, 1997; Gunning, 2001; Henderson, 1990; Murdoch, 1995; Sipe, 1994; Snowball, 2001; Templeton & Morris, 1999; "What Works in Spelling," 1995).

This information has implications for spelling instruction in elementary schools. If spelling strategy instruction is found to improve student performance, teachers and undergraduate education programs will more readily emphasize this method's importance in teaching students how to spell. Additionally, strategy instruction may be more likely to be emphasized for other areas of instruction in elementary schools, such as math, reading, and science. Similarly, if attributions are found to be correlated with student performance, schools and professionals may be able to use attribution retraining strategies to indirectly improve student achievement in spelling, as well as in other areas of education.

Definition of Terms

Attribution

Attributions are the causal explanations people use to explain any given outcome (Alderman, 1999, 2004).

Spelling Strategy

Spelling strategies are the methods that people use to assist them in remembering the letter order of various words (Novelli, 1993).

Organization of Paper

In addition to the introduction above, this paper will consist of a literature review related to attribution theory and spelling strategies. Research on these two topics will also be discussed. Next, the research methodology will be described, including the study's purpose, participants, instruments, procedure, and research questions. Finally, the results of the study will be described, with a discussion of the implications and future research recommendations following.

Research Questions

As this research will examine the relationship between spelling strategies, student attributions, and performance, it will consider the following research questions:

1. Are students who attribute their spelling performance to effort more likely to use spelling strategies frequently and accurately?
2. Are students who attribute their performance to self-handicapping factors such as luck or task difficulty more likely to use spelling strategies less frequently and less accurately?
3. Do students with effort or ability attributions perform better in spelling?
4. Does spelling strategy instruction lead to increased student performance?

CHAPTER 2

REVIEW OF LITERATURE

Chapter 2 will review the literature related to attribution theory and spelling strategies. The first section of the chapter focuses on the main concepts of attribution theory, as well as the research literature that pairs attribution theory with academic situations. The concentration of the second part of the chapter is that of spelling strategies. The discussion begins with strategies that can be used to learn word spellings, goes on to describe best practices in teaching spelling strategy use, then tells of strategies for teachers to choose words for spelling instruction, and ends with a discussion of research related to spelling strategy use. Chapter 2 ends with a conclusion statement.

Attribution Theory

Overview of the Theory

Attribution theory states that people use several factors to explain the cause of their behaviors. The most common of these are ability, effort, task difficulty, and luck (Alderman, 1999; Nicholls, 1979; Weiner, 1972, 1974, 1979, 1985, 1986). According to the theory, these attributions determine one's affective, cognitive, and behavioral reactions to success or failure (Alderman, 1999; Weiner, 1972, 1974, 1979, 1985; Whitley & Frieze, 1985).

The reasons people give for their behavior or achievement differ on three continuums: stable-unstable, internal-external, and controllable-uncontrollable. The stable-unstable factor relates to whether the cause for behavior is consistent or inconsistent over time. The internal-external factor refers to whether the perceived cause of behavior is a factor within the person or a factor outside of the person. The controllable-uncontrollable continuum relates to whether or not a person believes he/she has control over the cause of an outcome (Alderman, 1999). Ability is an internal, stable, and uncontrollable attribution, whereas effort is internal, unstable, and controllable. Task difficulty is an external, stable, and uncontrollable attribution, and luck is external, unstable, and uncontrollable (Alderman, 1999; Nicholls, 1979; Weiner, 1972, 1979, 1985; Wolleat, Pedro, Becker, & Fennema, 1980).

People who attribute their success to internal factors (ability or effort) report more pride and satisfaction than those that attribute their success to external factors (luck or task difficulty). Similarly, those that attribute their failure to internal factors feel more dissatisfaction or shame for poor achievement (Alderman, 2004; Weiner, 1985; Whitley & Frieze, 1985). Students who earn good grades are more likely to attribute their success to either ability or effort. High achievers are more likely to interpret an unsuccessful incident to bad luck or poor test items (external and uncontrollable causes). In contrast, typically unsuccessful

students tend to attribute failure to uncontrollable and stable factors, such as low ability, and attribute success to external and uncontrollable factors such as an easy test or good luck (Fulk & Mastropieri, 1990).

Another characteristic of attributions is stated by Whitley and Frieze (1985), which is that young children can form meaningful causal attributions in a similar manner as adults, and they serve a comparable role in both children and adults. These authors completed a meta-analysis of research on children's attributions for failure and success to test the "egotistic bias hypothesis" (p. 608). This hypothesis asserts that attributions are more external (luck or task difficulty) for failure and more internal (ability or effort) for success. The results of the meta-analysis supported the egotism theory, as the data showed that failure elicits stronger attributions to task difficulty, and success elicits stronger attributions to ability and effort. Attributions to luck, however, were not significant.

Attributions are related to academic performance because of their relationship to expectancy of success. If performance is attributed to either ability or task difficulty (stable factors), an individual will expect the same performance of himself or herself in the future. However, if achievement is attributed to effort or luck (unstable factors), an individual may not expect the same performance in the future, and may not repeat the behavior that led to the outcome (Alderman, 1999; Weiner,

1974, 1985). Attributing poor performance to a stable, uncontrollable factor such as ability will likely lead to lower expectations for oneself and the belief that effort is useless, resulting in lower performance (Alderman, 2004).

Nicholls (1979) stated that, "ability attributions may be the most important determinants of achievement affect...and, therefore, of achievement behavior" (p. 1073). He described that attributing success to high ability makes future success more likely, and attributing failure to low ability makes future failure more likely. Schmitz and Skinner (1993) assert that students who attribute success to their own actions, or effort, earn better grades and perform better on achievement and intelligence tests. Consequently, they state that children who believe they have no control, through attributing their performance to luck or task difficulty, are more likely to fail, and confirm their attributions of no control. The conclusion by unsuccessful students that effort is unrelated to academic outcomes typically results in reduced effort on ensuing academic tasks (Alderman, 1999; Corral & Antia, 1997; Fulk & Mastropieri, 1990). Research has shown attribution theory to be effective in academic situations. This will be described below.

Research Related to Academics and Attributions

Research indicates that children who attribute failure to lack of ability perform more poorly after experiencing failure, whereas children

who attribute their failure to lack of effort maintain their level of performance after failure, and often show improvement (Diener & Dweck, 1978). A study involving 144 fifth and sixth grade students from poor African-American, Hispanic, Indochinese, and Caucasian families indicates that high achievement is associated with attributing success to ability and not attributing failure to lack of ability (Bempechat, Nakkula, Wu, & Ginsburg, 1996).

Mason and Stipek (1989) suggested that student performance may improve by changing student's negative self-perceptions and attributions. The researchers examined actual student performance, perceived performance, performance attributions, and achievement-related emotions for the subjects of math and reading over a 2-year time period for 31 children in the fourth through sixth grades. Students who attributed their math success to high ability tended to have high perceptions of their performance, whereas students who attributed math success to an easy task had low perceptions of their math performance. Students who attributed their failure in reading to low ability or task difficulty had those same attributions the next school year. These findings suggest that student beliefs about the cause of their performance, either good or poor, stay the same throughout time, and these beliefs in turn correlate with actual student performance in school.

The authors suggest that, if student beliefs about their performance could be changed, actual achievement may also be modified.

In her research, Chan (1994) indicated that students with learning difficulties were more likely to attribute their success to luck and their failure to lack of ability or bad luck, and less likely to attribute success to effort, than students without learning difficulties.

Elementary school students who were trained to attribute their failures to lack of effort maintained or increased their performance after experiencing one incidence of failure, while similar students who were provided with only successful experiences showed deteriorated performance after one experience of failure (Dweck, 1986).

Frieze and Snyder (1980) asked children what they saw as the causes of success and failure for four different situations: doing well or poorly on a school art project, playing football, a school testing situation, and catching frogs. Sixty-five percent of student responses indicated that effort is the cause for success or failure in the testing situation, while 20 % of the responses indicated ability as the cause. Most students saw internal attributions as the cause for performance on a testing situation. Thus, the authors hypothesize that student motivation and behavior can be influenced by training teachers to influence student attributions.

A study by Schmitz and Skinner (1993) hypothesized that children's beliefs of control influences their academic performance by impacting the amount of effort they put forth to prepare and perform the tasks. Immediately after completing a classroom assignment, the researchers asked students in upper elementary grades to report the amount of effort they put into the assignment, the difficulty of the assignment, and their mood. After the students were given their grades on the assignment, they were asked to report their actual performance, their own evaluation of it, their beliefs about the causes of mistakes and correct answers, and the control they perceived over the next assignment. It was discovered that children who believed they had more control over their performance did put forth more effort on their assignments. Consequently, those students who put forth more effort achieved higher success on classroom tests and assignments.

In another study, fourth and fifth grade learning disabled students were divided into one attribution retraining group and one assessment control group. Following the intervention, the students who received attribution retraining showed more reading task persistence, increases in effort attributions for failure, and more internal attributions for achievement situations than those students in the control group. This finding implies that students can benefit from a classroom teacher who

emphasizes the use of positive attributions to her or his students (Shelton, Anastopoulos, & Linden, 1985).

Andrews and Debus (1978) found that sixth grade students who attributed failure to lack of effort tended to be more persistent in an academic task, whereas those who attributed failure to ability or task difficulty showed significantly less persistence on academic tasks. Additionally, these researchers found that students who were trained to attribute their failure to lack of effort subsequently showed increases in persistence on later academic tasks.

Some studies indicate that strategy instruction combined with attribution retraining result in the highest academic improvement for students in special education, compared with only attribution retraining or only strategy instruction. For example, Borkowski et al. (1988) concluded that attribution retraining combined with instruction in reading comprehension skills for elementary school students with learning disabilities resulted in 50% improvement in paragraph summarization, while those students that received only the skills instruction showed a 15% improvement. This study took place over a 3-day time span, so it is not known if these effects were significant over a long period of time.

Corral and Antia (1997) implemented a tutoring program for a student in the seventh grade who was unsuccessful in math and seemed

to have given up trying. The program combined teaching the student learning strategies as well as some attribution retraining. After the program, the student's attributions appeared to have altered from luck to effort. Additionally, he persisted longer on math problems than before the intervention.

Schunk (1986) implemented a similar intervention with 90 middle school students who were identified as learning disabled in math. The students who received instruction in math subtraction strategies as well as effort attributional feedback from the teacher correctly solved 22% more subtraction problems than students in different training situations. Likewise, students with learning disabilities who were taught mnemonic strategies with effort attribution training learned significantly more information.

Sexton et al. (1998) taught 6 students with learning disabilities from the fifth and sixth grades a mnemonic strategy to help with their writing skills. Additionally, they encouraged the students to attribute their success to effort and use of the writing strategy. Results indicate that students who were taught writing strategies tended to attribute their success and/or failure to effort more than before the strategy instruction. Similarly, 20 learning disabled students in middle school were taught earth science content with mnemonic learning strategies. The researchers found that mnemonic strategy instruction improved science

content acquisition and maintenance, as well as increased the probability that students will attribute their success to effort (Scruggs & Mastropieri, 1992).

In summary, attributions are the explanations that students give as the cause of their school performance. These explanations affect the thoughts, emotions, and future actions of individuals in many different ways. As attributions impact student learning, so do learning strategies impact learning. In particular, spelling strategies can be helpful in improving student spelling achievement. The second part of Chapter 2 follows, and includes four components: strategies to learn spelling, how to teach spelling strategies, how to choose spelling words for students, and research related to spelling strategies.

Spelling Strategies

Spelling has become an important concern, both in the educational world and with the public. This has to do with the observation that students are misspelling more words in their writing than in the past. Many schools are reporting lower scores on the spelling portion of standardized tests, and parents are concerned with the spelling errors they notice in their children's schoolwork (Sipe, 1994; Templeton & Morris, 1999).

Spelling correctly is an important skill to have in our nation. People often get turned away from jobs and schools because of

misspellings on applications. Misspelled words are a source of annoyance and distraction for people reading a writer's material (Sipe, 1994). Many upper elementary students exhibit spelling deficits that may worsen as they proceed to middle school and high school (Fulk & Stormont-Spurgin, 1995).

Strategies to Learn Word Spellings

Teachers need to know a wide variety of strategies to teach spelling to students, as different strategies work for different learners (Sipe, 1994). In the past, spelling instruction focused on rote memorization of the most frequently used words of the English language. Now, however, educators recognize that memory is only one aspect of learning how to spell, and that spelling should be a development of coming to understand word structure, pattern, sound, and meaning (Templeton & Morris, 1999).

One popular spelling strategy is the "test-teach-test" (Fulk & Stormont-Spurgin, 1995, p. 16) sequence. This is done by beginning spelling instruction in the classroom each week with a pretest of the words for that week. Instruction and student practice throughout the week then focuses specifically on the words that were misspelled on the pretest. This strategy decreases the time needed for studying, and encourages more thoughtful engagement in learning, rather than rote

rehearsal of the spelling words (Fulk & Stormont-Spurgin, 1995; Murdoch, 1995; Sipe, 1994; "What Works in Spelling," 1995).

Other techniques that have been found to be helpful in learning spelling words include peer tutoring, partner quizzes, self-monitoring, practicing on the computer, setting spelling goals, and graphing progress over time (Fulk & Stormont-Spurgin, 1995; Gentry, 1997).

Fulk (1997) outlined several research-based strategies that elementary school teachers can use to boost student motivation for spelling. Some of these strategies include: teaching spelling with enthusiasm, stressing the importance and value of spelling skill, using reinforcement procedures, having the students set goals and graph their own progress, implement peer tutoring, encourage positive attributions, use a variety of practice activities, and use the analogy spelling strategy.

The analogy spelling strategy helps students to think of rhyming words, and to know that the ending parts of rhyming words are usually spelled the same. Teachers can teach this strategy to students by introducing the topic, providing examples and nonexamples for practice, and model the application of this strategy by thinking aloud (Fulk, 1997; Fulk & Stormont-Spurgin, 1995; Gunning, 2001).

Murdoch (1995) described a classic strategy for students to learn the spelling of words from a list. The steps include: (a) look at the word and say the spelling, (b) visualize the spelling of the word with closed

eyes, (c) check to see if the visualization was correct, (d) write the word without looking, (e) check to see if the writing was correct, and (f) repeat writing the word without looking. This has been found to be an effective strategy for students to memorize the spelling of words when working on their own. Similarly, Snowball (2001), and Gunning (2001) indicate that teachers should emphasize the “look, say, spell, cover, write, check” (Snowball, 2001, p. 21) method when students are studying words.

Students can also use pronouncing for spelling, or syllabication, as a spelling memory strategy. This involves pronouncing a word as it is spelled (pro/**ba**/bly), making up a secret pronunciation (choc/**o**/late), sounding out words, saying words in syllables, or exaggerating sounds in words (Sipe, 1994; “Spelling Strategies,” 1998).

Visualizing, or thinking how the word looks in order to remember its spelling, is another valuable strategy. It might also help to have students visualize where they might have seen the word before, or might see it in the future (“Everyday Spelling: Spelling Strategies,” n.d.; Gunning, 2001; “Spelling Strategies,” 1998).

Mnemonic devices, or memory tricks, can also be introduced as a strategy to help students memorize difficult words. This involves creating silly pictures, jingles, or sayings to help students remember how to spell words. For example, “Tell that mosquito to *quit* biting me,” or

“The principal is my *pa*” (“Everyday Spelling: Spelling Strategies,” n.d.; Sipe, 1994; “Spelling Strategies,” 1998).

Teaching Spelling Strategies

Fulk and Stormont-Spurgin (1995) outlined the steps that are essential for teachers to follow to teach spelling strategies to elementary students. First, the teacher should explain the purpose of the strategy. Next, the strategy should be modeled by the teacher, including thinking aloud so he or she can explain each step of the strategy (Gunning, 2001). Third, the teacher should stress the importance of using effort with the strategy in order to be successful. Then the students should practice naming the steps of the strategy until it comes to them automatically. While the students use the strategy on specific words, the teacher should observe them and provide feedback as needed. Sixth, the teacher should show students how to monitor their use of the strategies using checklists. Finally, the classroom teacher should emphasize the utility of the strategy during the spelling tests as well as in other areas of school. This emphasis should assist in the generalization of the strategy into other settings.

Another teaching strategy to improve student’s spelling involves teaching in word families, wherein parts of the words contain the same spelling. This easily adds several new words to a student’s word inventory (Sipe, 1994).

Strategies to Choose Spelling Words

Students should be given spelling words in patterns and word families so that they can discover the principles that lie beneath the alphabetic structure. Therefore, at least some of the spelling words on a weekly list should share a common element. Additionally, the words used on lists should be the ones most commonly used in student writing (Gunning, 2001).

A strategy that teachers employ in improving their student's spelling is reduced word lists, wherein teachers introduce subsets of four to five words each day, rather than introduce all of the spelling words at once. Reduced word lists can diminish errors that occur when students become overwhelmed with the introduction of several new words at once (Fulk & Stormont-Spurgin, 1995).

Murdoch (1995) and Sipe (1994) described one popular method of teaching spelling, which is to emphasize the most frequently used words in the elementary school curriculum. If the student learns the spelling of these words, they can recognize them immediately and attain higher fluency in spelling, writing, and reading.

Novelli (1995) writes of a teacher who implemented a program in his elementary school classroom where each student chose their own spelling words for the week based on words they did not know how to spell in their journal writing. Novelli notes that choosing spelling words

that have significance in the students' lives helps the students to remember the words for the test, as well as generalize them into other writing. Gentry (1997) also supports the use of individualized spelling lists, as he states that all students are at different spelling levels.

Rebecca Sitton has developed a spelling series entitled *Spelling Sourcebook*. In it, Sitton describes three types of spelling words: (a) core words that every student learns, divided by grade level; (b) individual words that the student chooses to learn; and (c) priority words, which are core words that the student has already learned. The student should be able to spell the priority words correctly all the time ("What Works in Spelling," 1995).

Sipe (1994) suggested that teachers should focus on teaching students the correct spelling of high frequency words. Additionally, she states that teachers should insist that the students correctly spell the words that have been studied when writing in school, should encourage students to use personal word lists, and should encourage parent participation in spelling.

Research on Spelling Strategies

In a case study of a 9-year-old girl, Bartch, an educational consultant, found that teaching the student spelling strategies such as thinking about the sounds and stretching the words out improved her accuracy in and confidence about spelling (1996).

Radebaugh (1985) studied third and fourth grade students' spelling habits. It was concluded that children identified by their teachers as good spellers used more spelling strategies when writing both familiar and unfamiliar words than those students identified as poor spellers. The students labeled as good spellers used the strategies of breaking words into parts and applying common spelling patterns to them, and using visual imagery.

Ormrod and Jenkins (1989) studied spelling strategies, their correlations with achievement, and the influence of development on spelling strategies. Students at three grade levels (3/4, 7/8, and college undergraduates) were given 10 words to study that they had previously spelled incorrectly. They were asked to speak out loud during their studying. The researchers found that younger students tended to use a letter rehearsal strategy, which was found to have little to no effect on posttest scores. Older students (undergraduate) more often used a strategy of over pronunciation to learn the words, and this strategy was positively correlated with posttest scores. As to be expected, the researchers also found that amount of study time was positively correlated with the number of words spelled correctly on the posttest. The researchers expected the older students to use more elaborate methods of remembering word spellings, as metacognitive skills increase with age. However, the study implies that spelling scores could be

increased for students of any age if they were taught how to use the strategy of over pronunciation.

Students of all ages can use several different spelling strategies to better learn words. It is important to teach various strategies to students, as learning styles differ from person to person. These spelling strategies have been found to be more effective than the traditional spelling instruction method of rehearsal and memorization.

Conclusion

Teaching students spelling strategies encourages them to put effort into their learning, and implies that all students can learn the words. As stated above, student motivation is likely to increase if performance is attributed to internal factors such as effort or ability. One would expect that students who attribute their spelling success or failure to effort would be more likely to use strategies to learn the words. This increase in motivation and effort, in turn, will likely be correlated with an increase in achievement. It is important to know the relationships between attributions, spelling strategy instruction and use, and student achievement. These relationships will be investigated in this research, and the methodology used in the current study is described in the next chapter.

CHAPTER 3

RESEARCH METHODOLOGY

The research methodology described below includes a description of the participants, the instruments used, and the procedure of the investigation, including preparation, the control measure, and the intervention. The chapter concludes with the research questions.

Participants

The participants of this study consisted of 19 students (8 females and 11 males) ranging in age from 10-12 years, with an average age of 11 years, 6 months, in the same fifth grade class in a small elementary school. The students were all Caucasian with the exception of two, who were Asian, and adopted as infants by Caucasian parents. Two of the students were labeled as learning disabled, and one was labeled as emotionally/behaviorally disabled.

Subjects in the fifth grade were chosen by the investigator because students of this age have the ability to understand the general concept and purpose of learning strategies. Additionally, most students of this age are able to apply the strategies to different words and be creative in their use. Younger students may not have understood the strategies as well, and older students may not have been as willing to put their best effort into using the spelling strategies.

The school had approximately 537 students in grades Kindergarten through sixth, and there were 78 students in the fifth grade. The school is located in a rural town with a population of approximately 3,000 in Midwestern United States. The classroom teacher who participated in this study had been teaching fifth grade in this same school for 19 years.

The participants were recruited as a large group by the investigator without the teacher in attendance. The investigator explained to the students that they would be taught some strategies that would help them remember spelling words, and that they would be asked to answer some questions on paper twice each week. The students were assured that they would not be penalized if they decided not to participate in the study. Students and parents were asked to sign a form giving consent for participation (see Appendix A). All 19 students agreed to participate and all parents gave consent.

Instruments

The instruments used in this research consist of three different spelling lists, two attribution questionnaires, a teacher instruction rubric, and three spelling strategy lesson plans. Each of these items is located in the Appendix section of this paper.

The spelling word lists (see Appendix B) are used in the fifth grade curriculum. The main words and challenge words are located in the Houghton Mifflin Reading Series, "Invitations to Literacy," (Cooper et al.,

2001) at the fifth grade level. The core words are adapted from Rebecca Sitton's list of most-used words. The review words are words that had been on the student's spelling lists in the past (either fourth or fifth grade) that many of the students had trouble with spelling, or need extra work on. They were used in the regular progression, with one list for each week of the intervention. The first list consisted of 27 words, the second had 29 words, and the third had 28 words.

The pretest attribution questionnaire (see Appendix C) was written by the investigator, and consists of simple questions for the students to answer once each week directly after taking the spelling pretest. The four questions allow for the students to indicate to what extent they think their general spelling performance is based on ability, effort, luck, or the difficulty level of the task. The students answered the questions on a Likert scale, with the number 1 indicating that the student strongly disagrees with the statement, and number 5 indicating that the student strongly agrees.

The post-test attribution questionnaire (see Appendix D) includes the same four statements as the pretest questionnaire. In addition, it allowed the students to rate on a scale of 1 to 5 how often and how well they utilized the spelling strategies for that week. Last, the students were allowed to provide their own answer to the question, "How did the

spelling strategy or strategies I used help me to spell more words correctly?”

The teacher instruction rubric (see Appendix E) was used to confirm that the classroom teacher implemented the intervention correctly, with integrity, and similarly throughout the study. It was created by the investigator, and was adapted from the steps to teach spelling strategies written by Fulk and Stormont-Spurgin (1995).

The investigator also created the spelling strategy lesson plans (see Appendix F), with input from the classroom teacher involved in the intervention. These were used to guide the classroom teacher in correctly and consistently implementing the intervention of teaching the spelling strategies.

Procedure

The description of the procedure used in this study is divided into three parts: the preparation for the study, the control measure, and the intervention phase.

Preparation

Prior to implementing the intervention in this study, the classroom teacher was instructed by the investigator on how to implement the spelling strategy instruction in her classroom. The method of teaching strategies developed by Fulk and Stormont-Spurgin (1995) was used as a

basis for the implementation of the intervention, and the teacher was instructed on this model.

After this instruction, the teacher practiced her method with a small group of 3 fifth-grade students whom were not in her school classroom. The investigator observed this practice, and provided feedback to the teacher on her instruction.

Control

For a control measure, the researcher collected the classroom teacher's grade records of quarterly spelling performance of each of the nineteen students. The students were given grades for spelling test performance for each of the first three quarters of the school year. The letter grades were each given a numerical value (A+ = 4.33, A = 4, A- = 3.66, B+ = 3.33, B = 3.0, B- = 2.66, C+ = 2.33, C = 2.0, C- = 1.66, D+ = 1.33, D = 1.0, D- = 0.66, F = 0), and the grades from the three quarters were averaged to determine student's past spelling performance. This is the measure of spelling achievement before the intervention of spelling strategy instruction began.

Intervention Phase

Three different spelling strategies were taught to the students as the intervention. The first week's instruction focused on using the mnemonic strategy to remember the spelling of words, while the second week's instruction was a syllabication strategy, or "think how it sounds."

The final week of the intervention involved the instruction of an imagery strategy to learn spelling words.

The same implementation procedure was used for each week of the 3-week intervention. Each Monday, the students took a pretest of their spelling list, before they had seen the words in print. The students then corrected their own spelling of the words, and recorded on their paper the number of words they spelled incorrectly. Next, the teacher passed out the pretest attribution survey to each student, and instructed him or her to complete these as truthfully as they could. This was a measure of their attributional beliefs before being taught the spelling strategy.

Immediately following the administration of the questionnaire, the teacher began her instruction of the strategy for that week. The instruction consisted of a 25-minute session on Monday after the pretest was given. Additionally, the teacher encouraged the students to use the strategy while studying the spelling words for the week. Students were given at least 20 minutes on Tuesday, Wednesday, and Thursday to study spelling either individually or in small groups.

During Monday's lesson, the teacher explained the purpose and overall concept of the strategy, and then modeled the strategy with examples and thinking aloud. The teacher then described why it is important that effort is put into the implementation of the strategy, and had the students describe the strategy in their own words and examples.

Next, the students broke into pairs and worked on using the strategy with some of that week's spelling words, while the teacher monitored and provided feedback. The teacher then explained to the class ways to monitor their use of the strategy, and several academic situations in which the strategy could be useful.

On Friday of each week, the teacher gave her students the final spelling test, or post-test. She did this by saying each word aloud, using it in a sentence, and saying it again. She waited until each student was finished writing, and then moved on to the next word. After completion, the teacher collected the tests, and the post-test survey was distributed to each student, with the instructions to complete it honestly and thoughtfully.

The same process for spelling instruction in the classroom was used throughout the school year as well as during the intervention. The only change was the 25-minute spelling strategy lesson on Mondays, and the teacher's emphasis on using the strategies.

During the intervention phase, the teacher coded each student with a number, and wrote that number on each spelling test (pre- and post-) and on each of the two weekly surveys. The teacher then blackened out the student's names with a permanent marker to maintain anonymity. Moreover, to ensure the integrity of the study, the investigator was present in the classroom to observe the teacher's initial

strategy instruction each Monday. The teacher instruction rubric was completed each week to monitor the integrity and consistency of the intervention.

Research Questions

1. Do students who attribute their spelling performance to effort use spelling strategies frequently and accurately?
2. Do students who attribute their spelling performance to self-handicapping factors such as luck or task difficulty use spelling strategies less frequently and less accurately?
3. Do students with effort or ability attributions achieve higher spelling performance?
4. Does spelling strategy instruction lead to increased student performance?

CHAPTER 4

RESULTS

Purpose

The purpose of this study was to determine the relationship between spelling strategy instruction and use, upper elementary-aged student's spelling performance, and attributions of their success and/or failure.

Statistical Procedures

Because multiple statistical analyses were conducted, a conservative .01 level of significance is used throughout the results section to avoid Type I error. The study consisted of multiple measures due to the 3-week intervention. As stated in chapter 3, the same information was collected each week and the same procedure was followed, with the exception of a different spelling strategy being taught each week (see Appendix F) and a different word list (see Appendix B) being used each week for spelling. Attributions and accuracy and frequency of used were rated on 1-5 scales with "1" indicating low accuracy/frequency or low attributions, and "5" indicating high levels of accuracy/frequency or attributions. The questions of interest in this study did not pertain to the different interventions, so the researcher felt that it was desirable to combine the data for the 3 weeks. To justify this decision, repeated measures ANOVA tests were run for each variable

being used to answer the research questions. It was discovered that there were no significant differences at the .01 level of significance in the scores for each student between the 3 weeks of the intervention (see Table 1). Because of this conclusion, one can assume that the specific spelling strategy did not influence the outcome of the data, so it was combined for the 3 weeks and analyses used the averages of the scores for each variable for each student.

Question 1

Question. Attribution theory states that students who tend to attribute performance to the effort they put into it are more likely to work harder than those who do not attribute performance to effort (Alderman, 1999, 2004). To investigate this aspect of the theory and how it may pertain to spelling strategies, this research asked if students who made higher effort attributions at the beginning of the weeks were more likely than those who made lower effort attributions to use the spelling strategies frequently and correctly throughout the weeks.

Statistical procedure. The students were divided into 2 groups based on their average self-reported beliefs that their spelling performance was due to effort throughout the 3-week intervention. Twelve students were placed in the high effort attribution group, and seven students were placed in the low effort attribution group. The mean

Table 1

*Means and Standard Deviations for Each Variable Across the Three Weeks
(N = 19)*

Variable	Mean (Standard Deviation)			F
	Week 1	Week 2	Week 3	
Pre Spelling	7.89 (6.40)	6.11 (4.43)	6.53 (5.84)	3.48
Post Spelling	1.37 (3.11)	1.79 (2.72)	2.00 (3.51)	1.58
Pre Effort	4.58 (0.61)	4.16 (0.50)	4.53 (0.61)	0.14
Post Effort	4.42 (0.61)	4.16 (0.56)	4.42 (0.61)	0.00
Pre Ability	3.32 (0.89)	3.53 (0.96)	3.42 (0.90)	0.66
Post Ability	3.05 (1.27)	3.11 (1.15)	3.32 (1.00)	1.34
Pre Luck	1.95 (0.91)	2.11 (0.88)	1.95 (0.91)	0.00
Post Luck	2.16 (1.82)	2.32 (0.82)	1.95 (0.78)	1.66
Pre Task Diff.	3.32 (1.11)	3.53 (0.61)	3.32 (0.82)	0.00
Post Task Diff.	3.47 (0.91)	3.37 (0.90)	3.42 (0.96)	0.11
Frequency	3.68 (0.67)	3.89 (0.46)	4.05 (0.85)	3.74
Accuracy	4.05 (0.78)	4.16 (0.60)	4.16 (0.77)	0.32

rating for the high effort attribution group was 4.67, and the mean rating for the low effort attribution group was 4.00.

The average self-reported accuracy and frequency of spelling strategy use across the 3 weeks was computed for each student. Independent samples t-tests were conducted to determine if there were any significant differences in frequency and accuracy of strategy use between the students who had high effort attributions and those whose effort attributions were not as high.

Conclusion. Pretest effort attributions were found to be related to frequency of spelling strategy use at the .01 level of significance ($t = -2.97$; $p = .009$; see Table 2). Those students with higher levels of effort attributions at the beginning of the week also tended to use the spelling strategies more frequently than those students with lower levels of effort attributions. The relationship of effort attributions to accuracy in using spelling strategies, while not found to be significant, approached significance and is in the expected direction ($t = -2.08$; $p = .053$; see Table 2).

Question 2

Question. According to attribution theory, students who attribute their academic performance to factors over which they do not have control, such as luck or difficulty of the work, do not put as much effort

Table 2

Means and Standard Deviations of Frequency and Accuracy for Effort Attribution Groups (N = 19)

Strategy Use	Effort Attribution Groups				t
	High (n = 12)		Low (n = 7)		
	M	SD	M	SD	
Frequency	4.08	0.41	3.52	0.38	-2.97*
Accuracy	4.31	0.36	3.81	0.69	-2.08**

* p = .009

**p = .053

into their schoolwork as do those students who attribute their performance to factors over which they do have control (Alderman, 1999, 2004; Weiner, 1979, 1985). To investigate this notion, the current study asks the question: do students who attribute their performance to effort or task difficulty at the beginning of the week use the spelling strategies less well and less often?

Statistical procedure. The students were separated into low and high luck attribution groups, and low and high task difficulty attribution groups. Eleven students were placed in the high luck attribution group, and 8 students were placed in the low luck attribution group. The mean

luck attribution rating for the high luck attribution group was 2.52, and the mean for the low luck attribution group was 1.29. The high task difficulty attribution group consisted of 9 students, and the low task difficulty attribution group contained 10 students. The mean rating for the high task difficulty attribution group was 4.04, and the mean for the low task difficulty attribution group was 2.80. Self-reported accuracy and frequency of spelling strategy use were averaged for each student over the 3 weeks. Independent samples t-tests were run to detect any differences in spelling strategy use between low and high pretest luck attribution students, and low and high pretest task difficulty attribution students.

Conclusion. No significant difference in frequency of spelling strategy use was found between either high and low pretest luck attribution groups ($t = -.34$; $p = .74$), or high and low pretest task difficulty attribution groups ($t = -.42$; $p = .68$). The same result was found for accuracy in using the spelling strategies for luck attribution groups ($t = .57$; $p = .58$) and task difficulty attribution groups ($t = 1.55$; $p = .14$; see Tables 3 and 4). Those students who attributed spelling performance to luck at the beginning of the week did not use the spelling strategies more often or better than those students who did not attribute

Table 3

Means and Standard Deviations of Frequency and Accuracy for Luck Attribution Groups (N = 19)

Strategy Use	Luck Attributions Groups				t
	High (n = 11)		Low (n = 8)		
	M	SD	M	SD	
Frequency	3.91	0.47	3.83	0.50	-0.34
Accuracy	4.06	0.65	4.21	0.40	0.57

Table 4

Means and Standard Deviations of Frequency and Accuracy for Task Difficulty Attribution Groups (N = 19)

Strategy Use	Task Difficulty Attribution Groups				t
	High (n = 9)		Low (n = 10)		
	M	SD	M	SD	
Frequency	3.93	0.57	3.83	0.39	-0.42
Accuracy	3.93	0.55	4.30	0.51	1.55

their performance to luck. Similarly, those students who attributed their spelling performance to the difficulty level of the task did not use the spelling strategies better or more often than the students who did not attribute their performance to task difficulty.

Question 3

Question. According to attribution theory, students who tend to attribute their performance to internal factors such as their innate ability or the amount of effort put into it are more likely to perform higher on academic tasks than those students who attribute performance to external factors such as luck or task difficulty (Alderman, 1999, 2004; Weiner, 1979, 1986). To investigate how this aspect of the theory pertains to spelling achievement, the current research asked whether those students who have higher spelling achievement tend to hold initial effort or ability attributions about their performance.

Statistical procedure. To determine if this is the case, the average over the 3 weeks for pretest effort attributions was determined for each student. The same was done for pretest ability attributions. Additionally, the average of words spelled incorrectly for each of the 3 post-test spelling tests was taken for each of the students. Linear regression data analyses were used to determine if effort or ability attributions predicted student performance in spelling.

Conclusion. The attribution of spelling performance to effort on the pretests approached significance at the .01 level of significance in predicting higher student spelling performance on the posttests ($t = -2.84$; $p = .011$; see Table 5). There was a tendency for students with higher effort attributions to score better on spelling posttests than those students with lower effort attributions.

Students who attributed their spelling performance to their ability did not receive spelling grades that were any different from the other students (see Table 5). Pretest ability attributions did not predict higher spelling achievement ($t = -.734$; $p = .473$).

Table 5

Summary of Linear Regression Analysis for Attributions Predicting Student Spelling Achievement (N = 19)

Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>
Pretest Effort	-3.63	1.29	-0.57	-2.84*
Pretest Ability	-0.57	0.78	-0.18	-0.73

* $p = .011$

Question 4

Question. The combination of memorization and the utilization of spelling strategies has been found to be the most effective form of learning spelling words, and often results in faster learning, greater generalization, and lifelong knowledge (Fulk, 1997; Fulk & Stormont-Spurgin, 1995; Gentry, 1997; Gunning, 2001; Henderson, 1990; Murdoch, 1995; Sipe, 1994; Snowball, 2001; Templeton & Morris, 1999; "What Works in Spelling," 1995). Therefore, it would do students well if teachers were to explicitly instruct their students on how to use spelling strategies. The current study investigates this conclusion by asking if the spelling strategy instruction and student practice in the current classroom led to increased student spelling performance.

Statistical procedure. To answer this research question, the number of words misspelled in the pretest was compared with the number of words misspelled in the post-test for each week. A paired samples t-test was run to compare pretest and post-test spelling scores for each week.

Conclusion. Spelling achievement on the post-tests was significantly greater than spelling achievement on the pretests for all 3 weeks at the .01 level of significance (week 1: $t = -5.87$, $p = .00$; week 2: $t = -4.97$, $p = .00$; week 3: $t = -5.82$, $p = .00$; see Table 6). This leads one

Table 6

Means and Standard Deviations of Number of Words Spelled Incorrectly at Pretest and Post-test (N = 19)

Statistic	Week 1		Week 2		Week 3	
	Pre	Post	Pre	Post	Pre	Post
M	7.89	1.37	6.11	1.79	6.53	2.00
SD	6.40	3.11	4.43	2.72	5.84	3.51
T	-5.87*		-4.97*		-5.82*	

* p = .00

to the conclusion that the student's spelling performance improved from the beginning to the end of each week.

Summary

Students who believed spelling performance was due to the amount of effort one puts into the task were more likely to report that they used the spelling strategies more frequently than those students who reported less strong effort attributions. The hypothesis that effort attributions lead to more accurate use of the spelling strategies was found to approach significance. Students' attributions of luck or task difficulty were not found to influence their use of the spelling strategies.

While not significant, a small relationship was found between students who attributed their performance to the internal factor of effort at the beginning of the 3 weeks and spelling achievement on tests given at the end of the 3 weeks. The attribution of ability, however, did not predict spelling performance. Lastly, it was determined that student spelling performance did increase after spelling strategy instruction and student practice.

CHAPTER 5

DISCUSSION

Research Purpose and Questions

The data gathered for this study on spelling strategy instruction and student attributions were meant to shed light on both the relationships between various types of attributions, and the role that student attributional thoughts play in spelling strategy use and instruction. Specifically, the research investigated the question of whether or not students who attributed their achievement to effort reported using spelling strategies often and well. Conversely, it also asked the question of whether or not students who attributed their achievement to self-handicapping factors such as luck or difficulty of the task reported using spelling strategies less frequently and less accurately. Additionally, this project explored the relationship between student spelling achievement and the attributions the student holds: did students who attributed their performance to internal factors such as effort or ability tend to achieve higher spelling scores? Finally, data were obtained to determine if student achievement in spelling increased as a result of spelling strategy instruction and practice.

Meaning and Significance of Data

Question 1

Analysis of the data shows that students who attributed their spelling performance to effort reported using the spelling strategies taught to them more frequently throughout the 3 weeks than did those students who did not attribute their performance to effort. This illustrates that attributional beliefs of effort influence the extent to which students use spelling strategies frequently. Although effort attributions were not significantly related to accuracy in using spelling strategies, the results of the data analysis point to the conclusion that a significant relationship may have been found with a larger sample size. Training students to attribute their performance in academic tasks to their effort will likely lead to increased effort in learning, and, in most cases, increased achievement.

This finding corroborates previous research by Schmitz and Skinner (1993), which found that children who believed they had more control over their performance, through effort attributions, did put forth more effort on their assignments. Andrews and Debus (1978) also found that sixth grade students who attributed failure to lack of effort tended to work harder at academic tasks.

Question 2

The second research question focused on the relationship between self-handicapping attributions, specifically luck and difficulty of the task, and spelling strategy use. The data illustrates that student attributions to luck or task difficulty did not influence the extent to which students used spelling strategies frequently or accurately.

Past research does not corroborate this finding, as studies by Alderman (1999), Corral and Antia (1997), and Fulk and Mastropieri (1990) concluded that unsuccessful students who believe that effort is unrelated to academic outcomes typically show reduced effort on academic tasks. Schmitz and Skinner's research in 1993 found that children who believed they had no control, through attributing their performance to luck or task difficulty, were less likely to work hard and more likely to fail than other students. In the current research, there was little variability in the self-reports of spelling strategy use, which may have prevented the data from being significantly different.

Question 3

The third question focused on in this research is the relationship between student performance and their prior attributions. Do students who attribute performance to effort or ability tend to achieve higher spelling scores? It was determined that students who believe that effort is the cause of their spelling performance did not have a significant

positive relationship with achievement on spelling assessments.

However, the data analysis did show a high level of power, and may have been found to be significant with a larger sample size and more variability in student self-reports. Ability attributions were not found to impact spelling achievement. If individuals can become accustomed to attributing their behavior to their own effort, student achievement may be increased.

This conclusion supports previous research, which states that attributing academic performance to ability or effort often results in higher achievement. Fulk and Mastropieri (1990) found that students who earned good grades were more likely to attribute their success to either ability or effort. Similarly, Schmitz and Skinner (1993) discovered that students who attributed success to their own actions, or effort, earned better grades and achieved higher success on classroom tests and assignments. A third study indicated that high achievement in students is associated with attributing success to ability (Bempechat et al., 1996).

Question 4

Spelling strategy instruction and practice were found to increase student performance in spelling from the beginning of one week to the last day of the week. This reiterates the notion that spelling strategies can be beneficial for increasing spelling achievement. In a case study of a nine-year-old girl, Bartch, an educational consultant, found that

teaching the student spelling strategies improved her accuracy in spelling (1996). Additionally, Radebaugh (1985) concluded that children identified by their teachers as good spellers used more spelling strategies when writing both familiar and unfamiliar words than those students identified as poor spellers.

Integrity of the Study

The investigator observed the classroom instruction of the spelling strategies on each Monday of the 3-week intervention. The teacher instruction rubric (see Appendix E) was used to verify that the classroom teacher implemented the intervention correctly, with integrity, and consistently throughout the study. The rubric was adapted by the investigator from the steps to teaching spelling strategies written by Fulk and Stormont-Spurgin (1995). The teacher's instruction was rated on seven different dimensions on a scale from 1 (not at all) to 5 (very well). The dimensions included: explanation of the purpose, modeling, relaying the importance of effort, automaticity, providing feedback, showing students how to monitor strategy use, and discussion of the conditions where the strategy can be useful.

Overall, the teacher's implementation of the strategies was consistent across the 3 weeks. She received a rating of 5 for her explanation of the purpose of the strategy across the 3 weeks, and a rating of 4 or 5 across the 3 weeks for modeling the strategy, including

thinking aloud. The teacher received a rating of “okay” for all 3 weeks for relating to the students the importance of effort in using the strategy. Each week, the teacher had prepared strategy steps to have the students name, and they became automatic for most of the students. The teacher received a rating of 5 (“very well”) for observing the students practice and providing feedback on their use of the strategies. The third week this step was rated as a 4 (“well”), because the teacher was distracted by a student’s behavior during this time. For the aspect of the teacher showing students how to monitor their use of the strategy, she received a rating of 3 (“okay”) for the first 2 weeks, and a rating of 4 (“well”) for the final Monday of the intervention. Lastly, the teacher clearly emphasized to the students where and when the spelling strategies can be helpful, and received a rating of 5 (“very well”) for each week. The conclusion that can be drawn from these observations is that the classroom teacher implemented the spelling strategy instruction consistently and well across each of the 3 weeks.

Summary

This study points to the need for additional research about the relationship between learning strategies and attributions. The finding that effort attributions lead to more frequent self-reported spelling strategy use indicates that attributions play an important role in the academic effort the students put forth in spelling. Additionally, these

effort attributions may lead to higher spelling performance. If students can be encouraged to attribute performance in academic tasks to the amount of work they put into it, increased achievement may be a result.

As spelling strategy instruction was also found to lead to higher student performance, effort attribution training combined with spelling strategy instruction may result in the greatest spelling achievement. This finding supports previous research that focused on other academic topics, including: Borkowski et al. (1988), who studied attributions and reading comprehension strategy instruction; Corral and Antia (1997) and Schunk (1986), who studied attributions and math learning strategy instruction; Sexton et al. (1998), who studied attributions and writing strategy instruction; and Scruggs and Mastropieri (1992), who studied attributions and earth science content learning strategy instruction.

Limitations

As with all studies, this one had some limitations. First, this study contained a smaller number of subjects ($N = 19$) than what is ideal when conducting data analyses like the ones conducted here, as larger subject numbers are needed to gain more statistical power. Hence, the generalizability of the results may be limited owing to the small number of subjects.

Second, the spelling strategy instruction was implemented into the classroom for a period of only 3 weeks. This may not have been enough

time to incorporate strategies into the students' repertoires. A longer study may provide a deeper insight into the relationship between spelling strategy use and student's causal attributions. Future studies might focus on the effectiveness of a longer spelling strategy intervention program that allows students to internalize and use the new strategies instructed to them.

In this study, both student attributions and spelling strategy use were self-reported variables. The students reported the extent to which they used the spelling strategies well, how often they used the strategies, and their beliefs about what caused performance. The student responses may have been tainted due to self-perceived expectations of strategy use and causes for behavior, therefore not measuring true strategy use and attributional beliefs. Future studies would do well to measure attributions and strategy use through indices other than self-report.

Implications

The results of this research provide implications for school psychologists, teachers, and classroom instruction.

School psychologists. School psychologists are trained to educate schools on the crucial role that student beliefs, attitudes, and behaviors play in achievement. Attribution retraining is a helpful intervention that school psychologists can provide directly, or indirectly by training other

adults. The intervention can be completed formally or informally, and in large groups or small groups.

School psychologists are also called upon to be experts in interventions for the students who have not acquired all of the skills needed for academic achievement. Learning strategies have been proven to be effective in teaching students, especially those who have a difficult time learning by other means. These strategies can be taught at all ages, and school psychologists can either provide the intervention themselves, can train teachers on various strategies, or can provide strategy materials to teachers.

Teachers. Teachers should keep in mind the potential effectiveness of strategy use for not only spelling, but for every subject in school and at all ages. Many students can benefit from instruction that focuses on teaching strategies. Additionally, the present research tells us that attributions and student attitudes about their schoolwork and behavior affect student learning. Through formal and informal attribution training in classrooms, teachers can have an impact on student attributions and achievement without taking a significant amount of time and effort.

Instruction. This research shows that student attributions to effort relates to high student performance in spelling. Therefore, attribution training, along with strategy instruction, may be important in

improving student achievement as well as student thoughts about their performance. Since past research has shown that attributions play a significant role in student performance, they are important factors in student instruction. If future research were to show that strategy instruction has an effect on student attributions, it would be important for teachers and curriculum to focus on strategies in the classroom.

Future Research

Future research in this area could provide more answers about the relationship between spelling strategies and student attributions. It would be useful to measure these variables and explore their relationships with students of different ages, and with students in different classroom environments. This research may benefit from using a larger number of students in different grade levels and different schools. Additionally, future studies might research other spelling strategies and possible effect differences between the strategies. This research may also expand into learning strategies for different school subjects.

REFERENCES

- Alderman, M. K. (1999). *Motivation for achievement: Possibilities for teaching and learning*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Alderman, M. K. (2004). *Motivation for achievement: Possibilities for teaching and learning* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Andrews, G. R., & Debus, R. L. (1978). Persistence and the causal perception of failure: Modifying cognitive attributions. *Journal of Educational Psychology*, 70(2), 154-166.
- Bartch, J. (1996). Emily: A case study. *Primary Voices K-6*, 4(4), 19-27.
- Bempecht, J., Nakkula, M. J., Wu, J. T., & Ginsburg, H. P. (1996). Attributions as predictors of mathematics achievement: A comparative study. *Journal of Research and Development in Education*, 29(2), 53-59.
- Borkowski, J. G., Weyhing, R. S., & Carr, M. (1988). Effects of attributional retraining on strategy-based reading comprehension in learning-disabled students. *Journal of Educational Psychology*, 80(1), 46-53.
- Chan, L. K. S. (1994). Relationship of motivation, strategic learning, and reading achievement in grades 5, 7, and 9. *Journal of Experimental Education*, 62(4), 319-339.
- Corral, N., & Antia, S. D. (1997). Self-talk: Strategies for success in math. *Teaching Exceptional Children*, 29(4), 42-45.
- Cooper, J. D., Pikulski, J. J., Au, K. H., Calderon, M., Comas, J. C., Lipson, M. Y., et al. (2001). *Invitations to literacy*. Boston: Houghton Mifflin Company.
- Diener, C. I., & Dweck, C. S. (1978). An analysis of learned helplessness: Continuous changes in performance, strategy, and achievement cognitions following failure. *Journal of Personality and Social Psychology*, 36(5), 451-462.
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, 41 (10), 1040-1048.

- Everyday Spelling: Spelling Strategies. (n.d.). Pearson Education, Inc. Retrieved March 11, 2003, from <http://www.everydayspelling.com/reference/refstrategies.html>
- Frieze, I. H., & Snyder, H. N. (1980). Children's beliefs about the causes of success and failure in school settings. *Journal of Educational Psychology, 72*(2), 186-196.
- Fulk, B. M. (1997). Think while you spell: A cognitive motivational approach to spelling instruction. *Teaching Exceptional Children, 29*(4), 70-71.
- Fulk, B. J. M., & Mastropieri, M. A. (1990). Training positive attitudes: "I tried hard and did well!". *Interventions in School and Clinic, 26*(2), 79-83.
- Fulk, B. M., & Stormont-Spurgin, M. (1995). Fourteen spelling strategies for students with learning disabilities. *Intervention in School and Clinic, 31*(1), 16-20.
- Gentry, J. R. (1997). Spelling strategies: Focus kids' effort with need-to-know words. *Instructor, 107*(2), 76-77.
- Gunning, T. G. (2001). *Building words: A resource manual for teaching word analysis and spelling strategies*. Needham Heights, MA: Allyn & Bacon.
- Henderson, E. H. (1990). *Teaching spelling* (2nd ed.). Boston: Houghton Mifflin.
- Horn, T. D. (1969). *Spelling*. Washington, DC: American Educational Research Association. (ERIC Document Reproduction Service No. ED 029897)
- Mason, T. C., & Stipek, D. J. (1989). The stability of students' achievement-related thoughts and school performance from one grade to the next. *The Elementary School Journal, 90*(1), 57-67.
- Murdoch, S. (1995). *Emphasizing the one hundred most frequently used words in the spelling curriculum*. Dominican College of San Rafael. (ERIC Document Reproduction Service No. ED395273)

- Nicholls, J. G. (1979). Quality and equality in intellectual development: The role of motivation in education. *American Psychologist*, 34(11), 1071-1084.
- Novelli, J. (1993). Strategies for spelling success. *Instructor*, 102(9), 41-47.
- Ormrod, J. E., & Jenkins, L. (1989). Study strategies for learning spelling: Correlations with achievement and developmental changes. *Perceptual and Motor Skills*, 68, 643-650.
- Radebaugh, M. R. (1985). Children's perceptions of their spelling strategies. *Reading-Teacher*, 38(6), 532-536
- Schmitz, B., & Skinner, E. (1993). Perceived control, effort, and academic performance: Interindividual, intraindividual, and multivariate time-series analyses. *Journal of Personality and Social Psychology*, 64(6), 1010-1028.
- Schunk, D. H. (1986). Verbalization and children's self-regulated learning. *Contemporary Educational Psychology*, 11, 347-369.
- Scruggs, T. E., & Mastropieri, M. A. (1992). Classroom applications of mnemonic instruction: Acquisition, maintenance, and generalization. *Exceptional Children*, 58(3), 219-229.
- Sexton, M., Harris, K. R., & Graham, S. (1998). Self-regulated strategy development and the writing process: Effects on essay writing and attributions. *Exceptional Children*, 64(3), 295-312.
- Shelton, T. L., Anastopoulos, A. D., & Linden, J. D. (1985). An attribution training program with learning disabled children. *Journal of Learning Disabilities*, 18(5), 261-265.
- Sipe, R. B. (1994). Here's how: Strategies for poor spellers. *National Association of Elementary School Principals*, 12(4), 2-5.
- Snowball, D. (2001). Easy lessons to help kids spell well in school and beyond. *Instructor*, 110(8), 20-23.
- Spelling strategies (1998). *Regina Board of Education, November Newsletter*. Retrieved March 11, 2003, from <http://web.rbe.sk.ca/lang/1998-99/spelling.htm>

- Templeton, S., & Morris, D. (1999). Questions teachers ask about spelling. *Reading Research Quarterly, 34*(1), 102-112.
- Weiner, B. (1972). *Theories of motivation: From mechanism to cognition*. Chicago: Markham Publishing Company.
- Weiner, B. (Ed.). (1974). *Achievement motivation and attribution theory*. Morristown, NJ: General Learning Corporation.
- Weiner, B. (1979). A theory of motivation for some classroom experiences. *Journal of Educational Psychology, 71*(1), 3-25.
- Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92*(4), 548-573.
- Weiner, B. (1986). *An attributional theory of motivation and emotion*. New York: Springer-Verlag.
- What works in spelling. (1995). *Learning, 24*(2), 47-53.
- Whitley, B. E., Jr., & Frieze, I. H. (1985). Children's causal attributions for success and failure in achievement settings: A meta-analysis. *Journal of Educational Psychology, 77*(5), 608-616.
- Wolleat, P. L., Pedro, J. D., Becker, A. D., & Fennema, E. (1980). Sex differences in high school students' causal attributions of performance in mathematics. *Journal for Research in Mathematics Education, 35*6-366.

APPENDIX A
CONSENT FORMS

Dear Parent(s):

Your child has been invited to participate in a research project conducted through the University of Northern Iowa. The University requires that you give your signed agreement to allow your child to participate in this project. The following information is provided to help you make an informed decision whether or not to participate.

This project will investigate the influence of spelling strategy use on student spelling performance, as well as their attributions. Attributions are student's beliefs of what caused them to do well or poorly on a task.

During the course of this 3-week study, your child's classroom teacher will integrate specific spelling strategy instruction into the usual weekly spelling instruction the students take part in. The students will also be asked to fill out a short survey (4 to 7 questions) that should only take 2 to 3 minutes to complete, on Monday and Friday of each of the three weeks.

There are no more than minimal risks (such as possible stress from a change in the classroom, stress from filling out the surveys) to your child resulting from this project.

From participating in this project, your child will learn spelling strategies that have been proven to be effective for many students. The use of these strategies could increase your child's performance in spelling, not only in the fifth grade, but also in the future.

Information obtained during this study will have no connection to your child's name. The data will be viewed only by the investigator and her advisors. The classroom teacher will code each student's spelling tests and surveys with a number that is assigned to the student, so no one but the teacher will know the name of the student who completed the work. At the end of the study, the data will be given back to the classroom teacher for her use.

Your child's participation in this project is completely voluntary. He or she is free to withdraw from participation at any time or to choose

not to participate at all, and by doing so, your child will not be penalized or lose benefits to which he/she is otherwise entitled.

If you have questions about the study or desire information in the future regarding your child's participation, you can contact Lisa Ludwig at (507) 261-6555 or the project investigator's faculty advisor Dr. Radhi Al-Mabuk at the Department of Educational Psychology and Foundation, University of Northern Iowa, at (319) 273-2694. You can also contact the office of the Human Participants Coordinator, University of Northern Iowa, at (319) 273-2748, for answers about rights of research participants and the participant review process.

Please complete and return the attached sheet to your child's teacher. Thank you for your consideration!

Sincerely,

Lisa Ludwig

I am fully aware of the nature and extent of my child's participation in this project as stated above and the possible risks arising from it. I hereby agree to allow my son/daughter to participate in this project.

(Signature of parent/legal guardian)

(Date)

(Printed name of parent/legal guardian)

(Printed name of child participant)

Project Title: The influence of spelling strategy use on student's achievement and attributions.

Principal Investigator: Lisa Ludwig

I, _____, have been told that one of my parents/guardians has given his/her permission for me to participate in a project about spelling strategies.

I understand that my participation is voluntary. I have been told that I can stop participating in this project at any time. If I choose to stop or decide that I don't want to participate in this project at all, nothing bad will happen to me. My grade will not be affected in any way.

Name

Date

APPENDIX B
SPELLING WORDS

Week 1

Regular Words

- | | |
|------------|------------|
| 1. Eagle | 2. Example |
| 3. Special | 4. Double |
| 5. Single | 6. Signal |
| 7. Level | 8. Normal |
| 9. Towel | 10. Model |
| 11. Fuel | 12. Ankle |
| 13. Rebel | |

Challenge Words

- | | |
|-------------|-------------|
| 1. National | 2. Actual |
| 3. Spiral | 4. Cancel |
| 5. Natural | 6. Squirrel |

Core Words

- | | |
|-------------|-----------|
| 1. Mountain | 2. Caught |
| 3. Hair | 4. Bird |
| 5. Wood | |

Review Words

- | | |
|----------|---------|
| 1. Cot | 2. Hare |
| 3. Would | |

Week 2

Regular Words

- | | |
|---------------|---------------|
| 1. Hallway | 2. Upstairs |
| 3. Flashlight | 4. Everything |
| 5. Driveway | 6. Built-in |
| 7. First aid | 8. Baby-sit |
| 9. Already | 10. All right |
| 11. Homemade | |

Challenge Words

- | | |
|----------------|--------------------|
| 1. Heartbeat | 2. Weather Station |
| 3. Eyewitness | 4. Newscast |
| 5. Salesperson | 6. Accept |
| 7. Raise | 8. Rays |

Core Words

- | | |
|------------|----------------|
| 1. Length | 2. Speed |
| 3. Machine | 4. Information |
| 5. Except | |

Review Words

- | | |
|--------------|----------|
| 1. All ready | 2. Then |
| 3. Than | 4. Who's |
| 4. Whose | |

Week 3

Regular Words

- | | |
|--------------|------------------|
| 1. Countries | 2. Supplied |
| 3. Happiness | 4. Hurried |
| 5. Angrier | 6. Enemies |
| 7. Tiniest | 8. Nastiest |
| 9. Grassier | 10. Friendliness |
| 11. Duties | 12. Dizziness |
| 13. Scariest | 14. Busier |
| 15. Worried | |

Challenge Words

- | | |
|--------------|----------------|
| 1. Treaties | 2. Territories |
| 3. Satisfied | 4. Counties |
| 5. Cloth | 6. Clothes |
| 7. Which | 8. Witch |
| 9. Weird | 10. Eighth |
| 11. Another | |

Review Words

- | | |
|----------|-------------|
| 1. Would | 2. Wouldn't |
|----------|-------------|

APPENDIX C
PRETEST QUESTIONS

Name: _____

Please circle the best answer for each statement.

I do good or not so good on my spelling tests because of how smart I am.

5 = strongly agree

4 = agree

3 = not sure

2 = disagree

1 = strongly disagree

I do good or not so good on my spelling tests because of how hard I studied.

5 = strongly agree

4 = agree

3 = not sure

2 = disagree

1 = strongly disagree

I do good or not so good on my spelling tests because of luck.

5 = strongly agree

4 = agree

3 = not sure

2 = disagree

1 = strongly disagree

I do good or not so good on my spelling tests because the words are either easy or hard.

5 = strongly agree

4 = agree

3 = not sure

2 = disagree

1 = strongly disagree

APPENDIX D
POST-TEST QUESTIONS

Name: _____

Please circle the best answer for each statement.

How often did I use the spelling strategy or strategies this week?

5 = Every day

4 = Almost every day

3 = Half of the days

2 = One day

1 = Not at all

How often did I use the spelling strategy or strategies this week?

5 = Very well

4 = Well

3 = Somewhat

2 = Not very well

1 = Not well at all

I do good or not so good on my spelling tests because of how smart I am.

5 = strongly agree

4 = agree

3 = not sure

2 = disagree

1 = strongly disagree

I do good or not so good on my spelling tests because of how hard I studied.

5 = strongly agree

4 = agree

3 = not sure

2 = disagree

1 = strongly disagree

I do good or not so good on my spelling tests because of luck.

5 = strongly agree

4 = agree

3 = not sure

2 = disagree

1 = strongly disagree

I do good or not so good on my spelling tests because the words are either easy or hard.

5 = strongly agree

4 = agree

3 = not sure

2 = disagree

1 = strongly disagree

APPENDIX E

SPELLING STRATEGY INSTRUCTION RUBRIC

Strategy: _____

Date: _____

A) Did the teacher explain the purpose of the strategy?

1 2 3 4 5

Not at all okay Very well

Comments:

B) Did the teacher model the strategy, with thinking aloud?

1 2 3 4 5

Not at all okay Very well

Comments:

C) Did the teacher relay the importance of effort?

1 2 3 4 5

Not at all okay Very well

Comments:

D) Did the teacher have the students name the strategy steps until it was automatic?

1	2	3	4	5
Not at all		okay		Very well

Comments:

E) Did the teacher observe the students practicing on their own and provide feedback?

1	2	3	4	5
Not at all		okay		Very well

Comments:

F) Did the teacher show students how to monitor their use of the strategy using checklists?

1	2	3	4	5
Not at all		okay		Very well

Comments:

G) Did the teacher emphasize where and when the strategy will be helpful?

1	2	3	4	5
Not at all		okay		Very well

Comments:

Total Score: _____

APPENDIX F

SPELLING STRATEGY LESSON PLANS

Lesson 1: "Mnemonics"

Lesson time: 25 minutes

To be used on Monday, following the spelling pretest and

Attributions questionnaire

1. The teacher will explain to the students that there are various ways to remember how words are spelled. One of these ways is to think of a trick or clue that will remind them of how to spell the word. They may be able to remember the trick or clue more easily than the order of the letters.
2. The teacher will give several examples, and describe how she thought of them:

Have: Hannah and Vern Eat

Friend: Don't "fry" the "end" of your friend.

Explain: I like my toast "ex"tra plain.
3. The teacher will explain that it will take some work to make these up and remember them, but it will be fun and some they will never forget.
4. The teacher will ask several students to explain to her how to use the mnemonics strategy.

5. The teacher will ask the class to split into pairs and work on thinking of mnemonics for this week's spelling list. She will monitor their use of the strategy, and provide positive feedback.
6. The teacher will show the students how to write the words on one half of a piece of paper, and the mnemonic device on the other half. Then, they can fold it in half to practice.
7. The teacher will describe other instances where mnemonics can be used: remembering history facts, math rules, science, etc. The class will be asked to participate with any other ideas.
8. The teacher will encourage the class to use the mnemonics strategy for this week's spelling words.
9. Throughout the next three days of the week (Tuesday, Wednesday, and Thursday), during spelling practice time, the teacher will remind the students of the strategy and its usefulness.

Lesson 2: Syllabication

Lesson time: 25 minutes

To be used on Monday after the spelling pre-test and

Attributions questionnaire

1. The teacher will explain that another way to remember how words are spelled is to exaggerate how the word sounds, or pronounce the words a little differently in order to be able to remember the spelling.
2. The teacher will model the strategy and describe some examples:
WedNESday, home-made, e-x-ample, or exaggerate the “r” in quarter
3. The teacher will describe that it takes some work to make these up and remember them, but just like mnemonics, once a student knows them, it might be easier to remember than to memorize the order of the letters in the words.
4. The teacher will ask several students to explain the strategy and how it works to her.
5. The class will divide into partners and use the current week’s spelling list to make up some ways to think how they sound, exaggerate sounds, etc. The teacher will monitor the students during this, and provide appropriate feedback.

6. The teacher will tell the students that it may be helpful to make a check or mark next to each word on the list once they have a way to remember the spelling using syllabication.
7. The teacher will emphasize that this strategy can be used to remember how to spell any word, and it may be helpful in high school and the rest of life where spelling is important.
8. The teacher will encourage the class to use the syllabication strategy and/or the mnemonics strategy for the spelling words throughout the week.
9. Throughout the next three days of the week (Tuesday, Wednesday, and Thursday), during spelling practice time, the teacher will remind the students of the strategy and its usefulness.

Lesson 3: Imagery

Lesson time: 25 minutes

To be used on Monday after the spelling pre-test and
Attributions questionnaire

1. The teacher explains to the students that individuals can picture how the word looks, and this will help them remember how to spell it.
2. The teacher will give several examples, and describe how one can think of the word's aesthetic characteristics:
su-ff-er, l-one-ly, exce-ll-ent
3. The teacher will describe that it will be important to teach yourself imagery of the word that you will be sure to remember, and that imagery may not work for every word for every person. She will state that one must have a plan for how to imagine each word, and that it might not just come naturally.
4. The teacher will have her students describe the strategy to her, and provide her with examples. The students can come to the board and describe how they imagine a word while writing it.
5. The teacher will have the class do this activity either independently or with a partner, using the new week's spelling words. She will travel around to all the students and ask them to describe how

they visualize a word, and how it will help them to remember the spelling.

6. The teacher will explain to the class that it might help to write out the words how they will imagine them, to be used as reminders.
7. The teacher will explain that the imagery strategy can be helpful for any spelling word, as well as to remember facts for other classes, such as science and math.
8. The teacher will encourage the class to use the mnemonics strategy for this week's spelling words.
9. Throughout the next three days of the week (Tuesday, Wednesday, and Thursday), during spelling practice time, the teacher will remind the students of the strategy and its usefulness.