THE EFFECTS OF PARENTAL USE OF LEARNING-STYLE PREFERENCE STRATEGIES ON PARENT AND STUDENT ATTITUDES TOWARD HOMEWORK ASSISTANCE AND STUDENT ACADEMIC SELF-PERCEPTION

Stacy Ewings

MAT, Sacred Heart University, 1999
BA, Iona College, 1998

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Abstract

This study examined parent attitudes when assisting with elementary school students’ homework, comparing parents who used learning-style preference strategies with parents who used traditional homework strategies. The study also examined the attitudes toward homework and the academic self-perception of elementary students.

Teachers often expect parents to become involved in their child’s homework, but many parents are unsure of the strategies to use when helping. This study used an experimental research design. Participating in the study were 68 parents and 66 students randomly assigned to either the treatment or comparison group. The experimental parent group received data on their own learning style and their child’s learning-style preferences. They also received training on strategies to help with homework based on each child’s learning-style preferences. The comparison group received training on traditional homework strategies without the learning-styles component. All participants implemented the strategies for seven weeks of an eight-week period. Each group monitored and recorded information about parent-assisted homework on a researcher-designed survey.

Quantitative analysis was utilized to examine each research question. Parent and student attitudes toward homework assistance were assessed using the Pizzo Semantic Differential Scale.
Student academic self-perception was assessed using the Harter Self-Perception Profile for Children. These two instruments were administered as a posttest only. By randomizing assignment to group, the attributes for both the groups were assumed equivalent. Therefore, any effect observed between groups was linked to the treatment and was not a characteristic of the individuals in the group. The parent participants in the treatment group completed the Building Excellence Survey (BE) (2000) learning-styles assessment. The student participants in the treatment group were administered The Elementary Learning Styles Assessment (ELSA) (2007). Both identify the subjects’ learning-style preferences and were only used for understanding of learning-style strengths. Each research question used affective measures, and data were analyzed using a one-way Analysis of Variance (ANOVA) to determine if there was a significant difference in the mean scores between the groups.

The potential benefits of this research were determining if understanding and utilizing learning-style preference strategies would promote positive parental attitudes toward homework assistance and enhance students’ attitudes and academic self-perceptions. The results showed that there was no significant difference between treatment and comparison groups regarding parent and student attitudes or student scholastic competence ($p > .025$).
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I can do anything through Him who strengthens me. I am grateful for Christ being in my life, for without Him, I am nothing.

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DEDICATION

This work is dedicated to my husband, Arnold R. Ewings Jr., without whose caring support it would not have been possible. And to my mom, Joyce A. Stewart, for teaching me that even the largest task can be accomplished if it is done one step at a time and to never give up on your dreams.
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CHAPTER ONE: INTRODUCTION

Appropriate parental support can contribute to a student’s academic self-perception (Hoover-Dempsey et al., 2001). However, many parents only become involved when they feel there is an explicit need for involvement. Because many parents feel they are not capable of helping with academics, it is important for schools to address the need for parental support (Baker & Stevenson, 1986). Relevant parental involvement may increase when parents have clear guidelines on helping with homework (Epstein & Van Voorhis, 2001).

It is incumbent upon educators to identify the learning styles and academic strengths of the students in their classes and share this information with parents. Unfortunately, parents are not provided with the training necessary to make such evaluations. Instead, they are often forced to draw upon their prior experiences as students in order to help their own children with homework (Epstein & Van Voorhis, 2001). This method of providing assistance may not be effective for many children since members of the same family often learn in different ways (Dunn & Dunn, 1992). Studies have been conducted on parental involvement with regard to homework and student scholastic competence. Hoover-Dempsey and Sandler (1997) found that when parents were given specific instructions on how to help their child with homework, the student’s scholastic competence increased. Wahlberg (1984) also found that parental involvement in their child’s education had a profound impact on the child’s academic, behavioral, and affective learning.

This study examined the effects of specific parental learning-style training strategies utilized during homework sessions as compared to homework sessions conducted by parents who received training in traditional homework-help strategies. The study sought to determine if there
was a difference in students’ academic self-perception and student/parental attitudes toward homework assistance.

**Rationale for Selecting the Topic**

Researchers from Duke University analyzed over 60 studies and concluded that homework has a positive effect on student achievement in middle school and high school (Gilmer, 2006). The *No Child Left Behind Act*, enacted in 2002, increased high-stakes testing in the public schools resulting in increased homework assignments and a need for increased parental involvement. A study conducted by Clark (1983) found that when parents helped children with homework by providing a quiet atmosphere and a regular study time, children did better in school. Hoover-Dempsey and Sandler (1997) suggested that parents’ involvement in their children’s education is dependent on the parent’s sense of academic self-perception as a result of helping a child succeed in school and also on the opportunities provided by the school districts.

Researchers have suggested that there is a critical need for empirical research that focuses on the content, processes, and outcomes of parental involvement with homework (Hoover-Dempsey et al., 2001). The purpose of this study was to determine if parental attitude towards homework assistance was affected when he or she was given specific knowledge of their own and their child’s learning-style preferences as compared to parents who were provided with only traditional homework strategies. This study also examined students’ attitudes toward homework assistance and their academic self-perception when parents assisted with homework either by using personalized learning-styles strategies or traditional homework strategies.
Related Literature to Support the Rationale

In a synthesis of research, homework was found to be an integral part of many students’ lives. Cooper, Robinson, and Patall (2006) noted that homework impacted students in different ways. Research suggests two major benefits to assigning homework. The first is that homework can benefit students’ personal skills by providing opportunities to enhance self-discipline, self-direction, and organizational skills. A second benefit of homework is that it can improve a student’s study skills by increasing understanding (Cooper, 1989).

Parents primarily become involved in their child’s education through assisting them with homework. A study conducted in 2001 by Hoover-Dempsey et al., examined what strategies parents utilized to assist their child, and how their involvement in the homework process contributed to the child’s learning. Results of this study showed that parents became involved with homework because they felt that they should be engaged in the process and that schools expected parents to participate with their children in homework procedures. The study also concluded that parents were engaged in the homework process in a variety of ways that included monitoring homework completion to more complex activities such as instructing their child in concepts. According to the study, parents reported that they are often “eager to support their children’s learning but do not always know how to help or why their involvement is important” (Epstein & Van Voorhis, 2001, p. 3). Parental misconceptions can lead to feelings of inadequacy and frustration with the homework process for both the child and the parent (Kay, Fitzgerald, Paradee, & Mellencamp, 1994).

There has been overwhelming research on learning styles and effectiveness when students understand their learning-style strengths. Instruction utilizing learning styles is considered to be a contributing factor to the success of many students (Romanelli, Bird, & Ryan,
2009; Turner, 1992). There are different theories on learning styles and a variety of ways to measure a person’s learning style. The Dunn and Dunn learning-styles model has been extensively researched. In addition, the four instruments used to assess the Dunn and Dunn learning-styles preferences have high reliability and validity ratings (Burke, 1998; Curry, 1987; Keefe, 1982).

There has been overwhelming research on learning styles and their effect when students understand their learning-style strengths. Instruction utilizing learning styles is considered to be a contributing factor to the success of many students (Romanelli, Bird, & Ryan, 2009; Turner, 1992). The present study contended that the implementation of learning-style preference strategies would show significantly higher positive attitudes toward homework assistance for students and parents, as well as a higher rating in academic self-perception of students, than those parents and students who used traditional homework assistance methods.

**Statement of the Problem**

_A Nation at Risk_ (National Commission on Excellence in Education, 1983) stated that parents are vital to an academically successful home-school connection. Most schools have worked on cultivating relationships with parents. However, many parents still feel inadequate offering homework help. A study conducted by Kay et al., (1994) found that not only did parents feel inadequate, but they also were unclear of the teacher’s expectations. A second finding showed that although parents were aware of their own learning styles, they were unclear of their child’s learning style. One person interviewed in the study stated, “If I could actually see once in a while how they’re teaching him, then it might spill over into how I could do it at home” (Kay et al., 1994, p. 555).
Decades of research on homework and parental involvement have been inconclusive. According to Baker and Soden (2000), most research in this area is disputable because of the non-experimental designs used to conduct studies. Non-experimental designs do not include the necessary controls to accurately measure results of parental involvement. In addition, inconsistent definitions of parental involvement have contributed to the problem.

Research also has been conducted on the benefits of students’ understanding of their own learning-style strengths when completing homework (Turner, 1992). However, studies rarely included encouraging parents’ awareness of their children’s learning-style strengths. There is a need for empirically based research on the impact of parental involvement in elementary students’ homework and the effects of parents understanding their child’s learning style.

**Potential Benefits of the Research**

Potential benefits of this research may include changing attitudes toward homework assistance for both parents and children, and building positive academic self-perception in students. Studies have shown that parents become actively involved in their child’s education when schools communicate expectations about homework. Informed parents then respond positively, fostering the home-school connection (Sheldon, 2003). Learning-styles training for parents may provide a better foundation in how to assist with homework.

A common understanding of learning-style preferences may positively affect the attitudes of parents and students toward homework assistance. Parent participation in a learning-style workshop can help develop a clearer understanding of each child’s strengths and how that child best learns new and difficult information (Dunn, Rundle, & Burke, 2007). Positive interactions between parent and child can increase communication leading to improved family relationships and the potential to promote positive academic self-perception in the student. An affirmative
attitude for both parent and child also may result from the knowledge of learning-style preferences.

A future benefit, not studied in this research, is the potential increase in state mandated test scores. When parents become involved in their children’s academic life, “students show improvement in grades, test scores, attitudes, and behavior; complete more homework, are more engaged in the classroom learning activities; and have higher attendance rates and a reduction in suspension rates” (Christenson & Cleary, 1990, p. 221).

**Definition of Key Terms**

1. *Attitudes* are “A feeling or emotion toward a fact or state.” (Merriam-Webster.com, 2012). For the purpose of this study attitudes refer to attitudes toward homework assistance.

2. *Academic self-perceptions* are a person’s own beliefs concerning their abilities and performance. This may be different from an individual’s actual performance. Academic self-perceptions are divided into four smaller categories: academic, social, emotional, and behavioral (Harter, 1982).

3. *Homework Help* is defined by the researcher as parental use of the strategies outlined during the control and treatment training sessions. Parents will assist their child in completing homework assignments assigned by each child’s teacher.

4. *Homework* is defined as “any task assigned by schoolteachers intended for students to carry out during non-school hours” (Cooper, 1989, p. 7).

5. *Learning Style* is the way a learner remembers, concentrates on, and processes new and difficult information (Dunn et al., 2007).
6. The Learning-Style Model, used in this study, (Dunn & Dunn, 1993, 1999; Dunn & Rundle, 2000; Dunn & Dunn, Rundle and Burke, 2007) consists of five major strands defined as stimuli. The stimulus strands include: (a) environmental, (b) emotional, (c) sociological, (d) physiological, and (e) psychological elements that significantly influence how many individuals learn (Dunn & Griggs, 2003, 2004).

Methodology

This study examined the impact of the independent variable, homework-help strategies for assisting with homework, on three dependent variables. The independent variable had two levels; the first level was learning-style strategies and the second level was traditional homework strategies. The three dependent variables were parent attitudes toward homework assistance, student attitudes toward homework assistance and student academic self-perception. This research study addressed the effects of specific parental learning-style strategies utilized during homework sessions as compared to homework sessions conducted by parents who received training on traditional homework strategies to help their child with homework. The study attempted to determine if there was a significant difference in students’ academic self-perception, and student and parental attitudes toward homework assistance.

Research Questions and Hypotheses

1. Is there a significant difference in parental attitudes toward homework assistance for parents who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program?
Null-Hypothesis: There will be no significant difference in parent attitude toward homework assistance for parents who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program.

2. Is there a significant difference in student attitudes toward homework assistance for students who participate in homework help treatments using learning-style preferences as compared to those who participate in a traditional homework-help program?

Null-Hypothesis: There will be no significant difference in student attitude toward homework assistance for students who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program.

3. Is there a significant difference in student academic self-perception toward homework assistance for students who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program?

Null-Hypothesis: There will be no significant difference in student scholastic self-perception toward homework assistance for students who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program.

**Description of the Setting and the Subjects**

Research was conducted in an urban school district with an enrollment of approximately 10,000 students. Socioeconomically-diverse families in this district had an average household
income of $71,493. The sample for this study was 68 fourth and fifth grade students from one elementary school in the district. All fourth and fifth graders in the district attend this school. The sample population also included at least one parent or guardian for each participant. Thirteen percent of the students were English language learners, 12% of the students had disabilities, and 7% of the students were identified as gifted and/or talented. The racial demographics of this school included 61.5% white students, 24% Hispanic students, 7.6% black students, 6.6% Asian American students, and 0.3% American Indian students. The average class size in grades 4 and 5 was 25 students.

Data from the 2009-2010 strategic school profile suggested that there was a home-school connection in the district. All teachers were issued an email address and part of the school website was used for homework support. To promote communication between home and school, the school has provided translators, if needed, for parent teacher conferences, meetings, newsletters, and phone calls. There also has been a school improvement initiative to implement a parent involvement plan related to increasing student achievement especially for second language learners in the areas of literacy and math (Strategic School Profile, 2009-2010).

**Instrumentation**

Five instruments were used to conduct this study. The researcher-designed Parent Involvement Survey was used to provide descriptive data on the frequency of homework that the students had, and the frequency of the time parents spent assisting their child with homework. The Pizzo Semantic Differential Scale (1981) and the Harter’s Self-Perception Profile for Children (1985) were administered to measure attitude and student scholastic competence. The Elementary Learning Styles Assessment (ELSA) (2007), and the Building Excellence Survey (2000) were utilized for treatment purposes only.
**Researcher-designed Parent Involvement Survey.** Descriptive data were collected using a survey created by the researcher (see Appendix A). Each parent was asked to monitor and self-report how frequently he or she was involved in helping their child with homework each night. Parents were asked to fill out the survey using check marks for each night that parents assisted with homework. The subject area(s) in which assistance was provided were also noted on the survey by the parent. This survey was created and used to provide descriptive information about the treatment group and the comparison group. This survey was also utilized to ensure that the threat of experimental mortality was minimized.

**The Elementary Learning Styles Assessment.** The ELSA (2007) (see Appendix B) is an online assessment that is used to identify student characteristics based upon their learning-style preferences through five different categories that include environmental, emotional, sociological, psychological, and physiological. The assessment is composed of three sections. Each section includes a reading passage and 25 multiple choice questions for the students to answer. The student’s learning-style preferences are immediately determined and a report is generated. It is important to note that data collected from the ELSA (2007) were not analyzed to answer any of the research questions.

The information obtained from the ELSA (2007) was used solely for the treatment homework strategies workshop presented to parents. The reports generated from the ELSA (2007) were used as part of the treatment to explain individual learning styles of each student participant to each parent in the treatment group.

In the development of this instrument, test-retest was utilized to determine internal-consistency reliability of the ELSA (2007). The reliability coefficient ranged from .719 to .924 for each element (Dunn et al., 2007). Content validity was established by a panel that agreed the
instrument precisely measured the 20 elements of the Dunn and Dunn Learning-Style Model (Dunn et al., 2007).

**Harter’s Self-Perception Profile for Children.** This scale is a revision of the Perceived Competence Scale for Children created by Harter (1985). The measure was developed to “tap into children’s domain-specific judgments of their competence, as well as global perception of their worth or esteem as a person” (Harter, 1985, p. 5). There are six subscales: scholastic competence, social acceptance, athletic competence, physical appearance, behavioral conduct, and global self-worth. This study analyzed the scholastic competence subscale to examine students’ perceptions of their competence or ability in the area of scholastic performance. Each subscale contains six items, representing a total of 36 items. For each group of questions, three items are written to reflect high competence, and three items are written to reflect low competence. For each question the student is asked to decide which kind of child is most like him or her, and then each subject is asked if this is *sort of true* or *really true* for them. Each item is scored on a scale from 1 to 4. One indicates that the child has a low-perceived level of competence, and 4 indicates a high-perceived level of competence. Harter’s Self-Perception Profile for Children was normed on four samples of children (1,543 total) (Harter, 1985). The overall internal consistency reliability was based on Cronbach’s Alpha and ranged from .71 to .86. For the scholastic competence subscale coefficients the internal consistency ranged from .80 to .85 across the samples (Harter, 1985).

**Pizzo Semantic Differential Scale.** This scale (see Appendix C) was originally created by Pizzo (1981) "to compare the attitudes of students tested in an acoustic environment congruent with their preferences for the element of sound with those of students tested in an acoustic environment incongruent with their preferences for sound" (p. 155). The Semantic
Differential Scale has been modified and utilized in many studies concerning learning styles with several diverse populations since its development by Pizzo (Dunn, Bruno, Sklar & Beaudry, 1990; Dunn, Giannitti, Murray, Rossi, Geisert, & Quinn, 1990).

The Semantic Differential Scale (SDS) measures attitude using two dichotomists descriptors. This investigation used the SDS to compare the attitudes toward homework assistance of parents and students who were exposed to learning-style homework strategies with the attitudes of parents and students who were exposed to traditional homework strategies. The SDS measured the attitude of parents and students toward assistance with homework.

A Kudar-Richardson Formula 21 (KR21) was used to assess the reliability coefficient of the Semantic Differential Scale (Pizzo, 1981). The KR21 coefficient was 0.98. Reliability was established through a second test of the SDS with a KR21 of 0.99 (Pizzo, 1981).

**Building Excellence Survey.** The Building Excellence Survey (BE) (2000) (see Appendix D) is an online assessment that examines a combination of 26 elements that affect how an adult learns. The 26 elements are categorized into six parts: perceptual elements, psychological elements, environmental elements, physiological elements, emotional elements, and sociological elements. Scoring is computed by the program as soon as the participant finishes the survey and the report is generated immediately following the completion of the assessment. The report provides strategies and recommendations to learners based on their learning-style preferences. This instrument uses a 5-point Likert-type scale with answers ranging from strongly agree to strongly disagree.

The data obtained from the BE (2000) was not used for analysis to answer either of the research questions for this study. The BE (2000) information was used to compare the learning
styles of each parent to their child and provide homework help strategies in the treatment homework workshop only.

The reliability for the BE (2000) was established using a random sample \((n = 7,304)\). The reliability for the 26 factors ranged from 0.72 for verbal kinesthetic to 0.94 for intake (Dunn & Rundle, 2000).

**Description of the Research Design**

This study used an experimental posttest only design. Quantitative analysis was used to analyze data. Both parent groups (treatment and comparison) assisted their children with homework that was assigned by the teacher. The parent participants in the treatment group participated in a learning-styles workshop; the parents in the comparison group participated in a traditional homework-help workshop. The student participants were fourth and fifth grade students, drawn from a sample of convenience, and randomly assigned to either the treatment or the comparison group.

**Description and Justification of the Analyses**

Inferential statistical analyses were used to answer the research questions. Data for question one were analyzed utilizing an Analysis of Variance (ANOVA). For question one the significance level was set at \((p \leq .05)\) to determine if there was a significant difference in group means of parent attitude towards homework assistance between the treatment group and the comparison group. The second research question determined if there was a significant difference in group means of student attitude towards homework assistance between the treatment group and the comparison group. The data for question two were analyzed utilizing an Analysis of Variance (ANOVA) \((p \leq .025)\) to determine if there was a significant difference in the means on the dependent variable of student attitude toward homework assistance between the treatment
and the comparison group. The *Bonferroni correction* was used for question two to ensure that a type I error did not occur. One way of maintaining accuracy is to test each individual hypothesis at a significance level of \( \frac{1}{n} \) times what it would be if only one hypothesis were tested. This means that the results are unlikely to have occurred by chance and assumes the null hypothesis is correct (Meyers, 2006). Research question number three examined if there was a significant difference in the group means of student academic self-perception between the treatment group and the comparison group. The data for question number three were analyzed using an Analysis of Variance (ANOVA) \( (p \leq .025) \) to determine if there was a significant difference in the means of the dependent variable of student academic self-perception between the treatment and the comparison group.

**Data Collection Procedures and Timeline**

The procedures were followed according to the proposed timeline.

1. In the winter of 2010 approval from the district superintendent and principal of the school (see Appendix E) was granted to conduct the study with fourth and fifth grade students.

2. Western Connecticut’s Institutional Review Board approved the study in February 2011 (see Appendix F).

3. Assent forms were distributed to students (see Appendix G) and consent forms to parents (see Appendix H) through the United States Postal Service in July 2011.

4. The researcher received consent forms; parents and students who gave permission to be in the study were randomly assigned to either the experimental or the comparison group in July 2011.
5. Parent workshops (see Appendix I) were designed for the treatment and the comparison group by leading experts in the educational and learning-styles field in August 2011.

6. The researcher administered the ELSA (2007) (see Appendix B) to students in the treatment group in August 2011.

7. The BE (2000) (see Appendix D) was administered to parents in the treatment group in August 2011.

8. Parents attended either a traditional homework training workshop or a learning-styles training workshop in September 2011. Parents assisted students with homework help strategies for 7-weeks of an 8-week period using either learning-style strategies or traditional homework strategies. Parents monitored their involvement with homework using the researcher-designed survey from September 2011 to November 2011.

9. Monthly communication throughout the treatment occurred via email and/or notices to parents to answer questions, provide reminders of strategies taught in the workshops, and ensure parental involvement in homework (see Appendix J).

10. Letters were sent home through backpack mail at the middle of the study and at week-6 giving information on learning-style strategies as well as traditional homework strategies. The letters also provided reminders to parents about the homework monitoring log and the upcoming surveys to be completed by the students and the parents.

11. The Harter’s Self-Perception Profile for Children (1985) questionnaire and the Pizzo Semantic Differential Scale (1981) were administered to all students by the researcher in November 2011.
12. The Pizzo Semantic Differential Scale (1981) was sent home for parents to complete. Parents had the option of completing the instrument online or with paper and pencil. The SDS and the researcher designed parental involvement surveys were returned in November 2011.

13. Data were recorded and analyzed in December 2011.

**Limitations of the Study**

Random assignment to group minimized many of the internal threats to this study (McMillan & Schumacher, 2006). The researcher examined all foreseeable threats and accounted for any that occurred. For this study, history posed a potential threat. Since the experimental treatment occurred over seven weeks of an eight-week period, other events that occurred during this time could have impacted the subjects regardless of the treatment being given, causing a high threat. Two major natural weather occurrences potentially affected the outcome of this study. The study was initially delayed because a major hurricane postponed the start of the school year in late August. In addition, a significant Nor’easter at the end of October resulted in school being closed for a solid week. These two weather-related events shortened the duration of the study, and the latter could have interrupted any momentum the parents and students may have had. Finally, there are definite limitations to this study that will be discussed in greater detail in Chapter 5 due to the final small sample size and the possibility of cross-contamination between the treatment and comparison groups.

There were also possible external threats to validity despite random assignment to group. One threat that may have had a high effect on jeopardizing the external validity was the Hawthorne Effect. Since the treatment was new to all students and parents, it may have been considered a novelty to begin with and students may have done very well in the beginning. After
the novelty wore off, participants may have become less interested. To account for this, the researcher had the parents complete a homework record form. The descriptive data from the homework record showed trends in implementation of the treatment. Another possible threat was population validity. This threat could exist due to the large population of English as Second Language learners and generalizability of this study may decrease. These limitations are discussed in greater detail in Chapter Three and Chapter Five.

**Ethics Statement**

Permission to participate in this research was sought from the district’s superintendent and the school principal. To assure confidentiality, each participant was assigned a coded identification number. A neutral person collected all data. Results were made available to participating administrators.
CHAPTER TWO: REVIEW OF THE LITERATURE

The review of literature will establish the need for further empirical research on the effects of parental use of learning-style strategies in the homework process on attitude and self-perception in students. This chapter will review the research and investigate specific studies associated with (a) the literature on theoretical foundation of learning styles, (b) the Dunn and Dunn model of learning styles, (c) parents’ and students’ attitudes toward homework, (d) students’ self-perceptions of their academic abilities, and (e) parental engagement. Finally, the conclusion will explain the rationale for further research to be conducted in this area.

Theoretical Foundations of Learning Styles

Learners process information in a variety of ways. The way that a person takes in new information and uses it forms a learning style. A learning style is a way in which a learner begins to concentrate on, process, and retain new and difficult information (Dunn & Dunn, 1992). In order for a person to understand his or her own learning style, individuals need to examine how they prefer to use their abilities (Sternberg, 1994). Learning is based on students’ experiences, culture, and gender (Tomlinson, 1999). Students may have preferred ways of taking in, processing, internalizing, and retaining information and skills (Dunn & Milgram, 1993). Students’ learning styles can help them understand how to process what is communicated and approach tasks. Understanding how students learn is important to assist them to achieve their fullest potential. Learning styles have been studied for many years and effective learning-styles instruction is considered to be a contributing factor to the success of students at all levels of education (Romanelli, et al., 2009; Turner, 1992). Throughout the years, many different theories, models, and ways to measure learning styles have been developed. The learning-styles theories that will be reviewed are the Gregorc Model (1984), Kolb’s Learning-Style Model
(1984), and the Dunn and Dunn Learning-Style Theory (1991). These three models were chosen for further studying because they are the more well-known and researched models. Additionally, there are variations of the Gregorc Mind Style Model and Kolb’s Learning-Style Model used in both management and education settings.

**Gregorc’s Mind Style Model**

Anthony Gregorc began his work with learning styles in 1961; his work evolved into the model, Mind-Styles (1984). Gregorc’s theory of learning styles is based on brain hemispherical research, in which biological characteristics contribute to how a person learns (Cassidy, 2004). The Gregorc Mind-Styles model explains how the mind works in two different ways: perception and ordering. Perception is how the learner takes in information and ordering is defined as how the learner uses the information (Gregorc, 1984).

In the Gregorc Mind-Styles model, four learning styles are identified: concrete sequential, concrete random, abstract sequential, and abstract random. Concrete sequential learners prefer hands-on experiences and have difficulties with change. These learners have a desire for perfection. Abstract random individuals have the ability to use intuition and tend to prefer to work in an unstructured environment. Abstract sequential learners, according to Gregorc, are highly verbal and have excellent writing abilities. Finally, concrete random learners will often use a trial-and-error approach when learning something new (Gregorc, 1984).

Gregorc believes that the learner is born with certain tendencies. An individual will use all four styles but may have a preference for one style over another. The learner needs to be able to work under any of the styles, not just the style intrinsic to the learner (Cassidy, 2004).

Gregorc studied over 400 high school age and adult subjects and the results revealed “that individuals learn with ease when the environmental demands and expectations align with their
particular systems of thought” (Gregorc, 1984, p. 54). He concludes that there is a significant need to further study learning styles and critical questions need to be addressed in regard to styles and education.

**Kolb’s Learning Style Model**

In 1984 David Kolb developed a learning-style model that he believed was hereditary. Kolb theorized that during the learning process, people develop preferences the same way that they have preferences for leadership or negotiation. Kolb stated that learning styles were closely linked with cognitive skills (Kolb, 1984). For effective learning to take place, Kolb believed that two activities had to happen simultaneously: perceiving and processing. As indicated by Kolb, the learning-style cycle had four parts: concrete experience, reflective observation, abstract conceptualism, and active experimentation. In his model, a student experiences something new and then reflects on the possible outcomes. Having thought about what might happen, the student then acts accordingly. Kolb suggested that acting upon the experience will create a new experience, and the cycle will begin again (Cassidy, 2004). For each part of the learning cycle a learner favors one part over the other three, and may become more skilled in this approach to learning than in the others. To determine one’s learning preference, learners need to decide whether they “think or feel” as well as whether they prefer to “watch or participate” (Hurst-Wajsyczek, 2010).

Kolb developed a self-reporting instrument called the Learning Style Inventory (LSI) (1984). The LSI (1984) was designed to help people understand their own learning style. The instrument contains a series of open-ended questions using a Likert-type scale. The LSI (1984) yields six scores and two combination scores, which indicate whether the learner is considered to be a diverger, assimilator, converger, or accommodator (Sugarman, 1985). However, the
reliability of this instrument varied. Some studies that were conducted to determine the reliability of the LSI (1984) found it to have low test-retest reliability statistics, while other studies conducted reported high test-retest reliability statistics (Cassidy, 2004).

Kolb’s model sparked many other theorists, who either added or changed components of his model. In the 1970s Honey and Mumford rephrased Kolb’s model to make it more appealing to the layperson (Altherton, 2011). They differed slightly from Kolb’s model: Honey and Mumford did not emphasize the order of the cycle, instead they believed that all learning styles were necessary and that some styles were better suited for certain situations.

**Dunn and Dunn Learning Style**

Dunn and Dunn (2007) state that learning style is the way a learner “concentrates on, processes and remembers new and difficult academic information or skills” (Dunn et al., p. 1). The Dunn and Dunn model is based on the idea that everyone has a learning style that is unique to that individual learner (Carbo, Dunn, & Dunn, 1991). There are several assumptions made by this model. These assumptions include: (a) most children can learn, (b) everyone has strengths, (c) students have instructional preferences that can be measured, and (d) many students can use their learning-styles strengths to learn new and difficult information (Dunn & Dunn, 1992, 1993). The Dunn’s learning-style model includes five strands that have an effect on each student’s learning (Dunn, 2000). These five strands include environmental, emotional, sociological, physiological, and psychological. The strands are further broken down into 21 stimuli. Not every student is affected by all 21 stimuli; however, they may exhibit strengths in 6 to 14 stimuli (Dunn & Dunn, 1992, 1993; Dunn et al., 2009).

According to Dunn and Dunn (1993) people can learn easily without using their preferred learning styles, but most people can learn new and difficult information better when their
learning-style preferences are used. An individual’s learning-style preference draws from a mixture of biological and developmental characteristics. Each person’s preferences can vary greatly, resulting in a need for multiple approaches and methods for learning. Dunn and Dunn have written more than 300 journal articles, books, and chapters in books that describe differences in an individual’s learning style and have provided specific strategies to assist learners in their learning-style strengths (Dunn, Denig, & Lovelace, 2001: Koch, 2007).

The Dunn and Dunn learning-styles model was one of the first to incorporate instructional practices in educational settings. Four different instruments have been developed to assess primary, secondary, and adult learners. The Dunn and Dunn model differs from Kolb and Gregorc in that theory is not related to heredity but instead to an understanding that most traits develop over time, especially when the learners are taught with their strengths in mind (Burke, 1998). The Dunn and Dunn learning-styles model has been extensively researched. In addition, the four instruments used to assess the Dunn and Dunn learning-style preferences have high reliability and validity ratings (Burke, 1998; Curry, 1987; Keefe, 1982).

Research on the Dunn and Dunn Learning Styles Model

There has been a significant amount of research on the Dunn and Dunn learning-styles model. The research has spanned all grade levels in every content area with varying demographic populations.

Dunn, Griggs, Olson, Gorman, and Beasley (1995) conducted a meta-analysis of learning-style preferences. The meta-analysis consisted of 42 experimental studies spanning 10 years, 1980 – 1990, and was conducted across 13 universities. The search for studies examined the effects of learning-style preferences based on treatments that were either congruent or dissonant. The search identified 138 studies that met the criteria, 42 of those studies used an
experimental design. From those 42 studies, 6 of them posed threats to both internal and external validity and were removed from the analysis. From the 36 remaining studies, information based on (a) study characteristics, (b) instrument type, (c) sample properties, (d) setting, (e) instruction methods, (f) method, (g) measure, and (h) attitude were coded. The overall un-weighted group effect size value \((r)\) was .384, and the weighted effect size value was .353. The mean difference \((d)\) equaled .755, which suggests that students whose learning styles were accommodated for could be expected to achieve 75 percent higher than students whose learning styles had not been accommodated for (Dunn et al., 2009). This study suggests that matching students’ learning styles with educational methods that support the students’ styles will positively impact their academic achievement. While the findings of this meta-analysis were positive, Dunn and her team stated that it would be “appropriate to examine whether specific instructional treatments impact more or less effectively on students of different academic levels” (Dunn et al., 2009, p. 360). Also further study should be done to determine whether there are differences in learning-style preferences among high, average, and low socioeconomic students.

In 2005 Lovelace conducted a quantitative meta-analysis between 1980 and 2000. Lovelace examined the overall effectiveness of the Dunn and Dunn model and analyzed what variables might affect the outcome from use of the model. After a literature investigation Lovelace (2005) synthesized 76 research studies over a 20-year span. The sample size was 7,196 and 168 individual effect sizes were realized for achievement and attitude (Lovelace, 2005). The mean effect sizes \((r = .32)\) indicated that the Dunn and Dunn Learning-Style Model was effective for improving student attitude toward learning. Also, none of the effect-size values were negative which indicated, “traditional education never produced higher achievement or attitudes than did learning styles instruction in any of the studies investigated” (Lovelace, 2005, p. 179).
There were five moderating variables that had an effect on achievement. These variables included publication type, preference, school type, academic level, and demographic region. The results of the meta-analysis on the Dunn and Dunn Learning-Style Model, “supports the position that matching students’ learning-style preference with complementary instruction improved academic achievement and student attitudes towards learning” (Lovelace, 2005, p. 180).

Learning-style strategies have not only been effective in the classroom but they are also effective when students are taught to use their learning-style strengths while studying at home. This has been explored at all academic levels. A study conducted by Ferdenzi, Griggs and Dunn (1998-1999) investigated home-learning treatments on parental efficacy, perceived effectiveness of parents as a facilitator for learning, and first grade student’s achievement in word recognition. For this study 82 students completed the Learning Styles Inventory: Primary Version (LSI:P). Parents were assigned to one of three the treatment groups: (a) traditional methods, (b) book assisted methods, or (c) modality-responsive home learning methods. Students were administered a pretest and posttest on word recognition. The results of this test indicated that first-grade students benefited from home-based modality instructional strategies ($p \leq .0001$) that matched their perceptual preferences (Ferdenzi, et al., 1998-1999). The researchers also administered the Perceived Effectiveness-As-Learning Facilitator attitude scale to parents. An ANOVA was conducted which showed that the $F$-value ($p \leq .001$) for the parent attitude and homework learning treatment was significant. There were significant differences among the mean attitude scores. Parents who used the modality-based home instruction scored significantly higher as learning facilitators ($m = 40.86$) than those parents who used the traditional homework methods ($m = 34.14$), or the parents who used the book learning methods ($m = 29.18$) (Ferdenzi et al., 1998-1999). The findings of this study on student achievement are similar to Lovelace’s
Another study by Turner (1992) compared the effects of learning-style prescriptions and modality-based instruction on spelling achievement in fifth-grade students. For this 14-week study, there were a total of 65 students in either the comparison group, instructions group, or the individualized group. Achievement scores on spelling tests for three weeks prior to the study served as baseline data. Participants in groups two and three were administered the Learning Styles Inventory prior to the study. Students in all of the groups completed similar activities and spelling homework. A repeated measure analysis of variance was used to determine the results. There was no significant difference for the comparison group, but there were significant differences for both the instructional group, \( F \)-ratio was 6.65 \((p \leq .05)\) and for the individualized group \( F \)-ratio of 11.29 \((p \leq .05)\) (Turner, 1992). Turner reported that when students understood their learning style and were given homework that allowed them to work within their learning-style strength, spelling achievement significantly improved. “When students attend to the most important elements of their learning style while studying, efficiency was markedly increased” (Turner, 1992, p. 103).

Beyond academic achievement, it has been reported that students who are aware of their learning-style preferences find the information helpful. “It improved perceptions of their personal abilities and empowered them to strive beyond what they had previously accomplished” (Dunn et al., 2009, p. 138). A study conducted by Geiser (1999) examined the effects of traditional study strategies and learning-style strategies of eighth-grade math students. The sample for this study was 130 middle school students. The study was conducted in three phases. During the first phase no treatment was given. Students completed the Learning Styles
Inventory (LSI) (1984), as well as the Semantic Differential Scale (SDS). During this phase students completed two weeks of math instruction and two mathematics tests were administered. In the second phase, students were provided with information on how to study for a test. One group received traditional methods for studying and the second group received their learning style profile and individual homework prescriptions. Two weeks of instruction and two math assessments were provided during this time. In the third and final phase of Geiser’s study the first group was given more study skill instructions while the second group was provided with information regarding study strategies that would accommodate the student’s individual strengths. As in the first two phases, the third phase included two weeks of math instruction and two tests. The study revealed that students who used learning-styles strategies to study for tests versus those who used traditional methods not only scored higher in math achievement but also scored higher on attitude scores. After students learned about their learning style and were given strategies on how to use them effectively an ANCOVA revealed that these students scored significantly higher in attitude scores ($F (1, 65) = 7.467, p \leq .01$) than students in the traditional group. Also, an independent sample t-test was conducted for test six and there was a significant difference in academic achievement between groups for below-average students ($F (1, 49) = 4.230, p \leq .05$) (Geiser, 1999). These data support the idea that learning-style study strategies are beneficial for below-average students. This study also indicates that students can assume responsibility for their own learning by using strategies that are unique to their strengths.
Homework and Attitudes

Homework can be defined as “any task assigned by school teachers intended for students to carry out during non-school hours” (Cooper, 1989, p.7). According to Epstein and Van Voorhis (2001) there are two purposes for assigning homework: instructional and non-instructional. The main reason for providing instructional homework is to practice material that has already been taught in the classroom, but homework can also be given to prepare students for new learning that may take place, or extend what they have already learned. There are other purposes for providing homework that go beyond instructional reasons. Homework can provide communication between parents, teachers, and students. Homework has also been used to promote positive behaviors in children that can be used in other areas of their lives (Cooper et al., 2006).

Regardless of the reasons why homework is given, it is evident that homework is an important part of a student’s life. According to the National Assessment of Educational Progress (NAEP), over two-thirds of third graders have some type of homework each night. This percent increases to three-quarters between middle school and high school aged students (Campbell, Reese, O’Sullivan, & Dossey, 1996). The amount of time and the type of homework given to students varies from study to study. However, the average time a first or second grade student has spent on homework has increased since 1981. In 1981, it was reported that seven- and eight-year-olds spent an average of 52 minutes a week on homework and in 1997 the average amount of time increased to 128 minutes a week (Hofferth, 2000). The ever increasing amount of time students spend on homework shows the need for empirical research in regard to homework and the effects homework has on both parents and students.
In two syntheses of research conducted by Cooper and his team (Cooper, 1989; Cooper et al., 2006), 4,400 studies were examined between 1987 and 2004. In order for a study to be included several criteria had to be met. Cooper examined the causal relationship between homework and student achievement. The results of these meta-analyses found homework to be an integral part of many students’ lives. Cooper et al., (2006) noted that the homework impacted students in different ways. Research suggests two major benefits to assigning homework. It can improve students’ personal skills by providing opportunities to enhance self-discipline, self-direction, and organizational skills. The other beneficial aspect is that students’ study skills are more methodical and conceptualized (Cooper, 1989).

In the 2006 meta-analysis conducted by Cooper et al., there were six studies which randomly assigned parents to be trained in homework strategies or to receive no training. These studies according to Cooper (2007) provide the strongest evidence concerning the effect of parental involvement. Parent training had a positive impact on completion rates, fewer homework problems, and improved academic performance in elementary students.

There has always been controversy surrounding the idea of homework. With the amount of time a student spends on homework in a given week, one consistent issue that arises is parental involvement in the homework process. A review of literature by Hoover-Dempsey et al., (2001) focused on parent motivation for homework and identifying patterns in parental involvement with homework. These remarked that homework may have a favorable impact on parents. By showing an interest in their child’s academic performance, it promotes a connection between home and school (Epstein & Van Voorhis, 2001). Conversely, parents may project negative attitudes toward homework. Parents may add to their child’s confusion if they are uncertain of the concepts or strategies expected for a particular homework assignment. At times
parents also create added pressure on the student to complete assignments or to do them in a way that is unrealistic for the student (Cooper et al., 2006).

Another study conducted by Hoover-Dempsey and Sandler (1997) found many parents become involved with homework because they feel it will have a positive impact on their child. However, a qualitative study conducted by Kay et al., (1994) found that parents did not feel prepared to help with homework. A parent of a fourth grader explained “when it comes to teaching my child, I feel like times have changed since I was in school, and I hate to teach him wrong” (Kay et al., 1994, p. 555). Researchers stated that parents did not have a clear understanding of teacher expectations. Parental attitudes have an impact on their child’s attitude toward homework. For some students the lack of positive effects that homework can provide may be due in part to the attitude toward homework held by their parents (Cooper, Lindsay, & Nye, 1998). In the study conducted by Kay and her team, some parents made statements toward homework that showed frustration. “I am feeling swamped with the homework. Even though each subject takes a reasonable amount of time, I feel the total time spent on homework is too much…I think this is discouraging for him” (Kay et al., 1994, p. 556). Some students may even become exasperated. At times, student attitude toward school becomes one of dislike. After having spent all day in school students often feel that they should not have to spend evenings studying. Students and parents often feel that homework takes away from playtime and often sleep. Homework and the completion of it can add stress to the family life (Cooper, 1989). It has been suggested that further research be done to examine the non-academic effects of homework such as students’ learning to take responsibility and attitudinal changes towards homework (Cooper 1989; Kay et al., 1994).
A cross-cultural study completed by Chen and Stevenson (1989) investigated students’ feelings about homework. The researchers examined students from America, China, and Japan. All students were at the elementary level. Schools selected were a representative sample of socioeconomic strata from metropolitan areas. From the chosen area 20 schools were selected. From each school two classes of first and fifth graders were randomly selected. A random sample of six boys and six girls were selected from each class that participated. Interviews were conducted with the students, their mothers, and classroom teachers (Chen & Stevenson, 1989). The study conducted with American Grade 1 and Grade 5 children consisted of asking students to choose a face to represent their feelings about homework with expressions that ranged from a frown to a smile. Sixty-one percent of American fifth graders chose a frowning face and 16% chose a smiling face. Mean ratings were 2.2 on a 5-point scale for Grade 5 $F(2, 721) = 133.61, p < .001$, and 2.5 for Grade 1 $F(2, 713) = 63.22, p < .001$ (Chen & Stevenson, 1989).

A second study by Chen and Stevenson (1989) followed up the initial study of Grade 1 students four years later. In this follow-up study the students mean rating towards feelings about homework declined from 2.5 to 2.4. Students were asked to give reasons why they spent as much time as they did on homework. The most common responses were “because it takes that long” and “because their parents wanted them to” (Chen & Stevenson, 1989, p. 558). Chen and Stevenson (1989) suggest that the student responses indicated an extrinsically motivated approach to the task. Warton (2001) suggests that students should understand why they are required to complete a task and that there is often a conflict associated with homework caused by the lack of knowledge from the adult. If parents understand how to help their child with homework in a way that makes sense to both the student and the parent, attitudes toward homework may become more positive.
Cooper and his team (1998) believe that future investigators need to find ways to involve families in the homework process especially those from lower income families or from families in which obstacles exist that make completion of homework difficult. They also suggested that although there is extensive data on the effectiveness of homework and academic achievement, future research should include examining improved motivation and appropriate cognitive strategies to gauge the impact of homework, especially in younger children (Cooper, et al., 1998).

**Academic Self-Perception of Students**

Self-perceptions are a person’s own beliefs concerning their abilities and performance. This may be different from an individual’s actual performance. Self-perceptions are divided into four smaller categories: academic, social, emotional, and behavioral (Harter, 1982). Many theorists suggest that self-perceptions are influenced by early childhood experiences and social interactions. People with high self-perception tend to focus on resolving problems; people with a lower sense of self-perception doubt their abilities to solve problems (Bandura & Wood, 1989).

A study by Meltzer et al. (2004), examined the relationship between teachers’ and students’ perceptions of effort and academic performance. The sample for this study included seven teachers and 225 sixth- through eighth-grade students in New England. This study examined how teachers’ and students’ perceptions influenced the relationship between effort and strategy use in academic performance. Self-assessments were used to measure effort, academic competence, strategy use, and school difficulty. Teachers rated students in academic performance and effort. Students who perceived themselves as good students were more likely to use strategies in school and exert more effort in their work ($r = 0.40, p < 0.05$). When students perceived school as difficult there was a reported decrease in effort ($r = -0.47, p < 0.05$).
and strategy use \((r = -0.31, p \leq 0.05, SD = 1.07)\). The study also compared students with learning disabilities to students without learning disabilities. A series of one-way ANOVAs showed that there was a significant difference between the two groups and their self-perceptions toward school. The results of the study indicated that learning disabled students \((M = 3.22)\) scored themselves higher than non-learning disabled students \((M = 2.50, SD = 1.07)\) in competence. A post hoc was done for all significant interactions and 2 x 2 ANOVAs were conducted. The results showed that students with learning disabilities with high self-perceptions \((M = 4.07)\) were more likely to work harder and use appropriate strategies than those students with learning disabilities with low self-perceptions \((M = 3.14, F(1.88) = 15.08, p \leq .001)\) (Meltzer et al., 2004). The 2004 study concluded that as students work hard and use strategies taught to them, they become motivated and increase their persistence toward academic success.

Rubie-Davies (2006) investigated whether teacher expectations had an effect on student self-perceptions. The study was conducted in New Zealand in eight different elementary classrooms. There were 256 student participants and 12 teacher participants for this study. Teachers were placed in one of three groups, high expectation group, average progress group, and low expectations group. The self-perception scale was adapted from the Self-Description Questionaire-1 (SDQ-1) and it was used as a self-measurement tool for students to assess themselves in academic and non-academic areas. A one-way analysis of variance (ANOVA) was used to determine any statistical differences between the three groups. The study found a significant difference in students' self-perception in academic areas relating to a teacher’s expectations and opinions of the students \(F(1, 2) = 6.69, p \leq .001\). Students had a higher self-perception when teachers had high expectations of the student. Students had lower self-perceptions when teachers had low expectations of the student (Rubie-Davies, 2006).
The family plays a key role in a child’s success at school (Bandura, 1997). A study conducted by Lynch (2002) examined the relationship between parents’ self-efficacy beliefs and their child’s achievement in reading and self-perception using sixty-six students, ages 8 and 9, along with their parents, were involved in a literacy project that lasted for one year. Parent participants completed a questionnaire about their beliefs regarding self-efficacy toward their child’s ability to read and their children were administered the Reader Self-Perception Scale and a reading test. Pearson correlations were used to examine the relationship between parent self-efficacy beliefs, children’s reader self-perceptions, and gender. There was no significant relationship between parents’ self-efficacy and children’s reader self-perceptions. However, there was a positive relationship found between mother’s self-efficacy and children’s self-perception as a reader \( (r = .35, p \leq .05) \). This study suggests that the more mothers believe in their ability to help improve their child’s reading achievement, the stronger the child believes in their own reading ability (Lynch, 2002).

Bouchey and Harter (2005) explored whether students’ self-perceptions were related to their perceptions of parent, teacher, and peer behaviors. Furthermore, they also investigated whether academic perceptions predicted perceived scholastic competence. Participants were 378 students from two middle schools. Seventy percent of these students received free or reduced lunches. The sample population included sixty-five percent Latino, and twenty-one percent European Americans. The remaining students identified themselves as African American, Biracial, or Asian. A modified version of the Self-Perception Profile for Adolescents (SPP-A) was given to each participant in the study. All constructs were included in the survey for analysis and reflected appraisals (perceived importance of math and science, support for school work, beliefs about the target student’s competence) and self-perceptions (importance of
schoolwork, scholastic behavior, and perceived competence). Student grades for two years were used as measures of academic performance (Bouchey & Harter, 2005).

Correlation analysis was conducted and results indicated that if students perceived that adults valued a subject, then the students also perceived the subject as important.

The authors concluded that how students perceive themselves is partly determined by the way that adults perceive them. Both parents and teachers play a significant role in a child’s academic life. When parents and teachers believe positively in the student’s ability, the student has a tendency to work harder, and have a positive self-worth that may result in higher academic achievement.

**Parental Involvement**

The role of parental involvement in children’s education has become a central issue in educational research. Studies have shown that when parents are involved in their children's learning, there are positive effects on student achievement, attitude, and self-concept (Epstein, 1986). According to Epstein (1986), definitions of parental involvement at the elementary level include engaging in learning activities at home such as reading skills assistance and reviewing homework for competency and accuracy. Monitoring how children spend time out of school and engaging them in conversations about their day are also beneficial (Epstein, 1986). Other definitions of parental involvement include attending school functions (parent-teacher conferences, musicals, fundraisers), and volunteering in the classroom. There are strong indications that the most effective forms of engagement are those which involve direct parent-child learning activities at home (Epstein, 1986; Pena, 2001; VanVoorhis, 2003).

Epstein (1986) examined parents’ perspectives on teachers’ practices that either increase or inhibit parental involvement in schools. A survey was sent by postal mail to 1,269 parents
who had children in first through fifth grades. Of the parents who received the surveys, only 59% returned them. The survey contained items that assessed parent attitudes toward the school and teachers. Moreover, it measured parents’ experiences with different types of involvement and communication with the school and their reactions to teacher practices and programs. Eighty-two teachers were surveyed to determine the extent to which they involved parents in the classroom. The teachers were ranked on a continuum of low to high use of parental involvement. After the data were collected and responses were examined, Epstein (1986) concluded that parent attitudes toward public education and school were positive. About 90% of the parents believed that the teacher had their child’s best interest in mind. Despite the positive attitude, parents reported that teachers could do more to involve parents in the learning process. Furthermore, results revealed that: (1) almost 58% of the parents never or rarely received requests from teachers to become involved in their child’s learning, (2) fewer that 30% said that the teacher had given them suggestions for how to help their child at home with reading and math, and (3) over 80% of the parents said that they would help their child more if they were given specific strategies on how to help them.

When the results of the teacher surveys were compared to those of the parents, Epstein (1986) found that parents were using the same strategies at home that had been recommended by the teacher. The most widely suggested techniques that teachers recommended were reading aloud, having discussions with the child, and providing a signature on the child’s work. Parents frequently experimented with these techniques, but the same parents varied greatly on whether they thought the teacher wanted them to help their child with homework or if the homework should be done independently. Epstein hypothesized that if teachers want parents to assist with homework, then programs on parental involvement with learning activities at home need to be
provided to the parents. Regardless of how parents felt about whether the teacher wanted them to help or not, 8% of the parents reported that they had never helped their child with homework.

Henderson and Mapp (2002), while working for Social/Emotional Development and Learning (SEDL), synthesized research from 51 studies conducted from 1995 to 2002 to determine the effect of parent involvement on student learning. A few of the studies were experimental or quasi-experimental in design, but most were correlational or case studies. These researchers found very little relationship between socio-economic class or ethnic background and parent involvement. When parents were involved in their child’s academics, students earned higher grades and test scores, attended school regularly, had better social skills, and were more likely to graduate and go on to higher education than their peers whose parents were not involved (Henderson & Mapp, 2002).

Balli, Demo, and Wedman (1998) investigated how differences in the degree of family involvement related to student achievement. Balli et al. based their investigation on three sixth-grade math classes containing 74 students who received 20 homework assignments that required students to interact with a family member. Students were randomly assigned to group. The first group of students received homework assignments that prompted how family members were to be involved with the assignment. The second group of students received prompts that only requested parent signatures and comments with regard to the homework. The third group did not receive any prompts for parent involvement.

The students who participated in this study were similar in terms of ethnicity and achievement in math according to a pretest conducted using the Missouri Mastery Achievement Test (MMAT) \( F(2, 71) = .001, p = .99 \). Pre- and posttests were administered to students as well as surveys which were completed by all of the students to assess family involvement in
math homework. A content analysis was conducted for the parents who were prompted to write comments on the student’s homework. Parents who were willing to discuss their involvement in homework participated in telephone interviews that lasted approximately ten minutes.

According to the surveys, 90.6% of family involvement with homework was parent involvement, with mothers helping 61.7% of the time and fathers assisting 26.1%. The other 9.4% of involvement included other family members like siblings and grandparents. Also, every student in the study worked with at least two different family members over the course of the twenty assignments. Multivariate and regression analyses of the data were conducted to assess the effects of the different prompts for each group on student achievement. The mean math scores on the pre- and posttest were compared demographic variables like family size and parent education level. Prior achievement alone accounted for 55% of the variance in posttest achievement. Parents’ education \( t = 2.457, p \leq .001 \) and having two parents living in the same house \( t = 2.096, p \leq .05 \) were positively related to achievement, but family size was not significant \( t = 1.114, p > .05 \). The results of an ANCOVA to determine the effects of family involvement on student achievement indicated no significant differences on the posttest among the three groups \( F (2, 70) = 15, p < .01 \). Although the differences were not large enough to be significant, the posttest mean scores were in the hypothesized direction. The group that prompted parents to comment had the highest average of homework scores (81.8%), followed by the group that received only direction prompts (79.3%) with the last group receiving no prompts having the smallest average scores (75.5%).

In the first group in which family comments were required, there were sixty-eight comments which the researchers classified. The largest theme that emerged was the enjoyment of the homework activity \( n = 22 \). The second theme that emerged was the use of real world
situations in the homework problems ($n = 13$). The remaining themes concerned difficulties that were found with the homework and the frustration of trying to assist with homework ($n = 23$). The researchers then solicited follow-up interviews with family members of all three groups. Telephone interviews were employed, and 24 families agreed to participate. The themes that emerged from the telephone interviews highlighted the struggle of time constraints that were associated with helping students with their homework. This theme was overwhelmingly represented in all three groups interviewed. Another theme that emerged in all three groups was that it was difficult to assist with homework for challenging concepts. The final theme that emerged from the interviews was the desire for structure. When assignments were “straight forward,” family members felt as though it was easier to assist their child with homework, and less time was spent trying to figure out the directions. Of the 24 families, 13 believed that workshops or homework hot-lines would be beneficial to alleviate this problem in dealing with more difficult homework scenarios. Although no statistical differences were found among the three groups in the amount of parental involvement and student achievement, data suggested that when prompted by both the teacher and the student, parents were more likely to be involved with homework.

Another study by Jordan, Snow, and Porche (2000) evaluated the effectiveness of parent training the effects of project EASE (Early Access to Success and Education) on children’s language and literacy abilities. Project EASE is a program that was designed to help parents develop children’s literacy skills though parent training and book-centered activities to be completed at home. The parent training was organized into five, one-month units. For each unit a trained parent educator led a session to train other parents for what to do with their child at home.
The Jordan et al. (2000) study consisted of 177 kindergarten students and their parents from four different schools. All of these four schools were Title I schools and were purposely chosen for that reason. The participants in the study were divided into two groups: one group consisted of the students and families that participated in project EASE, and the second group was the comparison group.

A survey was given to parents at the beginning of the study to determine their level of home support for literacy and distinguish what parents already did at home from the intervention. Students participated in a pretest in September and a posttest in May using the Peabody Picture Vocabulary Test-Revised (PPVT-R) (1981) and the Comprehensive Assessment Program (CAP) which included subtests on vocabulary, comprehension, sequencing, letter recognition, and sequencing. Finally, information was obtained on what parents actually did in the intervention to gain a better understanding of the influences of the various components (Jordan et al., 2000).

A repeated measures ANOVA was used to determine the effectiveness of the intervention. Project EASE participants made statistically significantly greater gains ($p < .05$) than the control groups on the CAP subtests in vocabulary comprehension, story sequencing, and sound awareness. The researchers also examined the effect of participation variables for the project EASE experimental group. Parents whose children scored higher on the CAP pretest across the home support measures tended to participate more fully. Both attendance at the workshop and the home activities were positively related to the home support ($r = .17$). Children whose parents participated in the program in its entirety had high levels of home literacy activities and environments ($r = .64$, $p \leq .0001$). Using regression analysis, the researchers tested whether participants in Project EASE who completed more of the at-home support activities and attended more training sessions did better than the participants who were not as involved.
Attendance was a statistically significant predictor ($p = .04$). The more activities a family completed in literacy, the higher the student gains.

A descriptive case study by Mapp (2002) investigated how and why parents were involved in their child’s education. The study focused on low income families and examined the factors that influenced parent involvement. The study took place in an urban school with a socioeconomically diverse population of approximately 220 students. Survey data were collected by the school related to participation of parents’ in at-home and in at-school activities. Of those surveyed, 90% reported being involved in at least one parent program.

Results of Mapp’s (2002) study supported previous research that found that parents want children to succeed in school regardless of ethnicity or socioeconomic status. The study also showed that parents have a strong desire to help their child and that they understand parental involvement has a positive impact on their child’s success (Mapp, 2002; Epstein, 1986). The most significant findings in the study were that social and school factors influence how and why parents are involved in their child’s education. The social factors included the parents own educational experience, the level of parental engagement they received, time constraints and responsibilities, and their own beliefs and cultural norms about family involvement. The school factors that affected parental involvement included making a connection between school staff and parents by cultivating a trusting relationship; parents then became more involved in the child’s educational process.

Another study that explored the factors that influence parental involvement was conducted by Pena (2000). Pena collected qualitative data over a one year span to identify factors that influenced parental involvement in Mexican-American families. During this time she conducted interviews with parents, teachers, and children in two kindergarten classes, and
two third grade classes, and two fourth grade classes. The researcher also conducted observations of meetings and school activities. Interviews were conducted with 28 parents, 4 teachers, and the principals.

The researcher found that there were many elements that influenced parental involvement. Some of these aspects included cultural attitudes, language barriers, educational level of the parents, family dynamics, and attitudes of the educators. During the interviews, parents gave recommendations for improving parental involvement. These recommendations included changing the attitude of the school staff to “make parents feel more welcome” (Pena, 2000, p. 159). Another recommendation was to provide parents with knowledge or training about how to be involved in their child’s education.

An interactive science homework study conducted by Van Voorhis (2001) compared the effects of TIPS or Teachers Involve Parents in Schoolwork homework with homework that contained the same content but was not interactive. TIPS is an interactive homework program developed by Joyce Epstein in partnership with John Hopkins University. TIPS provided sample assignments for different subjects with learning goals and directions for the students on how to involve family members. TIPS also provided an opportunity for parents and students to offer feedback to the teacher. This study used three classes with two different sixth-grade teachers, and two classes with two eighth-grade teachers. There were a total of 253 student participants and four teachers involved in this study. TIPS homework was assigned to six of the ten classes; the other four classes received homework on the same content but it was not interactive. The students and teachers participated in the study for 18 weeks, which was equivalent to two marking periods.
Students in the group that received the TIPS homework were given information about how to interact with their families at home. Questions were provided with each homework assignment for parents and students to answer together. At the conclusion of the study, all students and parents completed surveys based on their reactions and experiences. Background information on each family was also obtained and used to control for possible effects on the results. Teachers collected and graded students’ homework assignments each week, and data were provided on the homework completion rate for each group.

Over 80% of the students in the non-interactive homework group reported that their families rarely or never helped with science homework ($n = 98$); in contrast, over 80% of the TIPS students reported that their families sometimes, frequently, or always helped with science homework ($n = 128$). Parent reports of involvement ($n = 180$) were similar to the student reports. A positive and significant correlation ($r = .669, p < .001$) existed between parent and student reports of family involvement in science homework. A regression analysis was used to calculate the independent effects of homework condition on family involvement in science homework. TIPS students reported significantly higher levels of family involvement in science homework than did students in non-interactive homework classes ($\beta = .451; p < .001$). Sixth-grade students reported more involvement with family in science than eighth-grade students, but classroom ability grouping was not a predictor of family involvement, neither was previous achievement in science.

TIPS encouraged more family involvement in science homework than did the non-interactive assignments. One student wrote, “I think these sheets (TIPS assignments) were a very good idea because they help my family partner know what I’m doing” (Van Voorhis, 2003, p. 335). Teacher records indicated that students who reported greater parent involvement
returned more science homework and assignments were completed with a higher degree of accuracy.

**Conclusion**

Researchers have explored homework and its relationship to parent involvement, learning styles, or student self-perception. Most research involving learning styles and homework with parent involvement has been conducted at the secondary and post-secondary levels (Dunn & Griggs, 2003-2004). However, there has been evidence that learning-style instructional strategies have a positive impact on homework at any grade level (Dunn & Griggs, 2003-2004). One study reported, “When parents were provided with a two-hour training workshop on learning styles with specific application to visual, auditory, tactual, or kinesthetic preferences, there was a significantly positive impact on student achievement scores and parents perceived effectiveness” (Ferdenzi et al., 1998-1999, p. 52).

Likewise, there have been few studies that combine learning styles and self-perception as variables. Hong, Milgram, and Rowell (2004) examined the relationship of learning styles on completing homework and parental involvement. They recommended that schools administer the Homework Motivation and Preference Questionnaire. The administration of this questionnaire could increase parents’ understanding of their children’s preferences when completing homework, which would then support students increasing their success with homework by using their learning-style strengths.

Although there has been research that combines at least two of these constructs (e.g., learning styles and homework, or homework and attitudes), there few research studies that includes all four variables: homework, learning styles, attitudes, and self-perception. The construct that is not usually considered in investigative studies about learning styles and
homework is self-perception. Much of the research examines self-efficacy, whereas this study explored student self-perception. The differences between self-efficacy and self-perception are not always clear in research studies, and some studies use the terms synonymously. According to Pajares and Schunk (2001):

The difference between self-efficacy and self-perception beliefs is not cosmetic. Self-efficacy is a judgment of the confidence that one has in one's abilities; self-perception is a description of one's own perceived self-accompanied by an evaluative judgment of self-worth. Because self-perception beliefs involve evaluations of self-worth, self-perception is particularly dependent on how a culture or social structure values the attributes on which the individual bases those feelings of self-worth. Self-efficacy beliefs are not as tightly bounded by cultural considerations (p. 3).

There is limited empirical research at the elementary level to show the effects of training parents in learning-style strategies and the subsequent effects on attitude and student self-perception. As stated earlier, much of the research involving learning styles and homework with parent involvement has been conducted at the secondary and post-secondary levels, and more empirical research should be conducted at the elementary level.

Finally, according to Cooper (2007), studies that examine the relationship between homework and attitudes have produced inconsistent results with limited evidence, furthering the need for more research. There is a need for further research investigating the effects of parental use of learning-style preferences on homework assistance with elementary students and examining attitudes and self-perception due to inconsistent results in previous studies, a lack of research combining all four constructs, and previous studies primarily conducted at the secondary level.
CHAPTER THREE: METHODOLOGY

This study explored the effects of parental use of homework-help strategies on parents’ and students’ attitudes toward homework assistance as well as the students’ academic self-perceptions. Sixty-eight families with students in grades 4 and 5 from an urban school district in the Northeast participated in the study. The treatment group used learning-style homework-help strategies and the comparison group used traditional homework-help strategies. The students and their parents were randomly assigned to either the treatment group or the comparison group.

Research Questions and Hypotheses

The independent variable, strategies for assisting with homework, had two levels: learning-style homework help strategies and traditional homework help strategies. The study examined the effect of homework help strategies on three dependent variables – parent attitudes toward homework assistance, student attitudes toward homework assistance, and student academic self-perception. The study was designed to determine if there was a difference in parent and student attitudes toward homework and students’ academic self-perception between the two groups. The questions that guided this research were:

1. Is there a significant difference in parental attitudes toward homework assistance for parents who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program?

Null-Hypothesis: There will be no significant difference in parent attitude toward homework assistance for parents who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program.
2. Is there a significant difference in student attitudes toward homework assistance for students who participate in homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program?

Null-Hypothesis: There will be no significant difference in student attitude toward homework assistance for students who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program.

3. Is there a significant difference in student scholastic self-perception toward homework assistance for students who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program?

Null-Hypothesis: There will be no significant difference in student scholastic self-perception toward homework assistance for students who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program.

**Description of the Setting and the Subjects**

The research was conducted in an ethnically diverse urban school district with an enrollment of approximately 10,000 students. The average income for families in this district was $71,493 (U.S. Bureau of the Census, 2000). English language learners made up about 13% of the total student population in this district, while 12% of the students had some type of physical disability, and 7% of the students were identified as gifted and/or talented. The racial demographics of this school included 57.1% white students, 27.6% Hispanic students, 6.5%
black students, 8.8% Asian American students, and 0.0% American Indian students (Strategic School Profile, 2009-2010).

According to the 2009-2010 strategic school profile, 29% of students qualified for free or reduced lunch, and English was not the primary language for 32.6% of the students. The high percentage of English language learners is one of the reasons the study was conducted in this particular school. According to Cooper (1998), research needs to be conducted on homework with families in which exist obstacles, such as a language barrier, that make completion of homework difficult.

Evidence from the 2008-2009 Strategic School Profile suggested that this district had established a strong home-school connection. All teachers were issued an email address, and part of the school website was used for homework support. To promote communication between home and school, the school has provided translators, if needed, for parent teacher conferences, meetings, newsletters, and phone calls. There also has been a school improvement plan to implement programs that increase parent involvement related to increasing student achievement, especially for second language learners in the areas of literacy and math (Strategic School Profile, 2009-2010).

**Parent and Child Participants**

The target population for this study included 375 fourth- and fifth-grade students from one urban elementary school. All fourth and fifth graders in the district attended this school. The sample for this study consisted of 71 children from this school and at least one of their parents or guardians. The children came from 9 fourth-grade classrooms and 8 fifth-grade classrooms with an average class size 25 students per room. This was a sample of convenience. Participants were recruited in the following manner: letters were sent through the US Postal
service during the summer. The letters described the study and asked parents to volunteer to participate by returning an enclosed permission slip. Due to the low return rate, letters were sent again at the beginning of the school year to all 375 students; this time the letters were sent home with the children in their backpacks.

At the beginning of the study 71 families had returned permission slips signally agreement to participate. These families were randomly assigned to either the treatment group or the comparison group using a random number generator. However, prior to the implementation of the treatment, 3 families withdrew, resulting in a total of 68 families participating in the study. Two of the families that agreed to participate in the study had more than 1 child in fourth or fifth grade, so 1 parent from each family attended the treatment for both students resulting in 66 parent participants. Participants included 34 fourth graders and 34 fifth graders. To minimize cross contamination of strategies, families that contained siblings were grouped together and placed in either the treatment or the comparison group.

**Description of Treatment and Comparison Group Training**

After random assignment to group, the parents received an invitation to attend a workshop on homework help strategies which was scheduled to be held at the school. The parents were told that the workshop would last for two hours and they would be provided with strategies to assist their child with homework. The parents were told that they could bring their children; three children attended the learning-styles workshop.

**Treatment Group Training**

The treatment group was trained to use learning-style strategies based on the Dunn and Dunn Learning-Style Model (2000). The parents in the treatment group were required to complete a learning-style inventory, the Building Excellence Survey (2000), and the students in
the treatment group completed a similar survey, the Elementary Learning Styles Assessment (2007) prior to attending the workshop. The surveys were available in both English and Spanish; all participants chose to take it in English. At the workshop parents received training in understanding their own learning-style preferences and their child’s learning-style preferences. The Dunn and Dunn learning-style model was reviewed, and parents were taught learning-style preference strategies to use to help their children as they completed daily homework assigned by the classroom teacher. The treatment group received training from an expert in education who holds a Doctorate in Educational Leadership. This trainer had herself been trained in the Dunn and Dunn Learning Styles Model and had conducted workshops on the model, both locally and internationally.

The Comparison Group Training

The training for the comparison group was a two-hour workshop on why homework is important and what strategies parents could use to help children with their homework. These strategies included establishing routines for completing and checking homework, developing consistency with homework, and following through with homework. Each of the three strategies contained specific activities for parents to use as they assisted with homework.

The training for the comparison group was led by an educator with a Master’s degree who had taught at the elementary level for 14 years. She had previously taught high school students study skill strategies for homework and tests and currently trains teachers in methods of reading and writing instruction. She also had exposure to the Dunn and Dunn Learning-Styles Model in her doctoral level course work. Although every attempt was made to avoid contamination of the comparison group, there was still a possibility that the trainer may have
inadvertently introduced some learning style strategies into the traditional homework strategy workshop material.

**Procedures**

Parents utilized the learning-style strategies or the traditional homework strategies for seven weeks during an eight-week period. (Originally, the study was schedule to run for eight weeks. However, in week six, school was closed due to weather-related power outages.) Parents were told to record the strategies they used and the amount of time they spent each night helping their child with homework. The researcher communicated with both the treatment and comparison group parents during the eight-week period, primarily through weekly electronic mail and backpack mail. The researcher was also available to answer any questions by phone.

Communication consisted of suggestions of specific strategies they could try in the coming week. The researcher also reminded parents each week to fill out the homework monitoring logs. In the middle of the study and at week six, parents were provided with a detailed letter through backpack mail that highlighted strategies and reminders. At the end of the study, two assessments were administered: the first was the Pizzo Semantic Differential Scale (1981) and the second was The Harter’s Self-Perception Profile for Children. The researcher administered both assessments to groups of three and four students during the school day at times approved by their teachers. Parents were given specific instructions on how to complete the Pizzo Semantic Differential Scale. This information was sent to them in the form of a letter given to them by their child’s teacher during teacher parent conference. Follow up emails were provided to remind the parents to fill out the final survey and return the homework monitoring logs by the end of week eight to their child’s teacher. Upon receipt of the homework log the family’s name was entered into a raffle to receive one of two gift cards.
Research Design

This study used an experimental posttest-only design and quantitative analysis to analyze data. In both groups, parents assisted their children with homework assigned by the teacher. Parents in the treatment group had participated in a learning-styles strategies workshop and were expected to incorporate these methods as they assisted their child. Parents assigned to the comparison group had participated in a workshop that taught them to use traditional homework strategies to help with their child’s daily homework. Parents were instructed to implement the strategies during the entire study which lasted seven weeks. The participants were fourth- and fifth-grade students and their parents. The sample was one of convenience, and students and their parents were randomly assigned to either the treatment or the comparison group.

According to Creswell (2008) the most rigorous research design is a true experimental design in which random assignment to group is used. A true experimental design is one in which the researcher manipulates the independent variable to observe its effect on the dependent variable while using random assignment of participants to groups. This controls external factors from influencing the results of the study, minimizes the threats to internal validity, and allows the researcher to establish cause and effect (Creswell, 2008). A posttest-only design was utilized in this investigation. Because of random assignment to group, the researcher could assume that the two groups are probabilistically equivalent and, therefore, a pretest is not compulsory (Meyers, 2007). Table 1 shows the experimental design used in this study.
Table 1

*Description of Experimental Design*

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<thead>
<tr>
<th>Group</th>
<th>Pretest</th>
<th>Treatment</th>
<th>Posttest</th>
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<tr>
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<tr>
<td>Comparison Group (R)*</td>
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</table>

*Random assignment

(Isaac & Michael, 1997)

**Instrumentation**

Data were collected using five instruments: (a) the Building Excellence Survey (BE) (2000), (b) the Elementary Learning Styles Assessment (ELSA) (2007), (c) the Pizzo Semantic Differential Scale (1981), (d) the Harter’s Self-Perception Scale (1995), and (e) the researcher-designed Parent Involvement Survey. Data from the researcher-designed Parent Involvement Survey were collected during the study, and the Pizzo Semantic Differential Scale (1981) was administered to all parents and children at the end of the eight-week period. The Harter’s Self-Perception Profile for Children (1985) was also administered to all children at the conclusion of the study.

Each parent in the treatment group completed the BE (2000) at the beginning of the study. The ELSA (2007) was administered to the students in the treatment group at the onset of the research project. The purpose of the BE (2000) and ELSA (2007) was solely for participants to gain an understanding of their learning style strengths. Data from the instruments were used to enhance the learning-style homework strategy workshop, not to answer the research questions.
Researcher-designed Parent Involvement Survey

Descriptive data were collected using a survey created by the researcher (see Appendix A). Each parent monitored the homework help strategies used and self-reported how frequently he or she was involved in helping with homework each night. Parents completed the survey using check marks for each night they assisted with homework. The subject area or areas in which assistance was provided was also noted on the survey by the parent. Parents were also asked to record the strategies they used to assist with homework help. Appendix A provides a copy of this form.

Building Excellence Survey

The Building Excellence Survey (BE) (2000) (see Appendix D) is an online tool that examines a combination of 26 elements that affect how an adult learns. This assessment was first developed as a paper and pencil assessment and converted to an electronic version in 2000. The 26 elements are categorized into six parts: perceptual elements, psychological elements, environmental elements, physiological elements, emotional elements, and sociological elements. The perceptual components include auditory, visual, tactical, and kinesthetic. The psychological components include analytic/global and reflective/impulsive. The emotional elements of the BE (2000) focus on motivation, task persistence, conformity, and structure. The best time of day; intake, and mobility are part of the physiological elements and sound, temperature, light, and seating are considered in the environmental elements. Finally, the sociological elements examine preferences for working with others while learning (Leone, 2008).

The online version of the BE (2000) has 114 questions and takes approximately 20 minutes to complete. Participants respond to the questions using a Likert-type scale of (a) no
preference, (b) slight preference, (c) moderate preference, or (d) strong preference. Scoring is automatic, and the report is generated immediately following the completion of the assessment. The report provides strategies and recommendations to learners based on their learning-style preferences.

The reliability for the BE (2000) was established using a random sample (n = 7,304). Reliability was determined by gender, age, education, and work position. Due to cultural differences, the sample was divided between the USA and International for statistical purposes. A random sample (n = 1,967) was then taken from the original population (n = 7,304) and was used to determine the reliability of the BE (2000). The overall reliability using Cronbach’s alpha for the 26 factors ranged from 0.72 for verbal kinesthetic to 0.94 for intake (Dunn & Rundle, 2000).

The data obtained from the BE (2000) were not used for analysis to answer any of the research questions for this study. The BE (2000) information was used to compare the learning styles of each parent to their child and in order to provide more salient homework help strategies for those in the treatment group.

The Elementary Learning Styles Assessment

The Elementary Learning Style Assessment (ELSA) (2007) (see Appendix B) is an online assessment that is used to identify student characteristics based upon their learning-style preferences through five different categories that include environmental, emotional, sociological, psychological, and physiological. The assessment is composed of three sections. Each section includes a story to read and 25 multiple-choice questions for the students to answer. Not every story has to be read by the student unless he or she wants to read all three stories. To ensure consistency each type of question is asked three times. The ELSA (2007) includes both verbal
and nonverbal forms when answering the questions. This allows the student to process the questions in their preferred learning-style. The student’s learning-style preferences are immediately determined, and a report is generated.

The students can be tested individually or in small groups, and the ELSA (2007) can be administered in any setting where there is access to the Internet. The readability of the assessment was at the second grade level according to the Flesch-Kincaid Grade Level (Flesch, Kincaid, Fishburne, Rogers, & Chissom, 1975), thus making it accessible to elementary school students. The approximate time for completing the ELSA (2007) is 40 minutes. Students do not have to finish in one sitting; they may take breaks after each story is completed. For this study, the students were given instructions to complete the ELSA (2007) at home. Of the sample population, two of sixty-eight opted to take the ELSA (2007) in a public setting, and both completed it in about 30 minutes.

Test-retest was utilized to determine internal-consistency reliability of the ELSA (2007). The assessment was given to 1,298 students in second through fifth grades. The reliability coefficients ranged from .719 to .924 for each element (Dunn et al., 2007). The mean value of all reliability coefficients was .82. Internal consistency reliability coefficients were also determined, and ranged from .72 for the structure element to .91 for the reflective/impulsive element. Content validity was established by a panel of experts who agreed the instrument precisely measured the 20 elements of the Dunn and Dunn Learning-Style Model (Dunn et al., 2007).

It is important to note that data collected from the ELSA (2007) were not analyzed to answer any of the research questions involved with the present study. The information obtained from the ELSA (2007) was used solely for the treatment homework strategies workshop
presented to parents. This information helped to explain individual learning styles of each student participant to each parent in the treatment group.

**Harter’s Self-Perception Profile for Children**

This scale is a revision of the Perceived Competence Scale for Children created by Harter (1985). The measure was developed to “tap into children’s domain-specific judgments of their competence, as well as global perception of their worth or esteem as a person” (Harter, 1985, p. 5). There are six subscales: scholastic competence, social acceptance, athletic competence, physical appearance, behavioral conduct, and global self-worth. This study analyzed the scholastic competence subscale to examine students’ academic self-perception. Each subscale contains six items, representing a total of 36 items. For each group of questions, three items are written to reflect high competence, and three items are written to reflect low competence. For each question the student is asked to decide which kind of child is most like him or her, and then each student had to decide if this was *sort of true* or *really true* for him or her.

The scale can be administered individually or in groups. Students are instructed on how to answer the questions through a script provided with the assessment. After the sample item is explained to the students, the rest of the assessment is read aloud to them. Each item is scored on a scale from 1 to 4. One indicates that the child has a low-perceived level of competence, and 4 indicate a high-perceived level of competence.

The overall internal consistency reliability was based on Cronbach’s Alpha and ranged from .71 to .86. For the scholastic competence subscale, the internal consistency ranged from .80 to .85 (Harter, 1985). Several patterns emerged when correlations among subscales were analyzed. Scores for students in grades three and four tended to be more highly related than for students in grades five through eight. Among the domain-specific subscales, Scholastic
Competence tended to be related to Behavioral Conduct. According to the author, this indicated that students who see themselves as strong academically also consider themselves to be well behaved. Conversely, those students who feel that they do not do well in school also report behavior issues (Harter, 1985). There is also a moderate relationship between Self-worth and Scholastic Competence, with higher correlations at the younger grades. These correlations ranged between .48 and .64 among the five groups tested.

**Pizzo Semantic Differential Scale**

The Semantic Differential Scale (SDS) (see Appendix C) was used to measure people's reactions to stimulus words and concepts in terms of ratings on bipolar scales defined with contrasting adjectives at each end of the scale (Pizzo, 1981). Usually, the position directly in the middle is marked 0 and is labeled "neutral;" the 1 positions, which are to the right and left of the middle, are labeled "slightly;" the 2 positions are the closest lines to the adjectives and are labeled "extremely." The scale measures directionality of a reaction (e.g., good versus bad) and also intensity (slight through extreme). A person is presented with some concept of interest and asked to rate it on a number of such scales. Then, for each pair of 13 terms, the respondent’s ratings were combined to describe and analyze the person's feelings towards the concept presented. This scale was originally created by Pizzo (1981) "to compare the attitudes of students tested in an acoustic environment congruent with their preferences for the element of sound with those of students tested in an acoustic environment incongruent with their preferences for sound" (p. 155). Since its development, the SDS has been modified and utilized in many studies concerning learning styles with several diverse populations (Dunn, Bruno, et al., 1990; Dunn et al., 1990).
This investigation used the SDS to compare the attitudes toward homework assistance of parents and students who were exposed to learning-style homework strategies with the attitudes toward homework assistance of parents and students who were exposed to traditional homework strategies. Students and parents were asked to rate how it felt to either help their child with homework, or how it felt to have an adult assist with homework. The SDS can be administered to groups and on an individual basis. For the purpose of this study, it was administered to groups of three and four children during the school, while parents completed it individually at home. According to the authors, instructions for administering the survey need to contain a statement that the purpose of this scale is to find out how people feel about things, and so the respondent should rate the way he or she feels. He or she should use his or her first impressions and not try to figure out the "right answer" or the answer that makes most sense. The test administrator explains the ratings and what the scale positions mean.

DiVesta and Dick (1966) studied the test-retest reliabilities of SDS ratings made by grade school children. In their study, each subject rated a different concept on a series of scales, and reliabilities were determined by correlating the ratings made on a first test with ratings made one month later on a second test. The correlations for different scales ranged from .27 to .56. DiVesta and Dick found that reliabilities are somewhat higher in the higher grades. A Kuder-Richardson Formula 21 (KR21) was used to assess the reliability coefficient of the Semantic Differential Scale (Pizzo, 1981). The KR21 coefficient was 0.98. Reliability was established through a second test of the SDS with a KR21 of 0.99 (Pizzo, 1981).
Data Analysis

Inferential statistical procedures were used in this study. Data for questions one, two, and three were analyzed utilizing an Analysis of Variance (ANOVA) using Statistical Package for the Social Sciences (SPSS) 14.0. Analysis of Variance is a statistical procedure that “compares the amount of between group variance in individuals’ scores with the amount of within group variance” (Gall, Gall, & Borg, 2007, p. 318). Many research studies set the significance level at .05. This is a common practice in the social sciences, and it means that, if a study were to be replicated with a different sample from the same population, there would be less than a 5 percent chance of getting different results (McMillan & Schumacher, 2006). Therefore, the significance level for research question one was set at \( p \leq .05 \). These statistical procedures were used to determine if there was a significant difference in group means of parent attitude toward homework assistance between the treatment group and the comparison group.

For question two, a Bonferonni correction was utilized, thus setting the significance level at \( p \leq .025 \). The Bonferonni adjustment is used when researchers are conducting an experiment that has many dependent variables; it is also used when there are two research questions, and the same sample is used for both questions. In this study, the students were measured on two dependent variables. Reducing the significance level from .05 to .025 reduces the chance of finding a significant difference because of multiple statistical tests (McMillan & Schumacher, 2006). The more rigorous p-value was set to compensate for the possibility of a Type I error. A Type I error occurs when the null hypothesis is rejected when it is in fact true. The hypothesis test procedure is therefore adjusted so that there is a guaranteed “low” probability of rejecting the null hypothesis wrongly. It is important to make the significance level as small as possible in order to protect the null hypothesis and to prevent unintentionally making false claims (Meyers,
Gamst, & Guarino, 2006). The second question determined if there was a significant difference in group means of student attitude towards homework assistance between the treatment group and the comparison group.

Question three data were analyzed utilizing an Analysis of Variance (ANOVA) \( p \leq .025 \) using SPSS 14.0 to determine if there was a significant difference in the means on the dependent variable of scholastic competence between the treatment group and the comparison group. The Bonferroni correction was also used for question three to ensure that a Type I error did not occur. As stated above this was done because students were measured on two dependent variables.

**Data Collection Procedures and Timeline**

The procedures were followed according to the following timeline.

1. In the winter of 2010 approval from the superintendent and principal of the selected school was granted to conduct the study with fourth and fifth grade students within that district.

2. In December 2010 Western Connecticut State University’s Institutional Review Board approved the study to be conducted (see Appendix F).

3. Workshops (see Appendix I) were designed for the parents of the treatment and the comparison group by leading experts in the educational and learning-styles fields during March 2011.

4. Assent forms were distributed to all fourth and fifth grade students (see Appendix G) and consent forms were distributed to all their parents (see Appendix H) within the school district through the United States Postal Service in July, 2011.
5. Assent forms were redistributed to students through the teachers and backpack mail at the start of school from August – September, 2011. This second distribution occurred due to the small number of responses to the first request for the study.

6. Consent forms were received by the researcher, from the population of 375 students there were 71 positive consent forms returned.

7. Parents and students who gave permission to be in the study were randomly assigned to the treatment or the comparison group in September, 2011. The researcher used a random number generator to assign students (and their parents) to either the treatment or the comparison group.

8. Once random assignment to group had been established the researcher contacted all parents and students in the treatment group by letter (see Appendix L) to confirm participation in the study and to give directions on how the BE (2000) (see Appendix M) and ELSA (2007) (see Appendix N) were to be taken in September, 2011. Parents were given the option of taking the assessment at home and bringing the report to the workshop or they could arrange a time with the researcher to take it at the school their child attended. All but two participants took the ELSA (2007) at home. The researcher’s phone number and email address were provided to each participant to answer any questions. Three participants in the treatment group called the researcher to discuss how to take the on-line assessment at home.

9. The parents and students of the comparison group were contacted through a letter to confirm participation in the study and to RSVP to the parent workshop being held at the end of September, 2011.
10. On September 25, 2011 all parents attended a two-hour workshop. The September workshops provided parents information on strategies to assist their child with homework. The treatment group’s workshop provided learning-styles training to better understand learning-style preferences and how to best support learning. The comparison group workshop provided training on traditional homework assistance. Both workshops used a power point presentation. The learning-styles workshop provided parents with a print out of their own learning-style preferences and their child’s learning-style preferences. Directions were given to all parents on how to monitor the homework strategies they used with their child. Refreshments and a raffle were provided for all participants regardless of the group he or she was in.

11. From September 25, 2011 through November 18, 2011, parents monitored their involvement with homework using the researcher-designed survey (see Appendix A) to track the strategies they implemented from the training they received through each workshop. Due to circumstances beyond the researcher’s control, students were not in school from October 31st through November 4th because of a weather related incident.

12. Throughout the study the researcher sent weekly emails to parents (see Appendix J) to remind them to complete the monitoring sheet.

13. The researcher met with teachers about their role and addressed any questions the teachers had via email (see Appendix O).

14. The Harter’s Self-Perception Profile for Children (1985) questionnaire and the Pizzo Semantic Differential Scale (1981) were administered to all students by the researcher in November. The researcher adhered to the directions provided in the manual for the
administration of the Self-Perception Profile. The researcher contacted all teachers to set up an appropriate time for their students to take the post assessments. The researcher administered the post assessments in small groups of three to four students per group. The researcher read all of the directions and questions to the students. The researcher answered any questions the students had. The questions usually pertained to understanding vocabulary. The researcher repeated the same procedure for all groups.

15. The Pizzo Semantic Differential Scale (1981) (see Appendix C) was sent home to the parents during parent teacher conferences with a letter explaining how to take the survey, and then parents were emailed a second copy of the survey. The parents completed the Pizzo Semantic Differential Scale (1981) and returned it to their child’s teacher along with the researcher-designed homework monitoring survey on November 18, 2011.

16. In December the researcher analyzed the data received from the parents and students.  
17. At the conclusion of the study, a thank you note was sent to the teachers for their assistance in handing out and returning forms. An email was sent to all parent participants explaining that the study was completed it invited them to contact the researcher in May if they would like to see the results of the study.

**Ethics Statement**

Permission to participate in this research was sought from each district’s superintendent, each school principal, and all participating teachers. To assure confidentiality, each participant was assigned a coded identification number. For the retrieval or distribution of any materials to
the teachers that could not be sent electronically, two impartial volunteers acted on behalf of the researcher to complete such tasks.
CHAPTER FOUR: ANALYSIS OF DATA AND EXPLANATION OF THE FINDINGS

Research Questions and Hypothesis

To analyze the effect of strategies for assisting with homework on parent and student attitude and student academic self-perception, a one-way ANOVA was conducted for each of the three dependent variables. The independent variable, strategies for assisting with homework, had two levels: learning-style homework help strategies and traditional homework help strategies. The three dependent variables were parent and student attitudes toward homework assistance, and student academic self-perception. This research study compared the effects of parental use of specific learning-style homework help strategies compared to traditional homework help strategies. The study attempted to determine if homework help strategies had an effect on student and parent attitudes toward homework and student academic self-perception.

1. Is there a significant difference in parental attitudes toward homework assistance for parents who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program?

   Null-Hypothesis: There will be no significant difference in parent attitude toward homework assistance for parents who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program.

2. Is there a significant difference in student attitudes toward homework assistance for students who participate in homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program?

   Null-Hypothesis: There will be no significant difference in student attitude toward homework assistance for students who participate in a homework help treatment using
learning-style preferences as compared to those who participate in a traditional homework-help program.

3. Is there a significant difference in student scholastic self-perception toward homework assistance for students who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program?

Null-Hypothesis: There will be no significant difference in student scholastic self-perception toward homework assistance for students who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program.

**Description of the Data**

The results of the Pizzo Semantic Differential Scale (1981) (posttests only) were used to determine the main effect for parent and student attitude towards homework assistance. The data analysis for this research study used the results from the Harter’s Self-Perception Profile for Children (1985) (posttest only) to determine the main effects for academic self-perception in students. Although there are six subscales of the Self-Perception Profile for Children, only the data from the Scholastic Competence subscale were analyzed. Descriptive data from the Researcher-created Homework Monitoring Log were analyzed to determine any themes that emerged during the research study. According to Creswell (2008), qualitative data analysis involves grouping evidence together to gain a broader perspective of the research problem.

While the original sample consisted of 68 children and their parents (34 in the treatment group and 34 in the comparison group) only 24 parents returned the Pizzo Semantic Differential Scale or the Homework Logs. Therefore, complete data sets were available for only the 24
student/parent dyads who completed all aspects of the study. Of the completed data sets, half were completed by the treatment group \( n = 12 \), and half were completed and returned by the comparison group \( n = 12 \).

**Results of Data Cleaning and Screening**

It is crucial to determine if there are errors or missing data. This requires the researcher to clean the data or inspect the data for any value that is not within the acceptable range (Creswell, 2008). Initially the data were inspected visually for any missing data; and then data were entered into Microsoft Excel and then transferred into a statistical computer package SPSS (Version 14).

As mentioned above the initial screening revealed that not all of the parent participants returned the Pizzo Semantic Differential Scale (1981) and/or the Homework Monitoring Log. Parents were contacted through phone calls and emails to encourage them to return the surveys and logs that were sent out. The researcher continued requesting that data be returned during the five weeks following the completion of the study. At this time it was concluded that no further data from parents would be forthcoming. It was determined that 24 of the 68 parents’ data were suitable for analysis. All student participant data \( n = 68 \) were available to the researcher; however, without the homework logs from the parents, it was impossible to determine whether the treatments had been delivered and/or adhered to; thus, the available student data could not be used to answer the research questions. Therefore, statistical analysis’ could only be run using the 24 completed data sets. All these data were checked for accuracy, and variables were reviewed to ensure that no value was invalid.

Before proceeding with statistical analysis, detection of univariate outliers was determined using SPSS. According to Meyers et al. (2006), univariate outliers are seen when
there is a data point that is either very high or very low compared to the overall data set. These data points are typically three standard deviations away from the mean. If an outlier exists, the researcher needs to further investigate the reason and then make decisions about whether to maintain or drop the outliers. According to McMillian and Schumacher (2006), there is no consensus among researchers about the best approach for handling outliers, but it is suggested that the researcher conduct the statistical analysis twice – with the outliers and without the outliers. For the Pizzo Semantic Differential Scale for Parents, there were no outliers in the data set; for the students there was one outlier. This outlier was more than three standard deviations away from the mean and was removed from the data set; this resulted in different numbers in the treatment \( n = 11 \) and comparison groups \( n = 12 \). Examination of the data for the Harter’s Self-Perception Profile revealed two outliers, one outlier from each group. These two cases were below the lower inner fence for academic self-perception scores and were determined to be representative of the entire sample. These scores were included in the final data analysis.

**Statistical Assumptions**

An Analysis of Variance (ANOVA) require that the assumptions of normality, linearity, and homoscedasticity are not violated (Creswell, 2008). Before statistical analysis could be applied to the data, these assumptions were checked in SPSS for both parent and student data. Frequency statistics for each research question can be found in Table 2, 3, and 4.

**Research Question One – Pizzo Semantic Differential Scale for Parents**

A visual inspection of the histogram revealed that the criterion variable for research question one for the parents did not meet assumptions for skewness or kurtosis. Therefore, the Shapiro-Wilkes test was performed and no significance was found; therefore, the data analysis could proceed. According to Meyers (2007), if there is no significance found after completing
the Shapiro-Wilkes test for normality, then one can assume that the data comes from a normally
distributed population.

Table 2

*Frequency Statistics for Pizzo Semantic Differential Scale for Parents*

<table>
<thead>
<tr>
<th></th>
<th>Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>24.000</td>
</tr>
<tr>
<td>Missing</td>
<td>0.000</td>
</tr>
<tr>
<td>Mean</td>
<td>13.666</td>
</tr>
<tr>
<td>Median</td>
<td>16.000</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>8.560</td>
</tr>
<tr>
<td>Skewness</td>
<td>-.426</td>
</tr>
<tr>
<td>Std. Error Skewness</td>
<td>.472</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-1.296</td>
</tr>
<tr>
<td>Std. Error Kurtosis</td>
<td>.918</td>
</tr>
<tr>
<td>Minimum</td>
<td>.000</td>
</tr>
<tr>
<td>Maximum</td>
<td>26.000</td>
</tr>
</tbody>
</table>

The Levene’s Statistic ($p > .05$) for the test of homogeneity of variances revealed that
there was no infringement of equal variances (Meyers et al., 2006). The variances were
considered equal for parents $F(1, 22) = 2.154$ in the comparison group and the treatment group on the Pizzo Semantic Differential Scale.

**Research Question Two- Pizzo Semantic Differential Scale for Students**

A visual inspection of the histogram revealed that the criterion variable for research question two for the Pizzo Semantic Differential Scale for Students was found to be normal, establishing the normality of the criterion variable.
Table 3
*Frequency Statistics for Pizzo Semantic Differential Scale for Students*

<table>
<thead>
<tr>
<th></th>
<th>Pizzo Semantic Differential Scale for Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>23.000</td>
</tr>
<tr>
<td>Missing</td>
<td>0.000</td>
</tr>
<tr>
<td>Mean</td>
<td>16.480</td>
</tr>
<tr>
<td>Median</td>
<td>13.000</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>6.338</td>
</tr>
<tr>
<td>Skewness</td>
<td>-.331</td>
</tr>
<tr>
<td>Std. Error Skewness</td>
<td>.481</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-.1.009</td>
</tr>
<tr>
<td>Std. Error Kurtosis</td>
<td>.935</td>
</tr>
<tr>
<td>Minimum</td>
<td>5.000</td>
</tr>
<tr>
<td>Maximum</td>
<td>26.000</td>
</tr>
</tbody>
</table>

The Levene’s Statistic ($p > .05$) for the test of homogeneity of variances revealed that there was no infringement of equal variances (Meyers et al., 2006). The variances were
considered equal for between the comparison group and the treatment group on Pizzo Semantic Differential Scale for Students posttest, $F(1, 21) = .689$.

**Research Question Three - Harter’s Self-Perception Profile for Children**

A visual inspection of the histogram revealed that the criterion variable for research question three for the Harter’s Self-Perception Profile for Children (1985) did not meet assumptions for skewness and kurtosis. The Shapiro-Wilks test was performed and resulted in no significance ($p \geq .05$) ($p = .262$). Thus data analysis on the Harter’s Self-Perception Profile for Children could proceed.
Table 4
*Frequency Statistics for Harter’s Self-Perception Profile for Children*

<table>
<thead>
<tr>
<th></th>
<th>Harter’s Self-Perception Profile for Children</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N</strong></td>
<td>24.000</td>
</tr>
<tr>
<td><strong>Valid</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Missing</strong></td>
<td>0.000</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>3.1736</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>3.000</td>
</tr>
<tr>
<td><strong>Std. Deviation</strong></td>
<td>.511</td>
</tr>
<tr>
<td><strong>Skewness</strong></td>
<td>-.566</td>
</tr>
<tr>
<td><strong>Std. Error Skewness</strong></td>
<td>.472</td>
</tr>
<tr>
<td><strong>Kurtosis</strong></td>
<td>-2.190</td>
</tr>
<tr>
<td><strong>Std. Error Kurtosis</strong></td>
<td>.918</td>
</tr>
<tr>
<td><strong>Minimum</strong></td>
<td>1.830</td>
</tr>
<tr>
<td><strong>Maximum</strong></td>
<td>4.000</td>
</tr>
</tbody>
</table>

The Levene’s Statistic (*p* > .05) for the test of homogeneity of variances discovered that there was no infringement of equal variances (Meyers et al., 2006). The variances were
considered equal for between the comparison group and the treatment group on the Harter’s Self-Perception Profile for Children (1985) posttest, \( F(1, 22) = .287 \).

**Descriptive Statistics**

The results of the data cleaning and the screening processes provided the final data sets for the students \((n = 24)\) and for the parents \((n = 24)\) used for the analysis. The statistics for the data sets are provided in Table 5, Table 6, and Table 7.

Table 5

*Descriptive Statistics for Parent Pizzo Semantic Differential Scale*

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison</td>
<td>11.416</td>
<td>9.385</td>
<td>12</td>
</tr>
<tr>
<td>Treatment</td>
<td>15.916</td>
<td>7.354</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>13.666</td>
<td>8.560</td>
<td>24</td>
</tr>
</tbody>
</table>

Table 6

*Descriptive Statistics for Student Pizzo Semantic Differential Scale*

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>17.50</td>
<td>6.695</td>
<td>12</td>
</tr>
<tr>
<td>Comparison</td>
<td>15.36</td>
<td>6.038</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>16.48</td>
<td>6.338</td>
<td>23</td>
</tr>
</tbody>
</table>
Table 7

*Descriptive Statistics for Harter’s Self-Perception Profile for Children*

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3.319</td>
<td>.653</td>
<td>12</td>
</tr>
<tr>
<td>Comparison</td>
<td>3.027</td>
<td>.413</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>3.17</td>
<td>.511</td>
<td>24</td>
</tr>
</tbody>
</table>

**Data Analysis**

This research study was designed to determine the effects of homework help strategies on parent and student attitudes toward homework assistance and students’ academic self-perception. An Analysis of Variance (ANOVA) \((p \leq .05)\) was conducted to compare the effects of parental use of learning-style preference strategies versus traditional style strategies on parent attitude towards homework assistance. A second ANOVA \((p \leq .025)\) was conducted to compare the effects of parental use of learning-style preference strategies versus traditional style strategies on student attitude towards homework assistance. A final ANOVA \((p \leq .025)\) was conducted to compare the effects of parental use of learning-style preference strategies versus traditional style strategies on student academic self-perception.

An ANOVA is an extension of the *t*-test but it allows the researcher to make more accurate probability statements than the *t*-test and is therefore a stronger statistical procedure (McMillan & Schumacher, 2006). According to Fraenkel and Wallen (2009), when conducting an experimental study, it is possible to conduct an ANOVA with only fifteen individuals in each group. The size of the groups used in this study approximates this number. However, Fraenkel and Wallen warn that the results of the study should be interpreted with caution unless the study
has been tightly controlled. Isaac and Michael (1995) state that there are many positive advantages to working with a small sample size, i.e., N’s between 10 and 30. The benefits may include a more focused result because the sample size is large enough to test the null hypothesis, and it is small enough to overlook weak treatment effects. When working with a smaller sample size however, the research should be considered exploratory and the findings should be viewed cautiously.

**Descriptive Statistics for Homework Monitoring Log**

Parents participating in both the treatment and the comparison group kept a monitoring log that was created by the researcher. Examination of these logs verifies that parents were helping their children with homework and using some of the strategies they had learned in the workshops. The logs provided descriptive data on the average time spent on homework (see Table 8), the frequency of homework by subject area (see Figure 1), and the amount of help provided by the parents (see Figure 2). The homework monitoring log also prompted parents to share strategies they implemented with their child from the two-hour workshop that was presented to them (see Table 9).

Table 8 indicates that the treatment group spent (on average) 0.98 of an hour more than the comparison group on homework per week. Also the treatment group spent (on average) 7.84 hours more than the comparison group on homework over the course of the study.

Figure 1 indicates that homework in each group varied slightly. The majority of the homework was in reading and math, and there was very little homework given to either the treatment or the comparison group in social studies and science. For many of the participants, parents documented that the “other” category consisted of either spelling or vocabulary homework.
Table 8

Average time Spent on Homework

<table>
<thead>
<tr>
<th></th>
<th>The Treatment Group (Homework Help using Learning-Styles Strategies)</th>
<th>The Comparison Group (Homework Help using Traditional homework strategies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Week</td>
<td>3.39 hours</td>
<td>2.41 hours</td>
</tr>
<tr>
<td>Eight Weeks</td>
<td>27.08 hours</td>
<td>19.24 hours</td>
</tr>
</tbody>
</table>

**Figure 1:** Frequency of Assignments by Subject
Figure 2: Frequency of Assistance by Subject

As indicated in Figure 2 parents in both the treatment and the comparison group helped in all subject areas. The comparison group parents supported their child with assistance primarily in math. The treatment group provided assistance primarily in writing and the “other” category that usually consisted of spelling or vocabulary. Both groups provided almost an equal amount of assistance in reading.

On the homework monitoring log, parents also recorded the strategies they implemented during the 8-week period in which homework assistance was provided. Below table 9 shows the different strategies used during the study. For the treatment group the chart also gives information about the learning-style strategy that was used.
<table>
<thead>
<tr>
<th>Treatment-Homework Help using Learning-Styles Strategies</th>
<th>Comparison-Homework Help using Traditional homework strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Provided illustrations for math (global/visual)</td>
<td>• Quiet place</td>
</tr>
<tr>
<td>• Played games to learn spelling words (global/tactual/kinesthetic)</td>
<td>• Sat with child</td>
</tr>
<tr>
<td>• Created practice test (analytic)</td>
<td>• Go over material</td>
</tr>
<tr>
<td>• Highlighted main ideas (analytic/tactual)</td>
<td>• Shared reading</td>
</tr>
<tr>
<td>• Task cards for vocabulary (tactual)</td>
<td>• Praise for strengths</td>
</tr>
<tr>
<td>• Listened to soft music (auditory)</td>
<td>• Went through folders on Friday</td>
</tr>
<tr>
<td>• Provided snack during work (intake)</td>
<td>• Rewards (bought new books)</td>
</tr>
<tr>
<td>• Using real money to figure out problems (global/tactual)</td>
<td>• Helped with math facts (drill)</td>
</tr>
<tr>
<td>• Played before starting homework (mobility)</td>
<td>• Helped correct wrong answers</td>
</tr>
<tr>
<td>• Reversed logic (global)</td>
<td>• Separated children</td>
</tr>
<tr>
<td>• Talked through ideas to process thoughts for making reading connections (verbal kinesthetic)</td>
<td>• Provided advice on projects</td>
</tr>
<tr>
<td>• Did homework before school (time of day)</td>
<td>• Checked back pack</td>
</tr>
<tr>
<td></td>
<td>• Listened to students read</td>
</tr>
<tr>
<td></td>
<td>• Supervised on the computer</td>
</tr>
<tr>
<td></td>
<td>• Read directions together</td>
</tr>
<tr>
<td></td>
<td>• No Television</td>
</tr>
<tr>
<td></td>
<td>• Retell stories</td>
</tr>
</tbody>
</table>
Results for Research Question One

Data from research Question One was analyzed, is there a significant difference in parental attitudes toward homework assistance for parents who participate in learning-style preference training as compared to those who participate in traditional homework-help strategies training, was analyzed through a one-way Analysis of Variance ($p \leq .025$) using Statistical Package for the Social Sciences (SPSS) 14.0 (see Table 10). Results of the analysis revealed that there was no significant difference between group means of the experimental ($M = 15.919, SD = 7.354$) and the comparison group ($M = 11.416, SD = 9.385$) for parental attitudes toward homework assistance, $F(1,22) = 2.154, p = .205, n^2 = .077$.

Table 10

ANOVA of Pizzo Semantic Differential Scale for Parents

<table>
<thead>
<tr>
<th></th>
<th>sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>$F$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>121.500</td>
<td>1</td>
<td>121.500</td>
<td>1.709</td>
<td>.205</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1563.833</td>
<td>22</td>
<td>71.083</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1685.333</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research for Research Question Two

Research question two data also were analyzed using a one-way Analysis of Variance ($p \leq .025$) using Statistical Package for the Social Sciences (SPSS) 14.0 to determine if there was a significant difference in attitudes toward homework assistance for students whose parents participated in learning-style preference training as compared to those whose parents participated in traditional homework-help strategies training (see Table 11). The results of the analysis
revealed that there was no significant difference between group means of the treatment ($M = 17.50$, $SD = 6.695$) and the comparison Group ($M = 15.36$, $SD = 6.038$) for student attitudes toward homework assistance, $F(1, 21) = .641, p = .432$.

Table 11

*ANOVA of Pizzo Semantic Differential Scale for Students*

<table>
<thead>
<tr>
<th></th>
<th>sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>$F$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>26.194</td>
<td>1</td>
<td>26.194</td>
<td>.641</td>
<td>.432</td>
</tr>
<tr>
<td>Within Groups</td>
<td>857.545</td>
<td>21</td>
<td>40.835</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>883.739</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Results for Research Question Three**

Research Question Three, is there a significant difference in students' academic self-perception for those whose parents participate in learning-style preference training as compared to students whose parents participate in traditional homework-help strategies training, was analyzed using a one-way Analysis of Variance (see Table 12). Results of the analysis revealed that there was no significant difference between group means of the treatment ($M = 3.31$, $SD = .653$) and the comparison group ($M = 3.02$, $SD = .413$) for student academic self-perception $F(1, 23) = 1.709, p = .205$. 
Table 12

ANOVA of Harter’s Self-Perception Profile for Children

<table>
<thead>
<tr>
<th>sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>.510</td>
<td>1</td>
<td>.510</td>
<td>1.709</td>
</tr>
<tr>
<td>Within Groups</td>
<td>6.572</td>
<td>22</td>
<td>.299</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7.082</td>
<td>23</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summary

In this chapter, the results of the data analysis performed to investigate the sample were presented. The initial analysis included a review of methods used for data screening and cleaning. The research design that was implemented was also discussed. The quantitative methods used to analyze all research questions were presented. There were no significant differences between group means for either students or parents on any of the dependent variables. The implications for future research will be discussed in Chapter Five.
CHAPTER FIVE: SUMMARY AND CONCLUSIONS

This chapter includes a review of the findings related to the research questions. This chapter also discusses how this study compares to other research studies conducted. Finally, limitations of the study and future research are presented.

Summary of the Study

This study examined the effect of homework help strategies (learning-style strategies versus traditional homework help strategies) on three dependent variables: parent attitudes toward homework assistance, student attitudes toward homework assistance, and student academic self-perceptions. The research addressed the effects of homework sessions conducted by parents trained with specific learning-style strategies as compared to homework sessions conducted by parents who received training using traditional homework-help methods. The study attempted to determine if there was a resulting difference in student/parental attitudes toward homework assistance and students’ academic self-perception.

This study was conducted to address the need to find ways to help parents help their children with homework. In 1983, the report, Nation at Risk (National Commission on Excellence in Education), concluded that parents are vital to the academic success of their children. While most schools have worked on cultivating relationships with parents, many parents still feel inadequate offering homework help (Kay et al., 1994). Researchers have found that instruction utilizing learning styles can contribute to the academic success of students (Romanelli, Bird, & Ryan, 2009; Turner, 1992). There have also has been studies supporting the benefits of students’ understanding of their own learning-style strengths when completing homework (Turner, 1992). However, studies rarely included encouraging parents’ awareness of their children’s learning-style strengths or using this information to help with homework.
Recognizing the need for further research in this area, the present study investigated the impact of parental use of leaning-style homework strategies on parent and student attitudes and student academic self-perception. The learning style homework strategy treatment was based on the Dunn and Dunn Learning Style model which is a well-researched and validated model (Dunn, Denig, & Lovelace, 2001; Dunn & Dunn, 1993; Turner, 1992). The following research questions guided the research:

1. Is there a significant difference in parental attitudes toward homework assistance for parents who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program?
   Null-Hypothesis: There will be no significant difference in parent attitude toward homework assistance for parents who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program.

2. Is there a significant difference in student attitudes toward homework assistance for students who participate in homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program?
   Null-Hypothesis: There will be no significant difference in student attitude toward homework assistance for students who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program.

3. Is there a significant difference in student scholastic self-perception toward homework assistance for students who participate in a homework help treatment

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using learning-style preferences as compared to those who participate in a traditional homework-help program?

Null-Hypothesis: There will be no significant difference in student scholastic self-perception toward homework assistance for students who participate in a homework help treatment using learning-style preferences as compared to those who participate in a traditional homework-help program.

**Procedures**

This study used an experimental posttest-only design and quantitative analysis to analyze data. Both parent groups (treatment and comparison) assisted their children with homework assigned by the teacher. The parent participants in the treatment group took part in a learning-styles workshop, and the parent participants in the comparison group attended a workshop focused on traditional homework strategies. Both groups employed the strategies for seven weeks. Attitudes for both parents and students were measured using the Pizzo Semantic Differential Scale, and academic self-perceptions were measured using the Harter Self-Perception Profile for Children. A one-way ANOVA \((p \leq .05)\) was conducted to determine if there was a difference in group means for parent attitude toward assisting with homework. Two one-way ANOVAs \((p \leq .025)\) were conducted to determine if there was a difference in group means for each of the two student dependent variables.

The target population was all 375 fourth- and fifth-grade students from an urban intermediate school and their parents. A total of 68 families gave their consent to participate in the study and were randomly assigned to either treatment or comparison group. At the conclusion of the study, only 24 completed data sets \((n = 12\) for both treatment and comparison groups) were available for analysis, despite efforts (emails, phone calls and letters) of the
researcher over a six week period to collect additional data. The small sample size of the study regrettably limits the findings.

**Findings**

An Analysis of Variance (ANOVA) was conducted on each of the three dependent variables: parent attitude toward homework assistance, student attitude toward homework assistance, and student academic self-perception. Each data set was analyzed to determine if there were differences between mean scores of each group (treatment and comparison).

For each ANOVA ($p \leq .025$) it was determined that there was a non-significant difference between the group means of the treatment group and the comparison group. Although the analysis indicated no significant differences, the mean score for the parents in the treatment group was higher ($M = 15.916$) than that of the comparison group ($M = 11.416$). The mean score for students in the experimental group for the dependent variable of attitude toward assistance with homework was higher ($M = 17.50$) than that of the comparison group ($M = 15.36$). Likewise, the mean scores for the students in the treatment group for scholastic competence ($M = 3.31$) was higher than that of the comparison group ($M = 3.02$).

**Comparison and Contrast of Findings**

**Theoretical Comparisons**

Due to the small sample size and the possibility of cross contamination of treatments (see Limitations below), results of the present study are not valid and cannot be compared to the results of previous studies. However, the design and methodology of this study attempted to improve upon aspects of some of the previous studies. The study also added to the body of literature in this area by combining parental engagement and learning-styles in the homework process. The Review of Literature in Chapter Two included a number of studies that
investigated homework and learning styles, two topics related to the current study. Geiser (1999), Turner (1992), and Ferdenzi, Griggs and Dunn (1998) studied the effects of understanding learning styles on homework success and academic achievement in math, spelling, and word recognition, respectively. These researchers found that teaching children about their learning styles improved academic performance. Participants in these studies were in grades 8, 5, and 1 respectively. The present study differed from these studies by dealing with only fourth and fifth graders; looking at homework in all school subjects assigned by the teacher; and including the parents in the homework process. In addition, the dependent variables in the present study were attitudes towards homework completion and student academic self-perception rather than academic achievement. Only Geiser (1999) considered attitudes and only student attitudes. He found that students who used learning styles had better attitudes toward homework.

The Review of the Literature also examined studies that investigated parental involvement in homework and parent attitudes toward homework (Cooper, 1989; Hoover-Dempsey & Sandler, 1997; Kay et al., 1994). According to Baker and Soden (2000), results of most research in this area are inconclusive because of the non-experimental designs used to conduct the studies. The present study attempted to assure parental involvement through various means of correspondence such as postal mail, teacher-student directives (e.g. backpack mail and communication through teacher’s mailbox), email, phone, face-to-face presentation, and a homework-monitoring log. The purpose of the homework-monitoring log was to track the quantity of assignments the student had and the number of times that the parent helped the child. It also included a section to share strategies that were used by the parent in aiding the child. The homework monitoring log and the different forms of communication used were arranged to ensure that this study could accurately measure the degree of parental involvement. The present
study also measured parental attitudes using a valid and reliable instrument, the Pizzo Semantic Differential Scale, rather than relying on surveys and interviews.

Limitations of the Study

A major limitation of this study was treatment or the comparison group adhered to the strategies that were provided during the training sessions. Explicit information was not provided in the homework monitoring log about the strategies that were implemented; the subjects for which they were implemented; and/or the frequency of use for each strategy. In addition, there was a possibility of cross contamination of the treatments. The trainer of the comparison group had knowledge of learning style strategies; training occurred on the same evening; and parents in the two groups knew each other and may have shared information.

The second major limitation was the small sample size. At the completion of the study, many attempts were made to collect the data from the 66 parent participants through electronic letters and back pack mail. In addition to written correspondence, the researcher also telephoned individual parents to try to obtain the necessary information. Various means of encouragement were employed including incentives to families that returned all surveys.

In addition to these limitations, there is always the possibility of threats to internal and external validity of a study. For this study, there was random assignment to group that minimized many of the internal threats. However, the researcher examined possible threats and attempted to account for as many as possible.
Internal Validity

There are at least 12 major threats to internal validity that can cause inconsistency in the data and compromise the legitimacy of any study (Gall et al., 2007). Creswell (2008) identified these threats as history, maturation, regression, selection, mortality, interactions with selection, diffusion of treatments, compensatory equalization, compensatory rivalry, resentful demoralization, testing, and instrumentation.

Factors that may have had the highest impact on this study were diffusion of treatments and maturation. Diffusion of treatments occurs when communication between the comparison group and the treatment groups takes place and details of each group’s role is revealed (Creswell, 2008). As was stated above, because parents of the students live within the same district, a potential threat of cross-communication may have existed. Maturation is the natural set of changes that directly affect the subjects and may cause a problem with the overall results of the experiment (McMillan & Schumacher, 2006). Maturation was not a threat to this study since the data were collected at one point in time.

Most threats to this study were reduced by designing it as a true experiment. McMillian and Schumacher (2006) discovered that seven of these threats can be ruled out by the use of the comparison group design. They concluded that randomization was best suited for reducing these factors. By randomly assigning participants to each group, these 12 threats, while not completely eliminated, were considerably minimized.

When experiments take place over a period of time, uncontrollable events occur that can impact the subjects regardless of the treatment being given (Gall et al., 2007). In this study, history was a strong threat. A hurricane caused a delay in the study because the start of the school year was delayed. During the experiment a state wide power outage occurred, forcing
schools to close for a week. During this week homework was not assigned to students, which could have possibly minimized the effect of the treatment and disrupted any momentum. According to Marzano et al. (2001) practice must occur over weeks and months. This study was limited in the amount of time that parents and students could practice the necessary strategies. If these events did not occur, the study may have produced different results. Homework provides opportunities for students to practice, review, and apply knowledge. Mastery of any subject requires focused practice occurring over a span of days or weeks and cannot be rushed (Anderson, 1995; Marzano, Pickering, & Pollock, 2001; Newell & Rosenbloom, 1981).

Experimental mortality refers to the loss of subjects. Since only 24 of the 68 parents completed the homework monitoring logs and the Pizzo Semantic Differential Scale, this proved to be a high threat to this study. The researcher was not aware of events that took place in the home or if the strategies given during the workshop were followed. To minimize this threat, the researcher created a homework-monitoring sheet for parents to complete every night. This monitoring sheet was used to track which participants followed through with the strategies at home, as well as how much time was spent assisting with homework.

Also, novelty effect was a high threat. Since the treatment was new to all students and parents, it may have been considered a novelty to begin with, and students may have done very well at the start. After the novelty wore off, participants may have become less interested. To account for this, the researcher had the parents complete a homework record form. This descriptive data showed any trends in implementation of the treatment.

A special type of novelty effect is the Hawthorne effect. This can occur when students in the treatment group change in some way because their participation in the study makes them feel special (Gall et al., 2007). This was not a high threat to the study since the treatment took place
at home rather than in a public setting. Students for both the comparison group and the treatment group were unaware of who was receiving learning-style strategies and who was receiving traditional homework strategies. Likewise, differential selection occurs when individuals may have previous knowledge that could affect the final measurement if it is not taken into account. Differential selection was not a high threat to the study, due to randomization to group.

**External Validity**

External validity refers to whether or not the results of the study can be generalized based on the treatment and outcomes (Creswell, 2008; Gall et al., 2007). Strong external validity means that the study results can be generalized to other people and situations. Because of random assignment to group, many potential internal threats were minimized. However, it is important for the researcher to be aware of all possible external threats and to minimize these threats as much as possible.

**Population validity.** Population validity is the extent to which the results of the study can be generalized from a specific sample to a larger group of subjects. This study consisted of fourth- and fifth-graders from one district. Due to the low number of participants in relation to the number of students in the school, the ability to generalize the results was greatly minimized. Also, this district has a high population of English Language Learners. Some of the participants reflected the majority of the population, but most of the participants did not reflect the demographics of the district. Generalization may be difficult if the study is not replicated within the district due to the demographics of the population as well as the low sample size. Nevertheless, for districts that are marked by similar demographics, generalizability may increase slightly.
Ecological validity. The extent to which the results of an experiment can be generalized to peripheral conditions is referred to as ecological external validity (McMillan & Schumacher, 2006). Taking consideration of all factors that define this type of external validity, any threat to the research was minimized by the detailed description of the experimental treatment. Additionally, all correspondence between the parents and the researcher, the workshop outlines, and printouts from Power Point slides were provided in the appendices. This, along with, the use of valid and reliable instruments to gather data for the study, any factors that could have produced an ecological threat were minimized as well.

Implications and Suggestions for Future Research

The present study sought to determine if there was a difference in student and parental attitudes toward homework assistance and students’ academic self-perceptions based on types of homework strategies implemented (Learning-Style strategies versus traditional style strategies). The results of data analysis showed no significant differences in mean scores for attitude towards homework assistance or academic self-perception between the treatment and comparison groups. However, these results must be taken with caution because of possible cross contamination of treatments, and lack of knowledge as to whether the treatments were implemented as intended. Also, the small sample size makes this study exploratory at best.

One interesting observation did emerge from the study upon examination of the homework monitoring logs: Parents reported that teachers did not provide any homework in the area of science and very little homework (less than one time a week on average) in social studies. The No Child Left Behind Act (2002) increased high-stakes testing in math and reading, resulting in increased homework assignments in these areas. It may be that the homework
assigned in science and social studies in some school districts has decreased. This warrants further investigation.

In reviewing the homework monitoring logs it became evident through parent comments that some parents benefitted from increased involvement in the child’s homework. One parent from the treatment group wrote on the homework-monitoring log, “I had a conference with her teacher and I cannot say enough of how well she is doing. She is now turning in her homework and is doing well on her tests.” This example reinforces Cooper’s (2007) findings that parent involvement has the potential of improving communication between home and school.

Hoover-Dempsey and Sandler (1997) suggested that parents’ involvement in their children’s education is dependent on the parent’s academic self-perception. The parents’ academic self-perceptions are the results of helping a child succeed in school and also on the opportunities provided by the school districts. A parent from the comparison group stated, “During this time my child was assigned a project. He had several weeks to construct a diorama of a scene from a book. The way I helped him mostly was by asking open-ended questions and offering suggestions of materials to use. Overall, I find I use two basic approaches to helping my child with homework: (a) open ended questions; (b) sense of humor.” When asked, this parent said that she felt good about helping her child, that it was her child’s work, and she had a way to assist him. Other parents in the study acknowledged how they minimized noise and distraction by having younger siblings play in another room or having the television turned off in order to help their child.

Future research should replicate this study with larger sample sizes with different populations. Research should make certain that the treatment and comparison groups are actually
different. The homework monitoring log might be improved by having the parent specify the amount of homework given versus the amount of time the parents assisted with homework. Also, there needs to be a way to record what strategies were implemented for each subject area.

In addition, most research involving learning styles and homework with parent involvement has been conducted at the secondary and post-secondary levels. More research needs to be conducted at the elementary school level where it has been identified that elementary students should be assigned homework to establish good learning and study habits (Cooper, 1989; Cooper et al., 1998).

According to Marzano et al. (2001), complex processes should be broken down into smaller skills that should be taught and sufficient time allotted for student practice and adaptation. Although longitudinal studies take time and commitment, a multi-year study implementing the learning-style strategies for homework at the elementary level would allow parents and students time to practice the strategies and then apply them on a consistent basis over a period of time. Such a study would also allow the researcher to gather data on the effectiveness of the strategies for each grade level as well as to monitor the consistency in parental assistance and its effectiveness on attitude and academic self-perception.

Research on homework has been inconclusive for a number of reasons, one of which is that the amount of time for parents to master the strategies provided in training ranged in length from 6 to 35 weeks (Cooper, 2007). According to Cooper “It seems unreasonable to expect that parents in the training conditions could master in such a short time the strategies needed to have a dramatic influence on their child’s achievement” (Cooper, 2007, p. 62). The impact of parent involvement with homework may be more apparent if parents had more assistance in mastering the skills over an extended period of time.
Although there is need for more empirically grounded quantitative data on homework, it is important to consider the use of qualitative investigations as well. Accurate data for affective measures like attitude and academic self-perception might be better analyzed and understood through semi-formal interviews and focus groups. This type of study could more accurately display the range of attitudes toward homework assistance and the barriers that might prohibit positive attitudes towards homework.

**Summary**

This study examined the effects of homework help strategies (learning-style strategies versus traditional strategies) on parent and students attitudes towards homework and student academic self-perception in grades 4 and 5. The results of the study found that there were no statistical difference in students’ academic self-perceptions, and student and parental attitudes toward homework assistance. The review of literature provided different learning-style theories and research on the constructs of attitudes, homework, and academic self-perception. While research has been conducted on each construct, there was little research on all three constructs together. Although there continues to be a need for future research, this study explored the effects of all three constructs.

There is much research on homework and the importance of involving parents in the homework process, but questions remain about which strategies work best, and in which capacity. Based on the literature review, it appears that the learning-style strategies used as an intervention in this study has a great deal of promise when used by parents who are helping their children with homework. It is suggested that the present study be conducted again with the improvements mentioned above.
References


Burke, K. A. (1998). Relationship(s) between the consistency scores of an analytic versus a global learning-style assessment for middle-school students (Grades 6-8) (Doctoral dissertation, St. John’s University). *Dissertation Abstracts International, 61*(02), 584A.


Statistical Package for Social Sciences Inc. (Version 14.0) [Computer software]. Chicago, IL: SPSS Inc.


APPENDIX A:
Researcher-Designed Homework Monitoring Sheet
Homework Monitoring Sheet

Student ID ________________________________

For each night please check off the subject areas that your child had homework put a check in the box if you assisted your child with their homework.

Month ________________________________

<table>
<thead>
<tr>
<th>Week Of:</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work</td>
<td>Help</td>
<td>Work</td>
<td>Help</td>
<td>Work</td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
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Homework Strategies used this week:

- ________________________________
- ________________________________
- ________________________________

This week I helped my child (circle 1): 1 2 3 4 5

Total Time: 1 = not at all 2 = a little 3 = moderate 4 = quite a bit 5 = extensively
APPENDIX B:
Elementary Learning Styles Assessment (ELSA)
# Elementary Learning Styles Assessment (ELSA): Sample Page

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APPENDIX C:
Pizzo’s Semantic Differential Scale:
Attitude Survey: Parent Supported Homework
Pizzo Semantic Differential Scale  
Attitude Survey: Parent Supported Homework

I.D. # _____________________________

Directions: While working with my child on their homework during the past 8 weeks I felt:  
(Please check only one of the five spaces on each line).

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Pizzo Semantic Differential Scale
Attitude Survey: Student Supported Homework

I.D. # _____________________________

Directions: While working with parent/adult, as compared to doing the homework assignment alone, I felt: [Please check only one of the five spaces on each line].

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Neutral

Confused _______ _______ _______ _______ _______ Clear-Minded
Energetic _______ _______ _______ _______ _______ Tired
Nervous _______ _______ _______ _______ _______ Calm
Strong _______ _______ _______ _______ _______ Weak
Tense _______ _______ _______ _______ _______ Relaxed
Wonderful _______ _______ _______ _______ _______ Terrible
Helped _______ _______ _______ _______ _______ Not Helped
Shaky _______ _______ _______ _______ _______ Steady
Confident _______ _______ _______ _______ _______ Uncertain
Peaceful _______ _______ _______ _______ _______ Frustrated
Bad _______ _______ _______ _______ _______ Good
Dull _______ _______ _______ _______ _______ Sharp
Successful _______ _______ _______ _______ _______ Unsuccessful
APPENDIX D:
Building Excellence (BE)
### BE Two-Page Profile
Learning-Style Strengths

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APPENDIX E:
Superintendent and Principal Consent Forms.
December 1, 2010

Dear ______________:

I have been an elementary school teacher 12 years and am now a doctoral candidate at Western Connecticut State University. I have completed the required course work for the doctoral program and I am preparing to conduct my doctoral research project. I am seeking district permission to carry out my study at the elementary level in ___________ school.

The purpose of this study is to determine if there is an increase in student academic self-perception and positive parental attitude when parents are given specific knowledge of their child’s learning style preference and tools to aide them in helping with their child’s homework. There will be minimum requirements from the teachers. The teachers will only be asked to hand out and collect consent forms. All other parts of this study will take place outside of the school day.

If you have any questions, please feel free to contact me.

Sincerely,

Stacy Stewart
Stewarts@guilford.k12.ct.us

I, ______________, give permission for Stacy Stewart to conduct her doctoral research project at the elementary level in ________________.

X_____________________________________________ Date ________________
APPENDIX F:

Western Connecticut State University Human Subjects Research Review Form
Human Subjects Research Review Form

stacy stewart (Member ID: XXXXXXXX)

CITI Collaborative Institutional Training Initiative

Course Completion History

Institution: Western CT State University

Basic/Refresher Course - Human Subjects Research Curriculum

Social/Behavioral Research Course

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<td>None Required</td>
</tr>
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<td>70</td>
<td>11/01/09</td>
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</tr>
</tbody>
</table>
APPENDIX G:

Student Assent Form
Dear Student,

My name is Ms. Stewart. I go to school at Western Connecticut State University. I am doing an exciting research study. I would like you to be a part of my study. I will send a permission slip home with you. But first, I would like you to know about my study.

The study is on homework. I want to see if parents learn strategies to help with homework is better for some students. All students will be completing the homework that is normally required by their teacher. The parents will take a workshop to learn how to better help you with your homework. They will then work on using these new ideas at home with you while you are doing your homework. We will see if this new way is better.

I will need to use a few tests in my study. The tests will tell how helpful these new homework strategies were during the study. One online assessment is called the Elementary Learning Styles Assessment (ELSA). The ELSA will tell me how you like to learn. Another test we will do is a survey that will show how you see yourself as a learner.

When the study is over I will let you know what I learn about the new way of doing homework. If the new way is helpful I will share it with other parents.

I will not use your name in the study. I will use numbers instead of names. The tests we use will have nothing to do with report card grades. All of the information will be kept private.

You will be a volunteer for this study. If you have questions, please ask me.

If you would like to be in my study, please write your name here:

X___________________________________________________

Thank you,
Ms. Stewart
Appendix H:
Parent Consent Form
Dear Parent or Guardian,

I am currently enrolled in the doctoral program for Instructional Leadership at Western Connecticut State University. This program requires that I design and implement a dissertation research study. This study will occur over the course of a 12-week period during the spring 2011.

The purpose of this study is to examine the effects of parental involvement in students’ homework. Parents will attend one of two different sessions being provided on the evening of ___________. These sessions will provide parents with the opportunity to learn different strategies to help their child with their homework. After the workshop, the parents will implement the strategies they have learned for a period of 16 weeks. During this time, the parents will keep a checklist of the homework the student had and help the parent provided. At the end of the 16 week period the parents will complete Pizzo’s Differential Scale to monitor parental attitudes towards homework.

The Student Scholastic competence Assessment will be administered to your child to measure his/her perceptions after the eight-week study. At the start of the study, your child will also be administered a Learning-Styles profile, and an Elementary Learning Styles Assessment will be administered to identify your child’s Learning-Style preferences. These assessments will provide valuable information about your child’s learning style. Results will be made available to your child’s classroom teacher but will not be reported to the district or impact your child’s grades. Student names will be coded and remain confidential throughout the study.

This research study has been reviewed and approved by Western Connecticut State University’s Institutional Review Board. It is hoped that the results of this study will help teachers, school administrators, and educational policy makers understand how the use parental involvement impact students’ perception of themselves as learners.

Participation in this study is completely voluntary. You are free to withdraw your child from the study at any time. All information is completely confidential.

If you have any questions, please contact me via email at stewarts@guilford.k12.ct.us or phone at (203) 512-2164.

If you agree to have your child participate in this pilot study, please sign the attached statement and return it to your child’s classroom teacher _______________________ by _______________________.

______________________
(name of classroom teacher)

(date)

Sincerely,
I, ______________________________________, the parent/legal guardian of the student minor
(printed name of parent or guardian)

below, acknowledge that the researcher has explained to me the purpose this research study, identified any risks involved, and offered to answer any questions I may have about the nature of my child’s participation. I voluntarily consent to my child’s participation. I understand all information gathered during this project will be completely confidential.

Student/Minor’s Name: __________________________________________________________

Signature of Parent or Guardian: __________________________________________________
APPENDIX I:
Parent Training Sessions Overview
Learning Style Strategies for Homework

Parent Training Session Overview

Presented by: Learning Styles Expert Dr. Laura J. Mead

**Goals of this workshop include:**

1. Provide an understanding of the Dunn & Dunn learning-style model
2. Define learning-style preferences
3. Examine individual adult learning styles
   - An individualized BE report with personal results will be distributed to each adult participant
4. Compare adult and child learning-style preferences
   - Adult participants will be provided with the full ELSA report of their child's learning-style preferences
5. Understand appropriate use of learning-style strategies to assist with homework
6. Analyze how individual learning-style strategies can be implemented in the homework process
7. Create tactual learning resources to be used to support homework
Strategies for Homework Success

Parent Training Session Overview

Presented by: Literacy Expert Ms. Stacy Stewart

**Goals of this workshop include:**

1. How to select appropriate homework tools and resources
2. How to create an environment that supports homework
3. How to help your child learn how to organize, plan, and monitor their homework responsibilities
4. How to offer meaningful incentives for completing homework
5. How to use enrichment games to support homework and learning
6. How to communicate effectively with teachers about homework and the needs of your child
APPENDIX J:

Electronic Communication with Parents
Electronic Communications to Parents

Hello XXXXTeachers,

Last week you received letters to send home with your students about the study on homework that I am conducting this fall. Students should be returning those forms this week. If you could please hold onto them until Friday morning and then send them to the office on Friday I would appreciate it. I will be stopping at KSI mid-morning on Friday to pick up all of the forms from the office.

Any student that chooses to participate will receive a second letter the following week which I will send to you either Monday or Tuesday of next week.

Attached is the letter explaining the study with the consent form in case any student lost their copy.

Thank you for your support. If you have any questions or concerns please do not hesitate to contact me through this email address or by phone at 203-739-5731.

Good Morning

Thank you all so much for agreeing to participate in this very exciting study that will benefit you and your child for years to come. I would like to remind you of the Parent Homework Workshop this Monday night at XXXXXXXXXXXXXXXXXXXXXXXXXXXXX at 6:30. Child care will be provided. Your fourth or fifth grader is welcome to join you in the workshop, but that younger children will be taken care of in room 12. We will be meeting in room 13.

Please bring a print out of the results of the BE and the ELSA with you on Monday night. If you are unsure of the what to do, the instructions are attached to getting those results. They are very important to the success of this study and it will not take too much time. If you do not have access to a computer and you will not be able to get to a library, please arrive at XXXXXXXXXXXXXXXX at 5:30 to use a computer.

Please RSVP by phone 203-739-5731 or reply to this email. Also please tell me how many children will need childcare. Again, thank you for your cooperation.

Hi Stacey,
Do you want the log returned each week.
Am trying the strategies but the school year startup has been busy. Will be easier to try the strategies starting this week ahead.
Best,

XXXXXX
Hello,

Today concludes the second week of the homework monitoring. I hope that you have been able to try some of the strategies given to you at the workshop. Please remember to fill out the homework monitoring sheet for each week. If you need a new one or have any questions please don’t hesitate to contact me.

I hope you enjoy your three day weekend,

Just to be clear, "approximate time" in the last column refers to approximate amt. of time taken to do homework or approximate amt. of time we helped our son with his homework?

Hi XXXXX,

On Nov. 15th I will be at XXXX to administer the post assessment to the students that are participating in the study. I am trying to make a schedule that is as unobtrusive as possible, XXXXXXXXX said that she will help me with this, but suggested that I ask you to send me the master schedule of specials/lunches/recess etc. and a map of where teacher’s rooms are so that I can try to group students that have classrooms near each other.

Thank you and have a great weekend,

Dear Parents,

Thank you so much for coming to the workshop last night. I hope that you found it beneficial.

If you were unable to attend I have given the session folder to your child’s teacher. The folder is yellow and it should be in your child’s backpack today, if not please let me know as soon as possible so I can locate it and send it home for you.

Attached you will find the power point used for the session, please feel free to use this as a resource whenever you need it.

If you have any questions about what you heard last night, the power point, what is in the folder, or how the study is going to work please do not hesitate to contact me at 203 739-5731 or you can use this email address.

Thank you,
Stacy Stewart
Dear Parents,

This Friday concludes our study on homework. I met with most of the students yesterday and they completed the survey on homework. If you could please remember to send in the Homework survey that was sent home the week of parent conferences and the homework monitoring log on Friday I would greatly appreciate it. If you have any questions or lost any of the forms please let me know as soon as possible so I can get them to you.

Starting next week I will be working on analyzing the data with the hopes of having the results completed in March. If you would like to find out what the results of the study were please email me in March and I will send them to you.

If you have any questions please do not hesitate to call at 203 739-5731 or email me at this address. Thank you so much for your participation in this study. I hope that you found it useful and beneficial.

Hi Parents,

This morning I sent an email to you asking you to return the homework monitoring sheet and the survey with your child on Friday. It has come to my attention that some of you have not received the survey. I am attaching it here for anyone that needs another copy of it. If you do not need a copy please disregard this email.

Thank you and have a great night,

Hi Stacy,

I am sorry.. I didn't realize till now that you didn't receive the e-mail that I sent to you last week. I couldn't make today's appointment as you realized by now. I am liitle concerned about the amount of time I have to put into it for workshops. Can you explain to me the program in terms of how many times I will be meeting with you and how long are these meetings? Sarah has a busy schedule and I want to keep the schedule uninterrepted as possbile as I can.

Thank you

Hi Stacy. We're doing great... and have discovered a lot about James and how we interact with him in general! Interesting and fun. Bye for now
APPENDIX K:
Tactual Learning-Styles Manual: Sample Pages

The information in this booklet is based on the Dunn and Dunn Learning-Style Model.
Learning Styles
Learning styles are a combination of many biological and experientially imposed characteristics that contribute to learning, each in its own way and all together as a unit. Learning style is more than merely whether a child remembers new and difficult information most easily by hearing, seeing, reading, writing, illustrating, verbalizing, or actively experiencing; perceptual strength is only one part of learning style.

Teaching with Tactual Resources
Students who frequently tap their fingers, play with objects, wiggle, rock back and forth, get out of their seats, or move their feet incessantly need to understand that they either are tactual and/or kinesthetic and usually have too much energy to sit still. They need to have something to do while concentrating. Such students should be shown how to create their own instructional resources (Dunn & Dunn, 1992). When we teach tactual and/or kinesthetic youngsters by talking, they focus for only a brief amount of time and then wander off into their own thoughts and quickly forget (Burke & Dunn, 2002). When these learners create their own instructional resources, their long-term memory is stimulated.

Tactual Resources
Students who perform below average in a traditional classroom often have tactual strengths, but are required to learn through direct instruction by listening or by reading. These students need to learn how to teach themselves by using tactual materials such as Task Cards, Flip Chutes, Pic-A-Holes, and Electroboards (Dunn & Dunn, 1992; 1993).

To respond to tactual students, teachers should make changes in their instructional methods and resources. Assign tactual resources as homework and allow them to work and study together when doing assignments.
Every time new and difficult material is introduced, students should create new cards for these manipulatives so that they value the resources, learn at least one or two methods for teaching themselves, and have at least one strategy for becoming successful academically.

- Many students of all ages learn best when utilizing tactual resources.
- The setting can be adjusted to accommodate varied learning style preferences.
- The resources are often game like and therefore very motivating.
- The resources are self-corrective.
- Fear of failure, embarrassment, or anxiety is eliminated or reduced.

Task Cards
Task Cards are easy-to-make, self-corrective, tactual, and visual resources that help many students who do not remember easily by listening or by reading. Task Cards are effective in introducing new material and in reinforcing previously learned material.

Students who use Task Cards may work at their desk, or anywhere in the classroom, school, or home. Task Cards may be used by individuals, or by pairs, or by a small group—provided that everyone follows the rules.

Task Cards present information about a specific topic, concept, or skill that has been translated into either questions and answers or sample answers (some true, some false). A student can make Task Cards by, for example, (1) printing the name of each state in the United States on the left side of an index card; (2) printing the name of the state’s capitol in the middle; and (3) inserting a picture of the state’s outline (or famous product) on the right side of the card. Then the card can be cut into irregularly shaped thirds so that only the correct answers fit together.
The information in this booklet is based on the Dunn and Dunn Learning-Style Model.


Dunn, R. & Burke, K. (Winter, 2002). Teaching science to unreachable students: Their way! *The Art of Significantly Increasing Science Achievement Scores: Research and Practical Applications.* St. John’s University, Center for the Study of Learning and Teaching Styles, 89-96.


The resources in the photos in this booklet were created by preservice teachers from St. Joseph’s College and classroom teachers from the American School Foundation of Monterrey, Mexico and Central Elementary School, Oxford, Mississippi.

Dr. Karen Burke
Associate Professor
Instructional Leadership Doctoral Program
Western Connecticut State University
Danbury, CT

KBurke105@msn.com
Dear ____________________,

Thank you for agreeing to be part of this study. There will be a workshop on Homework Strategies. This workshop will take place on September 26, 2011 from 6:30 pm to 8:30 pm at Kings Street Intermediate School. Refreshments and babysitting will be provided for you. There will also be a raffle entry for all parents who attend the workshop. Please indicate the number of children that will be present so that we may provide enough people to care for your children.

If you have any questions, please feel free to contact me.

Sincerely,

Stacy Stewart

Stewarts@guilford.k12.ct.us

Please return the bottom portion to your teacher or email your RSVP to: stewarts@guilford.k12.ct.us

Name: ________________________  Child’s Name ___________________________

Please check one: I am able ____________    I am not able ____________ to attend the Homework Workshop on September 26, 2011.
If you are unable to attend this workshop please let us know why below:

______________________________________________________________________________

______________________________________________________________________________

I will be bringing ________ children who will need childcare during this time.
Dear ____________________,

Thank you for agreeing to be part of this study. There will be a workshop presented by expert Dr. Mead on Homework Strategies and Learning Styles. This workshop will take place on **September 26, 2011 from 6:30 pm to 8:30 pm** at Kings Street Intermediate School. Refreshments and babysitting will be provided for you. Please indicate the number of children that will be present so that we may provide enough people to care for your children. There will also be a raffle entry for all parents who attend the workshop.

Prior to the workshop I ask that you take the Building Excellence Survey and have your child take the ELSA (Directions for taking both surveys are attached). This is an online survey that will identify both you and your child’s learning style strengths. The results of this study will be given to you immediately after you complete the survey. When you have completed it, please print and bring the results with you to the workshop. If you will be unable to take the survey at home or the public library please contact me at (203) 739-5731 and I will make arrangements for you and your child to take the online surveys at King Street Intermediate prior to the workshop.

If you have any questions, please feel free to contact me.

Sincerely,

Stacy Stewart

Stewarts@guilford.k12.ct.us

Please return the bottom portion to your teacher or email your RSVP to: stewars@guilford.k12.ct.us

Name: ____________________________     Child’s Name ____________________________

**Please check one:** I am able __________     I am not able ____________ to attend the Homework Workshop on **September 26, 2011**.
If you are unable to attend this workshop please let us know why below:
________________________________________________________
________________________________________________________

I will be bringing ________ children who will need childcare during this time.
APPENDIX M:

Building Excellence Survey Directions
TAKING THE BE SURVEY

- Access the web site: www.learningstyles.net
- Click Free Sign Up at the top
- Complete the form using your e-mail address and choose your own password; click the Submit button
- Click on My Assessments at the top
- Enter 5-digit Account Code: RVZZF
- Select your language then click the Launch Survey button
- Follow the instructions to take the BE Survey and then print your report (or return later to print by following the instructions below)

PRINTING YOUR BE REPORT

- Access the web site: www.learningstyles.net
- Click Member Login at the top and enter the same e-mail address and password you chose when taking the BE Survey; click the Login button
- Click on My Assessments
- Click an icon to display and print your report

FOR ASSISTANCE:

- Use the CONTACT US form in the HELP area of the site
- Contact Jody Cenzano (jcznazo@learningstyles.net) 1.888.887.7552
- Contact Susan Rundle (susan_rundle@pcilearn.com) 1.256.740.0307
APPENDIX N:

Elementary Learning Style Assessment Directions
ADMINISTER ELSA TO STUDENTS

- Access the web site: www.learningstyles.net
- Locate ELSA at the bottom of the home page
- Click on ELSA (or the Launch Survey link below ELSA)
- Enter student's first and last names
- Enter 5-digit Account Code: RU3EP
- Click Login to continue
- Students may click on a graphic to select A/B/C
- If a student does not complete the assessment, he/she may exit and return at another time, following the same login steps to complete it

FOR ASSISTANCE:

- Use the CONTACT US form in the HELP area of the web site
- Contact Jody Cenzano (jcenzano@learningstyles.net) 1.888.887.7552
- Contact Susan Rundle (susan_rundle@pcilearn.com) 1.256.740.0307
APPENDIX O:

Electronic Communication with Teachers
Electronic Communication To Teachers

Dear Teachers,

Attached you will find a schedule for when I will be coming to you to administer the post assessments on Tuesday, November 15, 2011. You will see that more than one class is scheduled at a time. I will be administering it the common area that classrooms share. Please have those students bring a pencil with them. I am hoping that it will not take a full half hour and that instead they will return to your rooms in 20 minutes, but I want to be on the safe side and schedule a half hour.

Please check to make sure that the time I scheduled you will work. I have included the number of students that will be absent from your room at that time. If you would like to know what specific students, please email me and I will let you know.

Also, I do not know the location of your classrooms so if you feel that it would be better to place different classes together than the ones that I have put together just let me know and we can make the switch.

There are still three students that have not been assigned to teachers yet, so when I pick up your students for the post I will be asking if they are yours.

Thanks and have a great day,
Dear KSI teachers,

I just wanted to thank you so much for your flexibility, professionalism, and help with yesterday’s surveys. I was able to complete 70 of the 73 surveys and I could not have done it without you, so thank you I am extremely grateful.

For the three students that I was unable to administer the surveys to either because of absences or a mix up with which class he or she was in, I would like to possibly come in Monday morning at 9am if that is okay. It affects the following teachers XXXXXXXXXXXXXXXXXXXXXXXXXXX. If this time will not work please let me know and I will find a time that better fits your schedule.

After I administer the final three surveys on Monday I will stop in the office to pick up the parent surveys and the homework monitoring log that the students should be bringing to school on Friday. I am waiting until Monday in case a parent forgets to bring in the forms. If you could please send anything you receive from parents to the office no later than Monday morning, I would appreciate it.

I hope you have a great day and thank you again,

Good Morning,

This is just a reminder that I will be in your building all day tomorrow to administer the post assessments to students involved in the homework study. I will stop by your room to pick up any students you have that are participating in the workshop. The schedule was sent to you early last week. If there is a problem, please let me know as soon as possible.

Thanks,
APPENDIX P:

Withdrawal From The Study
Withdrawal from the Study

Ms. Stewart: I have to deeply apologize for not following thru on the homework study. We had good intentions, but unfortunately "life happens" and certain things must take priority first. I do appreciate the opportunity to participate, but again I am sorry that I, we did not follow thru.

Stacey
I had left a message that stated I am not able to do this at this time. So sorry, but you can take me off the email list.
Thank you