Effects of Dunn and Dunn Learning Styles Model on Achievement and Motivation: A Case Study

By

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Dedication Page

I would like to dedicate this thesis, firstly, to my ever loving parents; Mohamad and Hania, whose ‘family values’ and unfaltering love have stood me in such good stead throughout this whole process, as it has throughout my life thus far; it knows no bounds!

My sisters – Dana and Lara – as well as my children – Omar and Rayan – have also given so much love and support, as well as making me laugh; especially at the difficult times; that laughter often led to me to re-think things and be even more creative; I would surely have attained a different result had it not been for you guys.

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Effects on Dunn and Dunn Learning Styles Model on Achievement and Motivation: A Case Study

Carma Daouk

ABSTRACT

The positive effect of accommodating learning preferences on reading comprehension, writing, and motivation/attitude towards learning has been thoroughly researched among other variables, albeit not in this combination. This study aims at analyzing the elements that motivate a student to learn and the elements that lead to academic achievement. The study is based on the Dunn and Dunn’s preferred learning style theory which emphasizes that students have their own learning style and that the learner’s physical, emotional, and sociological needs must be satisfied within the learning environment in order to optimize achievement and academic satisfaction. Using an ABAB single case study design, an investigation on a fourth grader with learning problems was conducted to determine how learning style preferences affect reading comprehension achievement, writing achievement, and student motivation/attitude. The intervention was spread over two months. The first month was dedicated to reading comprehension, and the second to writing. The teacher alternated between traditional teaching and teaching that accommodates his learning preferences. His achievement was evaluated through CBM, and his motivation/attitude through an adapted version of the Student’s Motivation toward Science Learning, along with an informal questionnaire, Attitude toward Learning Reading and Writing survey that was administered at the end of each session. Prior to the intervention, the student’s learning style was assessed by the Dunn and Dunn Learning Styles (ELSA version) to develop an individualized learning style program. Results showed that the student’s reading comprehension achievement, writing and motivational/attitude levels increased significantly when instruction used the student’s preferred learning style. The results of these findings can be utilized by educators and parents to help maximize achievement and motivational/attitude levels in English.

Keywords: Curriculum Based Measurement, Elementary Learning Style Assessment (ELSA), Learning styles, Reading Comprehension, Dunn and Dunn Learning Style Theory, Student Motivation toward Learning English (SMTLE).
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CHAPTER ONE

INTRODUCTION

As decades have passed, students have heard teachers talk for more than seven hours a day while they sit in their chairs, and numb their senses and bodies. This scholastic system is a complex web that has been pressuring children to learn different skills. These academic skills serve as tools in hopes to prepare the child for a bright and prosperous future. Instructors may place all their effort in trying to mold the information in the most comprehensive manner possible for the child. However, many teachers fail, even the most experienced due to the mechanical and routine methods of instruction. This failure may create negative emotions in the student such as a fear towards learning accompanied with a lack of motivation for studying. In addition, there are numerous competing learning styles in the field of education. Teachers are not often aware of which model is the most effective and suitable for their class. Therefore, if the model(s) being used does not maximize learning, then it will have a negative impact on the child’s achievement and attitude towards school.

We have additionally witnessed the gradual changes in the physical settings of schools but not in the teaching styles. Educators face challenges in this era as new perceptions of instructions continuously evolve and emerge. Determining a student’s preference for learning has become a reliable base and a necessity when making instructional decisions since each student has their own unique style when it comes to learning. These learning styles determine how the student prefers to receive and
process the information given by the instructor (Novogrodsy, 2012). Therefore, evaluative tools are needed in academic institutions to ensure academic success.

According to Rita and Kenneth Dunn, children are not failing because of the school’s curriculum, but because of the instructional approaches that are dissonant with their learning styles (Dunn, 1990). When the teaching style fails to meet the needs of a particular learning style, then minimal learning will take place (Rhoads, 2005). Teachers need to have knowledge on how their students learn before they can design educational experiences. This is the time for reflection among educators who need to confront the student diversity in learning styles. They need to be able to nurture the learning strengths of their students. As a matter of fact, students can learn any subject matter if the learning approach used is responsive to their learning style. Therefore, emphasis should be placed on students’ learning styles whilst teaching in order to eliminate or minimize any learning or emotional problems in the child due to academic failure

The Dunn and Dunn Learning-Styles Model has been researched in depth both in American and international universities. Rita and Kenneth Dunn had been advocating school change for decades by teaching instructors how to use different learning styles that maximizes teaching instruction (Dunn & Dunn, 1979). They believe that students could become more efficient learners if teachers matched the instructional strategies to the student’s learning styles since one style cannot reach everybody. Since each individual has his/her own learning style, it would be unethical to let a student linger behind academically and emotionally due to the negligence of those specific learning styles (Koch, 2007). It is due to this belief that the Dunns have developed their theory of learning styles after intensive research with children in school systems from grades kindergarten to twelfth (Rhoads, 2005). The
Dunns believe that the following five different stimuli affect learners: environmental, emotional, sociological, physiological, and psychological. These five stimuli are subdivided into 21 elements (Dunn, Honigsfeld, & Doolan, 2009). Learners are able to reach maximum academic achievement when they are taught using their identified learning style.

Innovative strategies aiming to help students that have previously been unsuccessful in their academic studies have shown a positive response in both the students’ attitude towards their studies and achievement when applying the Dunn and Dunn theory (Dunn & Dunn, 1979). Research has proved that when instruction is conducted using the student’s learning preferences as identified by the Learning Style Inventory, learners would show higher achievement and attitude test scores as compared to when they were taught with approaches that mismatch their preferences (Dunn, 1990). Student’s learning is thus maximized and the information they are taught will be retained longer using the channels that suit there perceptual strengths.

1.1 Purpose and Rationale

The purpose of this study is to examine whether the application of the Dunn and Dunn Learning Style Model will lead to higher academic achievement, specifically in reading comprehension and writing in a fourth grade student. A second purpose is to determine whether the student’s choice of learning styles will increase his motivation in learning English.

The following questions are sought to be answered:

a. Will matching teacher-learning strategies to the perceptual strengths of a student affect their reading comprehension and writing achievement scores?
b. Will matching teacher-learning strategies to the perceptual strengths of a student affect the student’s motivation in learning?

1.2 Hypothesis

It is hypothesized that by using the Dunn and Dunn learning style model, the student’s reading comprehension and writing test scores will gradually increase. Matching the student’s learning styles with compatible teaching methods will yield higher academic achievement and positive attitudes towards learning. By identifying the students’ learning preferences, the instructor will be able to mold the lessons in a manner that would increase motivation and enhance academic achievement.

1.3 Operational Definitions

For a better understanding of the scope of this study, the following terms were defined:

Auditory:

Auditory is sensory information imprinted in the memory by hearing. A learner who learning is most effective through his/her auditory sense needs to be exposed to material through sound (Ferdenzi, 1998).

Curriculum-Based Measurement (CBM):

CBM is an assessment tool used to make four kinds of decisions in education: screening decisions, progress-monitoring decisions, diagnostic decisions and outcome decisions (Hosp, Hosp & Howell, 2007). “CBM is a tool for improving instruction that is compatible with diverse instructional approaches. It is also used in situations where different teachers may be using different instructional methods or
the same teacher may have different students being taught in different ways.” (Hosp, Hosp & Howell, 2007).

Instructional Strategy:

Instructional strategy is a combination of methods and materials required to transfer content and sequence learning experience (Novogrodsky, 2012).

Kinesthetic Learning:

Students learn as they are performing tasks or skills (Özbaş).

Elementary Learning Style Assessment (ELSA)

ELSA is a learning style diagnostic instrument used elementary students between grades 2-4. It assesses the different characteristics that effect the student’s achievement (Koch, 2007)

Learning Preferences:

Learning Preferences is the manner in which a learner achieves his/her maximum potential of learning by processing the information through a preferred method (Mitchel, 2009).

Learning Style:

Learning style is described as the way in which a learner focuses and retains new and difficult information (Dunn & Dunn, 1979).

Motivation:

Motivation is the process whereby students perceive that they are capable of completing a worthwhile task (Tuan, Chin & Shieh, 2005). Further on, the students’ learning goals and self-efficacy impact the students by allowing them to construct and reconstruct their conceptions (Tuan, Chin & Shieh, 2005).

Reading Comprehension:

Reading comprehension is the ability to perceive and understand meaning from print thus allowing the reader to construct an understanding from the written words (Alshumaimeri, 2011).
Reading Motivation:

Reading Motivation is the willingness to read (Mitchel, 2009).

Tactile Learning:

In Tactile learning, students learn by experiencing and doing things such as using fingers to learn a pattern (Özbaş, n.d.).

Teaching Style:

Teaching style is defined as the instructor’s actions and communications which result in either effective or ineffective results in students’ outcomes (Dunn & Dunn, 1979).

Visual Learning:

In visual learning, students learn through seeing and learn by using visual aids such as figures and graphs (Özbaş, n.d.).

Literature Review

Dunn and Dunn describe how instructors in different academic institutions achieve academic success when using learning-style based instructional approaches. Students within a class require instructional considerations. Therefore, this review of literature focuses on the following categories vital to student’s academic success: a) theories of instruction; b) theories behind motivation c) the Dunn and Dunn Learning Styles Model and d) how the Dunn and Dunn Learning Style Model affect student academic achievement and attitude.

Methodology

Design. In this intrinsic case study, A-B-A-B Single-Subject Design was used to test the theory of whether or not the student’s preferred learning strategies had an impact on the student’s reading comprehension and writing scores. Additionally, the study was completed in hopes to determine whether the student’s attitude towards
learning English would be affected if instruction was based on his preferred learning strategies.

Dunn and Dunn’s learning theory supports the idea that when instruction is based on the student’s learning style that identifies his/her strengths and preferences across the spectrum of physiological, emotional, environmental, psychological and sociological elements, (Burke, Dunn, 2006) then the student will be able to expand his/her potential during the learning process. It is worthy to discover if the learner’s preferred learning styles keeps the student enthusiastic about learning so that the student can maximize academic achievement. The independent variable is defined as the preferred learning strategies used during instruction. The dependent variable is defined as the student’s motivation, reading comprehension and writing achievement scores.

1.4 Participants

The primary participant was a ten-year old (fourth grader) boy, who was referred to as John. His voluntary participation was based on individual sessions.

John is a Lebanese student who lives with his family, consisting of his parents and two siblings. John is currently in fourth grade in a regular classroom setting. John has been struggling with reading comprehension and writing since the first grade. The only assessment that was completed was a psychological assessment when he was in first grade. His parents preferred not to complete another psychological assessment since they have somewhat “given up” on the educational system and want to minimize their child’s frustration. It was reported by his mother and reflected in his academic records that John’s grades were that of high average scores except when it came to English, specifically reading comprehension and
writing. He was placed in the bottom 10 percentile of his class. He was continuously on the verge of failure and there were times where he even had to complete school exams during the summer to determine whether he would move on to the next class. He associated his attitude towards school with his reading skills and further reported that the climate at his school was nonconductive to learning.

Secondary effects have also been noted by John’s mother and teachers due to his struggle to pass his English classes. He developed a negative attitude when it came to studying English and at times even refused to go to school. When a book would be placed in front of him, he would merely turn away or read with great hesitation, fear, and lack of confidence. He further reported that during the English lessons, the peers would not listen to him or the teacher. His pessimistic attitude towards school led him to believe that his presence in class was a waste of time.

In brief, John is a perfect example of a child who has been “put down” by the academic system. During his school years, his classroom consisted of a variety of students with different strengths and weaknesses. The instructional strategies used during instruction were traditional and rigid. One method was used during instruction thus failing to reach the student’s intelligences and abilities.

1.5 Instrumentation:

A Curriculum Based Measurement (CBM) is a tool created to depict students that are experiencing difficulty in learning literacy skills. CBM is used to detect struggling students at an early stage and prevents later reading and writing difficulties ("Curriculum-based measurement warehouse"). CBM has established validity and reliability when it came to progress monitoring (Hosp, Hosp & Howell,
CBM is applied to students who are falling behind or at risk of academic failure. It is used for screening/benchmarking.

The Elementary Learning Style Assessment (ELSA) depicts how a person acquires and processes information (Ivie, 2009). The ELSA has been proven to have good validity (Ivie, 2009).

The Students’ Motivation Toward English Learning Questionnaire (SMTEL) was re-amended to create a questionnaire that would measure how motivated the student is in learning English instead of Science both before and after intervention. The questionnaire consisted of six scales that measure the following: “self-efficacy, active learning strategies, English value, performance goal, achievement goal, and learning environment stimulation” (Tuan, Chin & Shieh, 2005). SMTEL has established validity and reliability when it came to monitoring student motivation (Tuan, Chin & Shieh, 2005).

**Procedures**

*Data Analysis*

In this section, the data extracted from the CBM and STMEL questionnaire were studied. John’s reading comprehension test scores, writing test scores, and his motivational/attitude levels were explicitly analyzed. A description of the results during the baseline phase and the changes of the results during and after intervention were be analyzed. Graphs were provided along with an analysis of the data.

Chapter 2 of this study will provide an extensive review of the literature as it relates to theories behind motivation, preferred learning styles, and factors that influence a both motivation and achievement. Chapter 3 of this study describes the
methodology used for this study. Chapter 4 will present the data collected during the study and the analysis of the data. Chapter 5 will provide a summary, conclusion, recommendation of the study.
CHAPTER 2

REVIEW OF LITERATURE

A thorough review of the literature relating to theories of instruction, theories behind motivation, the Dunn and Dunn Learning Styles Model, and how the Dunn and Dunn Learning Style Model effect student academic achievement and attitude are provided in the following section of this study.

Introduction

A student is part of a complex web educational system that can either maximize the student’s academic potential or lead to poor academic achievement and lack of motivation. Many instructors may claim that students who are not motivated or persistent should be taught by using alternative instructional strategies from those who are. Despite this claim, observations state that instructors still teach both groups the same way (Dunn & Dunn, 1979).

An educator has to pay attention to the student’s learning-style strengths so the student can work efficiently. Students may work hard, but their hard work does not always translate to academic success since the individual’s energy does not harmonize with the instructor’s teaching strategies. This may lead to wasted energy on behalf of both the students and the teacher along with a lack of motivation to continue studying. Students who reflect a positive attitude towards learning are more apt to produce higher rate of success than students who do not. According to Mitchel (2009), as students begin school, they are intrinsically motivated. However, this intrinsic motivation declines during the subsequent couple of years. Not all students
are capable of maintaining a high level of motivation once a task becomes more challenging (Mitchel, 2009). If this obstacle comes along the way, then achievement is compromised.

2.1 Theories of Instruction

Research on instructional theories has evolved over the years. This growing interest has been steered towards learning students’ different learning styles in hopes to increase motivation and academic achievement. A learning style is defined as “a biologically and developmentally imposed set of personal characteristics that make the same learning methods more effective for some and less effective for others” (Mitchel, 2009).

The meaning of the word “style” has been molded over the years. It is now agreed amongst educators that a child is born with “style” or acquires it at the early stages in life (Ivie, 2009). According to Dunn, the suggestion that learners should adapt to the teacher’s styles should be eliminated and should be replaced with the fact that style is both rooted in human biology and is acquired (Ivie, 2009).

The Coffield team described 71 different learning style models (Ivie, 2009). One of the models identified was a model created by Rita and Kenneth Dunn as being one of the most used and exposed models in the world of education. The Dunn and Dunn Learning Style Model has been examined and developed throughout a time line of thirty years (Boyle, 2005). Researchers in more than 120 colleges and universities published research and writing on this model (Boyle, 2005). Rita and Kenneth Dunn created a model consisting of 21 elements with 23 variables that have an impact on a learner’s learning style (Boyle, 2005).
Researchers in educational psychology suggest certain factors which have an impact on learning, namely motivation, learning strategies, and learning styles (Rautopuro & Vaisanen, 2003). Research has shown that if instructional styles suited students’ thinking and learning styles, then academic achievement will be superior to that of instruction in mismatch conditions that is where instructional styles did not suit students’ thinking and learning styles (Rautopuro & Vaisanen, 2003). On the other hand, an in congruency between teaching and learning styles creates failure in learning, and de-motivation.

Based on the constructivist approach, learners play an active role in assimilating new information (Tuan, Chin & Shieh, 2005). Learners will actively take part in learning by using active learning strategies as a means to link existing knowledge to new information. When the importance of learning new tasks fail to be perceived by the learner, then surface learning strategies, such as rote learning, will take place instead (Tuan, Chin & Shieh, 2005). Therefore, when learners acknowledge the fact that they have the capacity to assimilate new information with old information, and the goal is to achieve competence, then the learner will place an effort and become a participant in the learning process.

We live in a decade where students are continuously assessed. Assessments have been the driving force behind academic decisions. Such standardization tends to be more favorable to students who are able to retain new and difficult information through methods that consist of traditional learning. Oral lectures, board lectures, note-taking, and end of chapter testing are still common teachings in many schools. However, not all students benefit and perform well through standardized testing since they do not perform well through traditional methods (Honigsfeld & Dunn, 2009). In such cases, the struggling students might lose academic interest and may
even develop emotional disturbance due to failure. Boudett refers to the concept of “drill and kill” which is refers to “the potentially harmful overuse of repetitive, drill-based activities that leads to the destruction of student joy in learning and motivation (Honigsfeld & Dunn, 2009, p. 220).

Learners who-are typically considered as at risk students may fall into one or more specific categories. The categories consist of diagnosed or misdiagnosed students. Such students are claimed to have a learning disability, raised in isolated communities, begin to learn the English language once they enter school, grow up in a background that consists of poverty and a lack of education, and are homeless and their basics needs are not secured (Honigsfeld & Dunn, 2009).

As a matter of fact, not all at-risk students fall in to the above categories. Some learners put their hearts and souls into their studies so they can excel academically; however, they remain underachievers in the eyes of their instructors. These students follow certain characteristics such as learn, process, and retain new information globally, appear bored in school, and seem inattentive during class. The characteristics may even evolve to disobedience, lack of concentration, and the inability to retain new and difficult information (Honigsfeld & Dunn, 2009).

Over the years, children have been negatively associated with labels such as learning disabled due to their academic failure. The term “slow learner” has been used and abused in classrooms to describe low achieving students. However, their failure is not due to their lack of intelligence, but instead to the ineffective approaches and resources that mismatch their learning styles. When comparing the high achieving students with the low achieving students in reading and math, the low achievers were less motivated and less persistent than their peers (Dunn, 1979). The “low achievers “often find it challenging to sit steadily in their seats and pay
attention to the lessons. It is due to these reasons that they prefer being taught using strategies that include tactual and kinesthetic instruction, informal seating, and allowance for mobility.

A group of underachievers have increasingly been labeled as having Attention Deficit Hyperactivity Disorder (ADHD) for the past two decades. A huge interest in the topic of ADHD soared in the field of education and its cause was described as being related to biological and/or neurological bases (Brand, Dunn & Greb, 2002). Children with ADHD have difficulty following the academic system since attention and concentration was a requirement for success, even though many of the students had the capacity to learn. Traditional instructors ask their pupils to sit still while giving their attention to lectures and verbal directives. However, due to the nature of ADHD which causes children to have the need to physically move a great deal, less attention is paid during class, and nonconformity rules their behavior. They are reprimanded by their instructors which in return may cause them to become less motivated to learn compounded by low achievement. Such factors make them less able to function in traditional school settings than students who attend school in the absence of ADHD.

Due to a negative impact on academics and attitude towards children with ADHD, advocates for learners with ADHD have recommended a multimodal treatment plan to help their success in classrooms (Brand, Dunn & Greb, 2002). Instructors were asked to amend their classroom environments in a way that would suit the needs of ADHD students. For instance, ADHD students should be frequently monitored and should learn in quiet and structures classrooms. They should be placed far from distractions. Such distractions may be in the form as air conditions, windows, and/or areas with traffic (Brand, Dunn & Greb, 2002). Further on,
teachers had to provide ADHD students with more types of activities and materials such as visual aids. Frequent breaks were also required along as placing core academic subjects in the morning.

Dunn and Dunn (2009) believed that learners who are not able to learn through traditional methods are more likely to learn by hands-on activities. Experiments that compliment such theory have been conducted through nontraditional strategies. Results have concluded that students learning through these methods have increased achievement and produced higher levels of motivation (Honigsfeld & Dunn). Research using the Dunn and Dunn Style Model claimed that each student has their own individual learning style just as each person has their own fingerprints. A study on a total of 230 of third-through twelfth-grade students was conducted to study their learning styles (Brand, Dunn & Greb, 2002). The students were medically diagnosed with ADHD and received prescription drugs. The study was based on the Dunn and Dunn Learning Style Mode as the base of the investigation. Each student’s reactions towards the 21 elements whilst learning new and difficult tasks were identified and included:

- Reactions to the immediate instructional environment-sound versus silence; bright versus soft lighting; warm versus cool temperatures; and formal versus informal seating;
- Own emotionality- motivation, persistence, responsibility (conformity versus nonconformity), and preference for structure versus choices;
- Sociological preferences for learning-alone, with peers, with either a colleagues or authoritative adult, and/or in a variety of ways as opposed to patters or routines;
• Physiological characteristics-perceptual strengths; time-of-day energy levels; intake and/or mobility needs; and
• Global versus analytic processing as determined through correlations among sound, light, design, persistence, sociological preference, and intake (Brand, Dunn & Greb, 2002, p 270).

Results validated the attributes that described the ADHD learners were not due to their inability to learn; but simply possessed different learning styles since they were not able to learn in traditional and conventional classrooms. The students need guidance in order to determine their individual learning styles (Brand, Dunn & Greb).

More guidance should be provided for the educators who are instructing the thousands of children that have learning difficulties, such as hyperactivity, distractibility and impulsivity. Traditional remedies have previously failed to implement success in students’ hearts and work.

An experiment conducted by Farr in 1970 included the use of multimedia resources for students who lacked specific skills. Visual, tactual, and kinesthetic materials were used along with taped directions. They were taught using self-correcting task cards, body games, and learning circles. They were further permitted mobility by through the use of interest centers, and learning stations. In merely two hours, most of the students learned skills and facts that they have failed to master before such as healthful food groups, and number sequences (Dunn, 1979). Multisensory instruction paved the way for achievement among students who have previously not found progress with conventional methods. Therefore, Farr’s work verified that slow learners show more academic progress when instructed in ways that respond to their individual preferences.
Learning style theorists support student accommodations in classrooms. Students absorb information better when instruction is matched to their learning preferences (Ivie, 2009). Learners should take comfort within the classroom walls. Theorists such as Piaget, Montessori, and Froebel along with the Dunns believed in such accommodations. For instance, they believed that auditory or visual learners can acquire and imprint information longer and more effectively in their memories by hearing and seeing (Ivie, 2009). In addition, other learners may learnt more tactually (through the use of manipulative) or kinesthetically (by engaging in whole-body activities) (Ivie, 2009). According to Dunn, research has proven that learners who were taught using instructional strategies that matched the students’ preferred modalities got higher test scores than students who were taught using instructional strategies that mismatched their preferred modalities (Ivie, 2009).

2.2 Theories behind the Dunn and Dunn Learning Styles

Since 1990, the Dunn and Dunn Learning Style Model has been researched by over 50 educational institutions in both the United States and abroad (Mitchel, 2009). Results from the research have shown that by learning through a student’s learning style preference, student achievement increases and the information from the teaching is retained longer by the student (Mitchel, 2009). Therefore, a unique learning style does not promise achievement. One of the main keys to success is that the instructor has to be cognizant her students’ learning styles. The Dunn and Dunn Learning Style Model is based on the theory that each person has his/her strengths when it comes to learning (Mitchel, 2009). The model is represented through five stimuli which are environmental, emotional, sociological, physiological, and
psychological (Mitchel, 2009). Dunn and Dunn believed that each stimulus contains individual elements which contribute in mastering academic skills.

The environmental variable consists of the elements sound, light, temperature, and design. The emotional variable consists of motivation, persistent, responsibility, and structure. The sociological variable includes self, pair, peers, team, adult, and varied. The physiological variable consists of perceptual, intake, time, and mobility. The last variable, which is the psychological variable, has three components that contain global-analytic processors, hemisphericity, and impulsive-reflective (Mitchel, 2009).

Dunn and Dunn initially identified 21 elements of learning styles that differentiated from one learner to another (Ferdenzi, 1998). They identified the 21 elements that revolve around a student’s academic learning through the following theoretical postulates:

1. A student’s biological characteristics set his/her learning style. Since these characteristics are personal, their effectiveness may differentiate from one learner to another.

2. A student’s instructional preferences can be measured if using reliable measuring tools.

3. If the student has a strong preference in learning in certain modalities of learning, then the preferences should be compatible with the instructional strategies.

4. Molding individual learning-style preferences within the instructional strategies yields higher attitude towards learning.

5. Learners can use their learning-style strengths when learning new and difficult information.

6. The lower the academic achievement of the learner, the necessary it is to base teaching strategies on his/her learning preferences (Ferdenzi, 1998).

The Dunn and Dunn Learning-style further consisted of five stimuli:
1. “Environmental--in an environment with either sound versus quiet; soft versus bright light; warm versus cool temperatures; or formal versus informal settings;

2. Emotional--through consistent versus inconsistent motivation; persistence on task versus the need for intermittent relaxation; conformity versus nonconformity; and internally imposed-versus externally-imposed structure;

3. Sociological - -alone, with peers, in a team, with either a collegial or authoritative adult, and/or with a variety of approaches as opposed to patterns or routines;

4. Physical- - auditorially, visually, tactually, and/or kinesthetically, in specific time-or-day energy highs and lows; with or without snacks or liquids while learning; and passively versus frequent mobility; and

5. Psychological - - globally versus analytically as determined through correlations among sound, light, design, persistence, sociological preference, and intake. (Ferdenzi, 1998). P. 25

One reason for the popularity of the Dunn and Dunn model is that it was generated by classroom experience and therefore has ecological validity. The Learning Style Inventory (LSI) developed by Dunn and Dunn, has proven that there is a direct relation between student learning styles and achievement (Mitchel, 2009). A meta-analysis consisting of 41 studies was launched using the Dunn and Dunn Learning-Styles Model. The results of the studies concluded that learners who learned based on learning strategies that were dissonant with their learning styles increased their standard score of 75% compared to learners whose were taught without exposure to their preferred learning styles (Ferdenzi, 1998). Student
learning styles should be kept into consideration when creating instructional strategies. A school in Georgia administered the LSI to eighty students from grades six to eight as a means to determine their learning styles (Mitchel, 2009). The students’ achievement levels ranged from low achievers to high achievers. It was confirmed that the low achieving students had preferred to learn in a specific learning style. Therefore, it was crucial to determine the learning style of each student so that motivation and achievement can be reflected through his/her work.

Dunns, Griggs, Gorman, and Oslon conducted a meta-analysis which included 3,181 students who were guided by the Dunn and Dunn model (Ivie, 2009). The results of the study revealed that “students whose learning styles were accommodated achieved 75% of a standard deviation higher than students who have not had their learning styles accommodated” (Ivie, 2009 p. 187). Further analysis of the results was that students with specific and visible learning preferences showed higher academic achievement than students who had a mixed learning preference (Ivie, 2009).

Lovelace completed a meta-analysis of 76 original studies basing the study on the Dunn and Dunn Learning Styles Model. The results confirmed that instructing learners based on their learning preferences would increase their achievement score and improve their attitude scores (Ivie, 2009). According to Lovelace:

Students exposed to learning-style responsive instruction have an expected success rate of 70%. Students taught with traditional instructional methods have only a 30% expected success rate and, therefore a 70% expected failure rate. That finding is true for academic achievement and attitude toward learning (Ivie, 2009 p. 188).

The LSI is not as simple as described. Learning styles could only be identified with the use of a valid, reliable, and comprehensive instrument (Ivie, 2009). The LSI contains 100 items and takes about 30 minutes to fill out by the
learner. According to DeBello, research conducted by more than 40 higher learning institutions stated that the LSI is one of the most reliable and valid instruments (Ivie, 2009).

2.3 Theories behind Motivation

Motivation is described as being the trigger to success. Motivational levels differentiate from one learner to another. Academic achievement takes place when a learner shows motivation (Elliot & Dweek, 2005). The contrary may result in damages when it comes to student learning. Research conducted in the area of memory has elaborated that retention can occur solely through motivation (Mitchel, 2009). Otherwise, the information may just “leak out” due to the decrease of processing time since Motivation is the trigger to the duration of time a student spends on trying to retain and learn the information at hand (Mitchel, 2009).

Some learners are intrinsically motivated to learn whereas others struggle to find the tool(s) needed to trigger their motivational drive. Therefore, proper strategies need to be used by the educator within the classroom walls and learners need to be involved in the learning process (Mitchel, 2009). Students that sense they are being controlled will increase their stress level. In return, they will function below their actual cognitive ability due to the release of high levels of cortisol (Mitchel, 2009).

Directing students in recognizing their learning style preferences will increase motivation and improve academic achievement. Guest has conducted a study consisting of a sample of 577 business students. They were each asked to choose between two varied teaching styles (Mitchel, 2009). The learning style that encouraged the learner a choice over their learning environment had a higher chance of improving academically than students who had less control over the learning
environment (Mitchel, 2009). Therefore, in order motivate students and maximize learning, they must be actively engaged in the learning process and not be benched aside. The feeling of importance when making classroom decisions and having students’ opinions integrated as part of the teaching strategies will create enthusiasm, high motivation, and improved academic achievement.

According to Chin (Tuan, Chin & Shieh, 2005), research in teaching should address two components: cognitive and the affective elements to cognition. The affective components play a crucial role when it comes to students learning concepts. Motivation, which is one of the elements within the affective components leads to achievement (Tuan, Chin & Shieh, 2005). Motivation in itself is made up of several factors such as effort, intrinsic goals, and learning strategies.

According to the Dunns, motivated students need to be told their “objectives” for learning, the materials required for the lessons, and how they may demonstrate their knowledge. They appreciate feedback and praise when required tasks and assignments have been completed. Conversely, the unmotivated students require short assignments and tasks that deal with few objectives. They require frequent feedback, a continuous supervision, and authentic praise.

### 2.4 Effects of Teacher Motivation on Students

Even though motivational differences exist among learners, it seems to be neglected among educators as one of the primary drives to mastering the curriculum. A study by Palmer and Wehmeyer consisting of students from kindergarten through third grade revealed that the learners are able to identify goals and solve problems, which is a crucial part of self-motivation (Mitchel, 2009). These learners set the learning goals with their instructors, who had completed training in teaching with
regards to student motivation. The teachers related the students’ enthusiasm to learn and their apt to create realistic learning goals when it came to learning reading.

Guiding students in realizing the factor(s) that trigger their motivational drive are one of the main building blocks to academic success since motivation can also affect creativity within the classroom walls. All students have the potential of being creative. This potential, which is often left unnoticed by instructors, may decrease motivation. However, if the student’s creativity and persistence is recognizable to the teacher, then motivation will take place (Mitchel, 2009).

In a classroom consisting of sixth graders, writing was assessed using portfolios. The portfolios kept track of the students’ writing and the growth of improvement throughout the year (Mitchel, 2009). Students were given the responsibility of critiquing and judging their own work instead of continuous teacher feedback. According to Harlen and Crick, continuous teacher comments give students the idea that they potential, thus decreasing motivation (Mitchel, 2009).

Extrinsic motivators such as teacher feedback and rewards may affect creativity in a negative manner (Mitchel, 2009). Students may spend most of their time competing with their classmates rather than concerning themselves with self-improvement. A study implemented on fourth grade students showed that a computer based reading program used as an extrinsic motivator was not effective as a motivator (Mitchel, 2009). This classroom environment merely encouraged negative motivation whereas students who are placed in a working environment that emphasized on self-improvement are more likely to flourish academically and become motivated (Mitchel, 2009).

According to research conducted by Dr. Christina Mitchell, students that feel positive about learning are more apt achieve success than students who do not feel
excited about learning (Mitchel, 2009). The study addressed motivation in kindergarten students. The population consisted of 89 kindergarten students in a school district in Georgia (Mitchel, 2009). Students learning preferences were implemented during sight word learning to detect if learner’s motivation in kindergarten students would increase while learning. Mitchel concluded that student motivation is one of the key elements to learning since it is linked to student success (Mitchel, 2009). A teaching method that nourishes motivation can encourage the desire to learn and ensure success.

When students enter school, it is the hope of their teachers, administrators, parents, and guardians that they will attain a high level of motivation and be successful in school. However, this motivation seems to decline as assignments become more difficult, boredom sets in, or the emotional environment of the classroom is negative. Understanding what motivates students can assist a teacher in setting the tone for students’ educational journey (Mitchel, 2009 p. 92).

2.5 Increasing Motivation through Instruction

Instructors must dedicate much of their time in motivating students within the classroom walls in order to excel academically. The factor(s) that motivate students must be noticed by the instructors as a means to keep the students on task academically.

Teachers are a great influence on student motivation. The learners’ attitudes towards their teachers have an effect on their motivation (Mitchel, 2009). Hufton et al. conducted studies in the United States, Russia and the United Kingdom. He examined how students felt towards their instructor. Data confirmed that levels of motivation where high in classrooms where educators minimized low anxiety levels and competitive yet achievable assignments (Mitchel, 2009). The respect teachers had towards their students encouraged and motivated the learners to complete
assignments. Therefore, high motivation within students is triggered by teacher encouragement and student consideration.

Rewards and grades are motivators which are also effective whilst teaching. Younger learners respond to material rewards, therefore they are more intrinsically motivated than older learners (Mitchel, 2009). Symbolic awards such as praise and gratitude additionally fuel motivational levels in students. A study conducted by Elliot showed that instructors who use controlling measurements cause their students to become less intrinsically motivated, and less willing to get challenged in their school work (Mitchel, 2009). Therefore, teachers must not focus solely on the reward as a trigger for motivation, but should build their rational on motivating students by finding the appropriate elements that encourages students to work with confidence and desire.

The classroom environment has a huge impact on learners’ willingness and motivation to learn. A study completed on nine third grade classrooms proved that teachers who create a warm and welcoming classroom environment and manage to transfer these positive emotions to their students will encourage student motivation (Mitchel, 2009). The study further built upon its theory that positive emotions trigger motivation by also stating that warm classroom environments tend to increase learners both working and episodic memories (Mitchel, 2009). It is only when such a warm atmosphere is established that higher level thinking can take place and freedom to study is of interest. Learners are given options which were either to work independently, in pair or in group settings. Willis elaborated that eliminating traditional autocratic control and replacing it with student interactivity led to higher engaged learning (Mitchel, 2009). This freedom of choice thus is a characteristic of a motivation.
On the other hand, negative emotions released in the classroom environment emitted by the teacher, such as stress can abruptly disrupt the learning process. Stress can lead to both positive and negative results depending on the amount of stress that is released. Positive stress takes place when a person still has control in solving a problem. Negative stress takes place when no solution is available (Mitchel, 2009). Stress is helpful in learning but only in a reasonable amount. When a student senses stress, the brain will react by releasing cortisol. If high levels of cortisol are released, muscle tension may occur, and learning may be affected. Under high levels of stress, the brain will be unable to perform higher brain functions and thus may result in emotions such as despair (Mitchel, 2009). Such a feeling can effect learning negatively.

Mitchel emphasized the importance of teaching learning strategies to students through instruction as a tool to increasing motivation. Teacher directions must be organized and coherent to the learner. Furthermore, advice about the student’s work and giving space for students to apply learning strategies in their work lead to student success and high motivation since the pupil will have more control over their learning (Mitchel, 2009). As well as teaching strategies, learners can be integrated within noncompetitive groups. Such cooperative groups pave the way for motivation and allow weak students a chance to be helped by their classmates.

2.6 The Dunn and Dunn Learning Styles Model

Rita and Kenneth Dunn have created one of the most used and popular learning style theories (Ivie, 2009). The Dunns define learning style as the way “a person concentrates on, processes, internalizes, and remembers new and difficult academic information or skills” (Ivie, 2009). A visual representation has been made
in a form of a patchwork quilt that describes the 21 elements in 5 basic strands (Appendix A). The learning-style variables are differentiated from one learner to another and have different effect on learners. Some learners are affected by one element, while other learners may be affected by more than sixteen (Dunn, R., Honigsfeld, A., & Doolan, L., 2009).

The Dunn’s Learning Style Inventory model was created to identify the learning style characteristics of their students since teachers cannot solely identify such characteristics by observation. Years of research has supported the fact that teaching methods should be dissonant with a learner’s perceptual strengths when introducing new and/or difficult academic material (Ivie, 2009). It is then that by revolving instruction through the learners’ learning styles can effectiveness truly be implemented in academic institutions.

Learning styles are a combination of many biological and experientially imposed characteristics that contribute to concentration, each in its own way and all together as a unit. Learning style is more than merely whether a student 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. It is also more than whether a person processes information sequentially or analytically rather than in a holistic, simultaneous, global fashion; information-processing style is just one component of style. It is important to recognize not only the individual behavior, but to explore and examine the whole of each person’s inclinations toward learning (Dunn & Burke, 2005-2006, p 1). The model is complex and takes account of various environmental, emotional, sociological, physiological, and physical factors. Such elements include the learner’s need for mobility, and optimal time for learning new and difficult information. The elements influence a learner’s capacity to learn and that learners differ in their preferred perception processes ("Learning styles: the debate," 2012).

(a) immediate environment (sound, light, temperature, and design); (b) emotionally (motivation, persistence, responsibility/conformity, and need for internal or external structure); (c) sociological (learning alone, in a pair, as part of a small group or team, with peers, or with an authoritative or collegial adult; also, in a variety of ways or in a consistent pattern); (d) physiological
(auditory, visual, tactual, and/or kinesthetic perceptual preferences; food or liquid intake needs, time-of-day energy levels, mobility needs); and (e) indications of global or analytic processing inclinations (through correlation with sound, light, design, persistence, peer-orientation, and intake scores) (Ivie, 2009, p.180).

The interaction of these elements differs from one learner to another. It is therefore critical to determine the elements that trigger the learner’s concentration, impress the learning into the memory to maintain retention. In order to acknowledge such tendencies, it is critical to apply comprehensive model of learning styles that emphasizes a learner’s strengths across the physiological, sociological, psychological, emotional, and environmental spectrum. The Dunn and Dunn Learning-Styles Model (LS: CY) is an instrument that determines the strengths in an individual. Since instructors cannot accurately identify the learning styles of each of their students, the LSI will influence the learning experience positively and will increase aptitude and achievement.

In order to become aware of the student’s learning styles, the Dunns created the LS: CY instrument. It is a valid and reliable instrument used to assess learning styles for preschool children until adulthood. This instrument includes the use of stories, fantasy, imagery, and pictures. It includes five stories. Each story includes three strands of learning-style elements (Dunn & Burke, 2005-2006). The five stories revolve around mystery and detective themes. The stories are then followed by a set of questions that pertain to the learner’s individual strengths. The 69 questions identify the student’s learning style preferences including the environmental, emotional, sociological, physiological, and psychological preferences for learning. For example, the detective work of Whodunnits is divided into the following stories:

- The Case of the Shattering Windows
• The Case of the Wrong Directions
• The Case of the Unwelcome Bat
• The Case of the Mummy’s Ring
• The Case of the Strange Noise (Dunn & Burke, 2005-2006).

Each question is repeated three times to ensure student-response consistency.

The questions are formulated using a multiple-choice setting. The alternative responses include verbal and nonverbal forms of questions by using picture images that represent the answer and verbal. The learner can be tested individually or in small groups. The stories and the questions can be read to the students, breaks are permitted and the test should take no more than 40 minutes to finish (Dunn & Burke, 2005-2006).

The LS: CY (ELSA) program includes a report that interprets the student’s learning styles, and provides guidelines on how to use effective resources for each learner. The LS: CY assesses the individual preferences in the following areas:

• Immediate environment: sound, light temperature, and seating design.
• Emotionality: motivation, persistence, responsibility/conformity and need for internal or external structure.
• Sociological factors: learning alone, with a partner, as part of a small group or team, with peers, with an authoritative or collegial adult, and/or in a combination of ways.
• Physiological factors: auditory, visual, tactual and/or kinesthetic perceptual preferences; food or liquid intake, chronobiological energy levels, and mobility needs.
• Indication of global or analytical processing inclinations and impulsive versus reflective inclinations (Dunn & Burke, 2005-2006, p 8).
Structure is a critical element of learning style. Students who are in need of specific directions, frequent feedback and support will work more effectively using programmed material (Dunn & Dunn, 1979). However, if the learners are tactual-kinesthetic, programmed material may not be effective to them. If they require structure, they may achieve more by using multisensory material.

2.7 Applying Learning-Styles Theory in Practice

*Learning Styles*

Learning styles is described as “students concentrate on, process, internalize, and recall new and difficult information” (Heiman, 2006, p 55). The term keeps into consideration the individual differences of learners and how they process information. Learning style is innate; however it is influenced by the following elements: experience and the environment. Learning styles are branched in to two categories: processing strategies and regulation strategies. The processing strategies are the manner in which learners complete their studies and regulation strategies are what learners do in order to keep studying (Heiman, 2006). Dunn and Dunn defined five factors that affect learning style: the environmental situation, personal emotional characteristics, sociological preferences for leaning, physiological characteristics, and global aspects.

Additional studies have supported the existence of different learning styles in students. Martin (Heiman, 2006). Defines self-regulation as a process where the learner chooses his/her preferred strategies during the learning process. Another element of learning style is internal and external regulation. In external regulation, students need to be directed through their learning. However, between these two spectrums, there lies a mixture form of these two regulations.
However, there are disadvantages if the methods of implementing these regulations are abused. Researchers have suggested that the use of too much external regulation may merely rely on the teacher’s instructions (Heiman, 2006). It has been concluded by researchers that the best method to improve attitude towards learning and improve academic achievement is by matching the teacher’s instructions to the pupil’s learning styles (Heiman, 2006).

Students with learning difficulties may through different methods than students void of learning difficulties. One of the ways in which LD students differ from NLD students is the use of learning strategies. For instance, LD students prefer teaching strategies that consist of oral explanations and/or visual learning methods (Heiman, 2006). LD students are in need of applying different learning strategies, since they are in need of more time than NLD students to retain new and difficult information. The learning strategies consist of several strategies and are not based on one single learning strategy. Based on this reasoning, different research has been conducted to observe the learning styles of students with learning difficulties in a university framework. (Heiman, 2006)

A study conducted by Heiman consisted of 212 social sciences undergraduate students. The aim of this study was to observe differences in the learning styles of learners with and without learning difficulties at a university. The students were divided in two groups: LD and NLD students. 32 students which include 17 men and 15 women between the ages of 18 to 50 years were diagnosed as LD (Heiman, 2006). The NLD students were made up of 65 men and 115 women between the ages of 16 to 52 years. Students in the LD group had dyslexia. The study measures two of the ILS domains: cognitive processing strategies and metacognitive regulation strategies. Cognitive processing strategies consisted of relating the subject matter with the
student’s existing knowledge, selecting facts, concepts, and details in order to review the subject matter, and relating the teaching material to one’s own experience. The metacognitive regulation strategies consisted of controlling the learning process through planning, monitoring, and reflecting, and dependence on external sources in the learning process. The Inventory of Learning Styles (ILS) was used to measure the college students’ learning styles at three-month intervals for a period on one year (Heiman, 2006). Items were scored on a 5-point Likert scale.

The results of the study above showed that the LD students had different learning styles than the students without LD. Students with LD relied more self-regulated learning than NLD students. Students with LD learn bit by bit in small incremental steps.

Further research was conducted to determine the reliability and validity if the LS: CY. Reliability was confirmed by repeated administration of the same test. The study had a sample of 534 sixth, seventh, and eighth graders from both public and private schools in the United States (Burke, Dunn, 2006). The instruments that were used were: the Learning Style Inventory, the Children’s Embedded Figures Test, and the Learning Style: The Clue to You! (Burke, Dunn, 2006). The LS: CY is based on the Dunn and Dunn Learning-Style Model.

Based on the validation procedures set by the Standards for Educational and Psychological Tests, a five-member jury agreed that the LS:CY established the criteria for the assessment of learning styles and conformed to establish criteria describing a global cognitive style (Burke, Dunn, 2006).

The student’s environment can greatly influence a student’s ability to think, learn, and work. If a learner is too hot, or cold, thirsty, or hungry, his/her concentration will be influenced. The noise level might also be annoying, the
brightness of the lights, or the seating are some of the many factors that may also prohibit and enable learning. We tend to underestimate the role of the environment for learning and the different needs of the learners. Instead, learners are forced to concentrate even though the environment is not set up for their needs.

The traditional setting for efficient learning is that the learner has to be placed early morning alone, in a quiet section of the classroom, while sitting at a rigid desk with plain surroundings. This notion is passed on from year to year, even though many students continue to fall behind in their studies and increase in their lack of motivation.

Assessing a student’s learning styles is a priority toward building a concrete academic base. A student’s academic framework is modeled by the Dunn and Dunn’s four perceptual elements (auditory, visual, tactile and kinesthetic). A study done by Specific Diagnostic Studies proved that on average 29% of elementary and high school students learn more efficiently through the visual mode, 34% through the auditory modes, and 37% through the tactile-kinesthetic mode (Willis & Hodson, 1999). It is therefore obvious that traditional classrooms, which are mostly set up to serve the auditory students, are serving merely about 34% of its learners.

2.7.1 Perceptual Elements

The perceptual elements “affect the way we learn and retain information (Boyle, 2005 p. 104). The perceptual preferences are: auditory, visual, tactual, and kinesthetic.

2.7.1.1 Auditory

An auditory learner processes information more effectively when it is presented verbally. For instance, music can enhance their ability to learn and some
may need background sound as a need for concentration. Some learners do better when they are allowed to listen to a tape, or if they are taught through stories (Willis & Hodson, 1999).

Students with auditory strengths retain three fourths of the information by listening (Boyle, 2005). According to Rita Dunn, 80% of learners are low auditory (Koch, 2007). A student with auditory strengths will recall information more by listening to the teacher than by reading the same information. Conversely, students with less auditory strengths should not rely solely on her/his ears to retain new and difficult information. Instead, they should use their primary strengths.

Learners should be able to bring tape recorders during the lecture and be able record the lecture, so that they are left with no excuse not to learn. In case the student is not able to concentrate during the class, he/she is able to listen to it again (Koch, 2007).

Some auditory learners may also have the need to discuss. The act of verbalizing helps the learner remember the information. The learner needs to actually say the words and not merely hear them. For example, the student needs to have the instructions read aloud since they may have trouble understanding written directions (Willis & Hodson, 1999).

2.7.1.2 Visual-Picture

Picture learners need pictures to help them learn instead of printed language. Visual material includes tools such as charts, maps, graphs, movies, and drawings. They translate information into pictures before processing, or memorizing.

Students with visual-picture strengths recall new information better when they creating mental images on what they had seen (Boyle, 2005). Students
remember new and difficult material best when it is presented visually first such as in the form of pictures or graphs.

2.7.1.3 Visual-Text/Print

Students with visual-text strengths comprehend and recall new information most effectively by reading and written words (Boyle, 2005). They recall information when they recreate the words from the text in their mind. Print learners think in words. They see words in their minds when listening, recalling, or thinking. They convert pictures into words. They need to read and write in order to learn efficiently (Willis & Hodson, 1999). Print learners would rather be left alone to read and study by themselves, far away from Verbal Learners who are in need of discussing.

2.7.1.4 Tactile/Kinesthetic

Tactile refers to touch and Kinesthetic refers to movement. Tactile-Kinesthetic learners are most alert during these learning situations. These students might be tapping on their feet or doodling on their paper while the instructor is presenting a lesson. These children absorb information more efficiently when they are able to touch or move around (Willis & Hodson, 1999).

Tactile-Kinesthetic learners have a large amount of pent-up energy when they are placed in a classroom for hours due to the minor activities incorporated in their schedule. These children are mislabeled as being “hyperactive”. They need movement while learning. For instance, they need to plant a real garden instead of listening to the teacher talk about one. They need to touch and examine the structure of the leaves with their own hands. Their brains process best when the material is coming through touch or movement, or may be a mixture of both. When they are literally reaching out their hands to touch an object, it is simply because they are
responding to the demands of the Tactile-Kinesthetic Modality. Students therefore with tactile and kinesthetic strengths would rather learn physically while being involved in the lecture or activity.

Students with kinesthetic strengths learn more effectively if they are actively involving their whole body while learning. They may walk around the classroom while reading.

Tactile

Students with tactile and kinesthetic strengths would rather be physically involved while learning. If learning through tactile means is preferred, then students might prefer learning while writing or twirling a pen. If a student prefers learning kinesthetically, then their motivation toward learning might decrease when there is too much tactile activity.

2.7.1.4.1 Kinesthetic

A student with kinesthetic strengths will learn more effectively by relating their whole body to the experience such as role-playing. Such students need to stand or walk around the classroom while reading. Students with less kinesthetic strengths may have a decline in motivation if too much hands-on or tactile activity is engages while learning.

2.7.2 Physiological/Environmental Elements

Physiological elements that affect learning are biological (Boyle, 2005). It is necessary to identify the physiological elements under which the student likes to learn since studies have shown that the identification of such preferences have shown higher retention rates, better attitudes, and higher achievement (Dunn & Burke,
The students physiological preference must be ascertained in order to create a comfortable atmosphere for learning.

The physiological/environmental elements include the preferred time of day, intake, lighting, temperature, and mobility also affect students’ effectiveness in the classroom (Boyle, 2008).

2.7.2.1 Preferred Time of Day

Children react differently to differ times of the day. According to Rita Dunn, most students are not morning-alert. Only one-third of more than a million students they have tested would rather learn early morning, while the rest of the students prefer late morning or afternoon (Willis & Hodson, 1999). Each student has a time-of-day energy peaks on a regular basis. Therefore, the order of activities in the regular classroom should be re-thought and re-arranged in order to help the learner engage throughout the day. Understanding when a student “clicks on” is the key to be productive in a difficult task.

2.7.2.2 Intake

Food and beverages can affect learning efficiency. Some students are more comfortable snacking while concentrating on new and difficult information, while other students may avoid intake while studying.

2.7.2.3 Mobility

The need for mobility may affect a students’ effectiveness in the class. Some students find it difficult to remain seated for a certain period of time. Some students require an informal seating design and may feel uncomfortable when sitting in a hard chair. There are other students who need mobility. They may be capable of completing a task while sitting but may need move after a certain time depending on their body clocks (Boyle, 2005).
2.7.2.4 Lighting

Lighting has a different effect on students during learning situations. Fluorescent lighting in specific has shown to negatively impact children (Willis & Hodson, 1999). This specific form of lighting has side effects such as headaches, eyestrain, and hyperactive behavior. An experiment conducted by Eric Jensen, showed that children attending classrooms with full lighting had a significantly less absence rate than children in other classrooms (Willis & Hodson, 1999). Additionally, fluorescent light raises the cortisol level of the blood which suppresses the immune system. Jensen further includes in his investigation that most students who are fidgety where the lights are bright, tend to be calmer and perform better in moderate light situations. Dimmer lighting calms the students down, especially learners of younger ages (Willis & Hodson, 1999).

2.7.2.5 Temperatures

A room can be simply too warm or too cool for it students. However, some children are more affected by uncomfortable temperatures than others. Classrooms that do not proper heating systems might be influencing its students negatively (Willis & Hodson, 1999).

2.7.2.6 Colors

Learners have different reactions and sensitivity levels to color. For instance, colors may depress, energize, or soothe a person. Some colors may slow a person down or instead, make them become overactive. In addition, a person’s favorite color can also affect mood and activity (Willis & Hodson, 1999).

When a learner is surrounded by their favorite colors, they tend to feel more motivated (Willis & Hodson, 1999). If on the contrary they are surrounded by
colors they don’t like, they may feel restless, distracted, and even upset (Willis & Hodson, 1999).

2.7.3 Sociological Elements

Teachers often introduce material in a didactic fashion. Learners that have difficulty retaining and understanding this new material are therefore considered as inattentive or labeled as having a learning difficulty. However, the student’s failure to retain the information is due to reasons such as feelings of tension, and feelings of being under pressure in authoritative situations. For some, learning alone, with peers, or in a team is more effective than working directly with an authoritative figure (Dunn & Burke, 2005-2006).

Students have different interaction needs while learning. They child who prefers to work alone is the most easily accommodated since traditional classrooms have been set up for such learners. Yet, for students who really do need to be alone, the crowded classroom is not the ideal setting for them. A private space should be created for them such as by using room dividers. Students who are in need of other people around them are often placed in isolated spaces, thus banishing them from the rest of the pupils. Those students learn more efficiently when other children around them are learning quietly.

How students interact with each other in the class is crucial to their success. Research reveals that some students like to work alone with others in a pair, groups or teams (Boyle, 2008). Some learners may also prefer to work under the observation of an authoritative figure while others prefer to be more independent in their studies.
2.7.3.1 Working with Others

There are different kinds of working relationships. Some students would rather be independently productive while others prefer to interact with others. Other students may prefer to work in a team of two or in small groups. Finally, some are willing to work under the supervision of an instructor or supervisor.

2.7.3.2. Preference for Working with a Supervisor or an Authoritative Figure

Some learners take comfort in the guidance of a teacher while learning new material while other may not.

2.7.4 Psychological Elements

Some students are global processors, some are analytical, and some fall in between both categories.

2.7.4.1 Global and Analytical

Analytical learners learn facts sequentially with one fact following another (Boyle, 2005). The information is presented in steps, following a sequential that succeeds in building a conceptual understanding.

Conversely, global learners need to visualize the picture first relating the information to real life experience and application. Learning is facilitated when the concept is first understood, and can then focus on the details ((Dunn & Burke, 2005-2006).

Analytic and global learners have different environmental and physiological needs. For example, analytics learn more effectively in quiet, well-lit, formal seating settings. Global learners, instead prefer distractions, soft lighting, and informal seating whilst learning new and difficult information (Dunn & Burke, 2005-2006). Global students, in addition to writing notes or taping the lectures, should draw a
picture of what is meant. They should further be encouraged to bring colored pens since the use of colors attract the global consciousness with attention (Koch, 2007).

2.7.5 Emotional Elements

Emotional elements that influence a learner’s productivity are motivation, persistence, responsibility, and structure.

2.7.5.1 Motivation

Some students need to be so they can learn and retain new and difficult information. On the other hand, other students are self-motivated. Learners that need motivation in order to learn work while using their maximum potential when recognized for their quality of work. Students that seek recognition are capable of producing high quality of work without relying on the praise of others (Boyle, 2005).

2.7.5.2 Persistence

Students that are single-task persistent are able to stay on task for hours. Students with less persistence, or multiple-task persistent, are capable of balancing projects and the information being learnt. For example, they are capable of starting new projects before the former one has been completed.

2.7.5.3 Responsibility

The responsibility element is divided into two subcategories: conforming and nonconforming (Boyle, 2005). Conformist learners follow rules established in the classroom while nonconformists have difficulty following rules. Conformists will present fewer problems for the instructor while nonconformists may challenge the instructor because they may feel the need have things done in a certain manner.

2.7.5.4 Structure

Some students are in need of structure whilst learning.
2.7.5.4.1 Effects of Modality-Congruent Instruction

According to Dunn and Dunn, the perceptual strengths of a person are biological traits that can be developed (Ferdenzi, 1998). The necessity of relating instructional methods with a learner’s perceptual strength will significantly increase academic achievement.

Wepman and Morency (Ferdenzi, 1998) investigated 297 school children compare the academic achievement of students who learnt based on their modality preferences compared to students whose learning mismatch the instructional strategies administered. The modality preferences investigated were solely the auditory and visual. Classes consisted of a either a visual approach, auditory approach or a mixture of both. Results concluded that students in grade one who preferred learning using auditory methods achieved significantly higher results than when learning through these modalities were not applied (Ferdenzi, 1998). Accordingly, children who preferred learning through visual methods achieved significantly higher than when other methods were use (Ferdenzi, 1998).

Research completed by Donovan included three kinds of learners: auditory learners, visual learners, and learners with no modality preferences (Ferdenzi, 1998). The preferences of each learner were identified using a kindergarten assessment tool. The following instructional programs were used: the Structural Reading Program (an auditory program that teaches phonics), the Hawaii English Program (a program which emphasis on visual skills), and Reading 360 (a program that instructs through both visual and auditory modalities). At end of the scholastic year, the students were assessed. It was determined that the experimental group achieved significantly higher results than the control group on comprehension (Ferdenzi, 1998).
Research conducted by Carbo added to the research on perception. The experiment included kindergartners in the state of New York (Ferdenzi, 1998). Each student was exposed to twenty words through visual, tactual and auditory modalities. She determined that when kindergartners were exposed to learning through their perceptual strengths, they were more able to retain the information. Each student was able to learn three times the number of words when being exposed to their perceptual strengths. The Metropolitan Readiness Test was used as the visual and auditory subtests, the Singerland PreReading Procedures was used as the visual memory subtest. Finally, the Wood-Johnson Psycho-Educational Battery was used was used as a tool to measure student modality preference (Ferdenzi, 1998).

Even though instructors spend a significant amount of time with their students, they cannot accurately pinpoint their learning styles without the use of a valid and reliable instrument. Therefore, the LSI was created by Dunn and Dunn a tool for measuring learning styles.

Many students tend to be tactual and kinesthetic learners. Since these learners have not biologically developed strong auditory skills, they lack the ability to retain 70 percent of what they learn auditorally (Honigsfeld & Dunn, 2009). They struggle in classes that rely on lectures and oral discussions. The most effective strategies that allow academic achievement are strategies that encourage students to learn with their hands, bodies, and manipulative since tactual and kinesthetic learners retain information more effectively when using motor movements (Honigsfeld & Dunn, 2009).

More than 850 studies conducted in more than 135 institutions of higher education were performed using the Dunn and Dunn Learning Style Model (Honigsfeld & Dunn, 2009). Many of these studies elaborated on the effectiveness
of tactual and kinesthetic instructional methods in comparison to traditional methods. For instance, Fine (Honigsfeld & Dunn, 2009), used soft lighting, tactual and kinesthetic instructional resources, paired students or made them work in small teams when teaching a lesson. The results concluded higher test scores, as well as improved attitude and motivation towards learning.

Lister (Honigsfeld & Dunn, 2009), conducted studies comparing social studies learning through traditional instructional strategies and instruction using tactual and kinesthetic methods. She reported improved academic achievement. Further on, Crossley studied the effectiveness of a Multisensory Instructional Package compared to traditional teaching strategies in science. The results showed significantly higher scores in science and an increase in attitude towards learning science (Honigsfeld & Dunn, 2009).

Research on perceptual learning styles has been accumulated over a period of twenty years through the use of the Dunn and Dunn learning styles model. The data concluded from these studies reflects the necessity of blending the students’ perceptual learning styles with instructional strategies (Ferdenzi, 1998). Perceptual strengths contain auditory, visual, tactual and kinesthetic modalities. Students that learn visually are able to retrieve information from their memory that have initially been stored by concentrating on print that they have read. Kinesthetic learners learn more effectively by actively “doing”. Auditory learners retain at least 75% of the information that they have learned. Finally, tactual learners retain information more effectively when they draw, write or use other methods that consist of using their hands (Ferdenzi, 1998).

Carpentier (Ferdenzi, 1998) conducted an experiment on primary students’ learning styles and attitude and writing. He studied the perceptual strengths of 145
first and second grade students in an elementary school situated in New York. During the first part of the experiment, two classes were taught using material through auditory and visual modalities and two classes were taught using methods consisting of tactual/kinesthetic methods (Ferdenzi, 1998). Students completed pre tests and post tests. Students’ scores at the end of the experiment were compared to their diagnosed learning preference determined by the LSI to assure if there was a link between instructional procedures and the perceptual strengths of the learners. Results concluded were that the students with strong visual or tactual perceptual preferences learned best when being taught through their modality preferences. Carpentier concluded that an early childhood teacher should not use instructional approaches consisting of solely of one perceptual approach (Ferdenzi, 1998).

The Dunn and Dunn theory was been tested and has been proven to aid students in increasing achievement when the instructional approach was dissonant to the learner’s perceptual strengths (Ferdenzi, 1998).

However, contradicting research is provided in the field of education. According to Mitchell, limiting student choice in learning does not diminish achievement, but instead may increase with teacher direct instruction. Mitchell conducted a research consisting of kindergarten students in a school located in Georgia. Results concluded that student achievement in sight word learning decreased when students learned using their learning preferences. There was however a significant increase in achievement scores in when learning sight words when students were taught through teach direct methods. Therefore, Mitchell concluded that teacher direct learning in kindergarten students can have a positive impact in learning and ignite the learning environment (Mitchell, 2009).
Much research has been contributed to discovering the effects of matching modality preference with instruction. In 1986, Martini studied the effects of matching the instructional methods to the perceptual strengths of 30 science grade students. The LSI was the tool used to measure the perceptual strengths of the students (Ferdenzi, 1998). The results derived from this experiment concluded that when instruction was matched to perceptual strengths, than when students studied through the traditional printed material (Ferdenzi, 1998).

2.8 How the Dunn and Dunn Learning Style Model Affects Student Academic Achievement and Attitude

2.8.1 How the Lack of Accommodating Effects Student’s Learning Styles

Learners react differently to environmental, sociological, and physiological factors when attempting to concentrate on a task. Some may need quiet in order to focus while others may need background sounds such as music (Dunn & Burke). Some learners need bright light while others prefer learning under dim light. Some concentrate while sitting for long durations while others need frequent breaks. It is necessary to identify the learner’s prerequisites for concentrating since their application in classroom can yield to higher achievement, and attitudes toward learning (Dunn & Burke). Understanding students’ needs allows teachers to design learning experiences that help students succeed and learn more effectively.

Based on studies conducted since 1967, it was concluded that regardless of the student’s age, socioeconomic status, and achievement level, students react uniquely to their immediate environment. Learners may require silence while learning while others may simply “block out” any sound. Similarly to temperature, learners also respond differently to temperatures. For instance, some students are
more productive in environments that are enveloped in cold temperatures while others may react negatively to cold temperatures (Dunn & Dunn, 1979).

2.8.2 Impact of Environmental Factors on Students’ Concentration

The physical learning environment has an impact on students’ learning. Some learners achieve better in an informal environment that includes items such as carpeting, lounge chairs, and a couch, whereas others learn more effectively in a formal setting which includes desks, hard chairs, and library tables (Dunn & Dunn, 1979).

Most teachers do not realize that when students are seated on hard surfaces, 75% of their body weight is stressed on their buttocks (Dunn & Burke). These inflexible surfaces cause fatigue and discomfort and may affect student concentration. They may fidget and rock and feel the need to leave their current seating. Therefore, informal seating arrangements can improve their attitudes and prolong their attention span while learning. Such informal seating may include students sitting on cushions, or relaxing in an informal area of the room.

Although most schools provide lighting through the use of fluorescent lights, little do they know that they may negatively impact a certain percentage of students (Dunn & Burke). Learners respond differently to lighting, therefore it is important for teachers to find the optimum lighting for their students. Such examples may include the use of half the lights in the classroom, turning off the lights in one corner and seating poor readers there, and instructing in natural light (Dunn & Burke).

Focusing on challenging cognitive tasks may require quiet or noisy environments, depending on the student. For example, analytical learners learn more in quite environments while global learners require sound such as background
conversations and soft music (Dunn & Burke). Students who learn more effectively may need classroom accommodations such as sitting away from traffic, allowing rubber ear plugs or earmuffs during study environments, and providing classroom private classroom spaces. Students require sound while learning may on the other hand be permitted music without lyrics on headphones.

Learners may react differently to the amount of light. Some may function more efficiently in softly lit areas, whereas other learners may become sleepy due to the lack of illumination (Dunn & Dunn, 1979). What is “dull” of some might be “bright” for others and the contrary might be said. Some students’ reactions to excess light may be hyperactivity.

Few teachers also are not aware that analytic students, who process data fact by fact, learn better in quiet and well lit environments. On the contrary, global students who learn by relating lessons to their lives, learn better under conditions that include softly-lit environments, snacking, sounds in the background, and intermittent breaks (Dunn & Burke). Educators must learn to redesign their classrooms so that the students will be provided with elements that meet their learning-style preferences.

2.8.3 Impact of Sociological Factors on Students’ Concentration

Certain students find it difficult to focus in conventional classroom settings or respond differently to other people. Students react differently to peer interaction. Some may dislike peer projects, preferring to learn by themselves instead while others may thrive on the companionship of a peer, in a small group. Still others prefer the more traditional approach of learning from an authoritative figure (Dunn & Burke). Some learn best alone while others are distracted by sounds or movements.
Other youngsters achieve best when they are among their peers. Other learners may require interaction with an adult and require instructional methods such as discussion, and lectures. 13% of students in a class may prefer learning alone while 28% learn more effectively under the supervision of an instructor (Dunn & Burke). As a result, students that don’t have their needs met in a class setting may distract the instructors and enable them to teach (Dunn & Burke). It is therefore important that the physical setting be adjusted to suit the needs of the learners to improve student attitude towards learning and achievement.

2.8.4 Impact of Mobility Factors on Students’ Concentration

Another important dimension identified by Dunn and Dunn are students’ physiological preferences. Some students prefer learning visually while others may prefer learning through auditory channels. Many learners are restless, appear disinterested, and may be falsely diagnosed as being hyperactive. Many students who are labeled as thus are not actually hyperactive, but simply need mobility (Dunn & Burke). The disinterested students require more mobility than the interested students. Samples of accommodations that should be implemented in the classroom to ease the student’s need for mobility consist of organizing work stations that encourage students to move in different areas of the room.

2.9 Summary

Currently, the growing interest of students’ learning styles has been directed towards learning students’ different learning styles in hopes to increase motivation and academic achievement (Mitchel, 2009). According to the Dunns, implementing a student’s learning styles and keeping into consideration the elements that influence
his/her learning abilities will yield to higher academic achievement along with an increase in motivation (Dunn, R., Honigsfeld, A., & Doolan, L., 2009). The benefits of applying students’ learning preferences are clearly visible: effective learning can be achieved irrespective to time, location, student’s financial, social status or current academic status.

Developing an effective and solid educational framework which consists of implementing student learning preferences within the teaching strategies is obviously more successful than an educational framework that neglects such preferences and continues to apply learning strategies through the traditional and rigid methods (Burke, Dunn, 2006). The implementation of proper teaching strategies not only leads to increased learning motivation and higher academic achievement, but also to a greater retention on knowledge, and a deeper understanding of the subject being taught (Burke, Dunn, 2006). This research seeks to show the benefits of teaching strategies that embraces the different aspects of a student’s learning preferences and how the learning preferences can be molded to establish high academic achievement and motivation.

Research concerned with the relationship between academic achievement/motivation and individual learning style preferences has provided a concrete base for the following assumptions (Willis & Hodson, 1999).

- Each learner has his/her own learning style preferences.
- Teaching strategies that include the student’s learning preferences will lead to statistically higher achievement in matched rather than mismatched treatments.
Teaching strategies that include the student’s learning preferences will lead to statistically higher attitude scores in matched rather than mismatched treatments.

The application of properly implemented teaching strategies has been demonstrated to lead an increase in a deeper understanding of the subject thus leading to higher academic achievement and a more positive attitude toward learning (Willis & Hodson, 1999).

These extensive findings are mostly based on previously conducted research based on traditional teaching methods and the Dunn and Dunn Learning Style Theory. However, there has been little research in studying how both academic achievement and student motivation are effected in reading comprehension and writing when applying the Dunn and Dunn theory. There has been no environment I am aware of that blends both of the elements above specifically for reading comprehension and writing. The proposed research is important in educational research because it can pave the way to better understand and help struggling learners improve in reading and writing since recognizing learners’ individual learning preferences is becoming a key requirement in education.
CHAPTER 3

METHODOLOGY

This study consisted of a fourth grade student and how his learning style preferences affect academic achievement and motivation. The teaching style, which was directed by the student’s learning preferences, would determine if the student’s motivation/attitude and achievement would increase. This quantitative and qualitative study produced statistical data through the use of the SMTEL questionnaire (Appendix D), the ELSA (Appendix B), CBM (Appendix C), ATLC survey (Appendix E), and the ATLW survey (Appendix F) which was developed by the researcher. The student was rated by the ATLC and ATLW surveys after each repeated cycle to determine how he felt after each session and to determine if there was an increase in motivation/attitude after each session. He was rated based on his motivational levels after each reading and writing lesson. The CBM was used to measure the student’s reading comprehension and writing progress. In addition, the ELSA was administered once to determine how the student preferred to learn. The data in the latter survey was used to create teaching strategies that the student believed would be the most effective when learning reading comprehension and writing. Finally, the student completed the SMTEL at the beginning of the study and at the end of the study as a means to compare his motivational levels after instruction through his preferred learning style.

Baseline. The researcher collected information about John’s difficulties in reading comprehension and writing based on a semi-structured interview with John’s English
school teacher and his parents. His English worksheets in writing and comprehension in class were also collected by the teacher to gain more knowledge about his weaknesses. Additionally, a CBM was used to identify John’s baseline in reading comprehension and writing. The CBM was continuously used to measure his progress during the intervention. Information on John’s academic standing was based on the semi-structured interviews with his teachers and parents, previous exams and worksheets, and by using a CBM.

The student intervention and sessions took place in a special education center and were conducted by a special educator. John completed the ELSA which was created by Dunn and Dunn. The results of this test shed light on John’s preference of learning styles. The learning strategies and the teaching environment were based on John’s preference of learning styles. During the first week of the separate writing and reading intervention, the investigator, who was also the instructor, used directed learning methods. During the second week, the student was taught reading comprehension and writing skills in a manner that suited his physiological, emotional, environmental, psychological and sociological needs as reported by the ELSA. During the third week, skills were again taught in a setting using the teacher direct learning method. Finally, in the fourth week the learner once again was taught basing instruction using results from the ELSA.

During the first month of the study, John attended a one hour session a day for an interval of four weeks (five days a week) in order to improve his reading comprehension skills. The teacher directed activities consisted of reading the comprehension passages, oral summaries, and answering questions orally and written based on the text. These reading comprehension activities used during the hours of the direct teacher instruction were familiar to John since they are used by his teachers.
in school. The days when John was not learning through direct instruction, he learned instead through his learning style of preference as determined by ELSA. John was taught reading comprehension skills based on the choices he made on the survey.

During the second month of the study, John attended a one hour session a day for an interval of four weeks (five days a week) in order to improve his writing skills. The teacher directed activities consisted of writing about a certain topic. The writing activities used during the hours of the direct teacher instruction were familiar to John since they are used by his teachers in school. The days when John was not learning through direct instruction, he learned instead through his learning style of preference determined by ELSA. John was taught writing skills in accordance with his learning styles as determined by the ELSA.

A CBM was completed every Monday and Friday of the week at the end of the session to determine if the student was learning adequately, to measure progress, and to ensure that instruction was working effectively.

John’s motivational/attitude level toward learning English was determined by using the Attitude Toward Learning Writing (ATLW) and Attitude Toward Learning Comprehension (ATLC) surveys. The ATLC survey was completed by the student after each reading comprehension session and the ATLW survey was completed by the student after each writing session in order to measure his motivational level and attitude regarding to reading and writing. It assessed the difference in his motivational/attitude level when it came to learning in his preferred mode of learning and when he was taught using direct instruction.
3.1 Design

3.1.1 Single Case Design

This study consisted of an ABAB design in order to determine the student’s learning preferences, and if these learning preferences increased academic achievement (specifically reading comprehension and writing) and improved motivation if they were applied in an educational setting. According to Stake, a case study is “the study of the particularity and complexity of a single case, coming to understand its activity with important circumstances” (E. Stake, 1995, p. xi). A single case design was therefore used so as to study the detail of interaction between student learning preferences and achievement/motivation. The design consisted of one person that served as both the control and treatment group. This ABAB design attempts to measure a baseline and a treatment measure. The design involves accumulating baseline information and then observing and measuring the effects of this treatment (Heffner, 2011). Measurement further takes placed when this treatment is removed and then applied again in order to measure the change (Heffner, 2011).

Single case ABAB designs both have their advantages and disadvantages. Firstly, the advantages are not many participants are required and therefore, to conduct such a design is more facilitating than other designs (Heffner, 2011). Secondly, they allow an in-depth observation and examination of the intervention and the individual being studied. Careful examination can answer a researcher’s question as to what is going on and the steps that are needed for improvement (Heffner, 2011). However, as every design, the single case ABAB design has its disadvantages. First, the frequency needed to demonstrate an effect in order to be confident of the intervention is not always known (Heffner, 2011). Second, the
number of participants may not always be enough to answer the researcher’s questions. A third limitation is to what extent we can generalize the results to a specific population (Heffner, 2011).

The student took a post-test after each control and treatment condition. Quantitative data was collected through the CBM. Qualitative data was sought through the STME, Motivational Survey, ATLC survey, and ATLW survey. At the end of the study, both the quantitative and qualitative data were interpreted and analyzed.

One student participated in this ABAB single case design. The aim of this design was to compare the motivation levels and achievement scores in reading comprehension and writing of a fourth grade student when learning through his preferred learning styles and when not given the choice of how he prefers to learn. The ELSA was used as a pre-test to determine the preferred learning style of the student. CBM was conducted twice a week (once at the first day of the week and once on the last day of the week) to make progress-monitoring decisions in both reading comprehension and writing. The STME was completed as a pre-test and post-test instrument to determine the level of motivation for the student in English. The tests were completed once before the study and once after the study. The Motivational Survey was completed by the student after each reading and writing session as a tool for monitoring the student’s motivational progress.

Once the base-line in reading comprehension and the baseline of writing were set, the ELSA was then administered to measure how the student would prefer to learn reading comprehension and writing. It was then that the activities for learning reading comprehension and writing were determined as a treatment. The learner was exposed to reading comprehension instruction for a period of four weeks which
included five sessions per week and writing instruction for a period of four weeks. He was exposed to five sessions a week, and each session had duration of one hour. He was instructed using the traditional teacher directed method during the first week. During the second week of the study, he was taught using his preferred learning style. On the third week, the learner was once again instructed using the traditional directed method of teaching. Finally, the fourth week consisted of learning once again through the student’s preferred learning style.

The STMEL was completed by the student at the beginning of the study to determine his overall motivation and attitude towards learning English.

The pre-test and post-test instruments yielded numerical data about the student’s motivation and achievement levels. The data was calculated as a means of comparing the treatment and control group.

### 3.2 Participants

The participant in this study was a fourth grade student attending a prestigious school in Broumana which is located in the Metn. The participant was given the Dunn and Dunn ELISA survey. The data collected from this survey provided input on the student’s preferred learning styles based on the following five elements: the environmental, emotional, sociological, physical, and psychological.

### 3.3 Materials and Instruments

#### 3.3.1 STMEL Questionnaire

The STMEL questionnaire developed by Hsiao-Lin Tuana, purports to monitor students’ motivation toward learning science (Tuan, Chin & Shieh, 2005). It was initially developed to address older students and was then validly been adapted
by the researcher. For the purpose of this study, the questionnaire was modified from measuring motivation towards learning science to motivation towards learning English. The reasons for applying existing scales from the original Student’s Motivation towards Learning Science questionnaire are twofold: the items designed were primarily for upper elementary students and the statements in most of the items addressed could be directly related to English learning. The following six scales were initially developed to measure students’ motivation toward learning science, but were then adapted by the researcher to measure students’ motivation toward learning English. Were developed: self-efficacy, active learning strategies, science learning value, performance goal, achievement goal, and learning environment stimulation” (Tuan, Chin & Shieh, 2005).

- **Self-efficacy.** Learners are confident in their ability to comprehend and apply tasks in English.
- **Active learning strategies.** Learners attempt to apply different strategies to assimilate previous knowledge with new knowledge based on the topic presented by the instructor.
- **English learning value:** learners apply English in their daily lives through problem-solving- and independent thinking.
- **Performance goal:** the learner’s goal in English learning is receive the instructor’s attention and to compete with other learners.
- **Achievement goal:** learners feel a sense competent as their achievement in English increases.
- **Learning environment stimulation:** the learning environment which includes elements such as the instructor and the curriculum, affects students motivation in learning English.
Each item was constructed using a five-point Likert scale. The items consisted of five opinions which rate as 1 = strongly disagree, 2 = disagree, 3 = no opinion, 4 = agree, and 5 = strongly agree (Appendix D). The instructor explained each statement on the survey. The learner chose one of the five statements that were most appealing to him.

3.3.2 CBM

The Curriculum Based Measurement (CBM) is an assessment tool used to assess reading skills. CBM is composed of a set of standard directions, a timing device, a set of materials, scoring rules, standards for judging performance, and record forms (CBM). One of CBM’s usefulness is for progress monitoring. It can be used to interpret factors such as deciding how to teach, informing the teacher when instruction effective and when it should be altered (CBM). Instructional decisions were thus made from the use of repeated direct measures so that instructional decisions can be made based on the student’s level of progress.

The use of CBM can determine the students’ expectancies of their academic performance (Overton, 2008). The use of CBM may enhance the academic performance of low-achieving students since it allows instruction to be tailored. CBM is further used as an indicator for identifying students in special education settings who are ready to move back to the general academic setting and vice versa. Students are thus integrated to either general academic settings or special education settings due to the data provided which assesses student progress. Baker and Good (Overton, 2008) believed that CBM is reliable and valid when it comes to assessing bilingual students.
3.3.2.1 Reading CBM

The CBM passages (Butler, 2004) were different but equivalent in the level of difficulty. The passages were new to the student; however, they represented the student’s reading grade level. Each passage included a minimum of 300 words. The passages also had 42 words deleted and were replaced by three words each. The first sentence in each passage was presented exactly as it is printed in the grade-level textbook. Following the first sentence, one word was deleted from the next sentence and a blank was inserted. The student had three word choices for each blank from which to select the correct word based on the meaning of the text. Each sixth word was deleted and every sixth word thereafter. The first time the CBM was administered, a benchmark was obtained by calculating the median score of three different passages with the same difficulty. The median score of these three samples was used to provide the first data point on the student’s graph. After that, 21 different but equivalent passages were used to monitor the student’s progress within the four weeks (Hosp, Hosp & Howell, 2007).

The CBM maze passage was conducted individually with a duration of three minutes. The student had a copy of the CBM maze passage in front of him faced down. When the instructor said “begin,” the student read the first passage silently and circled a word that makes the most sense. The student worked as quickly as he can without making mistakes. Once a page is finished, the student may turned to the next page and kept working until the instructor said “stop” which is at the end of the three minutes (Hosp, Hosp & Howell, 2007).
3.3.2.2 Writing CBM

The stories were equivalent in difficulty and began at the fourth grade level (Appendix C). Story starters are short oral sentences that begin the writing process. The story starters elicited the writing skills the student is expected to master throughout the school year. Just like the reading CBM, the first time Writing CBM was administered three equivalent story starters were used. This was conducted in one testing session. The median scores of these three samples were used to provide the first data point on the student’s graph. After that, 8 different but equivalent story starters were used to monitor student progress throughout the study. The student had a lined spiral notebook for responses. This permitted the teacher and student to see progress over time was well as provide a record of student response (Hosp, Hosp & Howell, 2007).

The directions for the writing CBM started by selecting an appropriate story starter. After reading the story starter, the student was allowed one minute to think. After the end of one minute, the student had 3 minutes to write.

3.3.3 Correct Writing Sequences

A CWS is “two adjacent, correctly spelled words that are acceptable within the context of the written phrase to a native speaker of the English language. It takes into account punctuation, syntax, semantics, spelling, and capitalization” (“Curriculum-Based Measurement Warehouse”, p. 91). When scoring, a caret (^) was used to mark each correct word sequence. When scoring CWS, spelling words must be correctly spelled. Capitalization at the beginning of the sentence is necessary. Proper nouns must be capitalized. Incorrectly capitalized words are marked as incorrect CWS. Correct punctuation must be at the end of each sentence.
Words must be syntactically correct to be counted as CWS. Words must be semantically correct to be counted as CWS. Finally, scoring titles and endings are included in the scoring of CWS and must meet scoring criteria for spelling, punctuation, capitalization, syntax, and semantics to be counted in CWS (Hosp, Hosp & Howell, 2007).

3.3.4 Dunn and Dunn Learning Styles Survey (ELSA)

The Dunn and Dunn Learning Styles Survey (ELSA) is an online test used to determine the student’s learning preferences. This survey evolved from the Dunn and Dunn Learning Styles Model. It contains 21 elements Dunn and Dunn believed to be the individual learning styles. It is a reliable, simple to use software questionnaire that assess the learning-style preferences.

http://www.learningstyles.net/

3.3.5 Attitude Toward Learning Comprehension (ATLC)

The ATLC (Appendix E) is an informal scale designed by the researcher to assess motivation/attitude with respect to reading comprehension. The survey consisted of five lines; each line consisting of three adjectives describing how the child felt after each session. John had to tick off only one adjective in each line. Each line is composed of the following adjectives:

Line 1: Easy, Indifferent, Difficult
Line 2: Interesting, Indifferent, Boring
Line 3: Clear, Indifferent, Confusing
Line 4: Fun, Indifferent, Serious
Line 5: Calm Indifferent, Nervous
3.3.6 Attitude Toward Learning Writing (ATLW)

The ATLW (Appendix F) is an instrument designed by the researcher as a means to assess the student’s motivation/attitude when it came to studying reading comprehension. The survey consisted of five lines; each line consisting of three adjectives describing how the child felt after each session. John had to tick off only one adjective in each line. Each line is composed of the following adjectives:

Line 1: Easy, Indifferent, Difficult
Line 2: Interesting, Indifferent, Boring
Line 3: Clear, Indifferent, Confusing
Line 4: Fun, Indifferent, Serious
Line 5: Calm Indifferent, Nervous

3.3.7 Visualizing and Verbalizing (VV)

Visualizing and Verbalizing is a language comprehension and thinking program created by Nanci Bell. The program helps struggling readers develop concept imagery by stimulating the sensory-cognitive functions. It enables learners to connect and interpret meaning for both oral and written language (Bell, 2007). It helps the student recall facts, get the main idea, infer, conclude, predict, and evaluate. Students are taught to create concept imagery which is the ability to create mental representation of the text. Learners are encouraged to think critically and logically using higher order thinking by accessing mental representation from written language (Bell, 2007).

Learners follow different steps in order to learn the process for creating an imaged gestalt, then merging the imagery with language as a means to enhance both comprehension and critical thinking ("Lindamood bell: Learning," ).
3.3.8 Teacher Direct Method

The teacher directed method (treatment A) consisted of the pupil learning reading comprehension for 60 minutes per day. This method consisted of oral reading. Comprehension passages were chosen by the instructor in an individual setting. Instruction further included an oral summary of the text along with answering questions both orally and written. This traditional method of learning comprehension was at the school the student currently attending.

3.3.9 Task Cards

Task cards were used to teach reading comprehension. They were made to help John easily remember the material by both reading and listening. They were also used to introduce new material and to reinforce previously learned material. The task cards presented information about a specific reading topic, concept, or skill that was converted into questions and answers. For example, when studying about the different kinds of butterflies in a text, John would make his own Task Cards and print the name of each butterfly on the left side of an index card. He would then glue a picture of the butterfly on the right side of another card. The cards were cut into irregular shaped thirds so that only the card with the correct picture could fit correctly to the card with the name of the butterfly.

3.3.10 Flip Chutes

Flip Chutes were used to teach reading comprehension. They were made from half-gallon orange juice containers. Small question-and-answer cards were inserted into the upper face of the container. As each question card descended into
the slide, it flipped over and the answer becomes visible from the lower opening. John was allowed to decorate the container with paint relating to the reading topic.

### 3.3.11 Floor Games

Floor games were used for teaching reading comprehension. A game was drawn and designed on an old tablecloth that allowed John to jump, and move around as he was exposed to the finer points of the reading topic through questions.

### 3.4 Procedures

At the beginning of the study, the participant was given the ELSA survey created by Dunn and Dunn. The data collected from the survey provided insight on the environmental, emotional, sociological, physical, and psychological elements the student would like to learn reading comprehension and writing in. Treatment (B) was student choice in which the student chose to study under his preferred mode of learning. The treatment, as chosen by the student, consisted of sound, lighting, seating, motivation, task persistence, assignment structure, learning preference as in individual, pair or group, auditory learning, visual learning, kinesthetic learning, tactual learning, food intake, mobility, reflexive/impulsive learning and analytic/global learning. The researcher administered the survey to the student before instruction.

The STMEL questionnaire was given to the student twice during the intervention for which were on the first day and on the last day of the study.
3.4.1 Reading Comprehension

During the first month of the study, the student learned reading comprehension using two varied treatment methods consisting of an ABAB design. The teacher directed method (A), was used as the control group in which the teacher chose how the child would learn. The student was given no choices. The student choice method (B) was used as the treatment group in which the student preferences from the ELSA survey molded the learning environment.

Further on, the passages used to teach comprehension were extracted from the VV program. The methodology used to teach the child followed the same structure as that used in the VV program. During the first two weeks of the study, instruction focused on Sentence by Sentence Imaging with Higher Thinking structure. During the last two weeks, the study focused on Multiple Sentence Imaging with Higher Order Thinking. The skills for higher thinking included getting the main idea, drawing a conclusion, making an inference, predicting/extending, and evaluating. The student was asked to reach each passage orally and questions were posed by the teacher at the end of each passage.

- Main Idea: a main idea question asked the student to summarize in two sentences the primary concept in the paragraph deciding which details and ideas have the greatest importance.
- Conclusion: a conclusion question asked the student to form an opinion about after considering relevant facts.
- Inference: An inference question asked a “why?” question that asked the student to consider the cause-and-effect relationships between objects and events.
• Prediction and extension: a prediction and extension question asked the student what might happen in the future regarding a character or idea.

• Evaluation: an evaluation question asked the student to make judgment about the material, based on previous experience or information.

3.4.1.1 Sentence by Sentence Imaging with Higher Thinking structure.

Four paragraphs are introduced in each session at a fourth grade level. The discussion of each paragraph lasted not more than 15 minutes. Each paragraph contained a maximum of six sentences. Before each sentence is read by the student, a colored felt square was placed in front of the student, thus representing the imagery of the sentence. As each sentence was read, the student would touch the felt square. After the sentence was read, the instructor would ask the student what those words made him picture. If the student didn’t know what it was, the instructor would try to help him and would ask him to re-read the sentence. Each sentence was represented by a different colored felt square. The difficulty of the paragraphs gradually increased.

The teacher guided the student to create an imagery of each sentence by using six or more of the structured words: what, size, color, number, shape, where, movement, mood, background, perspective, when, and sound. For example, the teacher asked the student, ”What are you picturing for the cowboys on horses? Two cowboys or three cowboys? Tell me what you see for that part.” After an image was formed for each sentence, the teacher’s final questions were related to higher order thinking questions based on the student’s imagery which included a word summary, and main idea, conclusion, inference, and prediction questions.
3.4.1.2 Multiple Sentence Imaging with Higher Order Thinking

During this part of the instruction, more units of language were added which consisted of two or three sentences at a time. The lessons continued to include colored felt squares to anchor the imaged parts of the sentences. The structure words are no longer needed, and the questions for detailed imagery are minimized as the student now is expected to imagine with a fair amount of detail. Less questioning was required, therefore each paragraph required not more than 12 minutes, consisting of five various reading paragraphs per session. The difficulty of the paragraphs was gradually increased. The student visualized and verbalized two or three sentences at a time instead of one placing one colored square for each chunk of imagery. However, the student did not check through the structured words. At the end of each paragraph, the teacher asked higher order thinking questions based on the student’s imagery.

The four weeks of the intervention consisted of both treatment A and treatment B. The first and third week consisted of teacher direct method. The teacher directed method (treatment A) consisted of the pupil learning reading comprehension for 60 minutes per day. During the student directed method (treatment B), the teaching strategies were based on the data retrieved from the ELSA for 60 minutes a day. Task cards, flip chutes, and floor games were additional materials used to convey the information to the student.

3.4.2 Reading CBM

The reading CBM was conducted twice a week in order to measure the student’s progress. The passages were different but equivalent in the level of difficulty. The passages started off as fourth grade level. The passage difficulty
slowly increased as the intervention progressed. Each passage included at least 300 words and 42 deleted words (with three replacement words each). The tests were administered during the first and last session of each week. At the end of the fourth week, the scores of the CBM were analyzed to determine if the intervention increased the student’s reading comprehension scores.

3.4.2.1 Baseline

While conducting the reading CBM, the student had a copy of the Maze CBM passage in front of him, and the teacher had a copy of the administration directions and a timer. The instructions were given orally to the student to ensure that the procedure was thoroughly understood. The passage was read by the student. When he would come to three words in dark print, the student would circle the word that belongs in the sentence. The student would have three minutes to read the story and to circle the missing words. When the teacher would say “stop”, the student would immediately stop reading. The student was asked to choose a word even if he was not sure of the answer. If he finished early, he was asked to check his answers. He would be allowed to turn to the next page when the instructor would say “start”.

The first time the CBM was administered to the student; three equivalent passages of third grade level were used as benchmarking and progress monitoring. This was conducted at during the first session. The median score of these three samples were used to provide the graph with the first data point. After that, seven different but equivalent passages were used to monitor student progress in reading throughout the four weeks.

Once the baseline was determined, an aimline was plotted to monitor progress. If the student falls below the aimline for three consecutive measures, the
instruction should be adjusted. If the student excels above the aimline for three consecutive measures, the instruction should be made more challenging (Overton, 2008).

3.4.3 Writing CBM

During the second month of the study, the student learned writing using two varied treatment methods consisting of an ABAB design. The teacher directed method (A), was used as the control group in which the teacher chose how the child would learn. The student was given no choices. The student choice method (B) was used as the treatment group in which the student preferences from the ELSA molded the learning environment.

The four weeks of the intervention consisted of both treatment A and treatment B. The first and third week consisted of teacher direct method. The teacher directed method (treatment A) consisted of the pupil learning writing for 60 minutes per day. During the student directed method (treatment B), the teaching strategies were based on the data retrieved from the ELSA for 60 minutes a day.

During Treatment A, writing was taught using the same methods as in his school. A writing topic was given to the student. He was then asked to generate his thoughts and ideas about the topic in a coherent paragraph consisting of not less than six sentences. John was asked to include a topic sentence, and detail sentences within the paragraph. No guidance by the teacher was given to the student. Further on, story maps were not permitted as a tool to assist the child in writing.

During the first 15 minutes of Treatment B, the student and the teacher read and discussed a story from the VV program. During the remaining 45 minutes, he was taught writing structure using the ART (Ask, Reflect, Text) strategy.
3.4.4 Visualizing and Verbalizing Passages for Writing

The student was taught writing using the ART approach in order to create an optimal learning setting. The same conditions for sound, lighting, seating, motivation, task persistence, assignment structure, learning preference as in individual, pair or group, auditory learning, visual learning, kinesthetic learning, tactual learning, food intake, mobility, reflexive/impulsive learning and analytic/global learning that were used in reading comprehension were also used in writing.

The ART strategy used a step-by-step process for writing and composing a narrative text. The following WWW, W=2, H=2 cue questions were used to help John write a narrative text. Each W and H question indicated what should be included in the writing. The following cue questions were used for each writing topic:

**WWW Questions:**

- who is in the story?
- When does the story take place?
- Where does the story take place?

**W=2 Questions:**

- What does the main character want to do; what do the other characters want to do? Why is it a problem?
- What happens when the main character tries to do it; what happens with the other characters?

**H=2**

- How does the story end?
- How does the main character feel; how do the other characters feel?
John filled the information for the W and H questions using a Story Grammar Map (Appendix I).

John then illustrated the story/writing ideas in order to help him visualize the story’s content. After illustrating his ideas, John blended his ideas into a written text.

The writing CBM was conducted twice a week in order to measure the student’s progress. The writing CBM started off with a statement about a specific topic, and the student had to continue writing about the topic. The following topics were used as story starters:

1. You just won a five million dollar lottery ticket. Write about what would you do with all this money?
2. You woke up this morning and found that you had supernatural powers. Write about how you would help your community with all these powers.
3. You found a magic lantern, and a genie appeared granting you three wishes. Write a story about what you might wish for.
4. Aliens have appeared in your school. Write a story about what might happen.
5. Write about a time where you did something heroic.
6. If you could change something about yourself, what would it be and how would your life be different?
7. You are the president of your country. What three things would you do to make your country better?
8. You invented a time machine that can go 20 years in the future. Describe what the future might be like.
9. You woke up and found yourself in the place of the principal. Write about what you might do.
10. You drank a potion that made you invisible. Write a story about what you would do and what might happen.

11. A magician turned you into a rabbit. Describe about how your life might be as a rabbit.

12. You were offered an all expense paid vacation to the country of your choice. Write about where you would go and what you would do.

The tests were administered during the first and last session of each week. At the end of the fourth week, the scores of the CBM were analyzed to determine if the intervention increased the student’s writing scores.

The Motivational Survey was given to the learner after each session by the researcher in the special education center. The results from the survey were analyzed in order to determine if the motivational levels would increase and reading comprehension and writing levels of the student who chose a preferred mode of learning would improve.

3.5 Data Analysis

3.5.1 Scoring Reading Maze CBM

It was decided prudent by the researcher to conduct a reading CBM to help ascertain where John was, with regards to his ability with his reading. The first step was to evaluate John, so that a baseline could be established. This was completed using the first three CBM reading comprehension passages completed by the student. The testing was conducted over a three minute period, and the scores were duly noted to indicate the baseline. The baseline was found by taking the mean of the three results which was 37. The baseline was then plotted onto a graph, using A4 graph paper with the vertical axis indicating the correctly read words during a three
minute period, and the horizontal axis inducting the weeks of instruction illustrating
days of testing. The CBM testing was established over a four week period, with
testing done on both a Monday and Friday of those four weeks.

In order to depict the performance goal, the following formulas were used:

\[
\text{Performance Goal} = \text{based on 3 words/week } \times \text{ weeks of instruction } (3 \times 4 = 12)
\]

\[
\text{Aimline} = \text{Baseline} + \text{Performance Goal} (37+12=49)
\]

In order to illustrate the aimline, a line was drawn between the baseline and the
performance goal. Once the aimline was drawn onto the graph paper, the data
collection points over the four week testing period were plotted.

3.5.2 Scoring Writing Maze CBM

A writing CBM was conducted to help ascertain where John was, with
regards to his ability in writing. The first step was to evaluate John, so that a
baseline could be established. This was completed using the first three writing
passages completed by the student. The testing was conducted over a three minute
period, and the scores were duly noted to indicate the baseline. The baseline was
found by taking the mean of the three results which was 17. The baseline was then
plotted onto a graph, using A4 graph paper with the vertical axis indicating the
correctly read words during a three minute period, and the horizontal axis inducting
the weeks of instruction illustrating days of testing. The CBM testing was
established over a four week period, with testing done on both a Monday and Friday
of those four weeks.

In order to depict the performance goal, the following formulas were used:

\[
\text{Performance Goal} = \text{based on 3 words/week } \times \text{ weeks of instruction } (3 \times 4 = 12)
\]

\[
\text{Aimline} = \text{Baseline} + \text{Performance Goal} (17+12=29)
\]
Baseline = \((35 + 37 + 40)/3 = 37\)

Performance Goal = \(3 \times 4 = 12\)

New Performance Goal = \(37 + 12 = 49\)

In order to illustrate the aimline, a line was drawn between the baseline and the performance goal. Once the aimline was drawn onto the graph paper, the data collection points over the four week testing period were plotted.

The CBM was used to test each hypothesis. Analyzing the scores for writing on the CBM was critical for determining whether to accept or reject each hypothesis. The independent variable was the student preferred method of learning determined by the ELSA Survey whilst the dependent variables were the writing scores and the motivational levels.

**Table 1: Condition/Treatment Key for Reading Comprehension and Writing**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Type of Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>• Teacher Direct Method</td>
</tr>
<tr>
<td>B1</td>
<td>• Student preferred learning method</td>
</tr>
<tr>
<td>A2</td>
<td>• Teacher directed method</td>
</tr>
<tr>
<td>B2</td>
<td>• Student preferred learning method</td>
</tr>
</tbody>
</table>

**3.5.3 Student Preference Description**

The following physical, physiological, and sociological aspects of learning were altered during both the reading comprehension and writing sessions. The physical classroom was altered along with several physiological and sociological
aspects of learning. Factors included seating, lighting, sound, mobility, and seating arrangement.

3.5.3.1 Seating Arrangement/Design

John preferred learning in formal seating instead of a soft chair, couch, or bed since it can hinder his concentration. When seated informally and studying new and difficult academic material, John can fall asleep and begin to doze. Therefore, a desk and a firm chair were used when learning. A straight back chair along with a table with a hard surface for books and papers were provided.

3.5.3.2 Lighting

John preferred low lighting rather than high lighting. Learning consisted under subdued lighting rather than bright light in order to avoid negative effects on the student. Only half the lights in the room were lit and the student sat wherever he felt most comfortable. John was encouraged to choose a piece of colored acetate paper and placed it on each page of the book, moving it from page to page. Dark curtains were used to shade a couple window panes.

3.5.3.3 Sound

John needed an environment with minimal sound when concentrating on difficult cognitive tasks, studying, and doing homework. He was therefore placed away from traffic and activity patterns, radio, television, and people’s conversations. He was allowed to use nonfunctioning headphones in the study environment. A carpet was placed in the room so as to help eliminate or reduce any sounds. Additionally, an old tennis ball was placed over the bottom of a leg chair he was sitting on so as to eliminate any source of sound.
3.5.3.4 Task Persistence

John had a strong emotional need to work on a task. However, he had a preferred way of completing homework and assignments. Since he was multi-task oriented, he usually preferred to complete assignments when he was allowed breaks. Therefore, he was allowed to work for short periods of time, then later on allowed a break. He was allowed to engage in multiple tasks simultaneously. His assignments were divided into five smaller parts. When one part was completed, he would take a five-minute break. When the next part was completed, he would take another five-minute break. The pattern was continued until the task was completely done. The assignments were structured to permit variety, mobility, and breaks. John was allowed to change activities, and to migrate purposefully from one activity to another are to another. Small-group work areas for reading comprehension tasks were additionally designated.

3.5.3.5 Peers

Working with friends or classmates usually was not helpful to John when he was completing homework or studying. John was therefore worked alone during each session.

3.5.3.6 Pairs

No matter what kind of homework was written, a project or assignment, John preferred not working with another person. Therefore, he worked alone during each session.

3.5.3.7 Auditory

When John was interested in what he was hearing, he was able to remember three quarters of what he heard. However, when not interested in the discussion, John would tune out. Half of the discussion was completed orally and the other half
was completed tactually and visually as a means to keep him concentrating. Visual stimulation included books, diagrams, graphs, and pictures.

3.5.3.8 Intake

John preferred not to eat or drink while studying or completing assignments. No food or beverages were given during the sessions.

3.5.3.9 Time of Studies

It doesn’t really matter what time of the day John studies. This means that he could study or complete assignments at any time. Sessions were competed in the afternoon after John’s school.

3.5.3.10 Mobility

John needed mobility. He finds it difficult to remain in the same place for long periods of time. When concentrating, short and frequent breaks were allowed every 15 to 20 minutes for about five minutes each.

Analytic/Global

John’s brain possessed both analytic and global qualities. The information was presented both analytically and globally. The session included 30 minutes of analytic teaching and 30 minutes of global teaching. During analytic learning, the information was presented in an orderly, logical, and sequential presentation. During global learning, the information was given in a more random, abstract fashion, with less detail rather than more.

3.5.3.11 Motivation

John was motivated when concentrating on new or difficult material depending on his interest in what he was learning. When he was interested, he became very motivated. Therefore, John was given assignments in a way that were
interesting to him. The topics from the reading comprehension texts were introduced using manipulative, flip cards, task cards, and floor games.

3.5.3.12 Tactual

John was a tactual learner. Task cards, flip chutes and floor games were used to teach reading comprehension lessons. Every time new and difficult material were taught, John would create a new card for these manipulative so that he would value the resources, learn at least one or two methods for teaching himself, and have at least one strategy for becoming academically successful.

3.6 Data Collection

3.6.1 Interview with John’s Mother:

John has had a full-time education for seven years in the classroom. His mother believes that he is able to obtain good results in English; however his feelings of insecurity prohibit such achievement. He is afraid of thinking beyond the obvious in fear that he might be criticized of judged.

At home while attempting to complete his homework, he would spend the first part of the hour complaining to his mother about how slow he is. The self-belief that he could not write was one of the reasons that stopped him from performing. Other parts of the hour are spent on re-assuring John that he is a capable student. The high confidence that she has from pumping John with hours of remedial English everyday slowly diminishes as he consistently brings back poor grades. He works hard but can’t get his work above average.

The students learning style preferences are provided in Table 2. The results were obtained using the Dunn and Dunn ELSA survey.
<table>
<thead>
<tr>
<th>Element</th>
<th>Student Preference Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound</td>
<td>• John needs quiet when learning something new or when studying or doing homework.</td>
</tr>
<tr>
<td>Light</td>
<td>• John prefers studying in low light rather than bright light.</td>
</tr>
<tr>
<td>Seating/Design</td>
<td>• John prefers learning in formal seating instead of a soft chair, couch, or bed since it can hinder his concentration. When seated informally and studying new and difficult academic material, John actually feels sleepy and might doze off.</td>
</tr>
<tr>
<td>Motivation</td>
<td>• John is motivated when concentrating on new or difficult material depending on his interest in what he is learning. When he is interested, he becomes very motivated.</td>
</tr>
<tr>
<td>Task Persistence</td>
<td>• John has a preferred way of completing homework and assignments. Because he is multi-task oriented, he usually prefers to complete home- work assignments when he can take short breaks.</td>
</tr>
<tr>
<td>Pairs</td>
<td>• No matter what kind of homework is written, a project or studying, John prefers not working with another person.</td>
</tr>
<tr>
<td>Peers</td>
<td>• Working with friends or classmates usually is not helpful to John when he is doing homework or studying.</td>
</tr>
<tr>
<td>Auditory</td>
<td>• When John is interested in what he is hearing, he can remember three quarters of what he heard. However, when not interested in the discussion, he will tune out.</td>
</tr>
<tr>
<td>Intake</td>
<td>• John prefers not to eat or drink while studying or...</td>
</tr>
</tbody>
</table>

Table 2: Student Preferences in Learning Styles
Time of studies

- It doesn't really matter what time of the day John studies. This means John can study or complete assignments at any time.

- John needs mobility. He finds it difficult to remain in the same place for long periods of time.

Analytic/Global

- John's brain possesses both analytic and global qualities.

Graph 1: CBM for Reading Comprehension
Graph 2: CBM for Writing

Graph 3: Attitude Toward Learning Reading Comprehension
Graph 4: Attitude Toward Learning Writing

![Graph 4: Attitude Toward Learning Writing](image)

Table 3: Mean rating scores ± SD of SMTEL Questionnaire on the first day and the last day of intervention

<table>
<thead>
<tr>
<th>Sections</th>
<th>First Day</th>
<th>Last Day</th>
<th>Significance*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self efficacy</td>
<td>1.8</td>
<td>3.2</td>
<td>0.047</td>
</tr>
<tr>
<td>Active Learning</td>
<td>1.8</td>
<td>3.37</td>
<td>0.009</td>
</tr>
<tr>
<td>English Learning value</td>
<td>4.0</td>
<td>4.6</td>
<td>0.208</td>
</tr>
<tr>
<td>Performance Goal</td>
<td>3.7</td>
<td>3.0</td>
<td>0.042</td>
</tr>
<tr>
<td>Achievement Goal</td>
<td>3.8</td>
<td>4.4</td>
<td>0.208</td>
</tr>
<tr>
<td>Learning Stimulation</td>
<td>2.1</td>
<td>4.3</td>
<td>0.006</td>
</tr>
</tbody>
</table>

*Significant at p<0.05
CHAPTER 4

RESULTS

This current study sought to examine the change in academic performance in reading comprehension and writing, and motivation levels in a student when he learns through his preferred learning style.

4.1 Results of CBM

The points on the CBM Reading graph represent three one minute reading probes conducted on a weekly basis. The graph represents the student’s frustration level at a baseline. Progress was shown when there intervention was implemented which was on Week Two and Week Four. It showed a positive impact on John within a short intervention period. The solid line represents this rate of progress during those weeks. During weeks one and three, the desired outcome for academic achievement was not being produced.

4.1.1 Reading

John’s effort, creativity and ability to think critically became noticeable. He learned how to illustrate his thoughts. Intertextual linking, and his ability to mentally develop a detailed image of the story was reflected during oral discussions.

4.1.2 Writing

The points on the Writing graph represent three one minute writing probes conducted on a weekly basis. The graph represents the student’s frustration level at a
baseline. Progress was shown when there was intervention which was on weeks two and week four. It showed a positive impact on John within a short intervention period. The solid line represents this rate of progress during those weeks. During weeks one and three, the desired outcome for academic achievement was not being produced. The child functioned below the aimline thus refueling his frustration level.

4.1.3 Observations

The child’s responses to the analysis questions in the VV texts portrayed his personal concepts, and aspects of his personality. As the sessions progressed, he felt a sense of responsibility to answer the questions seriously and with effort. He became in control of his writing, expressed his beliefs freely and became capable of making inferences. He started writing independently during the middle of the study. He became creative in putting together old with new knowledge and in relating his previous experiences with the reading.

4.2 Results of the Attitude Toward Learning English questionnaire

At the beginning first session, John found English to be difficult, boring, confusing. He also felt nervous during the session. This negative attitude towards learning English remained consistent until the fourth session. During the fourth session, a change in John’s attitude became remarkable visible. He still found the material difficult, however, it became clearer, and funner. He became calmer as the sessions prolonged and felt less nervous when learning.
By the end of the 17th, 18th, 19th, and 20th sessions, John felt completely at ease and developed a whole new attitude towards English. The shift in attitude was not gradual. Instead, a sudden positive inclination became visible after the third session.

### 4.3 Results of the Attitude Toward Learning Writing questionnaire

It was clear that during the times of intervention, John began to write more naturally since his attitude level rose to a maximum of 19. During non-intervention, John would experience learning English as “wholly negative”. This negative attitude would prohibit his real potential in learning English. He wouldn’t look forward to writing and would further struggle with his thoughts when it comes to writing. However, the negative attitudes toward learning writing were not enough to shake John’s effort to continue writing.

### 4.4 SMTEL

The items illustrated the student’s perception of whether or not the English was taught in an interesting learning environment. However, the items did not analyze John’s English learning. Instead, it examined his attitude towards learning English. The SMTEL Questionnaire showed that after the sessions of reading comprehension and writing, John developed a strong liking in reading and writing and considered English as an enjoyable language. These findings suggest that he became more motivated to read and write.

Statistical Analysis was performed applying Statistical Package for Social Sciences (IBM® SPSS®), version 20.0, International Business Machines Corporation, New York. Values are reported in the form of mean ± SD for quantitative variables e.g. rating scales of Self-Efficacy section and labels for
categorical variables e.g. Self-efficacy. The dependent t-test which is a parametric statistical test (called the Paired-Samples T Test in SPSS) was applied to determine the statistical significance of differences among the rating scales of the first day and last day of intervention regarding the different section of the SMTEL questionnaire e.g. determine the statistical difference among the rating scales of the Active Learning Strategies section between the first day and the last day of intervention.

The results of the SMTEL questionnaire were analyzed to statistically identify the level of significance of the rating scales of the different sections of the questionnaire on the first day and the last day of intervention. There was significance (p=0.000; p<0.05) between the first day and the last day scoring scales on four sections of the questionnaire: Self efficacy, Active Learning Strategies, Performance Goal, and Learning environment Stimulation (See Appendix A).
CHAPTER FIVE

DISCUSSION

This chapter discusses the outcomes acquired from this case study and relates them to prior research and findings. The limitations of the study and further recommendations are also presented.

The researcher examined the student’s achievement scores in reading comprehension, writing, and his attitude towards learning English when exposed to his learning preferences. Results comparing reading motivation and reading comprehension achievement scores were calculated. Significant findings were present for both the teacher direct learning and the student preferred method of learning. There was an inclination in the scores when it came to reading motivation in the student choice treatment condition. However, the scores remained constant in motivation levels during the direct teacher method treatment condition. The graph portrays high motivation in the student choice treatment and a declination of motivation in the teacher directed treatment. It could be that students do not require as much guidance as younger students at this level of academics. Fourth grade students are no longer learning how to function in a classroom, but instead how to absorb the material being taught by the teacher. The students might be focusing more on how to become less dependent learners.

The CBM assessed the reading and writing skill levels of John when during intervention and in the absence of intervention. The graphs for the reading and writing CBM show that during the direct teaching method, the student was kept from
“moving on” and achieving his potential. When he was not allowed to learn using his preferred learning styles, his opportunities for practicing emerging skills are thus reduced. The materials are too hard for him to comprehend and apply when the teacher direct method is used, thus leaving him at a frustration level. Motivation is further reduced.

The student achievement in reading comprehension during the direct teaching method condition reflected little to no change in scores from when the student started sessions until he finished. The student choice treatment condition did better than the direct teaching method condition since there was a gradual inclination in scores. The increase in scores during student preferred learning condition suggests that student choice in learning styles is essential to achievement. Students may start the beginning of the fourth grade academic year unsure of the results they may yield later on due to the dependence they are required to have on the teacher directed instructional methods. This insecurity and instability in the student’s ability to learn could be changed and molded in a way to allow the student to increase achievement if he/she is allowed to learning through his/her preferred learning method.

The gain scores showed that the student’s preferred method of learning treatment was more effective than the teacher directed treatment. Therefore, there is a significant difference between both methods of learning. The inclining line on the graph demonstrated a significant increase in achievement gain score during the student’s choice in learning style.

There was a significant increase in achievement scores in the second student choice treatment condition. The scores increased high enough so as to be considered as significant.
The findings of the study showed that the application of the Dunn and Dunn Learning Style Model must not be neglected during instruction and that the student’s learning styles should be adapted during instruction by the teacher (Ivie, 2009). When the student’s learning style preference was merged with the instructional strategies, then higher motivation and an increase in reading comprehension scores was achieved. This rational further supports the Dunn and Dunn Learning Style Model (Boyle, 2005). The research conducted in more than 120 institutions showed that the model consisting of 21 elements with 23 variables (Boyle, 2005) do actually have an impact on a learner’s learning style. Therefore, it is essential for the instructor to keep this learning style into consideration whilst teaching.

The findings of the study support Dunn and Dunn’s theory of Learning Styles which stated that academic achievement can increase if the learner is given the choice to learn through the student’s learning preferences (Rautopuro & Vaisanen, 2003). Rigid teaching strategies may cause the learner to operate below their academic level and thus fail to reach academic achievement. The study proved that a fourth grade student became more motivated towards learning English when his learning styles were kept into consideration by the teacher. This notion may reflect the idea that during the fourth grade, the student is mature enough to make his/her decisions on the learning process. Further on, fourth grade might be a sensitive time that determines student’s success for the latter years.

The results demonstrated the importance of teaching using the students’ learning preferences. It is important for instructors to be aware of their role as a facilitator in the classroom. As the Dunns have stated before (Honigsefeld & Dunn, 2009), it is critical for instructors to be aware and acknowledge their students’ learning styles.
Research conducted by Elliot & Dweck (Elliot & Dweck, 2005) suggested that motivation is the trigger to success. Academic achievement takes place when a learner shows motivation. The learning strategies that are provided can have an impact on a student’s motivational and achievement level. Highly motivated classrooms consist of teaching strategies that are harmonious with the students’ learning styles (Elliot & Dweck, 2005). The study showed that a fourth grade student was motivated when learning reading comprehension and writing skills using his preferred learning style. This thrust of motivation increased the student’s reading comprehension and writing scores and has benefited academically more than learning through teacher direct methods.

There was a significant increase in the reading comprehension scores when learning through modality-congruent learning styles. Therefore, the null hypothesis was rejected and there was a significant difference in test scores and attitude towards learning reading comprehension when the learner used learning strategies congruent with his perceptual strengths.

The student survey reported generally positive attitudes toward learning reading activities and showed an increase in the mean attitude scores after being exposed to modalities congruent to their learning style. Reading achievement test gains were significant when modality-congruent, learning strategies were implemented. In contrast, dissonant instructional strategies employed during the hours of learning resulted in no achievement gain. As the instructor continued to use learning strategies that did not match the student’s learning styles preferences, the child’s mean achievement scores declined (chart). However, after the instructor employed modality-congruent learning styles and preferences, the mean achievement scores increased dramatically. These finding have strongly supported the Dunn and
Dunn theory that learners’ academic achievement increases when the student’s perceptual learning styles are blended with instructional learning strategies (Ferdenzi, 1998).

### 5.1 Observations

During both comprehension and writing, the student paraphrased less of what the teacher said and relied more on his imagery. With time and practice, he began to independently answer questions that required critical thinking. The student would not return to the unfamiliar habit of reading barely fast without connecting language to imagery, thus forcing him to re-read the paragraph. Further on, as instruction progressed, he demonstrated automatic understanding or the reading by using verbal or physical responses to language such as giggling, or showing signs of disgust.

At the beginning of the intervention, John had difficulty discussing his prior knowledge related to topics concerning the texts. With the ongoing use of strategies such as task cards, flip chutes, and floor games, and verbal prompting to enhance his abilities, John developed skills to access past experiences to aid in understanding of the text.

During the weeks that consisted of strategies using teacher methods, John was incapable of recalling details from the text or re-tells the text. His summary was in the form of fragments. He was not confident and became irritated when he was incapable of recalling the details of the text he had read minutes ago. The following is an excerpt of a transcript retrieved from an observation using teacher direct methods while trying to answer a question.

*The bravest man in the rodeo is the one dressed up as a clown. When a cowboy topples off a bucking bull, the rodeo clown runs between the cowboy and the*
raging bull. The clown dances and waves his arms to draw the bull away from the cowboy. The crowd cheers as he teases and dodges the bull until the cowboy gets away. The clown takes a bow as men ride in on horseback and herd the bull out of the arena.

John was just finished reading a text. He is sitting comfortable in his chair, however, he seemed fidgety when he knew that he was going to be asked questions by the instructor.

**Instructor:** What I would like to do is to summarize the story in your own words.

**John:** (John drops his head facing the floor while avoiding answering the question unsure of himself. He then answers bluntly after a few minutes). The ground hound goes out.

**Instructor:** Let’s try to include some details from what we read. Where do you picture the ground hog coming out from?

**John:** Ground (He looks up from the ground and looks at the teacher)

**Instructor:** Go back to the text and reread the passage carefully.

**John:** (He gets even more nervous and re-reads the passage without much change in his answer) but he came out of the ground.

**Instructor:** (The teacher looks unsatisfied and insists that John keeps re-reading the text until she receives a satisfying answer) Keep re-reading the story until you find the answer.

**John:** (He looks exhausted, and gives pleading looks to the teacher. He is begging to wiggle in his chair and glanced around the room to avoid eye contact with the teacher).

The student was not given method of answering the questions.
This common teacher to student conversation continued for 30 minutes. John couldn’t wait to get out of the lessons, and asked his mother not to bring back the next day.

The following is an excerpt of a transcript retrieved from an observation using the students learning styles:

In order to create concrete imagery, John re-wrote each sentence in his own words on a quilt square. The quilt served as a story map dividing the dense material into parts. The instructor tried not to over question the lesson. Instead, she used a quilt to divide the imagery into parts in order to prevent him from becoming overwhelmed and reverting back to his old habit of reading to just word-call rather than reading to connect to print.

Instructor: (The instructor continues to reinforce and motivates throughout the lesson). I can picture that. Help me picture more. Should I picture ground with wet soil or dry soil?

John: The ground hog is coming out of the dry soiled ground while everyone is watching him.

He has two feet and has his mouth open. He is brown and has bright eyes.

Continue

In order to encourage John to develop language, unknown vocabulary words to the student were included in the passage. The instructor hoped to extend his vocabulary during the lesson by deriving the word based on the surrounding of the imaged context. John would make sure of the meaning by using a dictionary. He would write the word on a card, then write the definition at the back of the card and place it in the clip chart.

His eyes appeared to gather his imaged thoughts.
Choice and contrast methods of learning were introduced for stimulating verbalizing, and thinking. This instruction only has a small window of time to help John experience success in learning to comprehend and write. Every frame of instruction should be remedial since the student has exhibited years of failure. There is only little time during which he is willing to learn.

In school, teachers fail to teach students write and understand what they read. They are not able to give succinct, sequenced oral summaries, of even low-level material. While the teacher might care and genuinely try to aid their students, they fail in doing so. Instructors might interpret the content to their students rather than the reverse. They explain and re-explain the content in the same manner failing to connect their explanations.

5.2 Lesson Evaluation

The lessons for comprehension and writing were evaluated twice a week using CBM to provide the needed diagnostic information for pacing the reading level.

5.2.1 Writing

During the first week of the study, it was observed that John was able to spell and use punctuation properly. However, he was unable to construct a sentence rationally and divide writing into coherent paragraphs. His ability to assimilate and organize information was frustrating during the first and third weeks of teaching. He was also unreceptive to both verbal and written feedback. He would refuse to re-elaborate on his thoughts or to re-think the writing structure. However, when being taught through his preferred methods of learning, John would become more at ease
when constructing his thoughts into writing. Further on, language became more facilitated when he was learning through is preferred methods of learning. By the end of the fourth week, he was given the courage to face a blank page and the willingness to re-start or re-think thoughts and ideas. He also became receptive to feedback and expressive when exposing his ideas.

5.3 Recommendations for Future Research

The findings of this research should influence and alter the perspective on how academic institutions meet the need of traditional, marginal, and students with learning difficulties. The following suggestions for continuous research are mentioned below:

1. As mentioned in the review of the literature section, there has been an increasing number of students with learning difficulties (Mitchel, 2009). The unrealistic idea of an existing homogenous population of students capable of learning and retaining new information using the same teaching methods is unsound. As mentioned by Ivie (Ivie, 2009), the use of the Dunn and Dunn learning inventory is effective and can educate students and faculty on how to enhance academic achievement and attitude towards education. Educators should implement the Learning Style Theory on learning disabled students.

2. Attention should be directed to the study of learning styles as they relate to international students. This diversity is reflected in academic institutions (DeVita, 2001). Research has shown that students from different races have varying learning profiles. Further research emphasized that identifying these learning styles is needed.
3. Further investigation should be conducted to determine whether a relationship exists between students learning using their learning style preferences under the presence of an authoritative figure and students learning using their learning style preferences in the absence of an authoritative figure. The presence of an authoritative figure might influence the student’s attitude either negatively or positively. For instance, a learner might resent the demands imposed by a second party.

4. A fourth grade class consisting of traditional and nontraditional students should follow A program with half the classes taught using the traditional teaching methods and the other half using the students’ learning preferences. A study should be conducted to indicate how the different instructional strategies effect student academic achievement and attitude.

5.4 Conclusion

The Dunn and Dunn model is a model whose logic runs systematically. They have described the effectiveness of this mode in their voluminous writings. It is further proven through this study that children do learn in a variety of different ways. Our individual differences are necessary to acknowledge for the purpose of education. Instructors should thus utilize these individual differences during their teachings and not artificially inflate such differences.

This study was developed to show how a fourth graders motivational level and reading comprehension scores would promise success is taught within the child’s preferred mode of learning. It is hoped that this study would encourage educators to promote motivation and achievement for their students. The quantitative data
collected in this study was retrieved from an ABAB counterbalancing design to determine a fourth grader’s preferences on how he prefers to learn. Further investigation included in hopes to discover that if the instructional strategies were molded to fit the student’s preferred method of learning, would motivation actually increase. The design consisted of a single group that served both as the control and treatment groups.

An instructional method that provides motivation and academic success in reading comprehension is a pivotal point in the student’s life that can lead to a willingness to learn. This motivation and success will allow the student to keep on building over his/her initial knowledge and to continue the academic journey.

Hypotheses 1 was accepted since there was a significant difference between the teacher direct treatment condition and the student choice condition on the gain scores in reading comprehension. The increase in achievement scores was reflected during the student learning preference condition.

The finding of this study showed that fourth grade student is more motivated when learning through his preferred learning style. Hypothesis 2 was accepted since there was a significant difference between the teacher direct treatment condition and the student choice condition for reading motivation.

The review of literature supported the essentialness of having an authority figure acting as a facilitator within the classroom walls. The study provided data that a keeping into consideration the student’s learning preferences will yield more academic success and elevate the student’s motivation compared to the redundant direct teaching methods. This was similar to the finding from studies in the literature review. The previous studies along with this one confirm that limiting student choice will diminish both academic achievement and student motivation. Therefore, a rich
educational environment should consist of one where students preferences are learning can build a strong base for continuing their academic journey. Teacher direct learning can diminish, rather than ignite learning if used ineffectively.

The findings of this study with Mitchell who believed that students are most motivated when the teacher controls the learning environment. According to Mitchel, this may be so since students seek guidance and some are not mature enough to make their own decisions (Mitchel, 2009). However, according to this study, the teacher’s direct method of learning may only lead to failure and a lack of motivation. The student’s lack of consideration and neglect of his preferences may merely lead to confusion and cause motivational levels not to reach their full potential.

On the basis of the results, learning styles seemed to have an effect on English comprehension and writing. These results complimented to the Dunn and Dunn study which emphasized that teaching strategies should complement students’ learning styles in order to ensure academic success and motivation (put reference). This notion is important since research suggests that mismatch between teachings and learning styles can lead to failure and frustration for both the students and teachers. Teachers should help students identify their leaning styles and become more lenient and flexible in using them since research has proved the efficiency way of versatile learning styles (Honigsfeld & Dunn, 2009). Most people have learning style preferences. However, individual preferences differed greatly, thus the stronger the preference, the more important it is to provide compatible instructional strategies, especially among the weaker students who linger behind academically whose preferences differ from that of the successful students.
5.5 Limitations

This study provided information on the impact of learning styles of a student facing learning difficulties in reading comprehension. However, the findings should be viewed in light of several limitations.

First, the study was limited to one student hence generalization to the larger population is not possible. The attempt to explain the academic achievements of students with LD in education may be more effective if using a larger sample. Future research should use a larger sample and examine students in different school subjects.

Second, the research lasted for eight weeks. The study was done during a relatively limited time. It would be interesting to see the results of the Learning Style over a longer period of time.

Third, the student was overloaded in work. He had to go to school from 7:45 A.M. Until 3:10 P.M. He would then participate in the study for one hour a day after his school hours. This overloaded schedule, to some extent, might affect the result of the correlation between the student’s writing and reading comprehension performance and his motivation in learning writing and reading comprehension due to the fact that he had long hours of studies.

Fourth, the participant in the study was interested in spending his free time learning writing and reading comprehension using varying learning styles. This could possible affect his scoring on a number of questions on the SMTEL questionnaire, ATLC survey, and the ATLW survey.
5.6 Implications

School paves the way for students in hopes of preparing them for the world. However, disappoint instead of motivation seems to become a more familiar feeling to the student due to the repetitive methods of teaching that the student is exposed to in every grade level. This motivation seems to diminish more and more as the material being taught becomes more difficult, boredom takes place and the classroom environment becomes dull. This decline of motivation and the lack of academic achievement defeats the whole purpose of academic institutions. Understanding the elements that trigger student’s motivation and student academic success is essential in the classroom regardless of the grade level.

Teachers are responsible for molding their students into academically successful and motivated learners that keep them excited to learn. Therefore, it is crucial that teachers recognize the most effective channels of communicating academic information to students. Feeling at ease in classrooms can produce highly motivated and capable learners. It is then that the learner’s real potential will bloom.

The findings of this study supported the research literature that students would show a more positive attitude show towards learning if instruction was accommodated (or took into consideration) their learning style preferences. Further, the students’ academic achievement would improve if the student’s learning style was accounted for.

The results of this study showed that there was a significant difference in reading comprehension achievement and reading motivation when comparing teacher direct instruction and student preferred learning styles. The student increased his motivation when the lessons were presented using his preferred learning styles. He was aware during the four weeks that a different mode of teach was taking place.
The discoveries and results of this study can directly change academic decisions made by educators regarding educational philosophies. The findings of this study demonstrated the necessity of applying students’ learning preferences during instruction so as to keep them both successful and motivated learners. The feeling of excitement that keeps students willing to learn will not only be reflected during class, but also outside the academic setting.

This study has demonstrated the importance of having an authority figure that makes learning smoother. It is important that ongoing assessments take place to ensure the best teaching practices are being implemented. Although direct teacher instruction is the method that is considered the most “practical” in some educators’ eyes, they must still consider that students are individually different and may prefer to be educated using their own preference of learning styles at different stages of the school year. It is thus the duty of educators, administrators, and parents to ensure that motivation is fueling the students to learn more and that the most effective methods of teaching are applied.

Examining students’ learning styles can create a base for teaching learners to utilize appropriate learning strategies, which can help them excel academically and re-gain their motivation towards academic environment. Adjusting teaching strategies to students’ learning styles and helping students to become aware of their learning styles can increase academic achievement and pave the way to a better academic future.

Based upon the findings of this study, the following recommendations are made:

1. Since the time frame of this study only consists of one month, a longer measurement
should be used in a similar study. This study’s data was collected over a period of two weeks. Different results and outcomes could be discovered within a longer time frame.

2. A study of a different age group could reveal data on whether a student becomes more dependent on his learning preferences of the teacher direct method as he/she ages.

The findings and results of this study should not only be limited to educators, and administrator, but also to parents and guardians of students.

3. Randomize the sample by expanding the size of the population.

4. Replicate this study with students in upper and lower socioeconomic school setting. Discuss their attitude and achievement scores.

5. Replicate this study with different ethnic population.
References


Appendix A: Dunn and Dunn Learning Style Model
Figure 3: The Dunn and Dunn Learning Style Model.
Appendix B: Elementary Learning Style

Assessment Student Report (ELSA)
<table>
<thead>
<tr>
<th>Learning Styles</th>
<th>Strong Preference</th>
<th>Preference</th>
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<th>Strong Preference</th>
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<td>Loud</td>
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<td>Bright Light</td>
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<td>Warm Temperature</td>
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<td>Soft</td>
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<td>Soft</td>
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<td>Soft</td>
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## Full Report

<table>
<thead>
<tr>
<th>Preference...Quiet</th>
</tr>
</thead>
<tbody>
<tr>
<td>You usually need quiet when learning something new or when you are studying or doing homework. Use earphones or earplugs so that you do not hear activity and sound around you. Be certain you study in a quiet place so that you cannot hear a radio, television, or people's conversation.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Preference...Low Light</th>
</tr>
</thead>
<tbody>
<tr>
<td>You often do homework or study in low light rather than bright light. It isn't always necessary for you to have subdued lighting all the time, but you like low light rather than with bright light. You learn better, and do a better job on your homework assignments, with soft lighting. Ask your teacher if you can sit away from the windows.</td>
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<tr>
<th>Preference...Warm Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature is not important to you. What is important is whether or not you are interested in the lesson you are learning.</td>
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</table>

<table>
<thead>
<tr>
<th>Preference...Formal Seating</th>
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</thead>
<tbody>
<tr>
<td>You often do your best thinking in formal seating. Use a desk or table and firm chair when you are studying or doing homework. You do not concentrate well on a soft chair, couch, or bed. When seated informally and studying new and difficult academic material, you might actually feel sleepy and begin to doze.</td>
</tr>
</tbody>
</table>
**Full Report**

### Motivation

**Depends:**
Whether or not you are motivated when concentrating on new or difficult material depends on your interest in what you are learning. When you are interested, you become very motivated. When you are not interested, you become bored. Ask your teacher if you may do assignments in ways that interest you. Consider using a tactile resource if you are tactile, or a kinesthetic game if you are kinesthetic.

### Conformity

**Depends:**
You sometimes want to do the opposite of what authoritative people tell you to do and you sometimes do your homework assignments whether you use your own ideas or the ideas of others.

### Task Persistence

**Preference...Multi-Task Persistent**
Each student has a preferred way of completing homework and assignments. Because you are multi-task oriented, you usually prefer to complete homework assignments when you can take short breaks. One suggestion is to divide your assignments into five equal smaller parts. Do one part and then take a five-minute break. Do the next part and take another five-minute break. Continue the pattern until the task is completely done.

### Structure

**Depends:**
Whether or not you prefer to structure assignments your way or the way either your teacher or parent tells you to, depends upon your level of interest in what you are doing. When you are really interested in what you are doing, you often have your own ideas and prefer to structure your assignments your way. However, when you are not interested in the topic, you'll do it any way you are told just to get the task done and over.
### Full Report

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<tr>
<th></th>
<th>Does Not Learn Best</th>
<th>Learns Best</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preference...Does Not Learn Best Alone</td>
<td>Does Not Learn Best Alone</td>
<td>Learns Best Alone</td>
</tr>
<tr>
<td></td>
<td>Doing your homework and studying alone usually is not your best way to learn.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Does Not Learn Best in Pairs</th>
<th>Learns Best in Pairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preference...Does Not Learn Best in Pairs</td>
<td>Does Not Learn Best in Pairs</td>
<td>Learns Best in Pairs</td>
</tr>
<tr>
<td></td>
<td>No matter what kind of homework it is, written, a project or studying, you usually prefer not to work with another person.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Does Not Learn Best with Peers</th>
<th>Learns Best with Peers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preference...Does Not Learn Best with Peers</td>
<td>Does Not Learn Best with Peers</td>
<td>Learns Best with Peers</td>
</tr>
<tr>
<td></td>
<td>Working with friends or classmates usually is not helpful to you when you're doing homework or studying.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Does Not Learn Best with Authority</th>
<th>Learns Best with Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It Depends...</td>
<td>Whether a person is authoritative or collegial is not really important. If you like the person, you can, and will, work with him or her!</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Does Not Prefer Variety</th>
<th>Prefer Variety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preference...Does Not Prefer Variety</td>
<td>Does Not Prefer Variety</td>
<td>Prefer Variety</td>
</tr>
<tr>
<td></td>
<td>You usually do not prefer variety. You like to work the same way rather than working differently at times.</td>
<td></td>
</tr>
</tbody>
</table>
# Full Report

## Auditory

<table>
<thead>
<tr>
<th>Does Not Learn Best by Listening</th>
<th>Learns Best by Listening</th>
</tr>
</thead>
</table>

It Depends...

When you are interested in what you are hearing, you can remember three quarters of what you heard. However, when not interested in the lecture or discussion, you tune out and get into your own “head” (thinking processes). Whether or not you remember what you heard is largely based on how well you concentrate when interested or not.

## Visual

<table>
<thead>
<tr>
<th>Does Not Learn Best by Seeing</th>
<th>Learns Best by Seeing</th>
</tr>
</thead>
</table>

Preference...Learns Best by Seeing

Because you have a visual perceptual strength, you usually remember a lot of what you read and see. Use visuals such as books, diagrams, movies, graphs, newspapers, magazines, photographs, and pictures whenever you have difficult information to learn.

You will remember what you have seen visually if you reinforce the new information with your secondary perceptual strength.

If your secondary perceptual strength is auditory, after reading, try listening to audiotapes, discussions, the radio, television programs, or videotapes on the topic.

If your secondary perceptual strength is factual, reinforce what you read by using that information creatively by making multi-leaf Task Cards, an Electroboard, a Flip Chart, or a puzzle. See instructions for making factual materials in the Appendix.

If your secondary perceptual strength is kinesthetic, reinforce what you heard by using the new information to create a Floor Game. See instructions for making a Floor Game in the Appendix.

## Kinesthetic

<table>
<thead>
<tr>
<th>Does Not Learn Best by Moving</th>
<th>Learns Best by Moving</th>
</tr>
</thead>
</table>

Preference...Learns Best by Moving

You have a kinesthetic perceptual strength, which means you usually enjoy being active and involved. Do homework assignments and study by using instructional resources that include Floor Games, case studies, drama, experiments, role playing, sets, trees, and units.

See instructions for creating many kinesthetic resources in the Appendix. Reinforce what you learn through these kinesthetic resources with your secondary perceptual strength.

If your secondary perceptual strength is auditory, after using a Floor Game, drama, experiments, or role playing, try listening to audiotapes, discussions, the radio, or television programs on the same topic.

If your secondary perceptual strength is factual, use all the factual resources such as Electroboards, Flip Charts, or Task Cards. See instructions for making these factual resources in the Appendix.

IMPORTANT! Find out what your strongest perceptual modality is and follow the steps on the chart. Doing Homework Through Your Perceptual Strengths in the Appendix.
## Full Report

<table>
<thead>
<tr>
<th>Preference: Learns Best by Touching</th>
</tr>
</thead>
<tbody>
<tr>
<td>You have a <strong>tactual</strong> perceptual strength. This means that you learn best when you are able to use your hands to make things or take notes. You usually learn best by taking notes that help you study or do homework.</td>
</tr>
<tr>
<td>Another suggestion is to make homework assignments more interesting with Post-it, Cutout, Post-a-Pen, models, written or graphic records, and other manipulative materials, which you probably will enjoy making. See instructions for making tactual resources in the Appendix. Then reinforce what you have learned with your secondary perceptual strengths.</td>
</tr>
<tr>
<td>If your secondary perceptual strength is auditory, after using an Electrobored, a Flip Chute, a Post-a-Pen, or Task Cards, try listening to audiotapes, discussions, the radio, or television programs, on the topic. If your secondary perceptual strength is visual, all the tactual resources are visual too, so they probably will both help you remember new and difficult information and also help you to enjoy learning at the same time!</td>
</tr>
<tr>
<td>If your secondary perceptual strength is kinesthetic, reinforce what you learned with the Electrobored, Flip Chute, Post-a-Pen, or other manipulative by using the new information to create a Floor Game. See instructions for making a Floor Game in the Appendix.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does Not Prefer Intake</td>
</tr>
<tr>
<td>Prefers Intake</td>
</tr>
<tr>
<td>Preference: Does Not Prefer Intake</td>
</tr>
<tr>
<td>You prefer not to eat or drink while you are studying or doing your homework.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Morning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does Not Prefer Morning</td>
</tr>
<tr>
<td>Prefers Morning</td>
</tr>
<tr>
<td>It Depends...</td>
</tr>
<tr>
<td>It really doesn't matter what time of the day you do your homework. This means you can study and do your homework any time.</td>
</tr>
</tbody>
</table>
# Full Report

## Late Morning

<table>
<thead>
<tr>
<th>Preference</th>
<th>Does Not Prefer Late Morning</th>
<th>Prefers Late Morning</th>
</tr>
</thead>
</table>

Late morning is not a good time to study and do homework.

## Afternoon

<table>
<thead>
<tr>
<th>Preference</th>
<th>Does Not Prefer Afternoon</th>
<th>Prefers Afternoon</th>
</tr>
</thead>
</table>

You are most alert in the afternoon. This is when you concentrate best and learn new and difficult material. As soon as you get home, start your homework while your energy level is high.

## Evening

<table>
<thead>
<tr>
<th>Preference</th>
<th>Does Not Prefer Evening</th>
<th>Prefers Evening</th>
</tr>
</thead>
</table>

It Depends...

It really doesn’t matter what time of the day you do your homework. This means you can study and do your homework any time.

## Mobility

<table>
<thead>
<tr>
<th>Preference</th>
<th>Less Mobility</th>
<th>More Mobility</th>
</tr>
</thead>
</table>

You need mobility. You find it difficult to remain in the same place for long periods of time. When concentrating, plan for frequent short “breaks” every 15 to 20 minutes for about five minutes each when you have an opportunity.
### Reflective vs. Impulsive

<table>
<thead>
<tr>
<th>Reflective</th>
<th>Impulsive</th>
</tr>
</thead>
</table>
| Strong Preference: Reflective
You are reflective, which means you think through your answers, even when you know the right answer. However, tests usually require that you answer questions quickly. Tests do not give you much time to really think things through.
Therefore:
- **a)** If the answer to a test question "jumps out at you," go with it.
- b) However, if you have to think about an answer, place a small, lightly penciled dot next to that question.
- **c)** After you have answered all the test questions that you do know, go back to your penciled dots and think about the answers to the questions that you did not know. If these answers "come to you," write them. If they do not, then guess. You will have a better chance with a guess than you will without any answer at all.
- **d)** Go through all the lightly penciled questions in the same way. Do not turn in the test without at least trying for every answer! Use the same tactic for doing homework.
- **a)** Look at each question. Try to locate its answer in the materials you have (readings, files, recordings).
- **b)** When you know the answer, write it. **c)** When you do not, move on to another question.
- **d)** Go through all the questions that you can answer.
- **e)** Pencil-dot the questions that you cannot answer. When you have done all the ones you can, go back and try to find answers to the ones you had to skip.
- **If these two things do not work, and only after you have tried both, seek or phone a classmate with the same assignment and compare the answers you both know. Then ask for help with the ones you did not know. Next time, you will reciprocate (return the favor).**
- **After you have answered all the questions required for homework, go back to the first question and read it out loud. Then read the answer you wrote to that first question aloud. Then, if you want to really remember this answer and get it "right" on a test, do one of the following tasks:**
  1. Make a single, two-part task card. Print the question on one side and the answer on the other. Draw a picture that relates to the answer next to the answer.
  2. Make up a two-to-four-line riddle or poem that asks the same question and gives the answer to it.
  3. Make a flip card with the question on one side and its answer and a drawing that relates to it on the other.
  4. Think of a game that includes the questions you were given for homework. Make this one of the game's questions, and decide how you will provide its answer.

Follow this pattern for each question you answered until you have a complete set of task cards, flip cards, or game questions and their answers. You will see that you are better able to focus and concentrate on what you have to do by using both your reflective strength and your impulsive ability.
**Full Report**

<table>
<thead>
<tr>
<th>Analytic/Global</th>
<th>Analytic</th>
<th>Integrated</th>
<th>Global</th>
</tr>
</thead>
</table>

Analytic...

While the brain possesses and uses both analytic and global qualities, a student may prefer information to be presented either analytically or globally first. The analytic thinker favors an orderly, logical, and sequential presentation: a detailed, systematic process that leads to a conceptual understanding. On the other hand, global thinkers process information in a more random, abstract fashion, and prefer less detail rather than more. Global thinkers often need to understand the concept first.

---

Elementary Learning Style Assessment (ELSA) (c) Kundle, Dunn and Burko, 2007
Appendix C: Sample of Maze Reading

Curriculum Based Measurement Reading CBM
The Native American Midwest

The Midwest covers a vast (area, mass, know). In the region’s western part, (a, the, along) Great Plains stretch across some (400, for, eat) miles wide. To the north (and, but, does) the east lie the Great (Lakes, Seas, Oceans). From these flow the many (seas, rivers, puddles) that make the eastern, middle, (nearly, and, big) southern parts of the region (means, so, that) green and fertile. The dry, (arid, windy, blowy) Great Plains differ from the (fertile, lush, great) green river valley forests. So (life, people, living) on the plains contrasted with (people, life, living) near the rivers.

For many centuries huge buffalo (cats, herds, cows) lived on the Great Plains. (Moving, From, Dated) before the 1500s, the tribes (wanted, that, moved) hunted the buffalo also lived (it, at, on) the plains. In the Midwest (came, of, wanted) the late 1700s were many (Plains, area, land) tribes. These included the Arapaho, (Cheyenne, Ford, Mercedes), Comanche, and Sioux. For tribes (need, like, love) the Sioux, life focused on (always, said, the) buffalo. They slept in buffalo hide (grave, bed, tipis). The Sioux’s food, clothes, and (hammers, gadget, tools) came from the buffaloes they (killed, hassled, hunted). Following the herds, the Sioux (moved, advanced, near) from place to place across (the, other, somewhere) northern plains. They moved up (along, and, near) down both sides of the (Texas, Washington, Missouri) River.

Native Americans did not (love, live, like) only on the Great Plains. (They, Always, Mostly) lived all over the Midwest. (Daily, By, Yearly) the 1600’s, in what is (went, now, could) Michigan, tribes included the Chippewa, (Mental, Mother, Menominee), Ottawa, Huron, Potawatomi, and Miami. (Man, The, Them) Shawnee, Delaware, and the Wyandot (life, lived, could) in what is not Ohio. (Silly, Funny, The) Plains tribes lived a nomadic (game, life, food) other Midwestern tribes stayed put. (Wanted, Needy, Many) settled along the rivers (in, on, under) the forests of the central, (darken, southern, dog) and eastern parts of the (land, farm, region). Like the Sioux, the Miami (wanted, went, were) hunters. Unlike the Sioux, the (California, Dallas, Miami) also farmed. They made homes (inside, underneath, along) the Ohio and other smaller (rivers, seas, streams). Because rivers and rainfall made (those, these, made) valleys fertile, the Sioux grew (beans, cows, crops). They felled trees to make (grass, oceans, fields). There they grew corn, beans, (some, and, big) squash. They made villages in (the, by, some) forest near their fields. Men, (boys, granddads, women), and children gathered nuts and (berries, apples, bananas) from the forest.

(Butler, 2004)

# Correct:_____________________
# Incorrect:____________________
Appendix D: Student Motivation Toward English Learning (SMTEL)
The SMTEL questionnaire

Directions for students

This questionnaire contains statements about your willingness in participating in this English class. You will be asked to express your agreement on each statement. There are no “right” or “wrong” answers. Your opinion is what is wanted. Think about how well each statement describes your willingness in participating in this class.

Draw a circle around:
1  if the statement you strongly disagree
2  if the statement you disagree
3  if the statement you have no opinion
4  if the statement you agree
5  if the statement you strongly agree

Be sure to give an answer for all questions. If you change your mind about an answer, just cross it out and circle another.
Some statements in this questionnaire are fairly similar to other statements. Don’t worry about this. Simply give your opinion about all statements.

Your Name____________; Teacher’s Name____________

Center:____________; Grade____________; Male_____ Female_____

English: Comprehension
### A. Self efficacy

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Whether the English content is difficult or easy, I am sure that I can understand it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I am not confident about understanding difficult English concepts.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I am sure that I can do well on English texts.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. No matter how much effort I put in, I cannot learn English.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. When English activities are too difficult, I give up or only do the easy parts.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. During English activities, I prefer to ask other people for the answer rather than think for myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. When I find the English content difficult, I do not try to learn it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

### B. Active learning strategies

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. When learning new English concepts, I attempt to understand them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. When learning new English concepts, I connect them to my previous experiences.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>No Opinion</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>----------</td>
<td>------------</td>
</tr>
<tr>
<td>10.</td>
<td>When I do not understand an English concept, I find relevant resources that will help me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11.</td>
<td>When I do not understand an English concept, I would discuss with the teacher or other students to clarify my understanding.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12.</td>
<td>During the learning processes, I attempt to make connections between the concepts that I learn.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13.</td>
<td>When I make a mistake, I try to find out why.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14.</td>
<td>When I meet English concepts that I do not understand, I still try to learn them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15.</td>
<td>When new English concepts that I have learned conflict with my previous understanding, I try to understand why.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**C. English Learning Value**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.</td>
<td>I think that learning English is important because I can use it in my daily life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17.</td>
<td>I think that learning English is important because it stimulates my thinking.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
18. In English, I think it is important to learn to solve problems.

19. In English, I think it is important to participate in inquiry activities.

20. It is important to have the opportunity to satisfy my own curiosity when learning English.

D. Performance Goal

21. I participate in English courses to get a good grade.

22. I participate in English courses to perform better than other students.

23. I participate in English courses so that other students think that I'm smart.

24. I participate in English courses so that the teacher pays attention to me.

E. Achievement Goal

25. During an English course, I feel most fulfilled when I attain a good score in a test.

26. I feel most fulfilled when I feel confident about the content in an English course.

27. During an English course, I feel most fulfilled when I am able to solve a difficult problem.
28. During an English course, I feel most fulfilled when the teacher accepts my ideas.

29. During an English course, I feel most fulfilled when other students accept my ideas.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

**F. Learning Environment Stimulation**

30. I am willing to participate in this English course because the content is exciting and changeable.

31. I am willing to participate in this English course because the teacher uses a variety of teaching methods.

32. I am willing to participate in this English course because the teacher does not put a lot of pressure on me.

33. I am willing to participate in this English course because the teacher pays attention to me.

34. I am willing to participate in this English course because it is challenging.

35. I am willing to participate in this English course because I am involved in discussions.
Appendix E: Semantic Differential Scale:

Attitude Toward Learning Reading

Comprehension (ATLC)
**Semantic Differential Scale: Attitude Toward Learning Reading Comprehension**

1. __________  __________  __________  
   Easy        Indifferent    Difficult

2. __________  __________  __________  
   Interesting  Indifferent    Boring

3. __________  __________  __________  
   Clear        Indifferent    Confusing

4. __________  __________  __________  
   Fun          Indifferent    Serious

5. __________  __________  __________  
   Calm         Indifferent    Nervous

*Session #_______*
Appendix F: Semantic Differential Scale:

Attitude Toward Learning Writing (ATLW)
Semantic Differential Scale: Attitude Toward Learning Writing

1. _______  _______  _______  _______
   Easy       Indifferent  Difficult

2. _______  _______  _______
   Interesting  Indifferent  Boring

3. _______  _______  _______
   Clear       Indifferent  Confusing

4. _______  _______  _______
   Fun         Indifferent  Serious

5. _______  _______  _______
   Calm        Indifferent  Nervous

Session #______
Pre-Test

I like summer because my parents and I always go to different places. We go swimming and I go with my baby sister. I love summer.
Appendix H: Post-Test Student Writing Sample
Post-Test

I love the summer season because my parents and sisters always travel. We go to fun places such as Brazil and Mexico. We go swimming and also do other things I like. Dancing and beach volleyball. When summer ends, I feel sad. I kiss the flowers goodbye and stand in front of the beach. I look at it before I go to school again.
Appendix I: Description of Ask, Reflect, Text Strategy (ART)
Description of Ask, Reflect, Text (ART) Strategy

Ask | Reflect | Text
--- | --- | ---
W Who is in the story? | W Where does it take place? | W When does it happen?
W What do the characters do? | = What do the characters do? | 2
H How does the story end? | = How does the main character feel; how do the other characters feel?

Text
One day there was a boy and a girl who wanted to go out in the forest at night. But their mother told them to not go because it was too scary. They didn’t listen to their mother and went out in the dark night to play. Suddenly, they found a house made of wood. They went to the house and opened the door. There, they found a mean old wolf sitting on a chair. His teeth were very big and scary. The children ran out of the house and went back to their mother. They said sorry to their mother and that they will always listen to her.
Appendix J: John Learning Reading

Comprehension using Task Cards
Barn Swallow

Northern Cardinal

Bald Eagle

Roseate Spoonbill
Appendix K: John Learning Reading

Comprehension using a Flip Chute
Appendix L: John Learning Reading

Comprehension using a Floor Game