

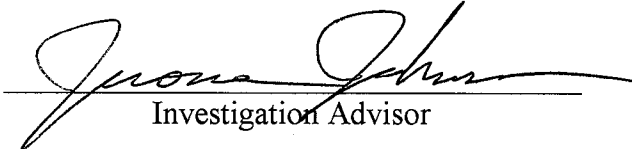
**ATTENTION AND GOAL SETTING IN RELATION TO FIFTH AND SIXTH-
GRADE ACADEMIC PERFORMANCE: A CORRELATIONAL STUDY**

By

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A Research Proposal Paper
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ABSTRACT

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Attention and Goal Setting in Relation to Fifth and Sixth-Grade Academic Performance (Title)			
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The purpose of this correlational study was to investigate the effect of attention improvement exercises and goal setting (distal and proximal) on fifth and sixth-grade academic performance. The study included 12 fifth-grade students and 12 sixth-grade students from a Lutheran elementary school in western Wisconsin. Participant grade point averages and amounts of late work were recorded three weeks prior to the study. This data was compared with the participant grades and amounts of late work during the three-week period during the study in which students participated in daily attention improvement exercises and goal-setting (distal and proximal) activities.

The findings from two-tailed *t*-tests indicated a positive correlation between the combined fifth and sixth-grade mean GPA ($p < .05$) and student participation in attention

improvement exercises and goal setting activities at the .05 level of significance.

Separately, the fifth-grade showed significance in mean GPA at the .001 level, while the sixth-grade did not demonstrate a significant difference in their mean GPA ($p < .05$).

An analysis of the combined fifth and sixth-grade percent of late work showed no significance ($p < .05$). Separately, the fifth-grade mean percent of late work demonstrated a significant at the .05 level. The sixth grade, however, did not demonstrate a significant difference in percent of late work ($p < .05$). Concluding thoughts on the study include a discussion on the statistical results, possible uses of other applied sport psychology strategies to improve academic performance, and ideas for future studies.

ACKNOWLEDGEMENT

“So whether you eat or drink or whatever you do, do it all for the glory of God.”

I Corinthians 10:31

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CHAPTER ONE

Introduction

In 1897, Norman Triplett, a psychologist from Indiana University observed that cyclists often rode faster when they raced in pairs or groups (Weinberg & Gould, 1999). This phenomenon led Triplett to study the effect of interaction with one's performance. He continued his research by conducting an experiment with children and fishing reels. While recording the amount of fishing line reeled in during a timed period, he observed that children who were in the presence of peers reeled in more line.

Nearly 30 years later, Coleman Griffeth was hired by the University of Illinois in 1925 to help coaches improve the performance of their players (Williams & Straub, 1998). He opened the first laboratory in sport psychology while at the University of Illinois and published two influential books: *Psychology of Coaching* (1926) and *Psychology and Athletics* (1928). Griffeth also conducted a series of psychological studies on the Chicago Cubs and frequently corresponded with Knute Rockne, head football coach of Notre Dame, concerning his motivational pep talks. Today, Griffeth is credited with being the father of American sport psychology (Weinberg & Gould, 1999).

Triplett's and Griffith's initial research in the area of sport psychology helped lay the groundwork for continued research in North America and worldwide. By the mid-1960's physical education had become a separate academic discipline and sport psychology became a specific component within physical education. As a result, sport psychology consultants began working with athletes and teams (Weinberg & Gould, 1999). In 1965, the Italian psychiatrist, Ferruccio Antonelli together with other colleagues organized the International Society of Sport Psychology (Singer, Hausenblas, & Janelle,

2001). Bruce Oglvie and Tom Tutko, San Jose State University psychologists, published *Problem athletes and how to handle them* in 1966 (Williams & Straub, 1998). This book, which drew plentiful attention from coaches and athletes, provided direct applications for improved sport performance. In addition, the first annual North American Society for the Psychology of Sport and Physical Activity Conference was held in 1967 (Weinberg & Gould, 1999).

The area of sport psychology experienced tremendous growth during the 1980's and 1990's in the area of practical application of psychological theories and techniques used in order to enhance athletic performance (Williams, 1998). In 1980 the United States Olympic Committee developed the Sport Psychology Board and in 1984 they hired their first full-time sport psychologist (Weinberg & Gould, 1999). The Association for the Advancement of Applied Sport Psychology (AAASP) was founded in 1986 by John M. Silva. Its' goal was to focus on the areas of health psychology, performance enhancement/interventions, and social psychology (<http://aaasponline.org/index.php>). The *Journal of applied sport psychology* was established in 1989 with an emphasis on publishing case studies and experiments in the area of sport psychology. Also in 1989, the AAASP established criteria for "certified consultants" who were then hired by individual athletes, coaches, and teams to teach mental strategies which would enhance athletic performance. An estimated 2,700 sport and exercise psychologists were found to be working in more than 61 different countries by 1992 (Salmela, 1992). Applied sport psychology has since become an important part of athletic training in high schools, colleges, and professional sports.

Athletes have turned to sports psychologists to improve mental skills such as: self-confidence, relaxation, attention or concentration, motivation, goal setting, and visualization. Successful athletes, compared with less prolific athletes, display a variety of psychological skills such as arousal regulation, high self-confidence, better attention, positive imagery, goal setting, feelings of being in control and not forcing things, well-developed mental plans, and well developed coping strategies (Weinberg & Gould, 1999). According to Bower (1995, p.27), Bruce Ogilvie, professor emeritus at San Jose State University and recognized as the father of North American applied sport psychology believed that, "Performance is the product of a harmonious interaction of the body and the mind." Furthermore, Sports psychologist Richard Suinn, Ph.D., of Colorado State University was the first psychologist to serve on the Olympic sports medicine team. In an interview with Epstein, Suinn recalled the effectiveness of applied sport psychology with an Olympic athlete (1999, p.20):

I remember one case in which an Olympic boxer lost his desire to go on competing. A consultation with a sports psychologist helped him to become focused again on his goals, an approach that often provides the solution to issues of motivation. Instead of just getting athletes 'psyched up,' sports psychologists prefer to help them become more definite about why they're doing what they're doing...In the case of the boxer, he did stick with it and he went on to compete in the Games.

Although applied sport psychology strategies have been researched and developed to improve athletic performance, these methods have found to be beneficial in academic areas. The American Sports Institute, based in California, has been an organization that

has utilized sport psychology applications in the classroom. According to Dr. Joel Kirsch (personal communication, June 12, 2002), president and founder of the American Sports Institute, 15 schools have participated in the *Promoting achievement in school through sport* (PASS) program that has been in existence since 1989. The purpose of PASS is to teach students to apply the athletic fundamentals of concentration, balance, relaxation, power, rhythm, flexibility, instinct, and attitude to increase results in academics and athletics (Griffin, 1991).

The Mid-continent Regional Educational Laboratory conducted a study on the PASS program in two Chicago area high schools in 1997. McCombs and Lauer, who conducted the study, made the following observations (1997, p. 4):

Students of the PASS teachers perceived their teachers' classroom practices as highly learner-centered, but even more impressive are the high levels of motivation expressed by the PASS students. Their scores indicated high self-efficacy and high task engagement with low work and effort avoidance.

The strategies of sport psychology have also been applied to the other academic areas of art and music. According to Grant, (2002) a painter by the name of Pam Giarratana sought to gain a mental edge after becoming increasingly dissatisfied with the quality of her paintings. She consulted with Michael Gervais, a sports psychologist, who helped her clear away anxieties and self doubts and reinforced the importance of goal setting, sense of control, and the ability to lose her self-consciousness during the painting process. Mr. Gervais also taught Pam Giarratana to improve her concentration by managing internal and external distractions while focusing on the present. Following the consultation Giarratana reported an improved focus and confidence in her work.

Moreover, Carmel Liertz, an Australian music teacher, developed a training manual containing six interactive mental and physical training strategies for her 19-24 year-old music students ("Keep Mind," 2002). She felt that performance musicians could benefit just as much as athletes from physical and mental training in order to reach peak performance. The program included strategies to improve concentration, stress, the feeling of being in control, positive thinking, physical fitness, and nutrition. The students who practiced their instruments according to the guidelines reported feeling more confident in their performance.

Just as athletes, musicians, and artists have benefited from applied sport psychology, academic students may also be able to develop mental strategies to improve classroom performance. For example, an individual lacking determination and direction may improve academic performance through goal setting. Also, a teacher may incorporate concentration strategies with students who have difficulty attending to lessons, instructions, or class work. As the quality and quantity of applied sport psychology research and methods continue to increase, education may have more strategies by which students can improve academic performance.

Statement of the Problem

Evidence has shown that applied sport psychology improves athletic performance. Sport psychologists teach mental strategies that improve and develop attention, goal setting, relaxation, imagery, arousal regulation, and self-confidence that help athletes reach individual peak performance. Limited research, however, has been completed on the use of applied sports psychology strategies to enhance academic performance. This study investigated two areas of applied sport psychology:

concentration and goal setting, and the relationship to amount of late work and grade point averages (GPA's).

Purpose of the Study

The purpose of this study was to determine if attention improvement skills and the use of distal (long) and proximal (short) goals correlated with improved academic performance. The study included 20 fifth and sixth-grade students who participated in attention improvement activities and learned how to set academic related distal and proximal goals. The results of this research were to provide relatively simple methods for improving academic performance.

Research Objectives

The objectives for this study were:

1. Investigate the applied sports psychology areas of attention and goal setting and their possible use for students inside the classroom.
2. Teach fifth and sixth-grade students how to develop and improve attention skills.
3. Develop the skills to set both distal and proximal academic goals.
4. Instruct students to use these skills during lessons and individual study times to improve their academic performance.
5. Examine the relationship between the learned study skills and individual academic performance.

Statistical Hypotheses

This study tested two null hypotheses:

1. There is no significant difference ($p < .05$) between grade point averages and the use of attention improvement exercises and goal-setting activities for the fifth and sixth-grade students of St. Paul's Lutheran School ($H_{01}: \mu_1 - \mu_2 = 0$).
2. There is no significant difference ($p < .05$) between the amount of late work and the use of attention improvement exercises and goal-setting activities for the fifth and sixth-grade students of St. Paul's Lutheran School ($H_{02}: \mu_1 - \mu_2 = 0$).

The Setting of the Study

This study took place at St. Paul's Lutheran School in Menomonie, Wisconsin during the 2003 spring semester. At the time of the study, St. Paul's had an enrollment of 97 students in grades K-8. The students of St. Paul's were divided into five self-contained classrooms: kindergarten, grades 1-2, grades 3-4, grades 5-6, and grades 7-8. The fifth and sixth-grade classroom contained 12 fifth-grade students and 12 sixth-grade students. The study focused grade point averages (GPA's) and amount of late work in the following subjects: Bible History, Catechism, Memory Work, Math, English, Social Studies, and Reading. All classes, except for Math, were taught as combined fifth and sixth-grade subjects.

Definition of Terms

The following terms were defined for clarity of understanding:

Academic performance - The level at which a student demonstrates the use of his/her God-given abilities. This research used individual grade point averages and the

number of late assignments as the instrument by which academic performance was measured.

Applied sport psychology - Mental enhancement skills that sports psychologists teach athletes to improve athletic performance. This research focused on two specific aspects of applied sports psychology: attention and goal setting.

Grade Point Average (GPA) - The GPA used in this study is based on the following scale: A=4.0, A-=3.67, B+=3.33, B=3.0, B-= 2.67, C+= 2.33, C=2.0, C-=1.67, D+=1.33, D=1.0, D-=.67, F=0.

Late work - Assigned work handed in after the due date, which resulted in a failing grade. Any failing grade as a result of late work also had an overall impact in one's GPA as it was calculated with the rest of the grades. An incentive was used to encourage work to be done on time. Students who didn't have any late work during three-week time periods received a "timely work" certificate. Timely work certificates could then be used in the place of completing one daily assignment. The certificate incentive had been in place since the start of the school year.

Limitations

Limitations of the study included:

1. Students may not have been working at their highest academic level prior to or during the study.
2. Students learned varying academic content during the three-week study. As a result, students may have naturally performed better or worse, depending on their feelings toward the content and prior knowledge of the subject area.

3. Unforeseen student absenteeism (i.e.- sickness, family tragedy) may have caused increased stress that could have hindered academic performance.

Summary and Overview

This chapter served as an introduction to this study. The purpose of the study was to investigate the skills of attention and goal setting, relate them to fifth and sixth-grade students, and find the relationship these implemented strategies had on academic performance. Chapter two provides an in-depth review of research relating to the areas of attention and goal setting. Chapter three outlines the data collection procedures and methods used to analyze the gathered information. Chapter four discusses the results of the data analysis, while chapter five provides a summary and discussion of significant findings as well as recommendations for future studies.

CHAPTER TWO

Literature Review

Introduction

The purpose of this study was to investigate the applied sport psychology areas of goal setting and attention and their use in the academic setting. The first section of this chapter examines research on effective goal-setting strategies, provides a brief history on goal setting, and discusses the use and effectiveness of goal setting in industry, sports, and academics. The second section defines attention, discusses the Nideffer (1976) model of attention, and provides examples of mental exercises that improve attention. The second section examines research on effective goal-setting strategies, provides a brief history on goal setting, and discusses the use and effectiveness of goal setting in industry, sports, and academics.

Goal Setting

A goal can be described as an objective, intention, task, standard, aim, deadline, intention, or purpose. Simply put, a goal is “something that the person wants to achieve” (Locke & Latham, 1990). Goals can be set in a variety of ways, but the following goal-setting principals have been identified from research as being most effective (Locke & Latham, 1990; Alderman, 1999; Weinberg & Gould, 1999; Sugarman, 1999; Woods, 2001):

- Set specific goals. Specific goals lead to higher performance than do vague or “do your best” goals.

- Set challenging goals. Difficult goals provide satisfaction when attained and promote intrinsic motivation. The combination of difficult and specific goals results in even higher performance (Locke & Latham 1990).
- Set attainable goals. Although goals should be challenging they must be reachable. It is the achievement of a goal that increases motivation and performance (Woods, 2001).
- Set distal (long-term) and proximal (short-term) goals. Distal goals give direction and provide a destination while proximal goals are the stepping stones.
- Performance goals (a focus on skills) are more effective than outcome (result) goals. For example, a baseball player saying, “I want to win a championship” is using an outcome goal, but a baseball player saying, “I am going to improve my batting” is using a performance goal that might help his team win a championship. Performance goals are more effective because they focus on controllable skills or actions.
- Record goals. Writing down goals and posting them gives a visual reminder.
- Goals should be measurable. Performance, such as a test grade or time in a 100 meter dash, should provide feedback that measures whether the goal was attained.

The following section expands on the topic of goal setting by providing a brief history on goal setting and a discussion on goal setting in industry, athletics, and school. The goal setting theory was developed by Locke in the 1960's as a motivational tool to improve productivity in the workplace (Hall & Kerry, 2001). It was based on the idea that conscious goals and intentions affect individual actions (Locke & Latham, 1990). According to the theory, goals which are challenging and specific lead

to higher levels of performance than do easy or vague goals. Specific and difficult goals are effective motivational tools for several reasons (Locke, Shaw, Saari, & Latham, 1981). First, they direct attention and action towards a specific task. Secondly, goals mobilize energy and effort. They promote persistence, even if the task becomes difficult. And goals motivate the individual to develop learning strategies for goal attainment.

Although Locke is credited with much of modern goal setting research, goal-setting precursors can be traced back to the early 1900's. At the turn of the twentieth century, O. Kulpe and his fellow psychologists of the Wurzburg School in Germany investigated the mental processes of decision, judgment, understanding, and thought (Ryan, 1970). Their descriptive study used the term "task" instead of goal to refer to that which the subject was assigned to complete. A fellow member of the study, Ach, used the term *determining tendency* to describe how one task might unconsciously affect a later action. Then in 1935, Ach and his student Hillgruber formulated the law of motivation (Locke & Latham, 1990), which stated that when the difficulty of a task increased, the effort increased as well. This was a clear precursor to Locke's goal difficulty function (Locke & Latham, 1990) which stated that performance increases as goal difficulty increases until one reaches the limit of his/her abilities.

Fredrick W. Taylor's (1911) *The principles of scientific management* provides goal setting precursors in the area of business. Without any apparent knowledge of the Wurzburg studies, Taylor noted task as a motivational device for business leaders (p.39):

Perhaps the most prominent single element in modern scientific management is the task idea. The work of every workman is fully planned out by the management at least one day in advance, and each man receives in most cases

complete written instructions, describing in detail the task which he is to accomplish, as well as the means to be used in doing the work.

Taylor's task ideas laid the foundation for the emergence of management by objectives (MBO) in the 1980's (Locke & Latham, 1990). MBO was a system of motivation for business managers that used objectives (tasks) to increase efficiency and productions. At the top level of management, goals were set for the organization as a whole and were then shared downward from level to level.

Similar to MBO, Locke and Latham's (1984) *Goal setting, a motivational tool that works* provided business managers with a practical guide to increase productivity, quality, and efficiency. It argued that (p.6) "goal setting is one of the most dependable and robust techniques in all the motivational literature" by citing 110 goal setting experiments from 1972-1984. Ninety percent of these studies showed positive results in regards to goal setting. According to Locke & Latham (1984), there were seven key ingredients for successful goal setting in the workplace: Goals were to be specific, measurable, attainable, timed, prioritized, rated by difficulty, and coordinated with involved personal.

Believing that performance in sports was similar to performance in organizational settings, Locke and Latham (1985) challenged sport psychologists to test the following goal setting hypotheses (p.209-210):

- Specific goals will regulate action more precisely than general goals.
- For specific goals, the higher the goal the better the performance, assuming sufficient ability and commitment.
- Specific, difficult goals will lead to better performance than "do your best" goals.

- Using short-term goals plus long-term goals will lead to better performance than using long-term goals alone.
- Goals will affect performance by directing activity, mobilizing effort, increasing persistence and motivating the search for appropriate task strategies.
- Goal setting will be most effective when there is feedback showing degree of progress in relation to the goal.
- With goals that are difficult, the higher the degree of commitment the better the performance.
- Commitment can be affected by asking the individual to accept a goal versus allowing participation in the setting of a goal. Commitment can also be affected by providing athletes with incentives and rewards for specific levels of achievement.
- Goal attainment will be facilitated by a suitable plan of action or strategy, especially when the task is complex or long term.
- Competition will improve performance to the degree that it leads to the setting of higher goals and/ or increases in goal commitment.

Undoubtedly, coaches and athletes had used goal-related activities before Locke and Latham's challenge, but little experimentation had been documented on the effects of goal setting and athletic performance. According to Hall and Bryne (p.185, 1988), "Many coaches and physical educators intuitively accept that goal setting will lead to performance enhancement in sport, given its positive beneficial effects in other performance domains."

The majority of research on Locke and Latham's hypotheses has shown that goal setting improves athletic performance, but only on a moderate level when compared to work and organizational results. Some experts, such as Hall and Kerr, (2001) have tried to explain this paradox. They hypothesized that the issues of choice and context lessens the effect of goal setting in sports. They argued that most sport participation is an option, therefore participants are already self motivated to perform at their highest level, whereas workers view their job as a necessary activity. Furthermore, they argued that athletes compete to win, but that the context of the workplace may be less motivational due to its necessity and repetition. Other researchers have concluded that goal-setting effectiveness is dependent on goal-setting strategies. In a descriptive study of 578 college athletes, Burton, Weinberg, Yukelson, and Weigand reported (1998, p.413) "college performers used them (goals) only moderately frequently with moderate effectiveness... (In addition), the major implication of these results indicates that coaches and athletes are underutilizing goal setting and may need further education."

Boyce and Wayda's (1994) research showed positive results with goal setting and weight training. Three groups participated in a twelve-week weight-training program. The assigned goal group and self-set goal group showed a significant difference from the control group that was told to do their best. Furthermore, Kylo and Landers (1995) meta-analyzed 36 sport studies on goal setting and found an overall mean effect of 0.34 in favor of setting goals. Their research showed that moderate, absolute, and combined short and long-term goals had strong influence on performance.

In the area of academics, research has shown significant differences in student performance when effective goal-setting strategies are used (Locke & Latham 1990;

Zimmerman, 1989). Many studies have been conducted with a variety of students using different types of goals and goal-setting applications. The following section gives an overview of the research in which goal setting has been used or identified in school settings.

In a study on self-determination, goal setting and problem solving were used to promote achievement (Palmer & Wehmeyer, 2003). The study included 50 students aged 5-9 and implemented a self-determined learning model in which students set school related goals, took action on them, and self-evaluated the process. The results showed that even the youngest students were able to set goals, which resulted in increased achievement and self motivation.

Zimmerman (1986) identified goal setting as one of fourteen self-regulated learning strategies that promoted higher academic achievement and better self-regulation in the classroom. He compared 40 high-achieving tenth-grade students with 40 low-achieving tenth-grade students. His results showed that high-achievement students used self-regulating learning strategies such as self-evaluation, organizing and transforming, goal setting, seeking information, keeping records and monitoring, environmental structuring, self-consequences, rehearsing and memorizing, seeking social assistance, and reviewing records.

Early studies focused on short-term goals and their relationship to student efficacy. For example, Bandura and Schunk (1981) compared the effects of proximal (short-term), distal (long-term), and no goals on math performance. 40 third grade students were identified by classroom teachers with sizable deficits and disinterest in math. They were assigned to one of three groups:

1. Proximal goal group: participants were told to set a goal of completing at least six pages of work each session.
2. Distal goal group: participants were told to set a goal of completing the entire 42 pages of work by the end of the seventh session.
3. No goal group: goals were not mentioned to the children.

The results showed that the proximal group demonstrated a significant increase in self-directed learning, mastery of operations, and development of personal efficacy and intrinsic interest in math. Although distal goals provided general direction they did not show a significant difference. According to the author “proximal goals provide immediate incentives and guides for performance” (Bandura & Schunk, 1981).

In a similar goal-setting study, Schunk (1985) showed that participation in self-set goals led to higher levels of self-efficacy and math performance. The study sample consisted of 30 sixth-grade students identified as learning disabled in mathematics. The students were divided into three groups: a self-set goal group, an assigned goal group, and no goal group. Students participated in five 45 minute sessions where they worked on subtraction worksheets that progressively became more difficult. Students who set self-goals had the highest self-efficacy and math scores. Both goal groups demonstrated higher levels of performance than the control group.

Subsequent research has studied achievement goals and their relationship with student beliefs and actions. In general, achievement goals incorporate performance standards, are moderately difficult and are short term. They can be further classified as mastery goals, performance goals or performance avoidance goals. A mastery goal is the desire to independently master and comprehend academic work. A performance goal is

the desire to demonstrate a competence in the academic work with relation to other students. Finally, a performance avoidance goal is the desire to do just enough academic work to get through a class.

Research on undergraduate students has shown that performance goals produced positive academic results such as surface processing of course material and higher exam performance (Elliot, McGregor, & Gable, 1999). Even more so, fourth grade through undergraduate college students who demonstrated mastery goal setting were positively linked to higher achievement, deeper processing of presented material, persistence, effort, and motivation (McGregor, Elliot, 2002; Elliot, McGregor, & Gable, 1999; Schunk, 1996; Meece & Holt 1993).

Attention

According to John Wooden, former UCLA basketball coach (1999, p.11), “The perfection of the minor details may be the difference between success and failure.” In sports and academics the ability to attend to the task at hand is an important detail to performance. Defining attention is complex as Abernethy states (2001, p.76), “attention is clearly a broad and multifaceted psychological construct that impacts on sports performance and learning in a large number of quite diverse ways.” In general terms attention can be thought of as narrowing one’s focus. In more detail, Sugarman (1999, p. 159) defined it as, “the ability to direct your senses and thought processes to particular objects, thoughts and feelings that are pertinent to the task at hand.”

Attention can be defined in several ways: First, selective attention is a focus on relevant cues in one’s environment (Weinberg & Gould, 1995). Second, divided attention is the ability to perform two or more tasks at the same time (Moran, 1996). Third,

attentional focus is the ability to concentrate over a period of time (Weinberg & Gould, 1995). Finally, awareness or alertness is the ability to scan an entire environment (Weinberg & Gould, 1995).

According to many athletes and coaches the ability to concentrate is vital to peak performance in sports (Moran, 1996). In fact, Cox claimed (1994, p. 67) “selective attention is perhaps the single most important cognitive characteristic of the successful athlete.” Garfield (1984) felt attention was one of the five most important mental skills identified in athletics. Anecdotal evidence (see Moran, 1996, Garfield 1984) has shown that attention is important to peak athletic performance. In addition, research on psychological profiles of successful athletes has shown that attention is an important mental strategy. Successful gymnasts (Mahoney & Avenier, 1977) and wrestlers (Highlen & Bennett, 1979) have shown higher levels of attention than their less successful counterparts. Similarly, Gould, Eklund, and Jackson (1992b, p. 390) interviewed US wrestlers shortly after the 1988 Olympics. The wrestlers reported that their best performances came when they felt a “special sort of concentration and involvement in the match that featured an effortless awareness.” This feeling was described by the wrestlers as an “autopilot” state of mind or a feeling of being “in flow.”

The foremost accepted model of attention was developed by Robert Nideffer (1976). He proposed a two-dimensional model in which attention was characterized by width and direction. The width refers to the number of elements attended to in one’s environment and is determined by the situation. For example, a broad width of attention is needed when driving a car. One’s attention must be “wide” in order to take note of the car’s performance, road conditions, other drivers, and passenger conversations. On the

other hand, a narrow width attention is needed to hit a baseball. A player has to focus on the ball, which is a specific item. In fact, baseball players with exceptional narrow attention are able to focus on the seams of the ball as it leaves the pitcher's hand, thus interpreting the type of pitch. The second dimension, directional attention, refers to whether attention is directed to internal or external stimuli. For example, focusing on one's feelings or thoughts is using internal attention, while focusing on surroundings or environment is using external attention (Nideffer, 1976).

A four-quadrant diagram (see figure 2.1) of width and direction provides a visual explanation of the attention model (Nideffer & Sagal, 1998). The horizontal axis represents the width of attention, while the vertical axis represents the direction of attention. A person moves in and out and along each axis depending on the situation. Broad/external attention is the assessment of one's surroundings (i.e., a quarterback scanning the field for an open receiver). Broad/internal attention is the ability to analyze one's thoughts and experiences (i.e., a basketball coach whose team is down by two points with ten seconds left in the game will analyze all possibilities and think about similar situations he or she has experienced). Narrow/external attention is focusing on a specific task (i.e., a soccer player who focuses on the upper right hand corner of the goal when taking a shot). Narrow/internal attention is the ability to mentally rehearse a specific task (i.e., a golfer visualizing his or her swing and mentally seeing the ball land on the green).

<p style="text-align: center;">Narrow/Internal Attention (i.e., visualizing a free throw)</p>	<p style="text-align: center;">Broad/Internal Attention (i.e., mentally analyzing all possibilities when solving a math problem)</p>
<p style="text-align: center;">Narrow/External Attention (i.e., working on the gears of a watch)</p>	<p style="text-align: center;">Broad/External Attention (i.e., recess duty on a playground)</p>

Figure 2.1: Nideffer's model of attention

A basic understanding of Nideffer's model of attention helps athletes and students shift their attention effectively as circumstances arise. For example, a player during a time-out needs a narrow/external attention as the coach diagrams a play. When the game resumes, the player needs to shift to a broad/external focus to effectively carry out the play. The transition in attention is also important in the classroom. For instance, an elementary student using broad/external at recess needs to shift to a narrow/external focus for the upcoming math lesson.

The transitioning and level of attention is constantly challenged by internal and external distractions, levels of arousal, motivation, ability, and number of tasks at hand (Weinberg & Gould, 1995; Nideffer & Sagal, 1998). Internally, one may be preoccupied with a recent mistake, such as a dropped pass or a wrong answer on a test. The anxiousness of future events, such as an upcoming oral report, or a big game, can also cause internal distractions. External distracters occur due to visual or auditory hindrances. In athletics, visual distracters include spectators, scoreboard, or television cameras. In the school setting, it might be distractions from outside a window or disturbances from

another classmate. Auditory distracters, such as loud or unpleasant noises, also make attention difficult.

Controlling one's level of arousal or emotion also effects attention. An athlete extremely excited or nervous for a game may not be able to concentrate because of an unmanageable level of emotion. To the same point, a student saddened by a family member's death may also have difficulty in attending to schoolwork.

Attention is also affected by motivation (Sugarman, 1999). A highly motivated athlete or student has intrinsic drive that increases motivation. In contrast, low levels of motivation due to boredom, lack of interest, and daunting tasks results in poor attention. This often occurs in sports when drills are used repeatedly without variation or in academics when lessons are taught above the level of students.

It is the specialist, as opposed to the generalist, who has a better level of attention (Ries, 1996). Some individuals may become frustrated and perform ineffectively when presented with multiple problems. Focus may be achieved by focusing on one task at a time. When focus is achieved, the level of concentration increases, resulting in improved performance. (Depending on the individual, attempting to multi-task may negatively affect attention levels)

A final factor in attention level is natural ability. It seems that individuals demonstrate a natural tendency to function in a limited direction and width. According to Nideffer and Sagal (1998, p. 298):

Different individuals have different capacities for developing a broad-internal type of attention. Thus, some individuals are better suited to analyzing large amounts of information than others. Also, certain individuals appear to be more

sensitive to environmental (external) information than others. The former can read and react to other people more effectively. (Finally), some individuals are more capable of developing a narrow, undistractable type of attention.

Attention is a cognitive process that despite limited natural ability, can be improved (Moran, 1996). According to Gauron, (1984) the mind is like an undisciplined child, going from one thing to the next. Given that improved attention helps in reaching peak performance, it is important for athletes and students to practice this skill. Over the years experts have designed mental exercises and techniques that improve attention. For example, watching the clock face (Gauron, 1984) is a three minute exercise that practices narrow/external attention. It begins with the participant focusing on the second hand of a clock as he or she lightly taps his/her foot at every five-second interval for one minute. During the next minute the participant lightly taps his/her foot on every ten-second interval. Finally, the participant taps on every five-second interval, and then again on every ten-second interval, continuing to alternate until the last minute is complete.

The following technique was developed to help eliminate negative or intruding thoughts by “parking” them or mentally setting them aside (Weinberg & Gould, 1999). Before a class period or athletic competition, it is important to focus one’s mind on the here-and-now. The simple technique begins with identifying unwanted thoughts; such as a bad test in history the previous period or an argument with a friend the night before. Once identified, these thoughts should be written down on a piece of paper and set aside. This helps to clear the mind and focus on the upcoming event. At an opportune time the problems can once again be re-visited.

The grid exercise is another exercise for improving concentration. This exercise requires a block grid (see Figure 2.2) containing two-digit numbers from 00 to 99 (Harris & Harris, 1984). The object is to scan the grid and cross off as many numbers as you can in one minute in order beginning with 00. A score in the high 20's and into the 30's demonstrates exceptional concentration. The grid can be used several times by simply starting at another number (e.g., 20, 44, 75, etc.). A further challenge might be to include background noise from music or a television while taking the test. This activity improves one's focused attention and the ability to scan the environment for relevant cues.

(Weinberg & Gould, 1995).

84	27	51	78	59	52	13	85	61	55
28	60	92	04	97	90	31	57	29	33
32	96	65	39	80	77	49	86	18	70
76	87	71	95	98	81	01	46	88	00
48	82	89	47	35	17	10	42	62	34
44	67	93	11	07	43	72	94	69	56
53	79	05	22	54	74	58	14	91	02
06	68	99	75	26	15	41	66	20	40
50	09	64	08	38	30	36	45	83	24
03	73	21	23	16	37	25	19	12	63

Figure 2.2: Sample grid exercise form for training and assessing concentration.

The stop-start technique is a two-step strategy that prevents attention loss (Kauss, 1980). The first step is to realize when the loss of attention occurs. For example, when sitting in class one should take note of specific internal or external distractions that

interrupt attention. After consciously realizing that a loss of focus can occur, one can then be on the lookout for attention-breaking thoughts. According to Kauss (1980, p. 121), “When it (a distraction) does come up, he or she should quickly and quietly think of stopping all thoughts...only then does the athlete go back to the coach’s words, with a brand new span of attention.”

The following exercise can be practiced in its entirety or broken down into individual parts (Gauron, 1984). This expanding awareness exercise lets one experience the different dimensions of concentration (see figure 2.1).

First, the participant should begin by sitting comfortably and focusing on deep, slow breathing. Once comfortable, one should pay attention to the surrounding sounds. Each sound should be identified and labeled. The sounds should then be listened to as a whole, just as one would listen to music. This develops broad/external and narrow/external attention.

Next, the participant should become aware of bodily sensations. One should focus on where his/her body is touching the chair and mentally describe the physical feeling. As each sensation is identified and labeled, the participant is practicing narrow/internal attention. After that, one should try to feel all the sensations at once, which requires a broad/internal focus. At that point, the participant should turn his/her attention internally to thoughts and emotions. Each thought and emotion should be permitted to arise, and then be identified. Finally, all thoughts and emotions should be cleared from the mind by mentally exiting them out of consciousness and focusing on a clear, relaxed state of mind.

Finally, attention should be turned to an external object, such as a desk, pen, or plant. One should then narrow his/her attention to that object. Every time the mind begins

to wander, the participant should gently return focus to the object. The goal is to concentrate on the object for twenty seconds at which the time can then be gradually increased.

Summary

Goal-setting precursors can be traced back to academics and industry in the early 1900's. The positive influence of goal setting in industrial and organizational settings was proven by Locke and Latham's (1990) examination of 393 studies. Ninety percent of the studies showed an improvement in performance when goal setting was used. Other research on goal setting (Locke, Shaw, Saari, & Latham, 1981) identified that specific and difficult goals were more effective than general goals. Further research has shown that distal goals provide direction, but proximal goals (Bandura & Schunk, 1981) "provide immediate incentives and guides for performance."

In addition, research has shown that effective goal setting improves athletic performance (Kyllo & Landers, 1995; Boyce and Wayda, 1994). Goal setting in academics was also proven to be effective when goals were proximal, specific, and self set (Bandura & Schunk, 1981; Schunk, 1985). Later research also suggested that master-oriented goals were linked to higher academic performance (McGregor, Elliot, 2002; Elliot, McGregor, & Gable, 1999; Schunk, 1996; Meece & Holt 1993).

Attention is a cognitive process that can be learned. The mind naturally wanders from thought to thought, which creates difficulty for focus (Gauron, 1984). It is important, therefore, to understand that concentration is a developed skill. Moreover, when striving to improve attention it is consequential to understand the dimensions of attention (Nideffer & Sagal, 1998), develop the ability to know when and how to focus,

and be able to refocus when a loss of attention has occurred. Athletes who have developed concentration skills are more likely to perform at their highest levels (Weinberg & Gould, 1999). The researcher believes the same attention skills that are needed to improve athletic performance may also help academic performance.

CHAPTER THREE

Methods and Procedures

Introduction

This study investigated the applied sport psychology areas of attention and goal setting, and their correlation to grade point averages (GPA's) and amount of late work. This chapter includes information about how the study sample was selected, a description of the sample, and the instruments used in gathering data for the study. It also describes data collection and data analysis procedures. The chapter ends with limitations concerning the study.

Method of Study

The review of literature on goal setting and attention revealed that both of these mental strategies are effective in improving athletic performance. Research has also shown that effective goal setting improves work and academic performance. Setting goals could help fifth and sixth grade students perform at a higher academic level. This study set out to determine how attention improvement exercises combined with long and short term goal setting strategies correlated with academic performance.

Three weeks prior to the study, each participant's grades and number of late assignments were recorded from the subjects of Bible History, Catechism, Memory Work, Math, English, Reading, and Social Studies. The same data was then gathered during the three-week study. The grade point averages and number of late assignments were then compared to the previous numbers.

Description of Subjects

At the time of the study, St. Paul's had an enrollment of 97 students in grades K-8. The students of St. Paul's were divided into five self-contained classrooms: kindergarten, grades 1-2, grades 3-4, grades 5-6, and grades 7-8. The 5th and 6th grade classroom contained 12 fifth-grade students and 12 sixth-grade students. All 24 fifth and sixth-grade students from St. Paul's Lutheran School in Menomonie, Wisconsin were invited to participate in the study that took place during the 2003 spring semester. All 24 students returned a signed parental consent form, thus the sample group was comprised of 24 students in fifth (n=12) and sixth (n=12) grade during the spring semester of 2003.

Table 3.1 provides a demographic illustration of the study.

Table 3.1

Participants in the Study

Grade Level	Number of Participants	Percent of Participants	Number of Boys	Percent of Boys	Number of Girls	Percent of Girls
Fifth	12	50	6	50.0	6	50.0
Sixth	12	50	7	58.3	5	41.7
Fifth & Sixth	24	100	13	54.2	11	45.8

Background Information

The study began with the development of a parental letter and consent form. A sample of this letter and consent form can be found in Appendix A. After the parental letter and consent form was finalized, the UW-Stout online *Human subjects training course* was completed and the *Protection of human subjects form* was approved by UW-

Stout Research Services. Finally, approval of the parental letter, consent form, and study was obtained from Mr. Peter Wentzel, principal of St. Paul's Lutheran School.

Collection of Data

Data was then gathered from the previous three weeks (pre-test) and during the following three weeks of intervention (post-test). The gathered data included grades and amount of late work for each participant from the following seven subjects: Bible History, Catechism, Memory Work, Math, Reading, English, and Social Studies. A total of 33 assignments were graded from the three-week pre-test period, while a total of 32 assignments were graded during the three-week intervention period (post-test). Assignments were graded on a thirteen-point scale used at St. Paul's Lutheran School (see table 3.2).

The grading system designated a letter grade to each assignment based on percentage correct and the grade book recorded the point value. In other words, if a student received a "B" for a math assignment, the grade book recorded a "4." Final grades were calculated by finding the mean of the total points entered for each student (see table 3.3). Each subject carried the weight of one credit (see table 3.4). Overall grade point averages (GPA's) were determined by calculating the mean of cumulative grade point averages for each subject (see table 3.5).

Table 3.2

St. Paul's Lutheran Fifth and Sixth-Grade Thirteen-Point Grading Scale

Percentage	Letter Grade	Point Value per Assignment
99-100%	A+	0
96-98%	A	1
93-95%	A-	2
91-92%	B+	3
87-90%	B	4
85-86%	B-	5
82-84%	C+	6
78-81%	C	7
76-77%	C-	8
74-75%	D+	9
72-73%	D	10
70-71%	D-	11
69-0%	F	12

Table 3.3

Sample Record of Assignment Scores and Final Grades

Subject: Math	Student One	Student Two	Student Three
Assignment One Score	4	3	1
Assignment Two Score	0	6	5
Assignment Three Score	1	6	2
Assignment Four Score	7	2	0
Total Points (n_1)	12	17	8
Number of Assignments (n_2)	4	4	4
Mean Score ($M = n_1/n_2$)	$12/4=3$	$17/4=4.25$	$8/4=2$
Letter Grade	B+	B	A-
Grade Point Average ^a	3.33	3.00	3.67

^a See table 3.4 for grade point calculations.

Table 3.4

Grade Point Values

Letter Grade	Grade Points Earned Per Class
A	4.00
A-	3.67
B+	3.33
B	3.00
B-	2.67
C+	2.33
C	2.00
C-	1.67
D+	1.33
D	1.00
D-	0.67
F	0.00

Table 3.5

A Sample Record of Calculating Grade Point Averages

Subject	Student One	Student Two
Bible History	4.0	3.0
Catechism	2.33	3.33
Memory Work	3.67	4.0
Math	3.0	2.33
Reading	3.33	3.0
English	3.0	1.67
Social Studies	3.67	3.33
Grade Points Earned (n_1)	23.0	20.66
Number of Subjects (n_2)	7	7
Grade Point Average ($M = n_1 / n_2$)	3.29	2.95

The collected data also included the number of individual late assignments for each participant. A late assignment was any unexcused work handed in after the assigned due date. Late work resulted in a failing grade on the assignment. It also had an overall impact on one's GPA as it was recorded as a "12" or "F" in the grade book. Late work not turned in resulted in an incomplete.

Late work also meant the loss of a "timely work" certificate. The timely work certificates were an incentive that had been used since the start of the school year. These certificates were distributed to students who handed in their work on time during three-week periods throughout the school year. After each three-week period, all students

would be eligible to earn another certificate for following three-week time period. Timely work certificates could then be used in the place of completing one daily assignment. When used, timely work certificates were neither counted for or against a student and were not used in calculating the mean grade. As a result, timely work certificates had no impact on grade point averages.

Study Procedures

On each day of the three-week study (Monday-Friday), students participated in a 5-10 minute concentration improvement exercise and a 5-10 minute goal setting activity. The concentration activities were taken from applied sport psychology textbooks while the goal-setting activities were derived from research on goal setting. These activities were meant to develop mental strategies that could be used on an individual basis to improve academic performance. After each activity the researcher led the group in a discussion on how these mental strategies could be used to improve academic performance.

Description of Daily Attention Improvement Exercises

The attention improvement exercises were implemented in the mornings after recess. On Mondays subjects participated in “watching the clock face” (Gauron, 1984). Watching the clock face was a three-minute exercise that developed better attention skills. During the first minute, participants focused on the second hand of a clock as they lightly tapped their feet on every five-second interval. Participants lightly tapped their feet on every ten-second interval during the second minute and during the third minute, participants tapped their feet on every five-second interval, then on every ten-second interval. This exercise helped participants control their focus. Following this exercise the

researcher spoke about the importance of focus control during individual study-time or during a lesson. Students were taught that in order to be efficient and productive one must be able to stay focused on the task at hand.

On each Tuesday and Thursday subjects participated in the “grid exercise.” This exercise required a block grid (see table 3.6) containing two-digit numbers from 00 to 99 (Harris & Harris, 1984). Participants were given one minute to cross off as many numbers as possible in order beginning with 00. The grid was used several times by simply starting the exercise at another number (e.g., 20, 44, 75, etc.).

This exercise improved one’s focused attention and the ability to scan the environment for relevant cues (Weinberg & Gould, 1995). In the academic setting participants were encouraged to use this mental strategy when answering questions on an assigned reading. Since often students need to scan back to readings to find facts and main ideas, developing the ability to focus one’s attention and find relevant cues would help them with recall questions.

Table 3.6

Sample Grid Exercise Form for Training and Assessing Concentration.

84	27	51	78	59	52	13	85	61	55
28	60	92	04	97	90	31	57	29	33
32	96	65	39	80	77	49	86	18	70
76	87	71	95	98	81	01	46	88	00
48	82	89	47	35	17	10	42	62	34
44	67	93	11	07	43	72	94	69	56
53	79	05	22	54	74	58	14	91	02
06	68	99	75	26	15	41	66	20	40
50	09	64	08	38	30	36	45	83	24
03	73	21	23	16	37	25	19	12	63

The “stop-start technique” was a strategy discussed on Wednesdays. This tool was developed to improve attention span (Kauss, 1980). The first step was to teach the participants how to recognize the loss of attention. Discussions on internal and external distractions were used to help the students understand this concept. The participants were asked to give examples of internal and external distractions that cause a shift in attention during their lessons and study times. Once the participants became aware of these attention-breaking distractions they needed a strategy to avoid them. Participants were taught to first become aware of distractions, recognize them, and then quickly and quietly stop all thoughts and re-focus on the task at hand with a brand new span of attention

(Kauss, 1980). Participants were encouraged to implement this strategy during the school day.

On Fridays the subjects participated in the “expanding awareness exercise” (Gauron, 1984). The purpose of this exercise was to get the participants to understand the four different dimensions of concentration: (a) broad/external, (b) broad/internal, (c) narrow/external, and (d) narrow/internal (Nideffer & Sagal, 1998) and their appropriate use in the school setting. Before the activity, the researcher explained the four dimensions of concentration. As the exercise began, participants were instructed to sit comfortably in their desks and focus on deep, slow breathing. Once comfortable, participants paid attention to the different sounds coming from inside and outside the classroom. The subjects were directed to identify and label each sound and then listen to them as a whole, much like one listens to music. This exercise developed an awareness of broad/external and narrow/external attention.

Next, the participants were directed to become aware of physical feelings. The students were instructed to mentally notice the parts of their body that were touching their desk, such as hands, arms, and backs. The participants were then to mentally describe the physical feelings. As each sensation was identified and labeled, the participants were using a narrow/internal focus. Next, the participants were directed to feel all the bodily sensations at once, which required a broad/internal focus.

As the last part of the exercise, participants were instructed to focus on an external object in the room for 20-30 seconds. Every time the mind began to wander, participants were to gently return their focus to the object. This developed a narrow/external focus.

Following the entire exercise, students were led to identify the different dimensions of concentration used during each activity. Once identified, a discussion followed on the application of the dimensions of concentration during the school day. For example, it was stressed that during fifth-grade math, sixth-grade students would benefit from using a narrow/internal focus as they worked on homework and ignored distractions from the fifth-grade lesson. The transition from recess to class time was another discussed situation. At recess students used broad/external focus as they interact and play on the playground. Upon entering the classroom a shift from a broad focus to a narrow focus would have been beneficial in preparing themselves for the next lesson.

Description of Goal-Setting Activities

The goal-setting activities took place at the start of each school day. On Monday, students were given approximately five minutes to set one general, distal, academic goal for the week. These goals included general statements such as wanting to improve neatness, spelling, timeliness, and grades. The following statement was an example of a general academic goal: "I want to get all A's or B's on my English assignments this week." Each student was instructed to designate a personal notebook for recording all the goals during the three-week study.

On each Tuesday, Wednesday, Thursday, and Friday subjects were to set one specific, proximal, academic goal. The general weekly goal set a destination for the participant, but the specific, proximal goal provided the "road map." Each participant was given approximately five minutes to set and record a specific, proximal goal pertaining to his/her general academic goal for the week. For example, if a participant's general goal for the week was to get all A's or B's in English, the specific goal for Tuesday might

have been, “I am going to stay focused on the English lesson by not playing with my pencil.” It should be noted that both the distal and proximal goals were not required to be measurable. At the start of the new week, however, participants were required to evaluate the prior his/her prior week’s goal with a fellow student.

In summary, the concentration exercises and goal-setting activities were taught and practiced each day for a three-week period. Students were guided and encouraged to apply these learned strategies to help themselves reach peak academic performance. Grade point averages and number of late assignments were then compared from the three-week period prior to the study with the grade point averages and number of late assignments during the study.

Instrumentation

The instrument utilized was designed specifically for this study. The data included the grades and amount of late work for each participant during the three-week study and the three-week time period prior to the study.

Data Collected

The principal of St. Paul’s Lutheran School and the UW-Stout Institutional Review Board approved the study. Once permission was granted, data was collected from the cumulative files for each study participant during the three-week study and the prior three-week time period to the study. Data included grades and number of late assignments from the following seven subjects: Bible History, Catechism, Memory Work, Math, Reading, English, and Social Studies. Access to student files was not needed since the researcher was the classroom teacher.

Data Analysis

Data taken from the developed instrument was statistically analyzed using the computerized statistics package SPSS-X. A paired sample *t*-test was conducted to examine differences between the combined fifth and sixth-grade GPA before and during the study. A paired sample *t*-test was also used to separately compare the fifth-grade mean GPA and the sixth-grade mean GPA. A paired sample *t*-test was also conducted to examine differences between the combined fifth and sixth-grade mean percent of late assignments before and during the study. In addition, a paired sample *t*-test was run to separately compare the fifth-grade mean percent of late assignments and the sixth-grade mean percent of late assignments.

Limitations

Only one school in the Menomonie School District participated in the study. In addition, the fifth and sixth grade students were in a combined classroom in a parochial school setting. The results will have to be used cautiously when making applications to other classrooms or grade levels.

CHAPTER FOUR

Results

Introduction

The purpose of this study was to determine how attention and goal-setting strategies correlated with fifth and sixth-grade academic performance. Data included grade point averages and amounts of late work. The pre-study data was compared with the post-study data. The first section of this chapter provides correlational results on grade point averages and the use of attention and goal-setting activities. The second section provides correlational results on amounts of late work and the use of attention and goal-setting activities.

Item Analysis

Null Hypothesis 1: There is no significant difference ($p < .05$) between grade point averages and the use of attention improvement exercises and goal-setting activities for the fifth and sixth-grade students of St. Paul's Lutheran School ($H_{01}: \mu_1 - \mu_2 = 0$).

Initially, the fifth and sixth-grade combined GPA from the three-week period prior to the study was compared with the GPA earned during the three-week study. The mean GPA prior to the study was 3.28 (table 4.4). During the study the GPA increased 0.14 (table 4.3) grade points to a combined mean of 3.42 (table 4.4). Seventeen ($n=24$) of the participants (70.8%) earned a higher grade point average during the study (tables 4.1 & 4.2). The statistical analysis of the GPA data resulted in a significant difference at the 0.01 level.

Separately, the fifth grade GPA increased from a mean of 3.10 (pre-test) to a mean of 3.32 (post-test), for a difference of 0.22 grade points (table 4.5 & 4.1). Ten

($n=12$) of the fifth-grade students (83.3%) earned a higher grade point average during the study (table 4.1). These results indicated a significant difference in the fifth-grade GPA at the 0.001 level.

The sixth-grade GPA increased from a mean of 3.45 prior to the study to a 3.52 during the study (table 4.6). Overall, 58.3% ($n=7$) of the sixth-grade students earned a higher grade point average during the study. The results, however, did not demonstrate a significant difference at the 0.05 level.

Table 4.1

Fifth-Grade Cumulative Grade Point Averages

Student ID	GPA Prior to Study	GPA During Study	GPA Difference
1	2.57	2.90	+0.33
2	3.29	3.76	+0.47
3	2.52	2.76	+0.24
4	3.52	3.57	+0.05
5	3.95	3.95	no change
6	2.95	3.09	+0.14
7	2.43	2.81	+0.38
8	3.19	3.19	no change
9	2.81	2.91	+0.10
10	2.71	2.95	+0.24
11	3.71	3.91	+0.20
12	3.47	3.68	+0.21
Total	3.10	3.32	+0.22

Table 4.2

Sixth-Grade Cumulative Grade Point Averages

Student ID	GPA Prior to Study	GPA During Study	GPA Difference
1	3.33	3.52	+0.19
2	3.86	3.86	no change
3	3.86	3.68	-0.18
4	3.81	3.86	+0.05
5	3.57	3.19	-0.38
6	3.29	3.48	+0.19
7	2.91	2.86	-0.05
8	3.57	3.62	+0.05
9	3.43	3.52	+0.09
10	3.86	3.81	-0.05
11	3.38	3.43	+0.05
12	2.48	2.95	+0.47
Total	3.45	3.52	+0.07

Table 4.3

Fifth and Sixth-Grade Cumulative Grade Point Averages

Fifth and Sixth-Grade	GPA Prior to Study	GPA During Study	GPA Difference
Total ($n=24$)	3.28	3.42	+0.14

Table 4.4

A GPA Comparison of Fifth and Sixth-Grade

Pair	Number of Students	Mean Score	Standard Deviation	df	<i>t</i> -value ^a	Sig. (2-tailed)
GPA Prior to Study	24	3.275	0.493	23		
					3.205	0.004*
GPA During Study	24	3.417	0.402	23		

^a Critical values of *t*: 2.069, 2.807, and 3.767

* $p < 0.01$

Table 4.5

A GPA Comparison of Fifth-Grade

Pair	Number of Students	Mean Score	Standard Deviation	df	<i>t</i> -value ^a	Sig. (2-tailed)
GPA Prior to Study	12	3.100	0.5135	11		
					4.424	0.001*
GPA During Study	12	3.317	0.4489	11		

^a Critical values of *t*: 2.201, 3.106, and 4.437.

* $p < 0.001$

Table 4.6

A GPA Comparison of Sixth-Grade

Pair	Number of Students	Mean Score	Standard Deviation	df	<i>t</i> -value ^a	Sig. (2-tailed)
GPA Prior to Study	12	3.450	0.4210	11		
					0.968	0.354**
GPA During Study	12	3.517	0.3380	11		

^a Critical values of *t*: 2.201, 3.106, and 4.437

** No significance

Null hypothesis 2: There is no significant difference ($p < .05$) between the amount of late work and the use of attention improvement exercises and goal-setting activities for the fifth and sixth-grade students of St. Paul's Lutheran School ($H_{02}: \mu_1 - \mu_2 = 0$).

Together, the fifth and sixth-grade mean (tables 4.9 & 4.10) percent of late assignments prior to the study was 2.73% ($n=21$ out of 768). This decreased 1.47% to a mean of 1.26% ($n=10$ out of 792) during the study (tables 4.9 & 4.10). The decrease, however, was not significantly different ($p < .05$).

When analyzed independently, the fifth-grade mean percent of late assignments decreased from 2.86% ($n=11$ out of 384) prior to the study to 0.76% ($n=3$ out of 396) during the study for a difference of 2.10% (tables 4.7 & 4.11). The statistical analysis indicated a significant difference at the .05 level between the mean percent of late assignments prior to the study with the mean percent during the study (table 4.11).

The sixth-grade mean percent of late assignments (tables 4.8 & 4.12) prior to the study was 2.60% ($n=10$ out of 384). Over the course of the study, this decreased (tables 4.8 & 4.12) 0.82% to a mean of 1.78% ($n=7$ out of 396). The statistical analysis, however, indicated no significant difference ($p < .05$) between the mean percent of late assignments prior to the study with the mean percent during the study.

Table 4.7

Number of Late Assignments for Fifth-Grade

Student ID	Late Assignments Prior to Study ^a	Percent of Late Assignments Prior to Study	Late Assignments During Study ^b	Percent of Late Assignments During Study	Percent Difference
1	3	9.38	0	0	-9.38
2	0	0	0	0	no change
3	0	0	0	0	no change
4	0	0	0	0	no change
5	0	0	0	0	no change
6	1	3.13	0	0	-3.13
7	1	3.13	0	0	-3.13
8	3	9.38	1	3.13	-6.34
9	3	9.38	2	6.06	-3.13
10	0	0	0	0	no change
11	0	0	0	0	no change
12	0	0	0	0	no change
Total	11 ^c	2.86	3 ^d	.76	-2.10

^a Out of 32 possible assignments per student.

^b Out of 33 possible assignments per student.

^c Out of 384 possible assignments.

^d Out of 396 possible assignments.

Table 4.8

Number of Late Assignments for Sixth-Grade

Student ID	Late Assignments Prior to Study ^a	Percent of Late Assignments Prior to Study	Late Assignments During Study ^b	Percent of Late Assignments During Study	Percent Difference
1	0	0	0	0	no change
2	1	3.13	0	0	-3.13
3	0	0	0	0	no change
4	0	0	0	0	no change
5	0	0	1	3.03	+3.03
6	0	0	2	6.06	+6.06
7	5	15.63	1	3.03	-12.59
8	0	0	0	0	no change
9	0	0	0	0	no change
10	1	3.13	0	0	-3.13
11	2	6.25	1	3.03	-3.22
12	1	3.13	2	6.06	+2.94
Total	10 ^c	2.60	7 ^d	1.77	-0.83

^a Out of 32 possible assignments per student.

^b Out of 33 possible assignments per student.

^c Out of 384 possible assignments.

^d Out of 396 possible assignments.

Table 4.9

Number of Late Assignments for Fifth and Sixth-Grade

Fifth and Sixth-Grade	Late Assignments Prior to Study ^a	Percent of Late Assignments Prior to Study	Late Assignments During Study ^b	Percent of Late Assignments During Study	Percent Difference
Total	21	2.73	10	1.26	-1.47

^a Out of 768 possible assignments.

^b Out of 792 possible assignments.

Table 4.10

A Comparison of Combined Fifth and Sixth-Grade Late Assignments

Pair	Number of Students	Mean Percent	Standard Deviation	df	<i>t</i> -value ^a	Sig. (2-tailed)
Late Assignments Prior to the Study	24	2.73	4.254	23		
					1.796	0.077**
Late Assignments During the Study	24	1.26	2.174	23		

^a Critical values of *t*: 2.069, 2.807, and 3.767

** No significance

Table 4.11

A Comparison of Fifth-Grade Late Assignments

Pair	Number of Students	Mean Percent	Standard Deviation	df	<i>t</i> -value ^a	Sig. (2-tailed)
Late Assignments Prior to the Study	12	2.86	4.098	11		
					2.358	0.038*
Late Assignments During the Study	12	0.76	1.884	11		

^a Critical values of *t*: 2.201, 3.106, and 4.437

* $p < 0.050$

Table 4.12
A Comparison of Sixth Grade Late Assignments

Pair	Number of Students	Mean Percent	Standard Deviation	df	<i>t</i> -value ^a	Sig. (2-tailed)
Late Assignments Prior to the Study	12	2.60	4.584	11		
					0.627	0.543**
Late Assignments During the Study	12	1.78	2.403	11		

^a Critical values of *t*: 2.201, 3.106, and 4.437

** No significance

Summary of Results

Table 4.13
Summary of Correlational Significance^a

Groups	Mean GPA	Mean percent of Late Work
Fifth and Sixth-Grade	$p < .01$	none
Fifth-Grade	$p < .001$	$p < .05$
Sixth-Grade	none	none

^a $p < .05$

Table 4.13 provided a visual summary of correlations for this study. In further detail, there was an overall significant difference ($p < .01$) between the combined fifth and sixth-grade mean GPA prior to the study with the mean GPA during the study. Alone, the fifth-grade GPA showed a significant difference at the 0.001 level. The sixth-grade, however, did not demonstrate a significant difference in GPA ($p < .05$).

When examined together (table 4.10), the difference in combined fifth and sixth-grade mean percents of late work prior to the study ($M=2.73\%$) and during the study ($M=1.26\%$) did not demonstrate a significant level of difference ($p < .05$). Independently,

the fifth-grade demonstrated a significant difference in mean percent of late work at the .05 level, while the sixth-grade showed no statistical level of significance.

CHAPTER FIVE

Discussion

Introduction

Professional and amateur athletes have used applied sports psychology strategies to improve athletic performance. This correlational study investigated the applied sports psychology areas of concentration and goal setting and their possible use in improving the academic performance of fifth and sixth-grade students. This chapter discusses the results of the study, the implications of its findings, and recommendations for further studies in the area of applied sports psychology and academics.

General Findings

The results of this study indicated a positive correlation between the combined fifth and sixth grade mean GPA ($p < .05$) and student participation in attention improvement exercises and goal-setting activities at the .05 level of significance. Separately, the fifth-grade showed significance in mean GPA at the .001 level, while the sixth-grade did not demonstrate a significant difference in their mean GPA ($p < .05$).

The analysis of the percent of fifth and sixth-grade combined late work showed no significance ($p < .05$). The fifth-grade, when analyzed separately, did demonstrate a difference in percent of late work at the .05 level. The sixth-grade, however, did not demonstrate a significant difference in percent of late work ($p < .05$).

Conclusions

The following section contains a discussion on the findings in relationship to the null hypotheses listed in chapter one.

Hypothesis 1: There is no significant difference ($p < .05$) between grade point averages and the use of attention improvement exercises and goal-setting activities for the fifth and sixth-grade students of St. Paul's Lutheran School ($H_{01}: \mu_1 - \mu_2 = 0$).

Based on the results of this study, this null hypothesis was rejected. The findings demonstrated a correlation between attention improvement exercises and goal setting with academic performance. When examined together, the fifth and sixth-grade mean GPA showed a significant difference on a 99% confidence level (table 4.4). In addition, 70.8% ($n=17$) of the participants increased their GPA (tables 4.1 and 4.2) during the three-week period in which they were guided in goal-setting activities and attention improvement exercises. During the three-week period prior to the study, the fifth and sixth-grade GPA was 3.28 (table 4.7). It then increased 0.14 grade points during the study to a GPA of 3.42 (table 4.7).

A further analysis revealed that the fifth-grade class displayed a significant difference in their mean GPA on a 99.9% (table 4.5) confidence level. As a class, they increased their mean GPA from 3.10 to 3.32 (table 4.5). Furthermore, 83.3% ($n=10$) of the fifth-grade students increased their individual GPA (table 4.1), resulting in a class mean GPA increase of 0.22 (table 4.1) grade points.

Analysis of the sixth-grade data showed that 58% ($n=7$) of the participants increased their GPA (table 4.2). Overall, the sixth-grade mean GPA increased from 3.45 prior to the study to 3.52 during the study, resulting in an increase of 0.07 grade points (table 4.6). The sixth-grade class, however, did not display a significant difference in their mean GPA at the .05 level (table 4.9).

Hypothesis 2: There is no significant difference ($p < .05$) between the amount of late work and the use of attention improvement exercises and goal-setting activities for the fifth and sixth-grade students of St. Paul's Lutheran School ($H_{02}: \mu_1 - \mu_2 = 0$).

Based on the results of this study, this null hypothesis was accepted. The findings seem to indicate a positive correlation, but the statistical analysis did not demonstrate a significant difference. Of 768 assignments, 21 (2.73%) assignments were handed in late during the three-week period prior to the study (table 4.9). Comparatively, only 10 (1.26%) of 792 assignments were turned in late during the study (table 4.6). This was a mean decrease of 1.47% in the number of late assignments (table 4.9). However, this decrease was not enough to exhibit a significant difference ($p < .05$).

When analyzed separately, 41.7% ($n=5$) of fifth-grade students decreased their amount of late work, while 58.3% ($n=7$) remained constant by having 0 late assignments (table 4.4). Overall, 11 ($n=384$) fifth-grade assignments (2.86%) were late prior to the study compared with 3 ($n=396$) late assignments (.76%) during the study (table 4.7). This difference showed significance at the 95% confidence level (table 4.11).

The mean percent of sixth-grade late assignments decreased from 2.6% to 1.77% (table 4.8). Overall, 33.3% ($n=4$) of the sixth-grade class showed a decrease in the amount of late work, while 41.7% ($n=5$) remained constant with 0 late assignments (table 4.5). The results, however, were not significant at the .05 level (table 4.12).

In summary, the fifth-grade class showed a significant difference in both areas of the study ($p < .05$). Their mean GPA increased while their mean percent of late assignments decreased. The study seemed to have a positive impact on sixth grade, as

their class GPA increased and mean percent assignments decreased. However, the difference in the results was not significant at the .05 level.

Observations

This section discusses the aspects of the study that seemed relevant to the researcher. Important topics include implications of the results, participant attitudes, and limitations of the study.

This study provided evidence that attention and goal-setting strategies have some merit in the area of academics. Just as attention improvement and goal setting increases athletic performance, the implementation of these strategies resulted in a significant difference in grade-point averages and seemed to have a positive effect on amounts of late work. The ease by which the attention and goal-setting strategies were implemented is a definite strength and may be appealing to other teachers. All activities within this study were conducted in 5-10 minute time periods without needing to change daily schedules.

In general, most participants were interested and receptive to improving attention and goal-setting skills. Although by the end of the three-week study some students had become visibly less excited about the activities. This, however, could have been the result of the repetitiveness. If implemented in the classroom on a full-time basis, the researcher recommends that a variety of attention and goal-setting activities be used throughout the year. Although this study had participants engaging in daily activities, the data demonstrated that as few as one or two activities a week may have positive effects on academic performance.

Shortcomings

A reflection of the study revealed several shortcomings. To begin with, a discussion on the differences in fifth and sixth-grade results is important. In the opinion of the researcher, these conflicting results might have been skewed due to the small sample size (sixth-grade: $n=12$, fifth-grade: $n=12$). For example, when examining the sixth grade data, participant #6 had an increase of 2 late assignments during the study, which was 28.6% of the total amount of sixth grade late work. By omitting this data, the findings would have resulted in a statistical significant difference in the mean percent of late work for the entire sixth grade class. In addition, when examining the sixth-grade mean GPA, 7 of the 12 students showed an increase. Furthermore, student #5 showed the largest difference in GPA with a -0.38 grade points. Once again, omitting this data entry may have resulted in a significant difference. A larger sample size would have lessened the impact of such drastic numbers and given a more representative portrayal of academic performance.

A further limitation of the study was the inability to measure other intrinsic or extrinsic factors that may have affected academic performance. Such factors include, attitude towards the study, home life, parental involvement with homework, sickness, and absences. These factors may have had positive or negative effects on academic performance which the study did not take into account.

The researcher feels that the study was also limited due to the absence of a control group. The difference in pre-study data and during-study data was certainly an indicator of significance, but an experimental study involving a control group would have been

beneficial. This would have enabled a comparison of grades and amounts of late work to have taken place during the same academic time period.

Recommendations for Further Study

The researcher believes applied sports psychology is an untapped resource for educators. Many, if not all, of the mental strategies used to increase athletic performance are important in academic performance. Further studies are needed to solidify the effectiveness of these strategies in academics. Experimental studies especially, would provide the needed statistical results in determining if applied sport psychology is truly a tool for improving academic performance. Possible questions for experimental studies are listed below:

Control group: How do the results compare when a control group is used?

Duration: Does the length of time over which the intervention takes place have a correlation with academic performance?

Gender: Are applied sport psychology methods more effective for one gender over another?

Separate studies: What applied sport psychology method (i.e., team building, visualization, positive thought control, attention, goal setting, leadership,) is the most effective in promoting increased academic performance?

Grade level: At which grade level are applied sport psychology strategies most effective?

Competition: Does competition, as in athletics, promote higher academic performance?

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APPENDIX A

April 17th, 2003

Dear parents:

I am currently working on a research project that is required for the Masters in Science Degree in Education at UW-Stout. Your child has an opportunity to take part in my study, which deals with concentration and goal setting. I am asking your permission for your child to be included in this study.

Over the course of the next three weeks the 5th and 6th grade classroom may participate in concentration improvement exercises and goal setting activities for approximately twenty minutes each day. The objective of my study is to find out if there is any correlation between improving one's concentration level and goal setting with grade point averages and amount of late work. The information gathered will be kept strictly confidential and any reports of the findings of this research will not contain student names.

Participation in this project is completely voluntary. Students who do not participate in the study will be given a study time each day in another classroom. Once the study is completed, the analyzed findings would be available for your information.

Questions or concerns about the research study should be addressed to myself (phone 235-5675), or Dr. Jerome Johnson (phone 879-5506), my research advisor. Questions about the rights of research subjects can be addressed to Sue Foxwell, Human Protections Administrator, UW-Stout Institutional Review Board for the Protection of Human Subjects in Research, 11 Harvey Hall, Menomonie, WI, 54751, phone 232-1126.

In His Service,
Mr. Herkstroeter

CONSENT FORM

I understand that my child's participation in this study is strictly voluntary and I may discontinue my participation at any time without prejudice.

I understand that the purpose of this study is to investigate concentration and goal setting in the classroom.

I further understand that any information about my child that is collected during this study will be held in the strictest confidence and will not be part of his/her permanent record. I understand that at the conclusion of this study all records, which identify individual participants, will be destroyed.

I, do/do not (circle one) agree to allow my child, _____, to participate in this study.

Signature of parent: _____

Date: _____

Signature of child: _____

Date: _____