

5-2000

An Examination of Psychological Differences between Elite, College, and High School Female Soccer Players

Joan E. Schockow
The College at Brockport

Follow this and additional works at: https://digitalcommons.brockport.edu/pes_theses

 Part of the [Health and Physical Education Commons](#), [Higher Education Commons](#), and the [Secondary Education Commons](#)

Repository Citation

Schockow, Joan E., "An Examination of Psychological Differences between Elite, College, and High School Female Soccer Players" (2000). *Kinesiology, Sport Studies, and Physical Education Master's Theses*. 75.
https://digitalcommons.brockport.edu/pes_theses/75

This Thesis is brought to you for free and open access by the Kinesiology, Sport Studies and Physical Education at Digital Commons @Brockport. It has been accepted for inclusion in Kinesiology, Sport Studies, and Physical Education Master's Theses by an authorized administrator of Digital Commons @Brockport. For more information, please contact kmyers@brockport.edu.

**AN EXAMINATION OF PSYCHOLOGICAL DIFFERENCES
BETWEEN ELITE, COLLEGE, AND HIGH SCHOOL
FEMALE SOCCER PLAYERS**

A Thesis

**Presented to the
Department of Physical Education and Sport**

State University of New York

College at Brockport

Brockport, New York

**In Partial Fulfillment
of the Requirements for the Degree**

Master of Science in Education

(Physical Education)

by

Joan E. Schockow

May 2000

STATE UNIVERSITY OF NEW YORK,

COLLEGE AT BROCKPORT

BROCKPORT, NEW YORK

Department of Physical Education and Sport

Title of Thesis: An examination of psychological differences between elite, college, and high school female soccer players.

Author: Joan E. Schockow

Read and approved by:

Mona E. Stuart

Cathy Houston-Wilson

Hudi K Byrne

Date Submitted to the Department of Physical Education and Sport:

OCTOBER 2000

Accepted by the Department of Physical Education and Sport, State University of New York College at Brockport, in partial fulfillment of the requirements for the degree Master of Science in Education (Physical Education).

Date: 10/13/00

Francis X. Shurt

Chairperson, Department of
Physical Education and Sport

ACKNOWLEDGEMENTS

With the completion of my Master's Thesis, it seems only appropriate to acknowledge those individuals who guided me through this research assignment. First of all, I would like to thank Dr. Dan Smith who served as initial chair of my thesis committee, before moving to Singapore. His advice was instrumental in the choosing of this topic for my thesis.

Secondly, I would like to thank Dr. Cathy Houston-Wilson and Dr. Heidi Byrne for serving on my thesis committee, their input and ideas were always helpful. I especially want to thank Dr. Moira Stuart who unselfishly took over as the chair of my thesis committee, and never complained when my chapters had to be reviewed in such a timely fashion!

DEDICATION

I would like to dedicate this thesis to my family and friends who had to endure years of my agonizing over when this project was finally going to be finished. It has taken a long time to complete, and many people believed in me and “pushed” me along the way. I especially want to dedicate this research to Megan Hanushek and Gail Mann, whose unrelenting pressure and support finally got me to finish this project. However, I also need to acknowledge the one person who was there to support me from the beginning but unfortunately is not around to see my finished product. This thesis is dedicated to the memory of my mother Mary Rita Schockow, who gave me the greatest gift a mother can give her child – the love of reading!

ABSTRACT**AN EXAMINATION OF THE PSYCHOLOGICAL DIFFERENCES
BETWEEN ELITE, COLLEGE, AND HIGH SCHOOL
FEMALE SOCCER PLAYERS****JOAN E. SCHOCKOW****DEPARTMENT OF PHYSICAL EDUCATION AND SPORT
STATE UNIVERSITY OF NEW YORK
COLLEGE AT BROCKPORT, 2000
DR. MOIRA STUART**

This study was conducted to examine the psychological differences between elite, college, and high school female soccer players. The six personality traits that were measured included competitive trait anxiety, trait self-confidence, concentration skills, mental preparation skills, achievement motivation levels, and leadership skills. Three self-evaluation questionnaires were administered to the U.S. Women's National Soccer Team (elite), the State University of New York at Brockport and Nazareth College women's soccer teams (college), and Brockport, Livonia, and Marcellus high school soccer teams. The three questionnaires included the Sport Competitive Anxiety Test (SCAT; Martens, Burton, and Vealey, 1990), the Trait Sport-Confidence Inventory (TSCI; Vealey, 1986), and the Mental Toughness Questionnaire (MTQ; Smith, 1994).

In order to determine if the three groups differed in the psychological variables of competitive trait anxiety, trait self-confidence, concentration skills, mental preparation skills, achievement motivation levels, and leadership skills, a one-way MANOVA was conducted. The overall multivariate relationship was significant (Wilks' lambda = .564, $F(10, 144) = 4.77$ $p < .001$). Follow up analyses revealed that competitive trait anxiety, trait self-confidence, mental preparation skills, and leadership skills differentiated the three groups. Specifically using Student-Newman-Keuls it was found that the college group exhibited the highest levels of competitive trait anxiety and leadership skills. The elite group differed from the other two by having the highest scores in trait self-confidence, and mental preparation skills. No significant differences were found between the three groups in concentration skills or achievement motivation levels.

TABLE OF CONTENTS

Acknowledgements.....	iii
Dedication.....	iv
Abstract.....	v
List of Tables.....	x

CHAPTER		PAGE
I.	INTRODUCTION.....	1
	Statement of the Problem.....	2
	Hypothesis.....	2
	Significance of the Study.....	2
	Delimitations.....	3
	Limitations.....	3
II.	REVIEW OF LITERATURE.....	4
	Interactional Paradigm.....	5
	Overview of Sport Personality Assessment.....	6
	Competitive Trait Anxiety.....	10
	Assessment of Competitive Trait Anxiety.....	11
	Anxiety and Ability Level.....	12
	Trait Self-Confidence.....	15
	Confidence and Ability Level.....	16

Concentration.....	18
Assessment of Attentional Styles.....	19
Concentration and Ability Level.....	21
Mental Preparation Skills.....	23
Imagery.....	24
Psychic Energy Management.....	24
Stress Management.....	25
Attentional Skills.....	25
Goal-Setting Skills.....	26
Assessment of Mental Preparation Skills.....	27
Imagery.....	27
Psychic Energy.....	29
Goal-Setting and Orientation.....	30
Mental Preparation and Ability Levels.....	31
Achievement Motivation.....	33
Assessment of Achievement Motivational Levels.....	34
Motivation and Ability Level.....	38
Leadership.....	39
Assessment of Leadership Behaviors.....	40
Leadership Behaviors and Ability Levels.....	43
III. METHODS AND PROCEDURES.....	45
Instruments of Data Collection.....	45
The Sport Competitive Anxiety Test.....	45

Trait Sport-Confidence Inventory.....	46
Mental Toughness Questionnaire.....	46
Participants	46
Data Collection	47
Statistical Analysis.....	47
IV. RESULTS.....	48
Descriptive Statistics.....	48-53
Main Statistics.....	54
V. DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS.....	55
Discussion of Results.....	55
Conclusions.....	58
Recommendations.....	59
REFERENCES.....	60-78
APPENDICES.....	79
Appendix A: Informed Consent Form.....	80
Appendix B: Questionnaires.....	81

LIST OF TABLES

TABLE		PAGE
DESCRIPTIVE STATISTICS		
1	Competitive Trait Anxiety.....	49
2	Trait Self-Confidence.....	49
3	Concentration Skills.....	50
4	Mental Preparation Skills.....	51
5	Achievement Motivation Levels.....	52
6	Leadership Skills.....	53

CHAPTER I

Introduction

During the past four decades sport psychology has emerged as a legitimate field of scientific investigation. It is concerned with both the psychological factors that influence participation in sport and the psychological effects derived from sport participation. One of the earliest areas of study to receive systematic attention in the field of sport psychology was the study of personality. Understanding the relationship between personality and sport is a complex and often confounding area of inquiry (Williams, 1986).

Since 1960, several comprehensive literature reviews (Cofer & Johnson, 1960; Ogilvie, 1968, 1976; Cooper, 1969; Hardman, 1973; Ruffer, 1975, 1976; Morgan, 1980, Vealey, 1989) have attempted to describe the relationship between personality and sport performance. Researchers have attempted to answer many questions such as 1) whether athletes as a group possess common personality traits, 2) whether sport participation develops certain personality traits, 3) whether personality tests should be used to select teams, and 4) whether athletes of differing skill levels possess certain personality traits (Weinberg & Gould, 1995).

Statement of the Problem

The purpose of this investigation was to compare six personality factors between elite, college, and high school female soccer players. The personality factors measured included competitive trait anxiety, trait self-confidence, concentration, mental preparation skills, achievement motivation levels, and leadership skills.

Hypothesis

It was hypothesized that there would be differences between elite, college, and high school female soccer players in the psychological personality factors measured by the Sport Competitive Anxiety Test (SCAT; Martens, Burton, and Vealey, 1990), the Trait Sport-Confidence Inventory (TSCI; Vealey, 1986), and the Mental Toughness Questionnaire (MTQ; Smith, 1994).

Significance of the Study

Various studies have examined personality as it relates to athletic performance but none have utilized elite, college, and high school female soccer players. This investigation will help to clarify which personality characteristics are associated with which performance level.

Delimitations

1. This investigation was delimited to the United States Women's National soccer team, two Division III collegiate female soccer teams, and three groups of high school female soccer players.
2. The subject pool was composed entirely of females.
3. The inventory used to measure the personality factors was limited to six different factors.

Limitations

1. The teams measured at the college and high school levels may not be representative of all the female soccer players at these particular levels.
2. Four of the six inventory subscales do not have established reliability scores.
3. As with most self-evaluation inventories, the social desirability factors could influence the scores on each of the subscales.
4. The inventory was administered to the college and groups of high school players in their off-season, therefore scores were based on recall of feelings, whereas the women's national team was in the midst of their training and warm-up matches for the World Cup Championship when they completed the questionnaire.

CHAPTER II

Review of Literature

In many ways, the study of personality as it relates to sports participation is one of the most intriguing and exciting areas of sport psychology (Weinburg & Gould, 1995). Ruffer (1975,1976) and Vealey (1989), for example, cited over 1000 articles that had been published on the relationship between personality and athletic performance.

Based on the great interest in personality research, one might incorrectly conclude that the relationship between personality and athletic performance would be better understood. Unfortunately, this was not the case. Researchers believed there were many reasons for the equivocal results in sport personality research. First of all, examination of the personality literature indicated there was little consensus as to the definition of personality. Allport (1961, p.28) defined it as “the dynamic organization within the individual of those psychophysical systems that determine his characteristic behavior and thought.” Guilford (1959, p.5) simply defined it as “a person’s unique pattern of traits.” Lazarus and Monat (1979, p.1) defined it as “the underlying, relatively stable, psychological structure and processes that organize human experience and shape a person’s activities and reactions to the environment.” The diversity of the definition makes it difficult to clearly understand personality and may, in part, explain the contradictory findings and debates found in personality literature.

Although diverse, Hollander (1967) did identify common features that pervade most definitions. He found many definitions of personality refer to the existence of a core that contains personality components that are for the most part stable and unchanging. He also conceptualized that peripheral characteristics of personality emanated from that core.

Hollander does not specifically define personality, but rather provides a model in which personality can be understood as consistent yet dynamic, internal yet manifested externally, and intrapersonal yet influenced by the social environment. Thus, Hollander provided a useful model of personality that could serve as a framework for the systematic study of personality in sport.

Just as diverse as the definition of personality are the theories, paradigms, or approaches utilized in sport personality research. The major theoretical approaches to the study of personality include the psychodynamic theories, the trait theory approach, the social learning theory, the humanistic theory, and the interactional perspective (Cox, 1998). The approach to studying sport personality research pertinent to this investigation is the interactional paradigm or model.

Interactional Paradigm

In a sense, the interactional model of personality is a composite model that takes into consideration the important components of psychodynamic, trait, and social learning theory. In this model, unconscious motives and underlying predispositions interact with the environment (Cox, 1994; 1998). Basically, the interactional model encompasses the notion that both personality traits and situational states can be utilized in any prediction equation.

Reviewing the sport personality literature from 1950 to 1973, Martens (1975) concluded that the interactional paradigm was the direction that sport personality research should follow. He based this conclusion on the premise that situationism was an overreaction to the trait paradigm and that sport behavior could best be understood by concurrently studying the effects of environmental and intrapersonal variables. In a similar review of literature of

sport personality research from 1974 to 1987, Vealey (1989) also suggested that sport personality research has shifted from an interest in examining relationships between traits and sport performance to an interest in the influence on sport behavior of the interaction between the environment (situation) and the personality with sport performance.

Overview on Sport Personality Assessment

It would be appealing to delve into the sport personality research and derive a list of ingredients that, when mixed together, form a champion athlete. Early attempts at assessing the personality of athletes resulted in promises of finding such competitors. Coaches were ecstatic about the possibility of selecting their players based on the ability of a psychological inventory to predict success. As it turned out, the preliminary data from these inventories were not used appropriately by coaches or by researchers. In fact, some inventories have been shown to be invalid and unreliable for use with sport participants (Martens, 1975; Fisher, 1977). For example, Davis (1991) conducted a preliminary criterion validity assessment of the Athletic Motivation Inventory (AMI).

Some teams in the National Hockey League (NHL) began using the AMI (Tutko, Lyon, & Ogilvie, 1969) in 1987 as a screening program to assess the psychological traits of prospective draft choices. This practice continues today. This instrument was developed to measure eleven personality characteristics that are believed to be associated with athletic success. However, Davis' (1991) investigation questioned the AMI's criterion validity. He suggested little relationship exists between the subscales of the AMI and scouting judgments of a player's on-ice demonstration of psychological strength. Davis further suggested that

additional research was required before the NHL can continue to use this test as a predictive or screening instrument in its entry draft.

Another concern of Martens (1975) and Fisher (1977) was that traditional personality inventories used in sport personality research were not created for sport participants. For instance, the Minnesota Multiphasic Personality Inventory (MMPI) was originally meant to diagnose mental illness. The California Personality Inventory (CPI) required a reading comprehension level equal to about the tenth grade, making younger athletes ineligible for this assessment tool. In addition, personality inventories such as the MMPI, CPI, and Cattell's 16 Personality Factor Questionnaire do not include a single item related to thoughts, emotions, or behaviors in competitive sport situations. Therefore, according to (Anshel, 1994; Weinberg & Gould, 1995) such inventories may not be interpretable and valid as predictors of sport performance, as they have been used in past years.

Despite these reservations concerning personality assessment inventories, a few sport-specific measures of a single personality disposition have been developed and validated. These include the Sport Competition Anxiety Test (SCAT; Martens et al., 1990), the Sport Orientation Questionnaire (Gill & Deeter, 1988), Trait Sport-Confidence Inventory (TSCI; Vealey, 1986) and the Competitive Orientation Inventory (COI; Vealey, 1988). In addition to single personality inventories, some measures have been developed to assess general psychological skills in sports.

Perhaps the first instrument that incorporated the cognitive-behavioral approach to the assessment of "mental strengths and weaknesses" was Loehr's (1986, p. 161) Psychological Performance Inventory (PPI). The PPI profile incorporated seven factors: self-confidence, negative energy, attention control, visual and imagery control, motivational level, positive energy, and attitude control. Unfortunately, little research had been published with the PPI.

Norms, validity, and reliability data were not available, and it did not appear to have become a widely used measure in the field (Murphy & Tammem, 1998).

The Psychological Skills Inventory for Sport (PSIS) has been the most popular instrument for the general assessment of psychological skills. Gould, Tammem, Murphy, and May (1989) examined the practices of 44 applied sport psychology consultants and found that the PSIS was the only general psychological skills assessment instrument mentioned by more than one respondent, and it was rated as the most useful test (mean of 8.8 on a 10-point scale).

Mahoney, Gabriel, and Perkins (1987) designed the PSIS to assess psychological skills relevant to exceptional athletic performance. The 51-question inventory intended to assess five broad themes: anxiety measurement, concentration, self-confidence, mental preparation, and team emphasis. Each question was a true/false format developed to identify differences between elite, pre-elite, and collegiate-level athletes in their use of psychological skills for sport. Since 1987, the PSIS has been modified to a 5-point Likert format, shortened to 45 questions, and referred to as the PSIS-R-5 (Murphy & Tammem, 1998). While the PSIS-R-5 has demonstrated the ability to discriminate among levels of skilled performers, recent research has questioned the underlying structure of the six factors it measured because it failed to meet the adequate psychometric standards for validity and reliability (Tammem & Murphy, 1990). Chartrand, Jowdy, and Danish (1992) examined selected psychometric properties of the PSIS-R-5. Results of confirmatory factor analyses, conducted using intercollegiate athletes (N=340), indicated that the predicted six-factor model did not fit the data. Internal consistency estimates for five of the six scales also indicated poor reliability.

Nelson and Hardy (1990) designed the Sport-Related Psychological Skills Questionnaire (SPSQ). This 56-item measure of seven psychological skills grew out of the theoretical approach to sport performance that argued that athletes learn self-regulatory skills in

order to manage their performance (Hardy & Nelson, 1988). Their basic premise was that competitive sports entails a high potential for stress and that successful competitors must acquire the skill necessary to both cope with stress and to enhance their performance. This questionnaire examined imaginal skill, mental preparation, self-efficacy, cognitive anxiety control, concentration skill, relaxation skill, and motivation. The SPSQ was successful in tracking a cognitive-behavioral intervention with elite athletes (Jones, 1993). However, no normative data were available for the SPSQ, therefore it was impossible to evaluate the psychometric properties of the instrument (Murphy & Tammen, 1998).

More recently Smith, Schultz, Smoll and Ptacek (1995) developed the Athletic Coping Skills Inventory (ACSI-28) and Thomas, Hardy, and Murphy (1996) developed the Test of Performance Strategies (TOPS). The ACSI-28 was a 28-item inventory that measured the psychological skills of coping with adversity, peaking under pressure, goal setting/mental preparation, concentration, freedom from worry, confidence and achievement motivation, and coachability. The TOPS was a 64-item inventory that measured psychological behaviors of athletes during competition as well as practice. Eight factors were measured relative to practice behaviors, and eight relative to competition. Seven of the eight factors that measured psychological behavior during practice include activation, relaxation, imagery, goal setting, self-talk, automaticity, emotional control, and attention control. The eight factors that measured psychological behaviors during competition include all of the above except attention control. Attention control was replaced with negative thinking when the test was used during competition (Cox, 1998).

Smith (1994) developed the Mental Toughness Questionnaire (MTQ). This instrument measured an athlete's concentration ability, use of mental preparation, sport specific achievement motivation levels, and leadership skills. Smith and Clack (1996) utilized the

MTQ on 254 professional male hockey players in 1991, 1993, and 1994. The investigators hypothesized that National Hockey League (NHL) players and players who had not been drafted would differ significantly in Mental Toughness composite scores. The statistical analysis provided support for this hypothesis and for the predictive validity of the MTQ. The MTQ has also been successful in differentiating performance levels among males in basketball (Bowe, 1994). Additionally, Drake (1997) found the MTQ to be statistically reliable when administered to 205 male and female collegiate athletes. He used 13 different teams (seven female and six male) and found statistical reliability from the pre-to post-tests, except for leadership skills.

In the next section, this author will examine each subscale used in this study. The examination will include research on the assessment of each subscale, and each subscale's literature review pertaining to differing ability levels.

Competitive Trait Anxiety

Spielberger (1966), a psychologist noted for his extensive work in the area of anxiety and behavior, was the first researcher to clearly differentiate between two types of anxiety - state and trait anxiety. He defined state anxiety (A-state) as a "transitory emotional state or condition that is characterized by subjective, consciously perceived feelings of tension and apprehension, accompanied by or associated with activation or arousal of the autonomic nervous system (p. 17). However, he defined trait anxiety (A-trait) as:

A motive or acquired behavioral disposition that predisposes an individual to perceive a wide range of objectively nondangerous circumstances as threatening and to respond to these with state anxiety reactions disproportionate

in intensity to the magnitude of the objective danger (p. 17).

In other words, trait anxiety (A-trait) was comparable to any relatively stable personality trait, whereas state anxiety (A-state) was a temporary condition caused by one's immediate perception of the environment. Martens et al. (1990) modified Spielberger's general construct of trait anxiety (A-trait) into an interactional, situation-specific construct called competitive trait anxiety. Competitive trait anxiety was defined "as a tendency to perceive competitive situations as threatening and to respond to these situations with A-state" (Martens et al., p.11). Thus, athletes high in competitive trait anxiety will likely become more anxious before a competitive event than athletes low in A-trait.

Assessment of Competitive Trait Anxiety

The Sport Competition Anxiety Test (SCAT) was developed for the purpose of providing a reliable and valid measure of competitive trait anxiety (Martens et al., 1990). The development of SCAT followed guidelines set by the American Psychological Association for the development of psychological inventories. Initial phases included inventory planning, item selection, content validation by expert judges, and four different types of item analyses. SCAT's reliability was assessed by test-retest and analysis of variance (ANOVA) techniques. Each subject completed SCAT and then was retested at one of four subsequent time intervals: 1 hour, 1 day, 1 week, and 1 month. The test-retest reliability ranged from .57 to .93 with a mean of .77 for all subjects combined (Martens et al., 1990).

Marten et al (1990) examined the concurrent validity of SCAT by investigating relationships between SCAT and four general A-trait inventories and five selected personality inventories that should demonstrate predictable relationships with A-trait. The general A-trait

anxiety inventories used to assess the concurrent validity of SCAT included the Children's Manifest Anxiety Scale Short Form (CMAS; Levy, 1958), the General Anxiety Scale for Children (GASC; Sarason, Davidson, Lighthall, Waite & Ruebush, 1960), the Trait Anxiety Inventory for Children (TAIC; Spielberger, 1973), and the Trait Anxiety Inventory for Adults (TAI; Spielberger, et al., 1970). The correlation coefficients of .28 to .46 between the general A-trait scales and a sport-specific A-trait scale support the concurrent validity of SCAT. During the past two decades, SCAT has been a very important research tool within sport psychology. Smith, Smoll, and Wiechmann (1998) believed that there was no doubt the availability of this inventory had stimulated research that had resulted in major advances in the understanding of sport anxiety, its antecedents, and its consequences.

Another inventory developed to measure trait anxiety was the Sport Anxiety Scale (SAS; Smith, Smoll & Schultz, 1990). The SAS measured trait anxiety from a multidimensional perspective. Specifically, the 21-item SAS measured three dimensions of trait anxiety: somatic anxiety, worry, and concentration disruption (with the latter two dimensions being components of cognitive anxiety). A preliminary sport investigation of the SAS demonstrated high levels of validity and reliability for all three subscales. Further, the study by Smith et al (1990) found differences between groups of athletes involved at various performance levels on the SAS concentration-disruption subscale. The following section will examine the literature review pertaining to competitive trait anxiety.

Anxiety and Ability Level

Research in competitive trait anxiety revealed equivocal results which Martens et al. (1990) and Weinberg and Gould (1995) believed provided no support for a consistent and

significant relationship between competitive trait anxiety and ability. For example, Highlen and Bennet (1979) had wrestlers, competing for berths onto the Canadian national teams, complete a psychological skills inventory assessing their psychological factors used in both training and competition. Their results revealed that wrestlers who qualified for various teams ($n=24$) differed in their anxiety patterns from wrestlers who did not qualify ($n=15$), with qualifiers reporting lower levels of anxiety prior to and during major competitions.

Whereas, Gould, Weiss, & Weinberg (1981) completed a similar study with wrestlers competing in the Big Ten Championship tournament, and they found few differences between the successful and less successful athletes' level of trait anxiety or coping responses to anxiety. In another study which utilized wrestlers, Gould, Horn, and Spreeman (1983) examined precompetitive and competitive anxiety patterns of junior elite wrestlers at the United States Wrestling Federation Junior National Championships. Differing from the previously mentioned studies, they also examined the wrestler's level of trait anxiety measured by using the Sport Competition Anxiety Test (SCAT). Trait anxiety was measured because the vast literature showed it was a reliable predictor of state anxiety levels (Martens & Gill, 1976; Scanlon & Passer, 1978, 1979; Weinberg & Hunt, 1976). Consistent with the findings of Gould et al. (1981) no differences in precompetitive and performance anxiety patterns were found between successful and less successful competitors. However, in contrast, the results of t-tests and regression analyses revealed differences between low and high-competitive trait anxiety wrestlers.

Power (1982) administered the SCAT to sixty-five adult male track and field athletes who were also divided into sub-groups representing all ages, events, experience, and abilities. No differences were found in competitive trait anxiety between the successful and less successful elite male track athletes.

Smith (1983) used the SCAT to determine differences in competitive trait anxiety of 80 boy and 79 girl athletes participating in team - sport competition. These subjects were examined on the basis of age, sex, race, and playing status (all-star and playing-substitute). While data did not show differences in sport competition trait anxiety according to age, sex, or race, all-star athletes had significantly lower anxiety scores than playing substitutes.

Miller and Miller (1985) used five self-report inventories (including SCAT) in a field-based setting with elite netballers (n=20) to examine any discrimination between successful and unsuccessful members of the squad. They found no significant differences in any psychological factor between the players who made the squad and the ones who did not.

Bowe (1994) and Smith and Clack (1996) utilized SCAT to examine competitive trait anxiety. Bowe (1994) compared six personality factors between professional, college, and high school male basketball players, and found that high school male basketball players were significantly higher in competitive trait anxiety than professional male basketball players. Whereas, Smith and Clack (1996) compared 254 potential draftees of the National Hockey League (NHL) and found no significant differences in trait anxiety between the future NHL roster players and the players who did not become drafted.

In two recent investigations, Jones and Swain (1995) and Perry and Williams (1998) utilized a modified version of the Competitive State Anxiety Inventory – 2 (CSAI-2) which measured general or trait anxiety. Jones and Swain's (1995) study demonstrated that elite and nonelite cricketers did not differ significantly on cognitive or somatic anxiety. Perry and Williams (1998) found that three distinct skill-level groups in tennis did not differ for somatic anxiety, but the novice group reported less cognitive anxiety.

Trait Self-Confidence

Coaches, sport psychologists, and researchers agree that self-confidence is one of the most important mental states prior to and during a contest. Self-confidence is the athlete's belief about his or her ability to be successful. Lacking a high degree of certainty about performing skills effectively results in lower expectations for success, reduced effort in performing the task, and an array of unpleasant emotions that reduce optimal arousal and concentration (Anshel, 1994).

Similar to the forms of anxiety mentioned in the previous section, self-confidence can also be divided into two types: state and trait self-confidence. Vealey (1986) narrowed these terms even more by adopting the constructs of state sport-confidence (SC-state) and trait sport-confidence (SC-trait). State sport-confidence "is the belief or degree of certainty individuals possess at one particular moment about their ability to be successful in sport" (p.223). In contrast, trait sport-confidence "is the belief or degree of certainty individuals usually possess about their ability to be successful in sport" (p. 223).

The recommendations of the American Psychological Association served as guidelines for the development and standardization of the instruments. The validation procedures included five phases of data collection involving 666 high school, college, and adult athletes. The instruments demonstrated adequate item discrimination, internal consistency, test-retest reliability, content validity, and concurrent validity (Vealey, 1986).

Another inventory that has been used to measure Sport Confidence was developed by Manzo (1994) and further validated by Mink (1995) and was referred to as the Carolina Sport Confidence Inventory (CSCI). The CSCI measured an individual's perceived sport competence and dispositional optimism, which were believed to be the core elements of self-

confidence (Mink, 1995). The confirmatory analysis by Mink (1995) found CSCI to be a valid and reliable instrument.

Confidence and Ability Level

Contrary to competitive trait anxiety, research in trait self-confidence has demonstrated a high correlation between levels of self-confidence and ability. Mahoney and Avener (1977) investigated thirteen male gymnasts who were given a standard questionnaire and interviewed during the final trials for the U.S. Olympic team. Particular attention was given to psychological factors and cognitive strategies in their training and competition. Using their final competitive grouping as the primary dependent variable, correlations were conducted to assess the relationship between these factors and superior athletic performance. They found U.S. Olympic qualifiers to be more confident than the non-qualifiers.

Attempting to replicate Mahoney and Avener's (1977) findings, Meyers, Cooke, Cullen and Liles (1979) administered a modified version of Mahoney and Avener's questionnaire to nine male collegiate racquetball players prior to a national championship. They found the highly skilled performers were more self-confident and revealed less self-doubt. The previously mentioned wrestler study by Gould et al (1981) concurred with Mahoney and Avener (1977) and Meyers et al. (1979) in that the more successful wrestlers were more self-confident than the less successful wrestlers at the Big Ten Championships.

Mahoney et al (1987) administered the PSIS to a national sample of 713 male and female athletes from 23 sports. The athlete sample comprised 126 elite competitors, 141 pre-elite athletes, and 446 nonelite collegiate athletes. It was found that elite athletes reported being more self-confident than the non-elite athletes.

Williams and Parkins (1980) used the Cattell sixteen-personality factor questionnaire to investigate the personality profiles of eighty-five male field hockey players. The subjects consisted of three groups based on achievement levels in hockey. Multiple discriminant analysis revealed that the International group ($n=18$), which included the 1976 Olympic gold medalists, had significantly more self-confidence than the Club group, which consisted of players of average ability.

Richman and Rehberg (1986) investigated the self-esteem levels of sixty martial artists one day prior to their competition in the largest karate tournament in the United States. The participants were administered the ten question Rosenberg Self-Esteem Scale. The subjects were divided into four groups according to belt levels; expert, intermediate, advanced, and novice. The results revealed that the novices' self-esteem levels were lower than the intermediate, advanced, and expert martial artists' levels of self-esteem.

Three recent investigations that utilized Vealey's (1986) TSCI also displayed consistent correlations between self-confidence and ability. Adams (1991) who investigated personality differences among female elite and nonelite high school field hockey players, Bowe (1994) who investigated professional, collegiate, and high school basketball players, and Smith and Clack (1996) who compared NHL players and players who did not get drafted all found elite athletes to be more self-confident than non-elite (or non-drafted) athletes. However, Koczajowski (1996) measured trait sport-confidence using the TSCI in professional and amateur female golfers and did not find any significant differences between the two groups.

Utilizing a modified version of the CSAF-2, Jones and Swain (1995) and Perry and Williams (1998) examined self-confidence. Jones and Swain (1995) compared elite and non-elite competitive cricketers and found no significant differences in self-confidence between the

two groups. Perry and Williams's (1998) investigation on three distinct skill-level groups in tennis found the advanced group to be higher in self-confidence levels.

Concentration

The ability to control thought processes, to concentrate on a task (i.e. to "keep your eye on the ball") is almost universally recognized as the most important key to effective performance in sport (Cox, 1998; Abernathy, 1993; Summers, Miller, & Ford, 1991). Mental control is typically viewed as the deciding factor in individual and team competitions. In spite of the tremendous importance of concentration on performance, very little has been accomplished to either define concentration or to systematically train athletes to concentrate more effectively (Nideffer, 1986; Nideffer & Sagal, 1998).

The most useful research on the role of attentional style in sport was developed from the theoretical framework of Nideffer (1976, 1981, 1986). He investigated concentration by identifying the different types of attention or concentration that seem to be required in athletic situations. These types were described along two dimensions; broad versus narrow and internal versus external. The most appropriate type of focus, or attentional style depends upon the sport skill and the demands of the specific situation. For example, a broad-external focus was needed for quarterbacks in football since they need to survey the entire field as compared to a golfer attempting to putt the golfball who uses a narrow-external focus.

Nideffer (1986) also pointed out the demands on athletes to shift attention within a particular sport. In basketball, point guards will have a fairly broad-external type of attention as they dribble the ball up the court. They need to be aware of the placement of their players as

well as the opponents. Once they have gathered this information, they shift to a narrow-external type of concentration if they pass or shoot the basketball themselves.

Assessment of Attentional Styles

Nideffer (1976) developed the Test of Attentional and Intrapersonal Style (TAIS) to assess the strengths and weaknesses of an individual's attentional style. Although Nideffer provided preliminary support for the reliability and validity of the TAIS; results of more recent research have suggested that the TAIS has limited validity and predictive properties for sport performance (Boutcher, 1992). In addition, Landers (1981, 1985) reviewed research examining the TAIS and sport performance and concluded that the scale seems to measure the narrow-broad dimension but not the internal-external dimension.

Some researchers believed the reason that the Nideffer test did not demonstrate a high degree of predictive validity was that it was not a sport-specific or situation-specific test (Cox, 1994). At least four serious attempts have been made to develop a sport-specific version of the TAIS, for rifle shooting (Etzel, 1979), tennis (Van Schoyck & Grasha, 1981), baseball (Albrecht & Feltz, 1987), and basketball (Summers, Miller, & Ford, 1991). Although these versions of the TAIS did increase internal consistency and were better predictors of performance, the prediction-performance relationship was still weak (Boutcher, 1992; Cox, 1994; Abernathy, Summers, & Ford, 1998).

Abernathy et al (1998) believed it was clear that the model of attentional style required revision, and perhaps, the incorporation of dimensions of attention which were neglected by the TAIS. Ford (1996) attempted to develop a new self-report instrument to measure attentional processes in sport. The Attention and Concentration Tendencies Survey (ACTS) was a 73-

item pencil-and-paper test designed to measure seven attentional dimensions; broad attention, focused attention, flexibility, alertness, internal distraction, external distraction, and distractibility. Abernathy et al. (1998) believed this test was a promising instrument, although considerable additional validation was required.

It was recommended (Boutcher, 1992) that these above-mentioned questionnaires be used with caution and only as one part of a multidimensional assessment of attention, because of their inherent limitations. Boutcher (1992) suggested that the thought-sampling techniques of Klinger (1984) and Schomer (1986) may provide a more valid way of assessing what athletes are focusing their thoughts on during performance. Klinger and Schomer's technique involved recording individual's thoughts during actual activity (usually by tape recorder). It seemed to be especially appropriate for continuous activities such as running but could also be adapted to other sports. For example, golfers could record on a tape or write on a scorecard their thoughts and feelings after shots. One could then perform content analysis and establish an estimate of attentional foci during task performance (Boutcher, 1992). Athletes' attentional strengths could also be measured through laboratory tasks, such as choice reaction time tasks, the Stroop test, and the grid test. The Stroop test (Stroop, 1935), requires participants to watch a series of slides flashed on a screen at the rate of one per second. On each slide is a word of a color in a contrasting color. For example, the word red appears in green letters. Subjects are required to report the color of letters rather than the word. The task requires individuals to learn to focus attention on the color aspect of the slide while ignoring the letters. The grid test (Bump, 1989) is another task that has been used with athletes. Basically, this pen-and-paper test involves a grid of intermixed numbers and the participant must find and mark the number 00 first and then sequentially mark as many numbers as possible up to 99 in one minute.

Another form of attentional assessment involved the use of observational behavioral analysis. Crews and Boutcher (1987) developed an observational analysis technique used to assess the consistency of professional golfers' preshot routines. In a series of studies, they found that elite golfers possessed more consistent preshot routines than collegiate or beginning golfers (Boutcher & Crews, 1987; Crews & Boutcher, 1986). Thus, behavioral analysis through observation or videotaping would appear to be an effective way of examining the behavioral concomitants of attention during actual performance. The following section will examine the literature review of attentional style or focus as it pertains to ability levels.

Concentration and Ability Level

As mentioned earlier, sport-specific forms of the TAIS have been developed and used in previous research. Etzel (1979) modified the TAIS to create the Riflery Attentional Questionnaire (RAQ) and administered it to 71 highly proficient international rifle shooters. The results demonstrated a low positive relationship between the subjects' RAQ responses and their shooting performance.

Van Schoyck and Grasha (1981) constructed The Tennis-Test of Attentional and Intrapersonal Style (T-TAIS) and administered it to tennis players (n=90) judged to be either beginning, intermediate, or advanced. Results indicated that attentional focus did not vary with tennis skill level.

And lastly, Albrecht & Feltz (1987) constructed a baseball/softball batting (B-TAIS) version of the TAIS and administered it to 29 intercollegiate baseball and softball players. Results showed that batting performance was positively related to all B-TAIS subscales assessing effective attentional deployment.

In research with elite and nonelite archers, Landers, Boutcher, and Wang (1986) measured attentional strength through choice reaction time tasks. The subjects' shooting ability ranged from relative beginner to Olympic gold medal status. It was found that the better archers recorded lower reaction times when performing a reaction/anticipation time task than did their less skilled counterparts. The researchers pointed out that the elite athletes' responses were more consistent because they could concentrate more effectively in this testing situation.

Mahoney, Gabriel, and Perkins's (1987) investigation on psychological skills (mentioned earlier under trait self-confidence) found concentration to be important in determining differences in skill-levels. By using the PSIS they found that elite athletes were more successful at deploying their concentration relative to their less accomplished peers. Adams (1991) utilized a grid test for concentration, and found no significant differences in concentration skills between elite and nonelite field hockey players.

The following two investigations administered the MTQ to evaluate concentration skills. Bowe (1994) found a significant difference in concentration skills between high school and college male basketball players, and between high school and professional basketball players. However, Smith and Clack (1996) did not find significant differences in concentration skills in their investigation of NHL roster players and the players who did not get drafted.

Gould, Guinan, Greenleaf, Medbery, and Peterson (1999) examined mental skills and strategies of eight Atlanta U.S. Olympic teams. Focus group interviews were conducted with 2 to 4 athletes from each team. Individual interviews were conducted with 1 to 2 coaches from each team. Each interview was recorded, transcribed, and analyzed by three trained investigators using hierarchical content analyses. Four teams met or exceeded performance expectations and four teams failed to perform up to performance predictions. Gould et al. (1999) found that differences existed between the teams that met or exceeded performance

expectations and teams that failed. One difference was that the teams that met or exceeded expectations were highly focused and committed. Relative to the ability to focus, teams that successfully met expectations more often reported a sole performance focus, total commitment, and the ability to reframe negative events in a positive light.

Mental Preparation Skills

Most athletes have more than just physical skills; they have tremendous abilities to “psych themselves up” for competition, to manage their stress, to concentrate intensely, and to set challenging but realistic goals. In addition, they have the ability to visualize themselves being successful and then doing what they visualized. These athletes are said to be well-learned in their mental preparation skills.

The vast majority of elite athletes recognize the importance of psychological training for competition. Jack Nicklaus, Larry Bird, Reggie Jackson, Fran Tarkenton, Jimmy Connors, and Wayne Gretzky credit the mental aspects of their training for their success in athletics. In other words, when they credit psychological preparation as important, they mean once athletes have developed their physical skills to a high level, and when they are competing with others at that level, the winner is more likely to be the person who is best prepared psychologically (Martens, 1987; Weinberg & Gould, 1995).

To be the best mentally prepared athletes for competition, most sport psychologists recommended implementing Psychological Skills Training (PST) (Martens, 1987; Williams, 1986; Weinberg & Gould, 1995; Cox, 1998). PST is no magical, quick fix program, but rather a systematic, educational program designed to help athletes acquire and practice psychological skills to improve performance. The basic skills of the PST are imagery, psychic energy

management; stress management; attentional skills, and goal setting skills. These skills are not mutually exclusive; improvement in one skill may benefit the others.

Imagery

The subject of imagery has received a great deal of attention in applied sport psychology. Imagery is an experience similar to a sensory experience (seeing, feeling, hearing), but arising in the absence of the usual external stimuli (Martens, 1982). A single, comprehensive explanation of how imagery affects physical and psychological skills is not available. However, according to Martens, imagery may function as a means of rehearsal, or it may act to motivate the performer.

Imagery may also be a valuable tool for developing self-confidence (Smith, 1991). Maltz (1960) referred to our brain and nervous system as a highly complex servomechanism which acts as a goal-setting machine, steering toward the direction of a goal. Imagery may make the path to the goal more efficient, which in turn enhances performance and self-confidence. Regardless of how one presents the case, imagery appears to aid the performer in the development and refining of physical as well as psychological skills (Cox, 1998).

Psychic Energy Management

Psychic energy management is the process of gaining control of one's thoughts. Psychic energy is the vigor, vitality, and intensity with which the mind functions and is the bedrock of motivation. Psychic energy also is either positive or negative, and thus is associated

with various emotions such as excitement and happiness on the positive end and anxiety and anger on the negative end (Martens, 1987).

Some tasks require relatively low psychic energy, such as reading a book, watching television, or listening to music. Other tasks require high psychic energy such as giving a presentation, a coach confronting an athlete, or performing a gymnastics routine in competition. The sport world has its own terms for psychic energy. When athletes go from low to high, they are getting “psyched up,” and when the psychic energy is too high, they are “psyched out” (Martens, 1987).

Stress Management

According to Martens (1987), psychological stress is closely associated with psychic energy, but they are not the same. Psychological stress occurs when athletes perceive that there is a substantial imbalance between what they perceive is being demanded of them and what they perceive they are capable of doing, and the outcome is important to them.

Stress can be managed in many different ways. Sport psychologists use such techniques as progressive muscle relaxation, systematic desensitization, biofeedback, stress inoculation, sybervision, implosive therapy and covert modeling (Martens, 1987).

Attentional Skills

Attentional skills are another vital psychological skill for successful performance and enjoyment. Attentional skills include the mental process whereby athletes direct and maintain awareness of stimuli detected by the senses. Superior performance occurs when athletes are in

the optimal energy zone; characterized by attention being directed totally at the process of performing the skill and nothing else. Csikszentmihalyi (1975) described this as flow, which occurs only when attention was focused totally on the relevant factors for executing the skill. Negative thoughts, and other forms of distraction impede performance (Martens, 1987).

Goal-Setting Skills

Setting goals is not new in the realm of athletics; the first contests of ancient times athletes have set goals for themselves. Sports readily lend themselves to setting goals, whether they are individual or team sports, objectively or subjectively scored. Goal setting can help athletes to perform better, reduce anxiety, build self-confidence, and increase satisfaction. A systematic program of setting goals and working to achieve these goals is a highly effective means of improving self-confidence and becoming more competent.

One explanation for this is the belief that goals enhance motivation. It is believed that setting goals provides the structure for motivation since it lends direction to the athletes' effort over a period of time (Martens, 1987; Archer, 1987; Carron, 1978). Goal setting gives an athlete a sense of control and positive direction, as well as an incentive for action.

Several contemporary motivation theorists (Dweck, 1980; Maehr & Braskamp, 1986; Maehr & Nicholls, 1980) use the notion of goals in a second way to suggest a more global purpose for involvement in particular activities. Goals, in this context, were more like personality traits, implying predispositions for participation based on underlying motives for what individuals want to attain or accomplish (Burton, 1992). Motivation theorists often label these more global goals - goal orientations (Maehr & Braskamp, 1986; Maehr & Nicholls, 1980). Inherent in the idea of goal orientations was the premise that success and failure were

subjective perceptions, not-objective events. Thus, “success” can be attained in any situation in which individuals were able to either to infer personally desirable characteristics, qualities, or attributes about themselves or attain personally meaningful objectives.

In the next two sections, an examination of assessment and differing skill research on various mental preparation skills will be addressed. Attentional and stress management skills will not be reviewed in these sections since they were already examined earlier in this chapter.

Assessment of Mental Preparation Skills

Imagery.

The use of imagery to facilitate or enhance the performance of sport skills has increased in recent years (Cox, 1998). Paralleling this increase in interest in imagery has been the development of inventories designed to measure an athlete’s ability to control and manipulate the vividness of images (Moran, 1993).

Two types of tests that have been used to measure imagery ability have been classified as either subjective, self-report, or objective, behavioral in nature (Goss, 1985). In subjective tests, people were questioned on aspects of their images such as vividness and manipulability. Richardson (1978; p.101) regarded such subjective rating as “introspective evaluations of the subjects’ ability to produce and manipulate concrete images.” One example of a subjective questionnaire was Mark’s (1973) 16-item Vividness of Visual Imagery Questionnaire (VVIQ). The VVIQ required subjects to rate on a scale the vividness of their imagery on four aspects of four familiar scenes.

As for subjective versus objective tests for imagery ability, Katz (1983) argued in favor of subjective tests since he believed “subjective tests appear more directly linked to the construct of imagery than are the objective tests” (p. 44). Hall (1998) agreed and believed that within the motor domain, subjective tests appear to be favored. The two most popular tests were the Movement Imagery Questionnaire (MIQ; Hall & Pongrac, 1983) and the Vividness of Movement Imagery Questionnaire (VMIQ; Isaac, Marks, and Russell, 1986).

The MIQ is designed specifically for the sporting context to measure both visual and kinesthetic imagery ability for movements. It consists of 18 items, 9 visual and 9 kinesthetic. The reliability of the MIQ is acceptable and Hall, Pongrac, and Buckolz (1985) reported a test-retest coefficient of .83 after a 1-week interval. Several studies indicated that the MIQ was a useful measure of imagery ability (Goss, Hall, Buckolz, & Fishburne, 1986; Hall, Buckolz, & Fishburne, 1989). Hall and Martin (1997) revised the MIQ and developed the MIQ-R because the MIQ seemed to be too lengthy and the subjects reported the images were too difficult to imagine.

The VMIQ consists of 24 items, each item being a different movement or action to be imagined. Atienza, Balaguer, and Garcia-Merita (1994) reported that the VMIQ was a reliable instrument with a test-retest correlation of .76 over a 3-week period. A study by Isaac (1992) indicated that the VMIQ, like the MIQ, was an useful measure of imagery ability.

Hall, Rodgers, and Barr (1990) developed an instrument specifically designed to investigate the use of imagery by athletes in numerous sports and at all skill levels. It is referred to as the Imagery Use Questionnaire (IUQ). Since then some sport-specific versions of the IUQ have been developed; the IUQ for Rowing (Barr & Hall, 1992), IUQ for Figure Skating (Rodgers, Hall, & Bucholz, 1991), and the IUQ for Soccer Players (IUQ-SP; Salmon,

Hall, and Haslam, 1994). The IUQ-SP was based on the original IUQ and, in part, on Paivio's (1985) framework of how imagery serves two functions; cognitive and motivational.

Since the IUP-SP was only limited to soccer players, Hall, Mack, Paivio, and Hausenblas (1998) recently designed the Sport Imagery Questionnaire (SIQ) to examine imagery use in all sports.

Psychic Energy.

Morgan and Pollock (1977) researched elite distance runners using the Profile on Mood States (POMS; Morgan, 1979) to characterize the mood profiles of the athletes. Morgan (1979) termed the positive POMS profile as the "iceberg profile". The POMS was characterized by an athlete's low score on tension, depression, anger, fatigue, confusion and high score on psychic vigor or energy.

Although the initial intent of the POMS was to assess moods in psychiatric patients, it had been used extensively in sport personality research (LeUnes, Hayward & Daiss, 1988). Caution should be used in any research utilizing the POMS, since there was much confusion regarding the use of POMS as a trait or state measure (Cox, 1998).

Another inventory used to assess psychic energy management and other mental preparation skills was described earlier in this investigation under trait self-confidence and overall personality assessment; the PSIS (Mahoney et al., 1987). Also associated with mental preparation skill assessment was the Activity Experience Questionnaire (AEQ). This was a paper-and-pencil instrument designed to assess the intensity of flow in physical activities. The initial version of the AEQ consisted of a 42-item instrument utilizing a 5-point Likert-type response pattern. The statements were scored with low values indicating a higher intensity of

flow. Procedures of item analysis and factor analysis were used to develop a revised version of the AEQ composed of 26 items. Test-retest reliability was performed and the data indicated a correlation of .80 (Begley, 1979).

Goal Setting and Orientation.

Several reliable and valid instruments have been developed to measure goal orientation in sports (Gill & Deeter, 1988; Vealey, 1986). Gill and Deeter's Sport Orientation Questionnaire (SOQ) was a 25-item self-report instrument that was comprised of three subscales measuring competitiveness, win orientation, and goal orientation. All SOQ items were rated on a 5-point Likert format yielding win and goal subscale totals ranging from 6 to 30. Gill and associates (Gill, 1986; Gill & Deeter, 1988; Gill, Dzewaltowski, & Deeter, 1988) completed extensive reliability and validity investigations for the SOQ. These studies found the SOQ to be reliable, valid, and an appropriate measure of competitive goal orientation.

Vealey's (1986) Competitive Orientation Inventory (COI) simultaneously evaluated the relative importance of playing well and winning. The COI consisted of a 16-cell matrix, with each cell representing a situation that was a unique combination of performance quality and type of competitive outcome. Athletes rated their level of satisfaction for 16 different situations. Overall scores for both performance and outcome were calculated. According to Burton (1992), even though the COI was relatively new, Vealey has shown it to be a reliable and valid measure of competitive goal orientation.

Mental Preparation and Ability Levels

Durtschi (1983) conducted an investigation on psychological characteristics of elite and non-elite distance runners who were preparing to compete in the 1982 Nike Marathon. By administering the POMS, no major differences were found between the runner groups. The distance runners, whether elite or non-elite, exhibited at least some, but certainly not many iceberg profiles. This finding was consistent with Morgan and Pollock's (1977) investigation which compared POMS results of world class distance and middle distance runners to those of competitive college runners. Instead of finding the iceberg profiles only in the world class runners, they found that runners did not differ significantly on any of the mood variables. They concluded that running long distances either produces or requires positive mental health and that distance runners of varying abilities do not differ in this respect. In this same investigation, Durtschi (1983) also found no significant differences between elite and non-elite runner groups on variables such as use of imagery, or use of mental practice. These results contradicted Mahoney and Avenier (1977) who found significant differences between Olympic gymnastic qualifiers and non-qualifiers on the use of internal imagery.

Research has shown some descriptive evidence that imagery ability played an important role in sporting performance. Meyers et al. (1979) found that better racquetball players reported having better control of their imagery. Highlen and Bennett (1983) examined the relationship between open and closed-skill athletes and found that divers who qualified for the Pan-American Games rated their imagery as more vivid and controlled than divers who did not qualify. More recently, Orlick and Partington (1988) found that in a sample of male Canadian Olympic athletes, use of kinesthetic imagery that was easily controlled was significantly correlated with successful performance at the Olympics. In another study,

Mahoney et. al. (1987), using the PSIS inventory, found that elite athletes relied more on internally focused and kinesthetic imagery than on third person visual forms of mental preparation as compared to non-elite and pre-elite athletes.

Robinson (1984) conducted an alternative investigation that examined the effects of skill level on electromyographic (EMG) activity during internal and external imagery. Thirty-six male and female karate students whose ability was divided into beginning and advanced levels, were examined to find that advanced students demonstrated greater average EMG responses than beginning students. This suggested that the advanced karate students were better imagers than the beginning students. Two other investigations, Adams (1991) and Bower (1994), found significant differences between elite and non-elite athletes in mental preparation skills.

Hall, Rodgers, and Barr (1990) administered the Imagery Use Questionnaire (IUQ) to 381 male and female participants from six sports. The sample comprised competitors in the sports of football, ice hockey, soccer, squash, gymnastics, and figure skating. Hall et al. (1990) found that the level at which the athletes were competing (recreational/house league, local competitive, provincial competitive national/international competitive) influenced their imagery use. The higher the competitive level, the more often the athletes reported using imagery in practice, in competition, and before an event.

In a similar study, Barr & Hall (1992) administered the IUQ to participants within the sport of rowing. Three hundred and forty-eight rowers at the high school, college, and national team levels completed the IUQ. A discriminant function analysis conducted to determine which imagery use items best distinguished between novice and elite rowers showed that elite rowers had more structure and regularity to their imagery sessions. Novices indicated seeing

themselves rowing incorrectly more often than elite rowers did. Also, elite rowers reported being able to feel the actions of rowing to a greater extent than novice rowers.

Salmon, Hall, and Haslam (1994) also utilized the IUQ for participants in single sport. Salmon et al. developed the IUP-SP and administered it to 362 soccer players at the national, provincial, and local levels. This study showed that athletes of varying skill levels could be distinguished according to their imagery use. Elite players reported using imagery the most prior to a game and reported higher scores on all functions compared to the non-elite players, suggesting that highly skilled players maximize their imagery use.

More recently, Gould et al. (1999) examined mental skills and strategies of eight U.S. Olympic teams and found that the more successful teams at the Atlanta Olympics mentioned having mentally prepared to deal with such an event. Besides discussing mental preparation more often, teams that met or exceeded expectations specifically mentioned the importance of adhering to mental preparation routines.

Achievement Motivation

Achievement motivation can be defined as an athlete's efforts to master a task, achieve excellence, overcome obstacles, perform better than others, and take pride in exercising talent (Murray, 1938). It is also an athlete's predisposition to approach or avoid a competitive situation (Cox, 1994). From the 1950's to the 1970's, the theory of achievement motivation that received the most attention in psychological literature was the McClelland-Atkinson Theory (Cox, 1994). The McClelland-Atkinson model of achievement motivation was a complex behavioral mathematical approach to explaining the need to achieve (McClelland, Atkinson, Clark & Lowell, 1953). The model proposed that two factors determine an athlete's

need to achieve; the motive to achieve success and the motive to avoid failure. The motive to achieve success was a disposition to get involved in achievement situations. The motive to avoid failure was a disposition to avoid entering into achievement situations. In other words, in any particular situation, the opportunity for success and its accompanying rewards and satisfactions contributes positively to an overall desire to get involved. At the same time, concerns about possible failure and its accompanying embarrassment and dissatisfaction produce reluctance on the part of the individual to enter into competitive situations (Carron, 1984). Achievement motivation is an important concept to measure because athletes whose motivation is to succeed will see winning as a consequence of their ability and blame failure on insufficient effort, while athletes whose motives are to avoid failure attribute losing to a lack of ability and their rare wins to luck or an easy opponent (Martens, 1987).

Assessment of Achievement Motivation Levels

Existing techniques for the measurement of achievement motivation have been typically assigned to the two major categories of projective methods and subjective report methods. Projective tests, modeled according to techniques developed by Murray (1936), have been most frequently employed in investigations involving motivation. Commonly used projective measures include the Thematic Apperception Test (McClelland, Atkinson, Clark, & Lowell, 1953), French Test of Insight (Buros, 1978), and the Iowa Picture Interpretation Test (Hurley, 1955).

A number of self-report or questionnaire techniques for motivational assessment have been developed. Among these, the two most commonly employed are the Edwards Personal Preference Scale (PPS; Edwards, 1959) and the California Psychological Inventory (CPI;

Gough, 1953). Both standard questionnaires contain sub-scales for numerous other psychological constructs, and have demonstrated utility for studies involving college students and adults (Crandall, 1963).

A study by Mehrabian (1968) consisted of an attempt to devise separate achievement motivation scales for males and females. Separate batteries of 34 items each with a seven-point Likert-type rating scale were developed, with items reflecting a number of interrelated characteristics or behavioral tendencies which have been shown to differentiate between high and low achievers. Mehrabian (1968) tested 339 college men and 446 women in order to obtain estimates of reliability and validity. Factor analysis enabled the experimenter to identify eight and nine factors for a short form of the test. Ten-week test-retest reliabilities of .78 for the male scale and .72 for the female scale were obtained for the long form. Correlation of the scores with those derived by existing scales yielded significant coefficients for both short and long forms of the male and female scales.

Another instrument designed for the measurement of motivation in athletics was the Athletic Motivation Inventory (AMI) developed by Lyon, Tutko, and Ogilivies (1969). However, as discussed earlier, this inventory has been the subject of controversy because of low validity and reliability (Randall, 1982).

Butt (1976) developed the Sport Motivation Scales to measure the motivations of aggression, conflict, competence, competition, and cooperation. Butt sampled 67 males and 121 females; of the total surveyed, 115 subjects were university students involved in various sporting and leisure activities, the remainder were members of a competitive swimming club. The results demonstrated aggression and conflict correlated higher with competition than with cooperation. The correlations of competence with cooperation were greater than with competition.

Youngblood and Suinn (1980) developed a scale to assess overall athletic motivation in terms of 19 specific factors (e.g. social approval, competition, self-mastery, friendship and personal associations, tangible payoffs, recognition). In developing the scale, a list of needs which were deemed to be important factors in an athlete's decision to participate in athletics, as well as being of practical significance to coaches, was tentatively compiled. This list was then submitted to 17 psychology faculty, 22 athletic coaches, and 16 physical education professors, who were asked to make additions to the list. A final list of 19 categories was established, and a question devised for each subcategory. Two forms of the final scale were developed, with one consisting of a yes-no format and another of a rating scale format. In validating the instrument, both forms were administered to 25 collegiate female swimmers and divers. Coaches were asked to assign subjective ratings of their athletes' motivational levels four times throughout the season in order to obtain a measure of external validity. The total scores showed significant correlation with the coaches' ratings of motivation, with the yes-no format being somewhat better in predicting the coaches' rating across the season.

In more contemporary investigations, social cognitive theories of achievement motivation with a focus on goal perspectives had been the basis of research (Newton & Duda, 1993; Duda, 1992). The underlying premise of these theories assumed that there are two predominant goal perspectives operating in achievement settings which relate to how people defined success and judge how competent they were at activities. These two goal perspectives were termed task and ego involvement (Nicholls, 1989; Duda, 1992).

When one was task orientated, task mastery and/or personal improvement reflected high competence and therefore subjective success. Perceptions of one's competence were self-referenced and were linked to trying one's best. If a person was ego-involved, by contrast, subjective success entailed showing one's ability to be superior. When focused on this goal

perspective, perceptions of competence are dependent on comparing one's own personal performance outcomes and exerted effort to others on a normatively challenging task (Duda, 1989). A task-involved person was expected to work hard, choose challenging tasks, perform optimally, and persevere when faced with obstacles and frustrations. On the other hand, an ego-involved individual who has low perceived ability was expected to experience performance impairment, withhold effort or report a lack of interest when it appeared that he/she will appear incompetent, select tasks which were either too easy or too difficult, and/or quit when the possibility of repeated failure existed (Duda, 1994).

According to Duda (1994) there were individual differences in proneness to task - and ego-involved goal states in achievement situations. To assess these dispositional tendencies in the athletic domain, Duda (1989) and Duda and Nicholls (1992) developed the Task and Ego Orientation in Sport Questionnaire (TEOSQ). To date, a number of investigations have been conducted to examine the validity and reliability of the TEOSQ. The TEOSQ has been found to possess strong psychometric properties in studies of American youth and adults (Duda, 1989; Duda, 1992; Duda and White, 1992). The task and ego orientation subscales in these investigations demonstrated acceptable levels of high internal consistency.

A more recent assessment tool that measured motivation was the Sport Motivation Scale (SMS; Pelletier, Fortier, Vallerand, Tuson, Briere, & Blais, 1995). The SMS consisted of seven subscales that measured three types of Intrinsic Motivation (IM; IM to Know, IM to Accomplished Things; and IM to Experience Motivation), three forms of regulation for Extrinsic Motivation (Identified, Introjected, and External), and Amotivation. This study confirmed the factor structure of the scale and revealed a satisfactory level of internal consistency. The SMS was administered on two occasions and revealed adequate test-retest reliability.

Motivation and Ability Levels

Yearly (1971) used the Mehrabian (1968) MAT to examine athletes from several sports and measured their level of achievement motivation. She found that athletes had a higher level of achievement motivation than a group of non-athletes.

In another study, Bird (1980) examined 120 high caliber soccer players representing three levels of performance, (i.e. juvenile, collegiate, and professional) to determine if any levels of sport motivation differ between the three groups. He found that the professionals, who had the highest mean score for all groups over all motive categories, were significantly higher in terms of "mastery of soccer skills" than both the collegiates and juveniles.

Lubking (1980) investigated two hundred and twenty women athletes' perceptions of different issues as these were affected by the presence of athletic scholarships. Six hypotheses were developed to identify perceptions and attitudes of scholarship, non-scholarship, upper class, and underclass women athletes with regard to the issues of motivation to perform, expectation of performance, academic and social limitations, coaches' expectations, pressure factors and benefits from athletic experience. The women athletes completed a ninety-five item opinionnaire concerned with attitudes of the athletes toward the six specific issues. The results demonstrated the scholarship athletes were more positively motivated to perform when compared to non-scholarship athletes.

In a similar study, Albu (1988) examined funded (scholarship) athletes and non-funded athletes in terms of their levels of intrinsic motivation. The sample consisted of 47 funded and 23 non-funded intercollegiate athletes from ten universities across Canada. In general, it was found that little difference existed between funded and non-funded athletes on intrinsic motivation.

Bowe (1994) found that professional basketball players had significantly higher levels of achievement motivation than high school basketball players. However, no significant differences were evident between the high school and college nor between the college and professional basketball players. Whereas, Smith and Clack's (1996) investigation found that National Hockey League (NHL) players who eventually made the draft were higher in achievement motivation than the hockey players who did not get drafted.

Leadership

Leadership behavior is considered by many coaches to be an important component of athletic success. Generally, coaches believe that one or two peer leaders is a necessity for a successful season, hence if these leaders do not emerge, most coaches believe poor team performance may result (Martens, 1987).

Fielder (1964, p.153) defined a leader as "the individual in the group who directs and coordinates task-relevant group activities, or who, in the absence of a designated leader, automatically performs these functions in the group." If a leader is to be effective, he or she must be recognized as having the most influence on the behavior of group members. But a leader who is not capable of altering the behaviors and attitudes of group members or who has no influence is not effective in this position (Martens, 1987).

In an attempt to ensure that their teams will have effective peer group leaders, some coaches have elections to select team leaders while other coaches appoint them. Whatever the method, it is clear that team leaders are needed and one cannot become a leader until team members acknowledge his/her authority. In short, one must earn the respect of the team to have the power needed to achieve excellence. This respect is earned by demonstrating ability

through superior skills and knowledge, and by attaining credibility through a clear commitment to the team (Martens, 1987).

Assessment of Leadership Behaviors

One of the earliest studies concerning peer group leadership on athletic teams was conducted by Rees (1982). He examined the structural property of leadership by testing the theory of leadership role differentiation in team sports. Leadership role differentiation refers to the process through which leadership roles in the group developed into two types; instrumental roles, which were concerned with task success or goal attainment, and expressive leadership roles, which were concerned with maintaining group solidarity and cohesion.

Rees (1982) sampled 23 intramural basketball teams and asked them to complete questionnaires designed to measure leadership development on their team. The subjects were asked to list players they considered to be the best players on the team (instrumental leadership), those they felt contributed most to group harmony (expressive leadership), and overall leadership. Analysis indicated the most important leaders on the teams scored high on expressive and instrumental leadership.

Yukelson, Weinberg, Richardson and Jackson (1983) investigated qualities or characteristics of individuals who were rated to be high or low in leadership or friendship status among members of two interacting collegiate athletic teams. Members of the university baseball and soccer teams were administered a sociometric peer nomination instrument assessing distribution of friendship choices off the field. Locus of control, eligibility standing, and coaches' rating of actual performance were assessed and correlated with leadership and friendship status. Results from the baseball and soccer teams were similar in that leadership

status was significantly related to the coaches' ratings of actual performance, eligibility standing, and locus of control. Friendship status was found to be significantly related to only one measure – coaches' rating of actual performance for the baseball team.

Glenn (1989) developed an inventory to assess each athlete's leadership tendencies. It is referred to as the Sport Leadership Behavior Inventory (SLBI). The SLBI consists of 25 items, 19 of which describe various personal characteristics or behaviors which are deemed desirable for team leaders in soccer, and six of which are filler items. For each item, the respondent is requested to indicate on a seven-point Likert-type scale how descriptive that item (characteristic) is of the individual being evaluated. The scores from each of the 19 items are summed together to provide a single measure of the degree to which an individual exhibits the characteristics and behaviors of a team leader. Cronbach's alpha was used to assess the consistency of the SLBI, and the results of this analysis showed a very high internal consistency ($r = .88$), which demonstrated the SLBI's high reliability.

Glenn (1989) also examined the general hypothesis that a combination of personal characteristics can significantly predict leadership tendencies. She administered five paper-and-pencil inventories to 106 female soccer players to measure the psychological characteristics of perceived competence, locus of control, global self-worth, sex-role orientation, and competitive trait anxiety. Multivariate and univariate analyses of the data revealed that athletes who were high in perceived sport competence and global self-esteem, low in external perceptions of control, and high in psychological androgyny were more likely to be identified as leaders by themselves and their peers. In contrast, coaches' ratings of athletes' leadership tendencies were associated primarily with the players' actual skill competence.

Engleman and Pease (1987) conducted an investigation of leadership behavior in which 180 boys and girls, involved in a youth soccer program, were surveyed to examine the factors

that were associated with leadership behavior in sport settings. They utilized a questionnaire format that measured locus of control, self-esteem, perceived sport ability, and beliefs about the importance of participation. Leadership tendencies were measured by a series of multiple choice questions constructed by researchers to identify team leaders and assess perceived importance of team leaders. The results of this analysis showed that self-esteem, ability level of the team, participation time, locus of control, and perceived soccer ability were significant indicators of perceived leadership. Also, it was found that boys desired to attain leadership roles more than girls.

Another factor that has been associated with leadership behavior in sport was team interaction and position of the player on the field. Tropp and Landers (1979) examined team interaction and the emergence of leadership and intrapersonal attraction in female field hockey participants from 15 college varsity teams. Interaction was measured as the number of passes made between teammates during a game while leadership was measured by asking team members to rate each of their teammates on leadership ability. Ratings were a 9-point scale, with high scores indicating high leadership and attraction. Reliability of ratings was checked with a small portion of the total sample by having one of the teams complete the ratings twice with a one week interval between testings. Reliabilities of ratings were found to be .99 and .89 for leadership and attraction, respectively. Analyses of variance showed leadership and attraction differences among low, moderate, and high interactors ($p < .05$), but these differences disappeared when the goalies were eliminated from the analysis. Thus, high-interaction frequencies were not indicative of high leadership and attraction ratings. Only "leadership," "years on the varsity," and "attraction" were found to discriminate between captain and noncaptains. The following section will discuss leadership behaviors as they pertain to differing skill levels.

Leadership Behaviors and Ability Levels

Yukelson, Weinberg, Richardson, and Jackson (1983) investigated intrapersonal attraction and leadership behavior among collegiate male baseball and soccer athletes. As mentioned prior under assessment, these researchers utilized a pre-season peer nomination instrument and also measured all subjects on a series of personal characteristics including locus of control and sport ability. The soccer players who scored high in leadership status tended to be better players, were typically upperclassmen, and also tended to have an internal locus of control. The team members that scored in the lower third on the leadership status measurement tended to be poorer performers, underclassmen, and to have an external locus of control.

English professional and school boy soccer teams were studied by Lee, Coburn, and Partridge (1981) to examine the influence of team structure in determining emergence of leaders and leadership behaviors. In this investigation, coaches were asked to identify team captains and their playing positions, as well as the best player on the team. The results showed that captains tended to play center back and midfield positions for school boys and center back for professional teams. Captains on the school boy teams also tended to be superior players, suggesting that captains will be found in central positions and that they will be high in actual sport ability.

Anderson and Williams (1987) and Wittig, Duncan, and Schurr, (1987) examined an athlete's sex-role orientation and its association with competitive trait anxiety. Specifically, females with high masculine-role endorsements have been found to be lower in competitive trait anxiety than females who exhibit low masculine-role endorsements (Wittig et al., 1987). Furthermore, feminine females reported the highest levels of competitive trait anxiety

(Anderson & Williams, 1987; Wittig et al., 1987). Glenn and Horn (1993) pointed out that an athlete's sex-role characteristic may also be linked with leadership behavior. Therefore, it might also be possible to theorize that female peer leaders will exhibit lower levels of competitive trait anxiety when compared to their non-leader peers.

Glenn (1989) and Glenn and Horn (1993) tested the above theory in their examination of 106 female soccer players. They measured the psychological characteristics of perceived competence, locus of control, global self-worth, sex-role orientation, competitive trait anxiety and each athlete's leadership tendencies. They found that athletes who were high in perceived sport competence and global self-worth, low in external perceptions of control, high in psychological androgyny, and lower in competitive trait anxiety were more likely to be identified as leaders by themselves and their peers.

In two other investigations both using the MTQ, Bove (1994), and Smith and Clack (1996) found no significant differences in leadership skills among or between the varying skill levels in their investigations. Bove (1994) attributed this to the concept that all levels of athletics have leaders emerge regardless of their skill level.

Chapter III

Methods and Procedures

The purpose of this investigation was to determine psychological differences between high school, college, and elite levels of female soccer players. The factors measured included competitive trait anxiety, trait self-confidence, concentration skills, mental preparation skills, achievement motivation levels, and leadership skills.

Instruments for Data Collection

The instruments utilized in this investigation were the self-evaluation Mental Toughness Questionnaire (MTQ) created by Smith (1994), SCAT (Martens et al., 1990), and Vealey's TSCI (1986). The inventory was comprised of three separate instruments and will be described below.

The Sport Competitive Anxiety Test (SCAT)

Section one consisted of ten questions. Each question was rank ordered from hardly ever (1-3) to sometimes (4-7) to always (8-10) according to the amount the subject agreed with each question. The Sport Competitive Anxiety Test (SCAT; Martens et al, 1990) measured competitive trait anxiety that was experienced by the athlete.

Trait Sport-Confidence Inventory (TSCI)

Section two included twelve questions to gauge trait self-confidence and answers were divided into low (1-3), medium (4-7), and high (8-10). The Trait Sport-Confidence Inventory (TSCI; Vealey, 1986) measured how confident players generally feel when competing in soccer compared to the most confident player they know.

Mental Toughness Questionnaire (MTQ)

The final part of this inventory was the Mental Toughness Questionnaire (MTQ; Smith, 1994). Section three included twenty-three questions to rate individuals on various aspects of soccer competition. The four subscales measured in this section included concentration skills, mental preparation skills, achievement motivation levels, and leadership skills. Each question was divided into strongly disagreeing (1-5) to strongly agreeing (6-10), according to their level of agreement with each statement.

Participants

A total of seventy-nine participants volunteered to complete the questionnaire. The twenty-four interscholastic participants were all varsity female soccer players from either Brockport, Livonia or Marcellus High School. The intercollegiate subjects were thirty female soccer players from either at the State University of New York at Brockport or Nazareth College. The elite sampling consisted of twenty-five members of the U.S. Women's National Soccer Team and its alternates for the 1995 Women's World Cup Soccer Championships.

Data Collection

The questionnaire was administered to each of the three participant groups. The U.S. National Team completed the questionnaire at their training camp in Sanford, FL, prior to the 1995 Women's World Cup Soccer Championship. The college teams completed the questionnaire during their 1995 spring non-traditional soccer season, and the group of high school players completed the questionnaires at their end-of-the-school year meeting and at an off-season high school indoor soccer tournament.

The inventory took approximately fifteen minutes to complete, although as much time as needed was given. General directions were discussed for each of the three sections, including how important it was for each subject to answer how she actually felt, not what sounded good.

Statistical Analysis

In order to determine if the three groups differed on the psychological variables of competitive trait anxiety, trait self-confidence, concentration skills, mental preparation skills, achievement motivation levels, and leadership skills, a one-way MANOVA was conducted. The independent variable of this investigation was group; high school female soccer players (group 1), college female soccer players (group 2), and elite female soccer players (group 3).

CHAPTER 4

Results

The purpose of this investigation was to determine psychological differences between high school, college, and elite female soccer players. The dependent variables were competitive trait anxiety, trait self-confidence, concentration skills, mental preparation skills, achievement motivation levels, and leadership skills. The independent variable was group; high school players (group 1), college players (group 2), and elite players (group 3). In order to determine if the three groups differed on these psychological variables, a one-way MANOVA was conducted. The overall multivariate relationship was significant (Wilks' lambda = .564, $F(10,144) = 4.77$ p.001). Follow-up analyses revealed that competitive trait anxiety, trait self-confidence, mental preparation skills, and leadership skills differentiated the three groups.

Descriptive Statistics

Competitive Trait Anxiety

Results from this study indicated that the college group of female soccer players had significantly higher scores in competitive trait anxiety when compared to the high school and elite female soccer players (Table 1).

Table 1. Competitive Trait Anxiety

Group	Means	Standard Deviation
(H.S.) Group 1	47.1458	8.4438
(College) Group 2	55.8100	10.7789
(Elite) Group 3	49.3480	7.6273

Trait Self-Confidence

Results from this investigation revealed that the elite players scored significantly higher in trait self-confidence in comparison to the high school and college participants (Table 2).

Table 2. Trait Self-Confidence

Group	Means	Standard Deviation
(H.S.) Group 1	63.2917	9.8444
(College) Group 2	58.7333	14.7623
(Elite) Group 3	75.1600	10.7923

Concentration Skills

No significant differences were found between high school, college, and elite female soccer players when comparing concentration skills (Table 3).

Table 3. Concentration Skills

Group	Means	Standard Deviation
(H.S.) Group 1	34.2917	2.9852
(College) Group 2	32.7000	4.7281
(Elite) Group 3	32.8400	3.5553

Mental Preparation Skills

Results revealed that the elite group scored significantly higher in relation to mental preparation when compared to the college and high school soccer players (Table 4).

Table 4. Mental Preparation Skills

Group	Means	Standard Deviation
(H.S.) Group 1	16.29	2.30
(College) Group 2	16.80	2.60
(Elite) Group 3	19.50	3.20

Achievement Motivation Levels

No significant differences were found between high school, college, and elite female soccer players when examining achievement motivation levels (Table 5).

Table 5. Achievement Motivation Levels

Group	Means	Standard Deviation
(H.S.) Group 1	28.5000	6.8715
(College) Group 2	27.9667	6.4030
(Elite) Group 3	28.6400	5.4228

Leadership Skills

Results revealed that the college group had significantly higher scores for leadership skills in comparison to the high school and elite sample (Table 6).

Table 6. Leadership Skills

Group	Means	Standard Deviation
(H.S.) Group 1	40.1667	6.2462
(College) Group 2	45.0333	7.4068
(Elite) Group 3	40.0000	7.4330

Main Statistics

In order to determine if the three groups differed on the psychological variables of competitive trait anxiety, trait self-confidence, concentration skills, mental preparation skills, achievement motivation levels, and leadership skills, a one-way MANOVA was conducted. The overall multivariate relationship was significant (Wilks' lambda = .564, $F(10,144) = 4.77$ $p < .001$). Follow up analyses revealed that competitive trait anxiety, trait self-confidence, mental preparation skills, and leadership skills differentiated the groups. Specifically using Student – Newman – Keuls it was found that the college players were highest on the variable of competitive trait anxiety and leadership skills. The elite group differed from the high school and college groups by having the highest scores in trait self-confidence and mental preparation skills. And, that no significant differences were found between the three groups when comparing concentration skills and achievement motivation levels.

CHAPTER 5

Discussion, Conclusions, and Recommendations

Discussion of Results

The results of this investigation suggest that there are some psychological differences between elite, collegiate, and high school female soccer players. However, these differences were only found in certain personality factors. For example, when examining competitive trait anxiety, this investigation found that the college group's scores were significantly higher when compared to the elite and high school groups. Even though there has been some research that is consistent with this result (Highlen & Bennett, 1979; Smith, 1983; Bove, 1994), most research has revealed equivocal results and provides no support for a significant relationship between competitive trait anxiety and ability level (Gould et al. 1981; Gould et al. 1983; Power, 1982; Miller & Miller, 1985; Smith & Clack, 1996; Jones & Swain, 1995; Perry & Williams, 1998).

Another personality trait examined in this investigation suggested differences between ability levels was trait self-confidence. Contrary to competitive trait anxiety, most research completed comparing trait self-confidence and sport ability have found differences between skill levels (Mahoney & Avenier, 1977; Gould et al., 1981; Meyers et al., 1979; Mahoney et al., 1987; Williams & Parking, 1980; Richman & Rehberg, 1986; Adams, 1991; Bove, 1994; Smith & Clack, 1996; Perry & Williams, 1998). This investigation was no exception with the elite players having significantly higher scores in trait self-confidence when compared to the college and high school groups.

Possible reasons for the elite soccer players demonstrating having the highest trait self-confidence scores could have been due to their level of experience and expertise. It is safe to assume that the U.S. Women's National team had more soccer expertise and successful playing experience than Division III collegiate and high school female soccer players. Another contributing factor could have been that at the time of data collection, the elite players were staying at the first-ever residential soccer training facility. Players living and training together for months could have heightened their self-confidence. Oddly enough, the U.S. National Team lost the upcoming 1995 World Cup and the U.S. Soccer Association never again sponsored a residential camp for an extended amount of time for either men's or women's soccer teams.

This investigation's findings of mental preparation skills also suggests there are some psychological differences between elite, college, and high school female soccer players. The elite group had significantly higher mental preparation skills when compared to either college or high school players. These findings are consistent with much of the research on mental preparation and success of sport participants (Meyers et al., 1979; Adams, 1991; Bowe, 1994; Hall et al., 1990; Barr & Hall, 1992; Salmon et al., 1994; Gould et al., 1999). One explanation for the elite players scoring higher in mental preparation skills than college and high school players could have been their exposure to Psychological Skills Training (PST). More and more elite performers take part in a structured PST organized by sport psychologists. In fact, after the 1995 Women's World Cup, the U.S. Soccer Association employed a full-time sport psychologist to implement mental preparation training for the women's national team. It would be interesting to compare psychological scores of the U.S. women's team now, after years of extensive

PST, to the scores collected in the spring of 1995. When asked why the U.S. Women's National Team won the 1999 Women's World Cup, the Head Coach, Tony DiCiccio answered "the psychology of the team was one of the right mentality and level of commitment; 'Find a way to win' was the attitude in every game; the team was unwilling to lose." (DiCiccio, 2000, p.19).

The final personality trait of this investigation that found differences between skill levels was leadership skills. This study found that the college female soccer players had higher scores in leadership skills when compared to high school and elite players. These findings contradict Glenn's (1989) and Glenn and Horn's (1993) investigation of soccer players. They found that female athletes high in perceived sport competence and global self-worth, and lower in competitive trait anxiety were more likely to be identified as leaders by themselves and their peers. However, in this study, the group with the highest score in leadership skills also had the highest score in competitive trait anxiety.

The only two personality factors examined in this investigation that found no differences when comparing ability levels were concentration skills and achievement motivation levels. Research in concentration skills and sport success has produced equivocal results (Etzel, 1979; Van Schoyk & Grasha, 1981; Albrecht & Feltz, 1987; Landers et al. 1986; Mahoney et al. 1987; Adams, 1991; Bowe, 1994; Smith & Clack, 1996; Gould et al. 1999). However, the results of this investigation are not consistent with most of the research in achievement motivation and skill level (Yearly, 1971; Bird, 1980; Lubking, 1980; Bowe, 1994; Smith & Clack, 1996). These studies found there to be differences between elite athletes' achievement motivation levels when compared to athletes of lesser skill.

Conclusions

Based upon the hypothesis, statistical findings, limitations and delimitations of this investigation, the following conclusions were drawn:

- 1.) Elite female soccer players exhibit more trait self-confidence than high school and college female soccer players.
- 2.) Elite female soccer players use mental preparation skills, especially imagery, more often and effectively than college and high school female soccer players.
- 3.) Psychological variables of concentration and achievement motivation levels do not differ between varying skill levels of female soccer players.
- 4.) Scores in competitive trait anxiety could be traced to the overall team success or non-success of female soccer players.
- 5.) College female soccer players exhibit more leadership skills than elite and high school female soccer players.

Recommendations

After the literature review, results and conclusions of this research, the following recommendations for further research are suggested:

- 1.) To further investigate the reliability and validity of the Mental Toughness Questionnaire (Smith, 1994).
- 2.) To further investigate the comparison of psychological traits of male and female athletes in both team and individual sports.
- 3.) To further investigate female peer group leadership skills and their relation to competitive-trait anxiety. Possible future research could investigate Anderson's (1987), Witting's (1987), and Glenn's (1989) and Glenn and Horn's (1993) theory of female's sex-role orientation and psychological androgyny to better explain the results of this investigation. Maybe examining the masculine and feminine – role endorsements of the collegiate sample used in this study could provide insight into why this group with the highest trait anxiety had the highest leadership scores as well.
- 4.) To replicate this study using teams of equal success or non-success.

REFERENCES

- Abernathy, B. (1993). Attention. In R.N. Singer, M. Murphy, and L.K. Tennant (Eds.), Handbook for research in sport psychology (pp.127-170). New York: MacMillian.
- Abernathy, B., Summers, J., and Ford, S. (1998). Issues in the measurement of attention. In J.L. Duda (Ed.), Advances in sport and exercise psychology measurement. Morgantown, WV: Fitness Information Technology, Inc.
- Adams, L. (1991). A comparative analysis of cognitive differences among female elite and nonelite high school field hockey players and high school physical education class nonathletes. Unpublished Master's Thesis, SUNY Brockport, Brockport, NY.
- Albrecht, R.R. and Feltz, D.L. (1987). Generality and specificity of attention related to competitive anxiety and sport performance. Journal of Sport Psychology, 9, 231-248.
- Albu, V. (1988). Intrinsic motivation, intercollegiate athletics and funding. Unpublished Master's Thesis, University of Western Ontario, London, Ontario.
- Allport, G. W. (1961). Pattern and growth in personality. New York: Holt.
- Anderson, M. and Williams, J. (1987). Gender role and sport competition anxiety: A re-examination. Research Quarterly for Exercise and Sport, 58, 52-56.
- Anshel, M. (1994). Sport psychology (2nd Ed.), Scottsdale, AZ: Gorsuch Scarisbrick Publishers.
- Archer, N. (1987). A model goal setting program for individual and team basketball performances. Unpublished Master's Thesis, Winthrop College.

- Atienza, F., Balaguer, I., and Garcia-Merita, M. (1994). Factor Analysis and reliability of the Movement Imagery Questionnaire. Perceptual and Motor Skills, 78, 1323-1328.
- Barr, K. and Hall, C. (1992). The use of imagery by rowers. International Journal of Sport Psychology, 23, 243-261.
- Begley, G. (1979). A self-report measure to assess flow in physical activity. Unpublished Master's Thesis, Pennsylvania State University.
- Bird, G. (1980). Sport motivation among three levels of high calibre soccer players. Unpublished Doctoral Dissertation, University of North Carolina at Greensboro, Greensboro, NC.
- Boutcher, S.H. (1992). Attention and athletic performance: An integrated approach. In T.S. Horn (Ed.), Advances in sport psychology. Human Kinetics: Champaign, IL.
- Boutcher, S.H. and Crews, D.J. (1987). The effect of a preshot routine on a well-learned skill. International Journal of Sport Psychology, 18, 30-39.
- Bowe, B. (1994). A comparison of six personality factors between professional, college, and high school basketball players. Unpublished Master's Thesis, SUNY Brockport, Brockport, NY.
- Bump, L. (1989). Sport psychology workbook. Champaign, IL: Human Kinetics.
- Buros, O.K. (1978). The eighth mental measurements yearbook (Vol.1). Highland Park, NJ: Gryphon Press.
- Burton, D. (1992). The Jekyll/Hyde nature of goals: Reconceptualizing goal setting in sport. In T.S. Horn (Ed.), Advances in sport psychology. Human Kinetics: Champaign, IL.

Butt, D.S. (1976). Psychology of sport: The behavior, motivation, personality, and performance of athletes. New York: Van Nostrand Reinhold.

Butt, D.S. (1979b). Short scales for the measurement of sport motivation. International Journal of Sport Psychology, 10, 203-216.

Carron, A. (1978). Motivating the athlete. In W.F. Straub (Ed.), Sport psychology and analysis of athlete behavior. New York: Mouvement Publications.

Carron, A. (1984). Motivation implications for coaching and teaching. London, Ontario: Sport Dynamics.

Cervone, D., Jiwani, N., and Wood, R. (1991). Goal setting and the differential influence of self-regulatory process on complex decision making performance. Journal of Personality and Social Psychology, 61, 257-266.

Chartrand, J., Jowdy, D. and Danish, S. (1992). The psychological skills inventory for sports: Psychometric characteristics and applied implications. Journal of Sport and Exercise Psychology, 14, 405-413.

Cofer, C.N. and Johnson, W.R. (1960). Personality dynamics in relation to exercise and sports. In W.R. Johnson (Ed.), Science and medicine of exercise and sport. New York: Harper & Row.

Cooper, L. (1969). Athletic, activity and personality: A review of the literature. Research Quarterly, 40, 17-22.

Cox, R. (1994). Sport psychology: Concepts and application. Madison, WS: Brown & Benchmark Publishers.

- Cox, R. (1998). Sport psychology: Concepts and application. Madison, WS: Brown & Benchmark Publishers.
- Crandall, V.J. (1963). Achievement. Yearbook of the National Society for the Study of Education, 42, Part J, 416-459.
- Crews, D.J. and Boutcher, S.H. (1986). The effects of structured preshot behaviors on beginning golf performance. Perceptual and Motor Skills, 62, 291-294.
- Crews, D.J. and Boutcher, S.H. (1987). An observational analysis of professional female golfers during tournament play. Journal of Sport Behavior, 9, 51-58.
- Csikszentmihalyi, M. (1975). Beyond boredom and anxiety. San Francisco: Jossey-Boss.
- Davis, H. (1991). Criterion validity of the Athletic Motivation Inventory: Issues in professional sport. Journal of Applied Sport Psychology, 3, 172-182.
- DiCiccio, T. (2000). How they won the cup: DiCiccio discusses the strengths of the women's national team. Soccer Journal, 45, 19-22.
- Drake, B. (1997). Effects of an intercollegiate sport season on selected personality traits and mental preparation skills. Unpublished Master's Thesis, State University of New York at Brockport, Brockport, NY.
- Duda, J.L. (1989). Relationship between task and ego orientation and the perceived purpose of sport among high school athletes. Journal of Sport and Exercise Psychology, 11, 318-335.
- Duda, J.L. (1992). Motivation in sport settings: A goal perspective approach. In G.C. Roberts (Ed.), Motivation in sport and exercise. Human Kinetics: Champaign, IL.

- Duda, J.L. (1994). Mental readiness: (video recording No. 2176N). Indianapolis, IN:
- Duda, J.L. and Nicholls, J.G. (1992): Dimensions of achievement motivation in schoolwork and sport. Journal of Educational Psychology, 84, 290-299.
- Duda, J.L. and White, S.A. (1992). Goal orientation and beliefs about the causes of sport success among elite skiers. The Sport Psychologist, 6, 334-343.
- Durtschi, S. (1983). Psychological characteristics of elite and non-elite marathon runners. Unpublished Master's Thesis, University of Oregon.
- Dweck, C.S. (1980). Learned helplessness in sport. In C.H. Nadeau, W.R. Halliwell, K.M. Newell and G.C. Roberts (Eds.), Psychology of motor behavior and sport. Human Kinetics: Champaign, IL.
- Edwards, A.L. (1959). Manual for the Edwards personal preference scale. New York: Psychological Corporation.
- Engleman, M. and Pease, D. (1987). Role of perceived leadership in relation to situational and psychological factors in youth sports. Paper presented at the American Alliance for Health, Physical Education, Recreation, and Dance.
- Etzel, E.F. (1979). Validation of a conceptual model characterizing attention among international rifle shooters. Journal of Sport Psychology, 9, 231-248.
- Fiedler, F.E. (1964). A contingency model of leadership effectiveness. In L. Berkowitz (Ed.), Advances in experimental social psychology. New York: Academic Press.
- Fisher, A. C. (1977). Sport personality assessment: Fact, fiction, and methodological

re-examination. In R.E. Stadulis (Ed.), Research and practice in physical education.
Human Kinetics: Champaign, IL.

Ford, S. (1996). Measuring attention in sport. Unpublished Doctoral Dissertation,
University of Melbourne, Parkville, Victoria.

Garland, H. (1982). Goal levels and task performance: A compelling replication of
some compelling results. Journal of Applied Psychology, 67, 245-248.

Gill, D.L. (1986). Competitiveness among females and males in physical activity
classes. Sex Roles, 15, 243-257.

Gill, D.L. (1993). Competitiveness and competitive orientations in sport. In R.N.
Singer, M.Murphy, and L.K. Tennabt (Eds.), Handbook of research on sport psychology
(pp.314-327). New York: MacMillian.

Gill, D.L. and Deeter, T. (1988). Development of the sport orientation
questionnaire. Research Quarterly for Exercise and Sport, 59, 191-202.

Gill, D.L., Dzewaltowski, D., and Deeter, T. (1988). The relationship of
competitiveness and achievement orientation to participation in sport and nonsport
activities. Journal of Sport and Exercise Psychology, 10, 139-150.

Glenn, S. (1989). The psychological predictors of leadership behavior in female
soccer athletes. Unpublished Master's Thesis, Miami University, Oxford, OH.

Glenn, S. and Horn, T. (1993). Psychological and personal predictors of leadership
behavior in female soccer athletes. Journal of Applied Sport Psychology, 5, 17-34.

Goss, S. (1985). Imagery ability and learning of four movement patterns.
Unpublished Master's Thesis, University of Western Ontario, London, Ontario, Canada.

- Gough, H.G. (1953). The construction of a personality scale to predict scholastic achievement. Journal of Applied Psychology, 37, 361-367.
- Gould, D., Guinan, D., Greenleaf, C., Medbery, R., and Peterson, K. (1999). Factors affecting Olympic performance: Perceptions of athletes and coaches from more and less successful teams. The Sport Psychologist, 13, 371-394.
- Gould, D., Horn, T. and Spreeman, J. (1983). Perceived anxiety of elite junior wrestlers. Journal of Sport Psychology, 5, 58-71.
- Gould, D., Tammen, V. Murphy, S. and May, J. (1989). An examination of the U.S. Olympic sport psychology consultants and the services they provide. The Sport Psychologist, 3, 300-312.
- Gould, D., Weiss, M., and Weinberg, R.S. (1981). Psychological characteristics of successful and unsuccessful Big Ten wrestlers. Journal of Sport Psychology, 3, 69-81.
- Goss, Hall, C., Bucholz, E. and Fishburne, G. (1986). Imagery ability and the acquisition and retention of movements. Memory & Cognition, 14, 469-477.
- Guilford, J.P. (1959). Personality. New York: McGraw-Hill.
- Hall, C. (1998). Measuring imagery abilities and imagery use. In J.L Duda (Ed.), Advances in sport and exercise psychology measurement. Morgantown, WV: Fitness Information, Technology, Inc.
- Hall, C., Bucholz, E., and Fishburne, G. (1989). Searching for a relationship between imagery ability and memory of movements. Journal of Human Movement Studies, 17, 89-100.
- Hall, C. and Martin, K. (1997). Measuring movement imagery abilities: A revision of the Movement Imagery Questionnaire. Journal of Mental Imagery, 21, 143-154.

Hurley, J.R. (1955). The Iowa picture interpretation test: A multiple choice variation of the T.A.T. Journal of Consulting Psychology, 19, 372-376.

Isaac, A. (1992). Mental practice – does it work in the field? The Sport Psychologist, 6, 192-198.

Isaac, A., Marks, D., and Russell, E. (1986). An instrument for assessing imagery of movement: The Vividness of Movement Questionnaire (VMIQ). Journal of Mental Imagery, 10, 23-30.

Jones, G. (1993). The role of performance profiling in cognitive-behavioral interventions in sport. The Sport Psychologist, 7, 160-172.

Jones, G and Swain, A. (1995). Predispositions to experience debilitating and facilitative anxiety in elite and nonelite performers. The Sport Psychologist, 9, 201-211.

Katz, A. (1983). What does it mean to be a high imager? In J.C. Yuille (Ed.), Imagery, memory and cognition. Hillsdale, NJ: Lawrence Erlbaum.

Klinger, E. (1984). A consciousness-sampling analysis of test anxiety and performance. Journal of Personality and Social Psychology, 47, 223-224.

Koczajowski, D. (1996). State and trait sport confidence and physical efficacy of professional and amateur female golfers. Unpublished Master's Thesis, Springfield College, Springfield, MA.

Landers, D.M. (1981). Arousal, attention, and skilled performance: Further considerations. Quest, 33, 271-283.

Landers, D.M. (1985). Beyond the TAIS: Alternative behavioral and psychophysiological measures for determining an internal vs. external focus of attention.

Paper presented at the North American Society for the Psychology of Sport and Physical Activity Conference, Gulfpark, MS.

Landers, D.M., Boutcher, S.H., and Wang, M.Q. (1986). A psychobiological study of archery performance. Research Quarterly for Exercise and Sport, 57, 236-244.

Lazarus, R. and Monat, A. (1979). Personality (3rd Ed.). Englewoods Cliffs: Prentice-Hall.

Lee, M., Coburn, T. and Partridge, R. (1981). The influence of team structure in determining leadership function in association football. Journal of Sport Behavior, 6, 59-66.

Lerher, B and Locke, E. (1995). The effects of goal setting, self-efficacy, competition, and personal traits on performance of an endurance task. Journal of Sport and Exercise Psychology, 17, 138-152.

LeUhes, A., Hayward, S.A. and Daiss, S. (1988). Annotated bibliography on the Profile of Mood States in sport. Journal of Sport Behavior, 11, 213-240.

Levy, N. (1958). A short form of the children's manifest anxiety scale. Child Development, 29, 153-154.

Locke, E., Frederick, E., Lee, C., and Bobco, P. (1984). Effects of self-efficacy, goals, and task strategies on task performance. Journal of Applied Psychology, 69, 241-251.

Locke, E. and Latham, C. (1990). A theory of goal setting and task performance. Englewood Cliffs: Prentice Hall.

Loehr, J. (1986). Mental toughness training for sports: Achieving athletic excellence. Lexington, MA: Stephen Greene Press.

- Lubking, S. (1980). Athletic scholarships: Effects on expectations, motivation, and player attitudes of college women athletes. Unpublished Master's Thesis, Temple University.
- Maehr, M.L. and Braskamp, L. (1986). The motivation factor: A theory of personal investment. Heath: Lexington, MA.
- Maehr, M.L. and Nicholls, J.G. (1980). Culture and achievement motivation: A second look. In N. Warren (Ed.), Studies in cross-cultural psychology. New York: Academic Press.
- Mahoney, M.J. (1979). Cognitive skills and athletic performance. In P.C. Kendall and S.D. Hollon (Eds.), Cognitive-behavioral interventions: Theory, research, and procedures. New York: Academic Press.
- Mahoney, M.J. (Ed.) (1986). Clinical sport psychology. The Clinical Psychologist, 39(3), 64-81.
- Mahoney, M.J. and Avenier, M. (1977). Psychology of the elite athlete: A exploratory study. Cognitive Therapy and Research, 1, 135-141.
- Mahoney, M.J., Gabriel, T.J. and Perkins, T.S. (1987). Psychological skills and exceptional athletic performance. The Sport Psychologist, 1, 181-199.
- Maltz, M. (1960). Psycho-cybernetics: A new way to get more living out of life. New Jersey: Prentice-Hall.
- Manzo, L. (1994). Psychometric assessment of the Carolina Sport Confidence Inventory. Unpublished Master's Thesis, University of North Carolina at Chapel Hill.
- Marks, D. (1973). Visual imagery differences in the recall of pictures. British Journal of Psychology, 64, 17-24.

- Martens, R. (1975). Social psychology and physical activity. New York: Harper & Row.
- Martens, R. (1982). Imagery in sport. Paper presented at the Medical and Scientific Aspects of Elitism in Sport Conference, Brisbane, Australia.
- Martens, R. (1987). Coaches guide to sport psychology. Human Kinetics: Champaign, IL.
- Martens, R. and Gill, D. (1976). State anxiety among successful and unsuccessful competitors who differ in competitive trait anxiety. Research Quarterly, 47, 698-708.
- Martens, R., Vealey, R., and Burton, D. (1990). Competitive anxiety in sport. Human Kinetics: Champaign, IL.
- McClelland, D.C., Atkinson, J.W., Clark, R.W. and Lowell, E.L. (1953). The achievement motive. New York: Appleton-Century-Crofts.
- Mehrabian, A. (1968). Male and female scales of tendency to achieve. Educational and Psychological Measurements, 28, 493-502.
- Meyers, A., Cooke, C., Cullen, J. and Liles, L. (1979). Psychological aspects of athletic competitors: A replication across sports. Cognitive Therapy and Research, 3, 361-366.
- Miller, B. and Miller, A. (1985). Psychological correlates of success in elite sportswomen. International Journal of Sport Psychology, 16, 289-295.
- Mink, R. (1995). Confirmatory factor analysis of the Carolina Sport Confidence Inventory. Unpublished Master's Thesis, University of North Carolina at Chapel Hill.
- Moran, A. (1993). Conceptual and methodological issues in the measurement of mental imagery skills in athletes. Journal of Sport Behavior, 16, 157-170.

Morgan C. and Murray, H. (1935). A method for investigating fantasies. Archives of Neurology and Psychiatry, 289-306.

Morgan, W.P. (1979). Prediction of performance in athletics. In P. Klavora and J.V. Daniel (Eds.), Coach, athlete, and sport psychologist. Champaign, IL: Human Kinetics.

Morgan, W.P. (1980). The trait psychology controversy. Research Quarterly for Exercise and Sport, 51, 50-76.

Morgan, W.P. and Pollock, M.L. (1977). Psychological characterization of the elite distance runner. Annals of New York Academy of Science, 301, 382-403.

Murphy, S., and Tammen, V. (1998). In search of psychological skills. In J.L. Duda (Ed.), Advances in sport and exercise psychology measurement (pp.195-209).

Morgantown, WV: Fitness Information Technology.

Murray, H.A. (1936). Techniques for a systematic investigation of fantasy. The Journal of Psychology, 3, 115-143.

Murray, H.A. (1938). Explorations in personality. New York: Oxford University Press.

Nelson, D., and Hardy, L. (1990). The development of an empirically validated tool for measuring psychological skill in sport. Journal of Sport Sciences, 8, 71.

Newton, M. and Duda,, J.L. (1993). The relationship of task and ego orientation to performance-cognitive content, affect, and attributions in bowling. Journal of Sport Behavior, 16, 209-220.

Nicholls, J.G. (1989). The competitive ethos and democratic education. Cambridge, MA: Harvard University Press.

Nideffer, R. (1976). The inner athlete. New York: Crowell.

- Nideffer, R. (1981). The ethics and practice of applied sport psychology. Ithaca, NY: Movement Publications.
- Nideffer, R. (1986). Concentration and attention control training. In J.M. William (Ed.), Applied sport psychology. Palo Alto, CA: Mayfield Publishing.
- Nideffer, R. and Sagal, M. (1998). Concentration and attention control training. In J.M. William (Ed.), Applied sport psychology. Mayfield Publishing Company: Mountain View, CA.
- Ogilvie, B.C. (1976). Psychological consistencies within the personality of high-level competitors. In A.C. Fisher (Ed.), Psychology of sport. Palo Alto, CA: Mayfield.
- Orlick, T. and Partington, J. (1988). Mental links to excellence. Sport Psychologist, 2, 105-130.
- Paivio, A. (1985). Cognitive and motivational functions of imagery in human performance. Canadian Journal of Applied Sport Sciences, 10, 225-285.
- Perry, J. and Williams, J. (1998). Relationship of intensity and direction of competitive trait anxiety to skill level and gender in tennis. The Sport Psychologist, 12, 169-179.
- Power, S. (1982). An analysis of anxiety levels in track and field athletes of varying ages and abilities. International Journal of Sport Psychology, 13, 258-267.
- Randall, L. (1982). The validation of an instrument to assess competitive motivation of youth sport participants. Unpublished Doctoral Dissertation, Springfield College, Springfield, MA.
- Rees, C. (1982). Instrumental and expressive leadership in team sports: A test of leadership role of differentiation theory. Journal of Sport Behavior, 6, 17-27.

Richardson, A. (1978). Mental imagery and memory: Coding ability or coding preference? Journal of Mental Imagery, 2, 101-116.

Richman, C.L. and Rehberg, H. (1986). The development of self-esteem through the martial arts. International Journal of Sport Psychology, 17, 234-239.

Roberts, G. (1993). Motivation in sport: Understanding and enhancing the motivation and achievement of children. In R.N. Singer, M. Murphy, and L.K. Tennant (Eds.), Handbook of research on sport psychology (pp.405-420). New York: MacMillian.

Roberts C. and Treasure, D. (1995). Achievement goals, motivation climate, and achievement strategies and behaviors in sport. Journal of Sport Psychology, 26, 64-80.

Roberts, G., Treasure, D., and Balague, G. (1998). Achievement goals in sport: The development and validation of the Perceptions of Success Questionnaire. Journal of Sport Sciences, 16, 337-347.

Robinson, W. (1984). The effects of skill level on EMG activity during internal and external imagery. Unpublished Master's Thesis, Pennsylvania State University.

Rodgers, W., Hall, C., and Bucholz, E. (1991). The effect of an imagery training program on imagery ability, imagery use, and figure skating performance. Journal of Applied Sport Psychology, 2, 350-354.

Ruffer, W. (1975). Personality traits of athletes. The Physical Educator, 32(1), 105-109.

Ruffer, W. (1976). Personality traits of athletes. The Physical Educator, 33, 50-55, 211-214.

Salmon, J., Hall, C., and Haslam, I. (1994). The use of imagery by soccer players. Journal of Applied Sport Psychology, 6, 116-133.

Sarason, S., Davidson, K., Lighthall, F., Waite R. and Ruebush, B. (1960). Anxiety in elementary school children. New York: Wiley.

Scanlon, T. and Passer, M. (1978). Factors related to competitive stress among male youth sports participants. Medicine and Science in Sports, 10, 103-108.

Scanlon, T. and Passer, M. (1979). Sources of competitive stress in young female athletes. Journal of Sport Psychology, 1, 151-159.

Schomer, H. (1986). Mental strategies and the perception of effort of marathon runners. International Journal of Sport Psychology, 17, 41-59.

Smith, D. (1991). Imagery in sport: An historical overview. In R.G. Kunzendorf (Ed.), Mental imagery. New York: Plenum Press.

Smith, D. (1994). Mental toughness questionnaire, Unpublished Questionnaire.

Smith, D., and Clack, S. (1996). A comparative analysis of seven mental toughness variables in National Hockey League players. Unpublished Manuscript.

Smith, R., Schultz, R., Smoll, F. and Ptacek, J. (1995). Development and validation of a multidimensional measure of sport-specific psychological skills: The Athletic Coping Skills Inventory – 28. Journal of Sport and Exercise Psychology, 17, 379-399.

Smith, R., Smoll, F. and Schultz, R. (1990). Measurement and correlates of sport-specific cognitive and somatic trait anxiety: The Sport Anxiety Scale. Anxiety Research, 2, 263-280.

Smith R., Smoll, F., and Wiechmann, S. (1998). Measurement of trait anxiety in sport. In J.L. Duda (Ed.), Advances in sport and exercise psychology measurement. Morgantown, WV: Fitness Information Technology, Inc.

- Smith, T. (1983). Competitive trait anxiety in youth sport: Differences according to age, sex, race, and playing status. Perceptual and Motor Skills, 57, 1235-1238.
- Spielberger, C. (1966). Anxiety and behavior. New York: Academic Press.
- Spielberger, C. (1973). Preliminary test manual for the State-Trait Anxiety Inventory for Children. Palo Alto, CA: Consulting Psychologists.
- Spielberger, C., Gorsuch, R.L., and Lushene, R.F. (1970). Manual for the state-trait anxiety inventory. Palo Alto, CA: Consulting Psychologists.
- Stroop, J.P. (1935). Studies of interference in serial verbal reactions. Journal of Experimental Psychology, 18, 643-662.
- Summers, J., Miller, K., and Ford, S. (1991). Attentional style and basketball performance. Journal of Sport and Exercise Psychology, 8, 239-253.
- Tammen, V. and Murphy, S. (1990). Reevaluating the Psychological Skills Inventory for Sports: Factor analysis and implications. Paper presented at the annual meeting of the North American Society of Psychology of Sport and Physical Activity, Asilomar, CA.
- Thomas, P., Hardy, L., and Murphy, S. (1996). Development of a comprehensive test of psychological skills for practice and performance. Journal of Applied Sport Psychology, 8, Supplement, S119.
- Tropp, K. and Landers, D. (1979). Team interaction and emergence of leadership and interpersonal attraction in field hockey. Journal of Sport Psychology, 1, 228-240.
- Tutko, T.A., Lyon, L.P., and Ogilvie, B.C. (1969). Athletic motivation inventory. San Jose, CA: Institute for the Study of Athletic Motivation.
- Van Schoyck, S.R. and Grasha, A.F. (1981). Attentional style variations and athletic ability: The advantages of a sport-specific test. Journal of Sport Psychology, 3, 149-165.

Vealey, R. (1986). Conceptualization of sport-confidence and competitive orientation: Preliminary investigation and instrument development. Journal of Sport Psychology, 8, 221-246.

Vealey, R. (1988). Competitive trait anxiety: Use and interpretation of the sport competition anxiety test. Paper presented at the annual convention of the North American Society for the Psychology of Sport and Physical Activity. Knoxville, TN.

Vealey, R. (1989). Sport personality: A paradigmatic and methodological analysis. Journal of Sport and Exercise Psychology, 11, 216-235.

Weinberg, R. and Gould, D. (1995). Foundations of sport and exercise psychology. Human Kinetics: Champaign, IL.

Weinberg, R. and Hunt, V. (1976). The interrelationships between anxiety, motor behavior, motor performance, and electromyography. Journal of Motor Behavior, 8, 219-224.

White, S. and Duda, J. (1994). The relationship of gender, level of sport involvement, and participation motivation to task and ego orientation. International Journal of Sport Psychology, 25, 4-18.

Williams, J. (1986). Applied sport psychology. Palo Alto, CA: Mayfield Publishing Company.

Williams, L. and Parkins, W. (1980). Personality factor profiles of three hockey groups. International Journal of Sport Psychology, 11, 113-120.

Wittig, A., Duncan, S., and Schurr, K. (1987). The relationship of gender, gender-role endorsement and perceived physical self-efficacy to sport competition anxiety. Journal of Sport Behavior, 11, 192-199.

Yearly, S. (1971). A comparison of achievement motive and anxiety level in college women athletes in selected sports. Unpublished Master's Thesis, University of Massachusetts, Amherst, MA.

Youngblood, P. and Suinn, R. (1980). A behavioral assessment of motivation. In R. Suinn (Ed.), Psychology in sports: Methods and applications. Minneapolis, MN: Burgess Publishing.

Yukelson, D., Weinberg, R., Richardson, P., and Jackson, A. (1983). International attraction and leadership within collegiate sport teams. Journal of Sport Behavior, 6, 29-36.

APPENDIX A

APPENDIX A

10
1

INFORMED CONSENT

An examination of psychological differences
between elite, college, and high school
female soccer players

I am asking you to participate in an investigation examining six personality traits of elite, college, and high school female soccer players. The significance of this investigation is to see if any differences exist. For your participation, I am asking you to complete three questionnaires.

Data obtained from these questionnaires will be strictly confidential and your identity will remain anonymous in any report about this investigation. Only group data will be reported and individual data will not be reported by name or by subject number. These questionnaires will take about 15 minutes to complete. If at any time, or for any reason, you can withdraw from completing this questionnaire. You can also refuse to answer any, if you so choose. You may ask me at any time any questions that you might have.

If you have any questions at a later time, you may call Joan Schockow (), principal investigator, or Dr. Daniel Smith (), investigation supervisor.

In order to be a part of this investigation, your consent to participate is needed. Please read the rights you have as a participant and indicate your willingness to participate by signing below.

INFORMED CONSENT

As a participant, I understand my rights. The purpose of this investigation has been defined and explained to me and I understand the explanation. Participation in this investigation does not guarantee any beneficial results to me. I understand that my data and answers to the questions will remain anonymous and confidential. I also understand that I can discontinue my participation at any time without penalty or prejudice. I voluntarily consent to participate in the described investigation.

Signature: _____ Date: _____

Print full name: _____

APPENDIX B

GENERAL INSTRUCTIONS

It is important to read the directions for each section before answering the questions. MAKE SURE THAT YOU ANSWER EACH QUESTION ACCORDING TO HOW YOU ACTUALLY FEEL AND NOT SIMPLY WHAT YOU THINK SOUNDS GOOD. Do not spend too much time on any one statement. There are no wrong or right answers.

SECTION ONE

DIRECTIONS: Below are some statements about how persons feel when they compete in soccer. Read each statement and decide if you **HARDLY EVER**, **SOMETIMES**, or **ALWAYS** feel this way when you compete in soccer. If your choice is **HARDLY EVER**, circle the number 1, if your choice is **ALWAYS**, circle the number 10, or circle any number in between. Remember to choose the word that describes how you usually feel when competing.

	<u>HARDLY</u>	<u>EVER</u>	<u>SOMETIMES</u>	<u>ALWAYS</u>						
1. Before I compete I feel uneasy.	1	2	3	4	5	6	7	8	9	10
2. Before I compete I worry about not performing well.	1	2	3	4	5	6	7	8	9	10
3. When I compete I worry about making mistakes.	1	2	3	4	5	6	7	8	9	10
4. Before I compete I am calm.	1	2	3	4	5	6	7	8	9	10
5. Before I compete, I get a queasy feeling in my stomach.	1	2	3	4	5	6	7	8	9	10
6. Just before competing I notice my heart beats faster than usual.	1	2	3	4	5	6	7	8	9	10
7. Before I compete I am relaxed.	1	2	3	4	5	6	7	8	9	10
8. Before I compete I am nervous.	1	2	3	4	5	6	7	8	9	10
9. I get nervous waiting to start the game.	1	2	3	4	5	6	7	8	9	10
10. Before I compete I usually get up tight.	1	2	3	4	5	6	7	8	9	10

9. Compare your confidence in your ability to think and respond successfully during competition to the most confident athlete you know. 1 2 3 4 5 6 7 8 9 10
10. Compare your confidence in your ability to meet the challenge of competition to the most successful athlete you know. 1 2 3 4 5 6 7 8 9 10
11. Compare your confidence in your ability to be successful even when the odds are against you to the most confident athlete you know. 1 2 3 4 5 6 7 8 9 10
12. Compare your confidence in your ability to bounce back from performing poorly and be successful to the most confident athlete you know. 1 2 3 4 5 6 7 8 9 10

SECTION THREE

The statements below describe various aspects of soccer competition. Circle the number which corresponds most closely to how you feel about each statement. ONE means you STRONGLY DISAGREE with the statement, TEN means you STRONGLY AGREE with the statement.

- | | <u>STRONGLY DISAGREE</u> | | | | | <u>STRONGLY AGREE</u> | | | | |
|---|--------------------------|---|---|---|---|-----------------------|---|---|---|----|
| 1. I often have trouble concentrating during games. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 2. I regularly think about soccer. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 3. I am very motivated to perform well in soccer. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 4. I don't speak out in team meetings because I feel like I don't have anything important to add to the discussion. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 5. When I am actually playing, I am almost totally unaware of the audience. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 6. I often rehearse my soccer performance in my head before I perform. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

- | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|----|
| 7. At times I lack the motivation to train hard. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 8. I like the responsibility of being team captain. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 9. When I am playing poorly, I tend to lose my concentration. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 10. When I am preparing for a game, I try to imagine what it would feel like in my mind. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11. I would like to be more motivated in soccer. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 12. My teammates come to me with their problems. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 13. When I make mistakes, I have trouble forgetting them and returning my concentration to my performance. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 14. Before a game, I often wish that I were better prepared. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 15. I set goals for myself. Usually I achieve them. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 16. I don't really like telling my teammates what to do. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 17. During a game, my attention seems to go back and forth between my performance and other things. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 18. I know how to get myself mentally ready. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 19. At this point in my life, the most important thing to me is to do well in soccer. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 20. If a teammate is not putting out, I tell her that I am angry. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

21. It sometimes bothers me for days
after the coach has chewed me out. 1 2 3 4 5 6 7 8 9 10
22. Soccer is my entire life. 1 2 3 4 5 6 7 8 9 10
23. I don't speak up in team meetings
because I am afraid I might be criticized. 1 2 3 4 5 6 7 8 9 10