

SPORT MOTIVATION AND PERSONALITY TRAITS IN NCAA DIVISION I STUDENT-
ATHLETES: AN EXAMINATION OF AMOTIVATION

by

DREW R. BRANNON

(Under the Direction of Linda Campbell)

ABSTRACT

Motivation, which involves prompting movement, is recognized as a critical issue in the field of psychology because it is a chief concern for those in roles that consist of mobilizing others to act. The breadth of the motivation research is staggering, as some individuals have estimated that one-third of all studies in psychology deal with motivation in some manner (Roberts, 1992). Many of these studies have been conducted in the sub-discipline of sport and exercise psychology, in part because motivation is thought to be the “foundation of sport performance and achievement” (Duda & Treasure, 2001). These studies have sought to establish a better understanding of methods that might create environments that could enhance athlete motivation, thus creating improved training and performance.

The present study surveyed the forms and levels of sport motivation in a sample of NCAA Division I student-athletes, while also considering the possible role of personality as a significant predictor in motivation. Similar research has been conducted in the area of academic motivation in undergraduate students (Komarraju & Karau, 2005). The study utilized a sample of 144 NCAA Division I student-athletes at a large university in the southeastern United States and took a critical focus on the construct of amotivation, which is defined as a complete lack of

motivation in which behaviors are carried out for neither intrinsic, nor extrinsic reasons. Those who are amotivated lack purpose or expectation in their participation of tasks (Deci & Ryan, 1985).

Results indicated that the personality traits of anxiety ($p < .000$), achievement-striving ($p = .005$), and assertiveness ($p = .043$) (as measured by the 3 dimensions of the NEO PI-R) were all significant predictors of amotivation. Also, a one-way ANOVA of sport played and amotivation yielded significant mean differences. Although additional research must be conducted to solidify these findings, the yielded data could, ultimately, prove noteworthy for mental health professionals working to improve and maintain collegiate student-athlete well-being.

INDEX WORDS: Motivation; Amotivation; Self-Determination Theory; Personality; Student-Athlete

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DEDICATION

To my girls — Madi, Meg, and Rachel

Madi, I promised you and your Mommy that I would finish this mammoth task before you were born and I did! May the hours spent working to that end now be multiplied in time spent with you!

Meg, what a joy you are! You have been the presence that has snapped me back into reality in the many times in which I was tempted to be stressed, frustrated, or uncertain. Your youth energizes me, and your smile makes it all worth it!

Rachel, what can I say? It's been a grind, and you have been with me every step of the way. Thank you for your sacrifice, your understanding, and your unconditional support through the challenges that have comprised graduate school. I love you beyond measure and am privileged to call you my partner in life. May I learn, one day, to give as you do.

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To an unnamed psychologist in South Carolina, thank you for telling me that I didn’t have what it took to make it in this field. I needed something to help clarify my career interests, and you did it! That conversation in the spring of 2003 had a profound effect on me, and I have been on a mission ever since.

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CHAPTER 1

INTRODUCTION

Motivation

Derived from the Latin word *motus*, which means to move, motivation involves prompting movement (Cashmore, 2002). Motivation has been described as a central issue to the field of psychology because it is “at the core of biological, cognitive, and social regulation, and is a pre-eminent concern to those in roles that involve mobilizing others to act” (Ryan & Deci, 2000, p. 69). In addition, Roberts (1992) reported that one-third of all studies in psychology deal with motivation in some manner. Despite its prevalence in both psychology’s practice and research, universal agreement on a definition of motivation has yet to be reached. Theories abound on the reasoning behind the lack of consensus regarding how motivation should be defined. Kingston, Harwood, and Spray (2006) hypothesized that motivation could not be objectively described because “it is such a widely used term to which we can all attach personal meaning” (p. 160).

Early attempts to establish a definition focused on the direction and intensity of one’s behavior (Sage, 1977). Later research refuted this view by asserting that unlike a rising and falling construct such as arousal, motivation is more interactional and multidimensional in nature (Roberts, 2001). Many of the proposed definitions describe motivation in terms of behavioral indices. Additionally, motivation is commonly evaluated in terms of one’s ability to sustain a desired goal. Other researchers define motivation quite broadly, referring to the personal drive that leads individuals to initiate, direct, and sustain human behavior (Kingston et al., 2006).

Clearly, the quest to find a parsimonious definition of motivation is a task that does not appear to be complete.

Motivation in Sport

Some of the previously mentioned studies of motivation in the field of psychology have been conducted in the sub-discipline of sport and exercise psychology. Motivation has been called the “foundation of sport performance and achievement” (Duda & Treasure, 2001). Widespread study of motivation within the context of sport has been undertaken because findings can provide crucial information on the external validity of psychological theories and can contribute to a better understanding of the psychological processes underlying participation and adherence in sport and physical activity (Vallerand & Fortier, 1998). This knowledge can then be used to create environments that enhance the motivation of athletes, hopefully leading to improved training and performance. Despite the breadth of this research, the problem of defining motivation has surfaced within the context of sport as well. In fact, Roberts (1992), a leading expert on the construct of sport motivation, suggested that motivation is less well understood in sports than in *any* other area.

Motivation and Collegiate/Elite Athletes

Although there has been a great deal of sport psychology research conducted on the construct of motivation, most of these studies have examined recreational or non-elite athletes (Treasure et. al., 2007). Thus, a gap in the literature exists for those practitioners working with collegiate and elite-level athletes (i.e., individuals who compete professionally on an international and/or Olympic level). Because some people are unfamiliar with the context of elite-level sports, they might question why motivation is such a salient topic for these athletes. Many sport observers do not realize the extreme training loads, solitude, competition schedules,

and travel demands that elite athletes face throughout the year. Due to these factors (and additional ones), motivation can be a significant concern. For sport psychology practitioners working with an elite population, it is critical that they be informed by the appropriate studies and that they not generalize from research conducted on populations that differ significantly in terms of level of competition and contingent outcomes.

Although there is an awareness of this gap in the literature, filling this void is not easily accomplished due to the fact that elite-level performers represent a very small segment of the general population. Also, these athletes can be quite difficult to gain access to for study due to their demanding training schedules. Finally, there is often a tendency for these athletes to be guarded from perceived “outsiders” who may or may not treat research data appropriately. Considering the lack of research conducted on the collegiate/elite athlete population, it appears that sport psychology practitioners and researchers must address the void as they plot future directions for the field.

Burnout

A specific area of application involving athletes and motivation focuses on the issues of training and burnout. Because motivational theory states that individuals who engage in an activity by choice will experience better consequences than those whose participation is less autonomous, researchers have studied the construct of burnout extensively. Burnout is defined as a syndrome characterized by progressive disillusionment, with related psychological and physical symptoms, leading to a diminished sense of self-worth (Freudenberger, 1980). Additionally, athletes may experience burnout when they continually endure physiological and psychological exertion in the quest for a goal without adequate recovery (Gould & Diefenbach, 2002). When athletes suffer from burnout, they often experience chronic fatigue, poor sleep

patterns, depression, and feelings of helplessness. Considering these mentioned factors, it is not surprising that burnout has received considerable attention in the sport psychology literature. Recent research has pointed to motivation as the key variable in explaining the condition of burnout (Cresswell & Eklund, 2005).

Burnout prevention is of particular interest to athletes, coaches, sport psychology practitioners, and other sports medicine personnel. Because the primary need for burned out athletes is rest, prevention must be a central concern. The world of competitive athletics no longer has an off-season, which makes extended periods of rest nearly impossible for athletes (Weinberg & Gould, 2007). If able to monitor athlete motivation (via motivational instruments) sport psychology practitioners could help to reduce burnout prevalence.

Personality and Athletes

Personality has been one of the most prominent subject areas in the psychological research since the 20th century. Within the context of sport, by 1992, more than 1,000 articles had been published on the construct of personality (Vealey, 2002). The breadth of this research highlights the importance that researchers and practitioners place on the role that personality plays in sport. As coaches, administrators, owners, and other sport management figures have attempted to find and/or produce premier athletes, the desire to grasp the psychological implications of athlete personality has grown considerably.

Questions such as “Can successful sport performance be predicted by personality type?” have intrigued people since the pioneering work of Coleman Griffith (1928). Additionally, researchers examined whether athlete personality profiles significantly differ from those yielded by non-athletes (e.g., Schurr, Ashley, & Joy, 1977). Finally, personality research has focused on interviewing and testing successful Olympic athletes to possibly identify an “ideal” performance

personality type that could be replicated, but such attempts have yielded mixed results and have yet to surface any form of conclusive data (e.g., Morgan, 1979; Gould et. al., 2002).

Purpose of the Study

The sheer volume of the psychology literature on motivation demonstrates its importance in all aspects of daily living. In the world of sport, possessing adequate motivation is imperative. Because athletics are outcome oriented, athletes are required to maintain a consistent training schedule and to reach positive performance goals. The athlete who lacks motivation is likely to yield poor performances, which has shown to increase the prevalence of mental health pathology (Lemyre, Treasure, & Roberts, 2006). Clearly, assessing and targeting motivation is a front-line issue for psychologists working with athletes. Additionally, one must account for individual differences when attempting to motivate others (Komarraju & Karau, 2005). These individual differences identify important factors to consider when attempting to develop an athlete's skills and/or maintain his/her well-being. For example, a situation that challenges one athlete to work harder might cause another athlete to discontinue participation.

The purpose of the following study was to examine sport motivation and personality traits in a sample of NCAA Division I student-athletes, while focusing on the construct of amotivation. This study aimed to address the void in the knowledge base regarding forms of motivation for Division I collegiate-athletes, while also examining the role of individual personality differences (e.g., traits). This study also sought to critically examine amotivation in student-athletes due to its potential impact on well-being. As psychologists increasingly find themselves embedded in sport organizations (e.g., NCAA athletic departments), they become valuable assets to help promote and maintain student-athlete mental health and well-being (Bennett, 2007).

Statement of the Problem

Although the construct of motivation has been studied extensively in the sport psychology literature, no studies to date have considered the possible effects of the mediating relationship of individual personality traits. However, other studies have examined the relationships between these constructs in different motivation contexts (e.g., academic motivation) (Komarraju & Karau, 2005; Busato, Prins, Elshout, & Hamaker, 1999). These studies have yielded significant relationships between certain personality dimensions (e.g., Extraversion) and forms of motivation (e.g., extrinsic). In light of these reported relationships, the author hypothesized that similar findings could emerge within the context of sport motivation.

Research Questions

Motivation is a psychological construct that is affected by many factors. One such factor is the presence of individual personality differences. Research in the field of psychology has yielded moderate to strong relationships between one's personality type and one's common sources of motivation (e.g., Furnham, Forde, & Ferrari, 1999). The present study sought to determine if such relationships exist within the context of sport by examining a selected sample of collegiate student-athletes, while focusing on the construct of amotivation. The present study considered the following research questions:

1. Are there significant relationships between one's level of amotivation and one's level of trait anxiety?
2. Are certain personality traits significant predictors of one's level of amotivation?
3. Is there a relationship between one's gender and one's level of amotivation?

4. Is there a relationship between the sport one participates in and one's level of amotivation?

Delimitations

The study was composed of a convenience sample of NCAA Division I student-athletes at a large southeastern university. Most of the data was gathered via team meetings through the permission of willing coaches. The use of this convenience sample meant that certain racial/ethnic groups were underrepresented due to the fact that certain sports are more heavily populated by certain races/ethnicities (e.g., swimming—Caucasian; NCAA, 2007). Also, the sample was restricted to a single university setting and was composed exclusively of collegiate student-athletes. These individuals encompassed the age range of 18-23. Thus, the findings from the study may/may not generalize to younger and/or older athlete populations.

Defining the Terms

Before launching into an extensive literature review regarding motivation and personality theory, it is critical to concretely define the necessary terms. As stated earlier, there exist many competing definitions of the psychological constructs involved in this proposed study. Failure to clarify the meanings behind terms can result in misunderstandings between and amongst psychologists and/or researchers. Several of the study's key terms are defined below:

- Motivation: The (conscious or unconscious) stimulus for action towards a desired goal; as resulting from psychological or social factors; the factors giving purpose or direction to human or animal behavior; the reason a person has for acting in a particular way, a motive (Motivation, 2008).
- Personality: The quality or collection of qualities which makes a person a distinctive individual; the distinctive personal or individual character of a person (Personality, 2008).

- Intrinsic Motivation (IM): The impetus of an individual to engage in an activity purely for its own sake as well as the pleasure and satisfaction derived from participation in the activity. When a person is intrinsically motivated, he or she will perform a behavior voluntarily, without an expectation for reward (Deci & Ryan, 1985).
- Extrinsic Motivation (EM): Engaging in an activity as a means to an end and not for its own sake. When extrinsically motivated, individuals do not participate in an activity for the inherent pleasure they may experience, but rather in order to receive something positive or avoid something negative (Vallerand & Fortier, 1998).
- Amotivation (AMOT): A complete lack of motivation. Behaviors are carried out for neither intrinsic, nor extrinsic reasons. There is a lack of purpose or expectation in one's participation. When amotivated, one does not perceive contingencies between one's actions and the eventual outcomes of the actions. (Deci & Ryan, 1985).
- Elite-level athletes: Individual athletes who compete professionally for monetary gain on an international and/or Olympic level (Gould, Dieffenbach, & Moffet, 2002)

CHAPTER 2

REVIEW OF THE LITERATURE

Major Theories of Motivation

As stated in Chapter 1, there exists a significant body of psychology literature that has examined the construct of motivation. These numerous studies pervade many sub-disciplines within the field (e.g., educational, industrial/organizational, counseling, clinical, sport/exercise, social). A basic PsycINFO search on the term “motivation” yielded over 87,000 results. This abundance of research has led to the development of many theories to explain and define motivation. To identify and explain all of these many theories would be significantly beyond the scope of this chapter. Instead, the following section will undertake a thorough examination of two motivational theories that are considered prominent in contemporary psychology: Self-Determination Theory (SDT) and Achievement Goal Theory (Kingston, Harwood, & Spray, 2006). It is noted that, because SDT was the focus of the present study, it was discussed more extensively than other theories.

Self Determination Theory (SDT)

Although there are as many as thirty-two distinguishable theories of motivation that have been cited in the sport psychology literature, Self-Determination Theory (SDT) has been described as a major theoretical framework (Roberts, 2001; Weiss & Ferrer-Caja, 2002). Additionally, SDT is considered preeminent in contemporary motivation research in sport (Kingston et al., 2006). Formulated by Deci and Ryan (1985), SDT considers the development and functioning of personality within social contexts by examining the causes and consequences

of motivated behavior. Unlike the unidimensional theories of motivation (e.g., motivation determined by a single source), SDT is classified as a multidimensional theory in which motivation is explained by different sources and motives.

The multidimensional nature of SDT proposes three fundamental psychological needs required for energizing self-determined behavior: competence, autonomy, and relatedness. The need for competence implies that individuals strive to interact effectively with their environment by seeking to control outcomes and experience mastery (Kingston et al., 2006). Next, the concept of autonomy refers to the desire to be self-initiating in one's actions. Finally, the need for relatedness pertains to the desire to feel connected with significant others (Ryan and Deci, 2000). Meeting these three needs is thought to be essential for one to grasp the natural propensity for growth, as well as for personal well-being.

One's perception of how well these needs are being met functions as a psychological mediator in the impact of social events on motivation. Thus, the social environment can either promote or thwart feelings of self-determination, thus impacting motivation. Proponents of SDT view motives for engaging in activities as existing and being ordered on a continuum of self-determination (Kingston et. al., 2006). SDT conceptualizes motivation towards activity using three dimensions: intrinsic motivation (IM), extrinsic motivation (EM), and amotivation (AMOT).

Intrinsic Motivation (IM)

The first of the three dimensions, intrinsic motivation, refers to the impetus of an individual to engage in an activity purely for its own sake and also the pleasure and satisfaction derived from participating in the activity (Deci & Ryan, 1985). A person who is intrinsically motivated will often perform a behavior voluntarily, in the absence of any material rewards. The

beginning of identifying intrinsic motivation is traced to the work of White (1959), who described a concept called effectance motivation, which was defined as reflecting an individual's inherent motivation to achieve competence over their environment, and resulting in feelings of self-efficacy. An example of an intrinsically motivated athlete would be an individual who trains because he or she finds the activity interesting or one who finds pleasure in trying to surpass one's previous bests. The highest level of self-determination is postulated to be inherent in intrinsic motivation (Kingston et al., 2006).

Building on the original work of Deci and Ryan, Vallerand and colleagues differentiated between three different types of intrinsic motivation (Vallerand, Pelletier, Blais, Briere, Senegal, & Vallieres, 1992). These researchers theorized that these three types of intrinsic motivation were qualitatively different (yet potentially reciprocal) motives for engaging in an activity (Kingston et. al., 2006). Their theory stemmed from previous studies that had revealed the notion that intrinsic motivation might be composed of sub-types (e.g., Pelletier, Fortier, Vallerand, Tuson, Briere, & Blais, 1995). Each thought to be equal in their levels of self-determination, the three types of intrinsic motivation identified by Pelletier and colleagues were: (1) *intrinsic motivation to know*, (2) *intrinsic motivation towards accomplishments*, and (3) *intrinsic motivation to experience stimulation*.

The first of these types, *intrinsic motivation to know*, relates to the constructs of exploration, curiosity, and the innate need to know and understand. It can be defined as performing an activity for the pleasure and the satisfaction derived from learning, exploring, or trying to understand something (Vallerand & Fortier, 1998). For example, baseball players who play because they enjoy finding out more about the game display intrinsic motivation to know.

Next, *intrinsic motivation towards accomplishments* focuses on engaging in an activity for the pleasure and satisfaction experienced while one is attempting to surpass a previous effort or to accomplish or create something (Vallerand & Fortier, 1998). The focus is on the process of trying to accomplish something, not on the end result. An example of this type of intrinsic motivation would be long distance runners who run for the pleasure they experience while trying to achieve better times.

Finally, *intrinsic motivation to experience stimulation* occurs when one engages in an activity in order to experience pleasant sensations associated mainly with one's senses (e.g., sensory pleasure, aesthetic enjoyment). This type of intrinsic motivation has been neglected in research, but would appear related to constructs such as flow (Csikszentmihalyi, 1990) and peak experiences (Maslow, 1970). An example of this type of intrinsic motivation would be hang-gliders who engage in the activity because they enjoy the sensation they experience while soaring through the air.

Extrinsic Motivation (EM)

In contrast to intrinsic motivation, extrinsic motivation involves engaging in an activity as means to an end and not for its own sake (Vallerand & Fortier, 1998). It was originally believed that external motivation pertained only to behaviors that were prompted by external sources of control (e.g., parents, teachers, coaches). However, research has shown that several types of extrinsic motivation exist (Deci & Ryan, 1985). Some of the types are considered self-determined in nature. That is, some behaviors, although not engaged in out of pleasure (e.g., intrinsic motivation), may still be engaged in by choice. Deci and Ryan (1985) have proposed four types of extrinsic motivation: (1) *external regulation*, (2) *introjected regulation*, (3) *identified regulation*, and (4) *integrated regulation*.

External regulation refers to extrinsic motivation as it commonly appears in the psychology literature (Vallerand and Fortier, 1998). It involves engaging in behavior that is regulated through external means such as rewards and constraints. For example, a football player might go to practice because failing to do so would land him in trouble with his coach. In this case, the football player goes to practice to avoid punishment and is, therefore, externally regulated.

Next, with *introjected regulation*, the individual begins to internalize the reasons for his or her actions. However, this internalization is not truly self-determined because it is limited to past external contingencies. Such thinking could prompt individuals to replace an external source of control with an internal one and then begin imposing pressure on themselves to realize a certain behavior (Vallerand & Fortier, 1998). For example, tennis players who train because failing to do so would promote guilt and anxiety could be inclined to experience introjected regulation. The type of motivation is internal, but it is not self-determined; it is perpetuated by a sense of self-imposed pressure.

The third type of extrinsic motivation is known as *identified regulation*. Under this framework, behavior is emitted out of choice and is thus, self-determined. With this type of motivation, behaviors are highly valued and judged as important by the individual. Because of this self-determined nature, behaviors will often be performed freely even if the activity is not pleasant. For example, a basketball player might decide she wanted to improve to her jumping ability in order to be a better player. In order to do so, she begins training with weights despite the fact that she detests doing so. In this case, the basketball player has chosen to engage in weight lifting although this activity is not intrinsically motivating. It is noted that this type of

motivation differs from intrinsic motivation in that the basketball player is not experiencing intrinsic enjoyment while weight training.

Finally, *integrated regulation*, also involves in engaging in an activity out of choice. However, this choice is not limited at the activity level, but is a part of the organization of the self (Vallerand & Fortier, 1998). That is, one's choices are made as a function of one's coherence with other aspects of the self. For example, an integrated athlete might decide not to go out with friends after a game because he needs to study for a test.

Amotivation (AMOT)

The final motivational style, *amotivation*, refers to a lack of motivation, and thus the absence of self-determination (Deci & Ryan, 1985). This concept has been viewed as akin to learned helplessness (Abramson, Seligman, & Teasdale, 1978). Behaviors are thought to be carried out for neither intrinsic, nor extrinsic reasons; there is a lack of purpose or expectation in the action. When an athlete is amotivated, he or she does not perceive contingencies between their actions and the outcomes of their actions. Additionally, amotivated athletes cannot identify good reasons to continue their chosen sport. For example, a swimmer who no longer desired to train or compete would be considered amotivated. It is noted that this motivational type does not have sub-types like those of intrinsic motivation and extrinsic motivation. Finally, a model of Deci and Ryan's Self-determination Theory continuum can be found on the following page in Figure 1.

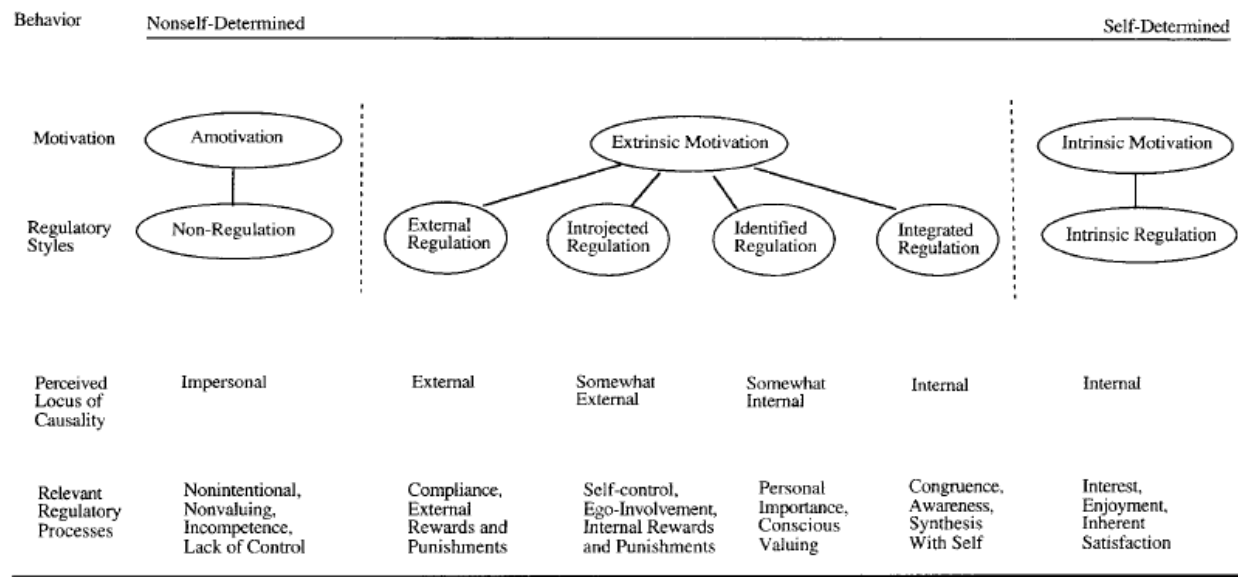


Figure 1

The Self-determination Continuum

Figure credit: Ryan, R.M., & Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.

Achievement Goal Theory

During the late 1970's and early 1980's, Nicholls, Dweck, and Maehr began to develop achievement goal theory through their work in classroom settings (Dweck, 1986; Maehr and Nicholls, 1980; Nicholls, 1984). According to Nicholls, achievement goals represent how people define success when they engage in achievement tasks for the purpose of demonstrating competence (Kingston et. al., 2006). He asserted that demonstrating physical ability was a central achievement motive. Nicholls's early work focused on the developmental processes through which children from six to eleven years of age differentiated the concepts of ability, effort, task difficulty, and luck (Nicholls & Miller, 1984). He later narrowed his focus on the existence of two main goals: ability (ego) and task. Nicholls emphasized that these goals determined the meaning of achievement for the individual in that they reflect the purpose of striving and the perception of success (Duda, Fox, Biddle, & Armstrong, 1992). Under this

framework, what is considered success to one person may not be to another, depending on what goals they choose to pursue.

For example, an individual who is “task-involved” would be concerned with self-improvement and task mastery. This individual is likely to feel successful when gains in performance and mastery come about, regardless of what level of achievement this person (or others) attains. In this “task” state of goal achievement, effort and ability are viewed as positively related (e.g., more effort leads to perceptions of higher ability). This individual’s purpose (goal) is to develop self-referenced competence (Duda et. al., 1992).

Conversely, an individual who is “ego-involved” is concerned with displaying superior ability to others and is likely to feel successful when performing better than members of a reference group. The “ego” goal achievement state perceives effort and ability as inversely related. This individual will feel successful when displaying equal ability but with less effort than others. This individual’s purpose (goal) is to demonstrate, rather than develop, competence (Nicholls, 1984). The extent to which an individual feels that he/she has achieved this goal is a critical component in regulating the quality and quantity of one’s level of motivation (Duda & Treasure, 2001).

Nicholls argued that individuals develop a “proneness” for task and/or ego involvement. This “proneness” was viewed as a fairly stable tendency (if not a personality *trait*) to define competence in a certain way (Duda et. al., 1992). Nicholls stated that this tendency developed through socialization experiences. Lastly, these goal states are viewed as orthogonal (independent) constructs, which means individuals can be characterized by high levels of both, low levels of both, high level of one and low level of the other, or by the dominance of one.

Thus, Nicholls asserted that individuals should be thought of as “oriented” toward certain goal states (e.g., high ego/low task, high task/low ego).

Assessment of Motivation in Athletes

The large number of motivational studies in the field of psychology has prompted the development of many assessment instruments. These instruments vary in terms of guiding theory, context of use, target population, and other factors. Within the sport psychology research context, popular motivation instruments vary in terms of (a) the construct(s) being assessed (e.g., only intrinsic vs. intrinsic and extrinsic), (b) the level of generality of the measure (e.g., situational level vs. contextual level), and (c) the dimensionality of the instrument (e.g., unidimensional vs. multidimensional) (Vallerand & Fortier, 1998). The following section will examine different types of motivation instruments that are used in the sport context.

Situational Measures

Situational measures of motivation are used to assess one’s immediate or current reactions and/or feelings toward a sport in which one is engaged (Vallerand & Fortier, 1998). That is, they assess a “state” measure of motivation and do not reflect a possible dispositional orientation of an individual. There exist situational measures that assess intrinsic motivation and also those that assess both intrinsic and extrinsic motivation.

The Free Choice Period

The first situational instrument discussed is a uni-dimensional measure of intrinsic motivation, which assesses only one general aspect of intrinsic motivation. This instrument, The Free-Choice Period, was developed by Deci (1971). The Free-Choice Period has been used extensively in laboratory research in psychology as well as in early motivation research in sport and physical activity (e.g., Lepper, Greene, & Nisbett, 1973; Orlick & Mosher, 1978). The

measure is observational in nature and is taken once an experiment is declared as over by the investigator. Once the participant completes the task, the investigator presents a reason for leaving the room and then leaves the participant alone. Then, the participant is observed through a one-way mirror as the time spent on the experimental task is recorded. The assessment assumes that the more time spent on the task, the higher the level of intrinsic motivation.

Deci inferred that “a person is intrinsically motivated if he/she performs an activity for no apparent reason except the activity itself” (1972, p. 113). Thus, the intrinsically motivated participant would be inclined to engage in the activity when one does not have to. Conversely, the extrinsically motivated participant would not return to the task because there would be nothing to gain from such participation. Because the Free Choice Period is observational, there are few data on its psychometric properties (Vallerand & Fortier, 1998).

The Situational Motivation Scale

The next situational measure of motivation is considered multi-dimensional because it assesses intrinsic motivation, extrinsic motivation, and amotivation. This instrument, the Situational Motivation Scale (SIMS), was developed by Guay, Vallerand, and Blanchard (2000). The SIMS is not actually sport specific, but is worded so that it can be used in many sport and non-sport contexts (e.g., laboratories, field settings). Similar to other motivation instruments, the SIMS attempts to answer the question of why participants engage in a certain activity. Because the SIMS is a situational scale, it explicitly asks the question “Why are you *currently* engaged in this activity?” (Vallerand & Fortier, 1998). The SIMS is made up of 16 items and contains four subscales of four items each. The four subscales are intrinsic motivation, identified regulation, external regulation, and amotivation.

Psychometric studies on the SIMS have yielded sound property findings in educational, leisure, and sport settings (Guay, Vallerand, & Blanchard, 2000). In these studies, reliability values (Cronbach alphas) have ranged from .76-.91. Additionally, exploratory and confirmatory factor analyses have supported the four-factor structure of the SIMS (Guay et. al, 2000). The primary limitation linked to the SIMS has been the lack of data on how the scale relates to actual behavior, which is an important outcome measure in sport context research (Vallerand & Fortier, 1998). Future research must address this issue.

Contextual Instruments

The majority of sport motivation research has taken a contextual approach to studying athletes. Contextual sport motivation instruments assess an athlete's usual motivation orientation toward sport by measuring the general motivational stance that the athlete adopts toward the engagement of a sport's activities (Vallerand & Fortier, 1998). Unlike situational measures, contextual measures assess more of a "trait" dimension of motivation. Four contextual measures of intrinsic and extrinsic motivation have been developed in the sport and exercise domain.

First, the Sport Intrinsic Motivation Scale (SIMS) examines motivation from a unidimensional perspective (Dwyer, 1988). Next, the Motivational Orientation in Sports Scale (MOSS) and the Sport Motivation Scale (SMS) are multidimensional measures (Weiss, Bredemeier, & Shewchuk, 1985; Briere, Vallerand, Blais, & Pelletier, 1995). Finally, the Pictorial Motivation Scale (PMS) has been constructed to be used with special populations (e.g., intellectually challenged) (Reid, Poulin, & Vallerand, 1994). Because the SMS was developed incorporating an SDT perspective, it will be utilized in the proposed study. Additionally, unlike both the SIMS and the MOSS, the SMS has demonstrated adequate to strong psychometric

properties and is considered the premier instrument of its kind in the sport psychology literature (Li & Harmer, 1996; Vallerand & Fortier, 1998).

The Sport Motivation Scale (SMS)

The SMS was developed because of repeated failures to create a contextual scale that adequately assessed both intrinsic and extrinsic motivation. Originally, the SMS was developed as the Eschelle de Motivation dans le Sport (EMS) (Briere et. al., 1995). Then, using cross-cultural validation procedures, the SMS was validated in English to make it accessible to English-speaking populations (Pelletier et. al., 1995). The SMS was formulated from the tenets of Deci and Ryan's Self-determination theory (SDT; described in earlier section of Chapter 2). The SMS consists of 28 items that measure the three dimensions posited by SDT: intrinsic motivation (IM), extrinsic motivation (EM), and amotivation (AMOT). Intrinsic and extrinsic motivation are both assessed with three subscales to examine their respective sub-types (e.g., IM to know, EM external regulation) proposed by Deci and Ryan (1985). A further explanation of these components was outlined previously during the discussion of SDT.

As stated previously, the SMS has demonstrated good psychometric properties in most studies. The SMS items were developed through stages of qualitative interview with athletes from a diverse array of sports. Next, items were piloted on over 700 athletes as the pool was narrowed to ultimately include 28 items. Several studies have confirmed the SMS's validity and reliability and also its successful translation from French to English (e.g., Briere et. al., 1995; Pelletier et. al., 1995). Additionally, Li and Harmer used structural equation modeling (SEM) to test for the simplex structure of the scale (1996). Identifying this pattern is important because it tests for the presence of the different forms of motivation on a self-determination continuum ranging from amotivation to intrinsic motivation (Vallerand & Fortier, 1998). Li and Harmer

sampled 857 male and female athletes using LISREL. Following the analysis, the data supported the simplex pattern, which was found to be invariant across gender (Li & Harmer, 1996). These findings support the construct validity of the SMS.

A final noteworthy study on the psychometric properties of the SMS was conducted by Martens and Webber (2002). This examination of the SMS revealed some support for its reliability and validity, but raised questions regarding the specification of the overall SMS model. Alpha scores for the subscales were adequate as values were similar to those reported in the original validation study (Pelletier et. al., 1995). Also, results confirmed the existence of the simplex pattern as seen in previous studies (e.g., Li & Harmer, 1996). The results of the confirmatory factor analysis were not as clear, however. When the entire model was tested, results indicated a poor fit for the overall model (Martens & Webber, 2002). Following this finding, the authors conducted a follow-up analysis using a “piecewise” method, which examined the intrinsic, extrinsic, and amotivation dimensions separately. This analysis resulted in stronger fit indices than that generated by the overall model. It is noted that such findings could be partly explained by the sample size of the study ($n = 270$) (Martens & Webber, 2002). Finally, because this study was the first to examine the psychometric properties of the SMS while used with U.S. collegiate student-athletes, the authors suggest that the SMS continue to undergo such study to assess the appropriateness of the model with this population.

Despite the presence of this single study conducted by Martens and Webber, the SMS will be utilized for the proposed study. The SMS has demonstrated good psychometric properties in other studies and is currently being used extensively in sport and exercise psychology research. See Appendix A for a copy of the SMS.

Studies on Motivation and Collegiate/Elite Athletes

Self-Determination Theory (SDT) Studies

Despite the obstacles associated with studying elite athletes, some researchers have been able to navigate these challenges to examine SDT with this targeted population. For example, Chantal, Guay, Dobрева-Martinova, and Vallerand (1998) examined the motivational profiles of 98 elite Bulgarian athletes from a variety of sports (e.g., canoeing, biathlon, figure skating, boxing, tennis, and skiing). All participants completed the Bulgarian version of the Sport Motivation Scale (SMS; Briere, Vallerand, Blais, & Pelletier, 1995), which is the most commonly used scale in the sport domain to assess contextual motivation. Performance was quantified as the number of medals won over two years at the national, world, and Olympic levels. Analyses revealed that less determined types of motivation (i.e., external regulation) promoted better performances within the controlling culture of post-communist Bulgaria. When compared to less successful athletes, the best-performing athletes displayed higher levels of extrinsic motivation. Specifically, medal winners reported with more frequency that external rewards, feelings of obligation, and pressure were their primary sources of motivation (Chantal et. al., 1996).

Consistent with Self-Determination Theory, Chantal and colleagues' findings suggest that the social context has a powerful effect upon the forms of motivation adopted by athletes. The authors noted that a highly competitive sport culture that emphasized winning at all costs existed in Bulgaria at the time of the study. Top performing athletes were rewarded with material goods such as cars, apartments, and financial incentives, which could have led the athletes to feel pressure to obtain these things and thus to adopt higher levels of non-self-determined motivation. The authors also hypothesized that these pressures and fears of losing privileges or incentives

could have led the athletes to become amotivated (Chantal et. al., 1996). The results of this study suggest that highly competitive and controlling environments may facilitate performance through less self-determined forms of motivation.

Results from a recent qualitative study by Mallet and Hanrahan (2004) yielded partial support for the findings of Chantal and colleagues and also provided insight into elite athlete motivation in less controlling social situations. Mallet and Hanrahan conducted semi-structured interviews with elite male and female Australian track and field athletes who had finished in the top 10 at major championships in the last six years. Following the interviews, the themes of excitement, enjoyment, a love for competing, and a sense of relatedness with fellow athletes all emerged as important motivating factors. However, less self-determined motives also surfaced. Some athletes identified money and social recognition as significant motivators (Mallet & Hanrahan, 2004).

Individuals usually begin involvement in sport as a source of “play” during childhood. During this time, children commonly report intrinsic reasons for participation (Treasure et. al., 2007). However, the social conditions that define elite-level sport are likely to make this purely intrinsic drive unsustainable (Treasure et. al., 2007). Nevertheless, the Mallet and Hanrahan (2004) study suggests that elite athletes are capable of finding a way to internalize and integrate self-determined forms of extrinsic motivation, which is consistent with SDT’s tenets. This process of integrating regulations and values is a key component of SDT and is relevant for the regulation of behaviors throughout the life span (Ryan & Deci, 2000).

Burnout Studies

Although all athletes are susceptible to burnout, those involved in sports with especially high training demands are likely to be most at risk. At the elite level, swimming is one of the

most physically and mentally demanding of all sports. Considering these risk factors, a recent study was conducted with 44 athletes from two top 10-ranked NCAA Division I collegiate swimming programs (one male and one female) (Lemyre et. al., 2006). These swimmers swam an average of more than 38,000 yards per week in addition to completing a rigorous out-of-water training program. This regimen was year-round, and many of the athletes had been training at this level for over 10 years. In the study, the authors examined how shifts along the self-determined motivation continuum during the course of the season predicted burnout susceptibility.

The results generated from the study revealed fairly high levels of self-determined motivation during the season. However, within this general theme of self-determined motivation, the authors observed several shifts in the quality of the situational motivation from more to less self-determined. These shifts, along with increases in negative affect, heightened athletes' susceptibility to burnout by the season's end (Lemyre et. al., 2006). The results of the study also clearly demonstrated that maladaptive training responses were more likely to occur when the athlete's reasons for participating shifted to a more extrinsic motivation regulation, which represents a loss of autonomy. Because the achieving of extrinsic rewards is not guaranteed, many athletes experience anxiety and/or frustration because their training may or may not yield their desired results. Thus, the loss of autonomy is logically consistent with worsened mood and affect.

A qualitative follow-up study with these same 44 swimmers yielded interesting findings as well (Lemyre, Kuczka, Treasure, & Roberts, 2005). Within this sample of 44 swimmers, the authors selected 5 thriving and 5 burned-out athletes to examine motivational processes. Consistently, the thriving athletes reported that their swimming involvement was motivated by

self-determined reasons. Additionally, these 5 swimmers disclosed that they experienced great joy in training and competing and stated that they felt a sense of control over their involvement in the sport. Conversely, the burned-out athletes reported less autonomous forms of sport motivation. Their stated reasons for participation included keeping their athletic scholarship, following in the footsteps of successful family members, and meeting expectations set forth by their coaches (Lemyre et. al., 2005). These athletes also showed clear signs of amotivation and stated that they did not feel that their performance results reflected the actual commitment they were devoting to the sport.

The findings from this study emphasize the importance of monitoring changes in an athlete's quality of motivation. If done properly, this monitoring could play a key role in preventing and/or alleviating maladaptive training effects. Psychologists working with such athletes can help prevent potential burnout by monitoring levels of motivation in this way. However, in order to do so, one must consider the practical challenges of performing this task considering the boundaries often created by elite-level coaches.

Personality Theory and Assessment

When introducing their chapter on personality testing, Anastasi and Urbina state that “in conventional psychometric terminology ‘personality tests’ are instruments for the measurement of emotional, motivational, interpersonal, and attitudinal characteristics” (1997, p. 348). These tests, which number several hundred, are usually classified according to the method of obtaining data from individuals. These methods include self-report inventories, projective techniques, and miscellaneous approaches (e.g., observer reports, situational tests) (Anastasi & Urbina, 1997). There exist many books dedicated exclusively to personality assessment and its application to clinical practice (e.g., Butcher, 1995; Lanyon & Goodstein, 1997). Because the proposed study

will utilize a self-report personality inventory, these measures will be the focus of the following section.

In personality assessment, a self-report inventory is used to ask people to rate themselves by answering questions about their behavior and feelings in various situations (Schultz & Schultz, 2001). These tests usually include items dealing with symptoms, attitudes, interests, fears, and values. Because these tests are self-report, their results must always be interpreted in light of the fact that the evaluator is assuming that the respondent is generating honest answers. For this reason, some inventories (e.g., Minnesota Multiphasic Personality Inventory-II; MMPI-2) contain validity scales that attempt to measure dishonesty. Other inventories (e.g., NEO PI-R) contain basic questions that ask the respondent if they have been honest or not. When using self-report inventories for research purposes, the investigator is often making the assumption that the participants are responding in a straight forward manner.

Ethical Considerations

Vealey stated that “Personality inventories are validated for use *by* certain types of individuals *with* certain types of individuals *for* certain types of situations” (Vealey, 2002, p. 55). Ethical and practical issues surrounding the use of personality inventories emanate from the questions of, By whom? With whom? For what purpose? In what situation?, and must be taken seriously (see American Psychological Association, 2002; American Psychological Association, 2003). This call to consider individual differences extends to all relevant variables (e.g., race, ethnicity, gender). Within the sport context, personality instruments have been misused in the past to screen or select athletes for inclusion on teams. This instance of misuse, as well as other forms of misuse such as lack of competence for test interpretation, are examples of significant professional boundary violations.

In professional psychology, personality inventories are often dichotomized based upon their target population for usage. These two domains are known as clinical (e.g., presence of pathology; “abnormal” individuals) and non-clinical (e.g., no presence of psychopathology; “normal” individuals). In order to obtain valid results, it is imperative that psychologists utilize appropriate inventories with each individual. This is so because the actual inventory was developed and ultimately normed for use on this population. Because the sample for the proposed study will likely be composed of mostly non-clinical individuals, this type of inventory will be the focus of the following section.

Five Factor Model (FFM)

Although there are many methods used to develop personality tests, (e.g., content relevance, empirical criteria keying), the factor analysis method will be the focus of the following section because it was used to develop the instrument used in the proposed study. The factor analysis technique “involves the task of reducing the number of categories necessary to account for a behavioral phenomenon by looking for consistent patterns in their occurrence” (Anastasi & Urbina, 1997, p. 362). Using this method, researchers developed a conceptualization of personality called the Five-Factor Model.

Anastasi and Urbina have noted that the Five-Factor Model (FFM; also known as the “Big Five”) has generated an “unusual level of consensus among personality researchers from the various factor analytic traditions” (1997, p. 364). Nevertheless, the specific way in which the model has been presented has generated criticism and controversy (e.g., Goldberg, 1993). Essentially, the FFM is an attempt to simplify the vast collection of data that could be used to explain the behavior of individuals. Following years of extensive research by many prominent investigators, five personality factors emerged as most significant. These five factors compose

the FFM; they include: Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), and Conscientiousness (C). It is noted that these five factors are meant to be descriptive rather than explanatory.

Cultural Considerations of the FFM

The FFM has been consistently observed in Eastern as well as Western cultures (Digman, 1990). This finding supports the genetic component of personality development and maintenance. Following their study of the Big Five's applicability to all cultures, McCrae and Costa noted that "the Big Five factors and their traits appear to represent a common human structure of the personality that transcends cultural differences" (1997, p. 515). The cultures in which these five factors and their traits have been found include: German, Portuguese, Hebrew, Chinese, Korean, Japanese, French, Filipino, and Canadian, as well as native-born and Spanish-speaking residents of the United States (McCrae & Costa, 1997; McCrae, Costa, Pilar, Rolland, & Parke, 1998). It is noted, however, that, in addition to conducting between-group studies on the FFM, researchers must recall the importance of considering within-group factors as well in all aspects of professional psychology (see Quintana & Atkinson, 2002).

Despite the findings of the factors being common to many cultures, differences have been observed in specific contexts. For example, Australians consider Extraversion (E) and Agreeableness (A) to be more desirable than the other 3 factors (Schultz & Schultz, 2001). Also, Japanese consider conscientiousness to be more important than all the other factors. That is, in Japanese societies, it is more important for a person to be conscientious than to be extraverted, agreeable, open, or even emotionally stable (Schultz & Schultz, 2001).

In Hong Kong and in India, agreeableness was found to be the most important factor, while, in Singapore, emotional stability was most valued. It is noted that no single factor was

found to be more significant than others in Chile, Finland, Germany, the Netherlands, Norway, Turkey, and the United States (Williams, Satterwhite, & Saiz, 1998).

Personality State Measurement

Personality state inventories attempt to assess current (e.g., “in the moment”) emotions instead of more stable characteristics (traits). Test directions for these inventories usually instruct the subject to respond “according to how you feel right now.” In the sport context, state measures are usually used to determine the components of an athlete’s mood at a specific point in time. Oftentimes, a sport psychology researcher might have an athlete complete a personality state inventory within a half-hour prior to competition in order to examine his or her pre-competitive state. These data can be useful for assessing, monitoring, and regulating emotions immediately before competition.

Profile of Mood States (POMS)

The most common instrument used to measure personality states in the sport context is the *Profile of Mood States* (POMS; Buckworth, & Dishman, 2002; McNair, Lorr, & Droppleman, 1971). The POMS contains 65 items that measures six identifiable states or feelings on a 5-point continuum from 0 (Not at all) to 4 (Extremely). The six measured states include: Tension-Anxiety (T), Depression-Dejection (D), Anger-Hostility (A), Vigor-Activity (V), Fatigue-Inertia (F), and Confusion-Bewilderment (C). An additional unscored dimension, Friendliness (Fr), is also included.

McNair and his associates initially created the POMS for psychiatric populations for the purpose of assessing the effects of ongoing psychotherapy and/or counseling in outpatient settings (LeUnes, & Burger, 2000; Buckworth & Dishman, 2002). The authors also indicated that a secondary use for the POMS could be in research with normal subjects over the age of 18

with at least some high school education. Although the POMS was initially developed to assess moods in the normal adult population, it has since been used extensively in sport psychology research and is known as a valid tool (LeUnes, Hayward, & Daiss, 1988).

Personality Trait Measurement

There are many different personality instruments utilized to assess personality trait profiles in both clinical and non-clinical adult samples (e.g., *Minnesota Multiphasic Personality Inventory-2* (MMPI-2), *California Personality Inventory* (CPI), *Milan Multiaxial Clinical Inventory-2* (MCMI II)). As stated previously, because the proposed study will target personality trait measurement with a non-clinical population, the Revised NEO Personality Inventory (NEO PI-R) will be used.

Revised NEO Personality Inventory (NEO PI-R)

Two investigators closely associated with the development and growth of the FFM are Robert McCrae and Paul Costa, who began their collaboration at the Gerontology Research Center of the National Institute of Health. Together, they composed a test called the Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992). The NEO PI-R provides scores on the five major personality dimensions, or *factors*, and also on 30 additional traits, or *facets*, that are used to describe each domain. The five dimensions and their respective traits are on the following page in Table 1:

Table 1

NEO PI-R Dimensions and Traits

Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Anxiety	Warmth	Fantasy	Trust	Competence
Angry Hostility	Gregariousness	Aesthetics	Straightforwardness	Order
Depression	Assertiveness	Feelings	Altruism	Dutifulness
Self-Consciousness	Activity	Actions	Compliance	Achievement
Impulsiveness	Excitement Seeking	Ideas	Modesty	Self-discipline
Vulnerability	Positive Emotions	Values	Tendermindedness	Deliberation

Together, the 5 dimension scales and 30 facet scales of the NEO PI-R provide a comprehensive assessment of the adult personality. The NEO PI-R It is designed to measure normal personality traits and has demonstrated utility in both clinical and research settings (Costa & McCrae, 1995). The first edition of the NEO considered only three dimensions: Neuroticism, Extraversion, and Openness (Costa & McCrae, 1985). The NEO was revised in 1995 with the addition of the Agreeableness and Conscientiousness dimensions.

The NEO PI-R is considered well-suited for use as a research instrument (Botwin, 1995). The NEO PI-R has been described as having “impressive” psychometric properties (Juni, 1995). Its items were developed through 15 years of research that included longitudinal studies and samples of clinical, employment, and college populations. It has yielded “excellent” dimension level (e.g., Neuroticism) reliabilities, ranging from .86 to .95 (Botwin, 1995). The trait level (e.g., anxiety) reliabilities are good, ranging from .56 to .90. The NEO PI-R has also demonstrated good short-term (.63 to .79) and long-term (.68 to .83) test-retest reliability (Costa & McCrae, 1992). Lastly, the NEO PI-R has yielded strong construct and convergent validity (Costa & McCrae, 1992).

There are two versions of the NEO PI-R: Form S for self-report and Form R for observer ratings. Form S consists of 240 items that are answered on a 5-point scale. Form R is a companion instrument with 240 parallel items written in third person for peer, spouse, or expert ratings. Form R allows the obtaining of independent ratings from peers, spouses, or others, for comparison with the self-ratings. This is especially important on the NEO PI-R because it assumes an honest and cooperative respondent. The only validity checks on this test are purely self-report as well. The NEO PI-R has been utilized in a variety of professional psychology settings (e.g., counseling, clinical, industrial/organizational, and social).

Personality and Athletes

Although the construct of personality has been studied extensively in the sport psychology literature, previous research has focused on areas such as examining differences between athlete and non-athlete populations or describing personality profiles of elite athlete samples (e.g., Eglaff & Gruhn, 1996; Gould, Dieffenbach, & Moffet, 2002; O'Sullivan, Zuckerman, & Kraft, 1998). Additionally, previous research has examined how personality contributes to academic motivation (e.g., Busato, Prins, Elshout, & Hamaker, 1999; Komarraju & Karau, 2005). It is noted that there are no previous studies that have sought to examine the possible implications of personality on motivation with a student-athlete population. Due to this void in the literature, the following section will provide relevant background on the available research on personality's implications for athletes.

Positive Mental Health ("Iceberg profile")

University of Wisconsin-Madison professor William Morgan is, arguably, the most significant contributor to the sport personality research. Morgan gained notoriety following his studies of mood states of United States Olympians in rowing, distance running, and wrestling

(1978; 1980). In a comprehensive study of the 1972 and 1976 US Olympic teams in these three sports, Morgan and his colleagues were able to discriminate between Olympic team members and near-Olympians using the POMS. The successful athletes (i.e., the Olympians) were marginally lower in tension, depression, anger, fatigue, and confusion and substantially higher on vigor than those athletes not making the team.

This pattern of mood responses has come to be known as the *iceberg profile*, which Morgan and colleagues say is characteristic of elite sport performers. This name was derived from the image that appeared after plotting the successful athletes' scores on the scoring grids. The vigor subscale, which is positioned in the middle of the grid, spiked for the successful athletes, thus creating the image of an iceberg as the less desirable state scores remained below the surface. The iceberg profile is pictured below in Figure 2:

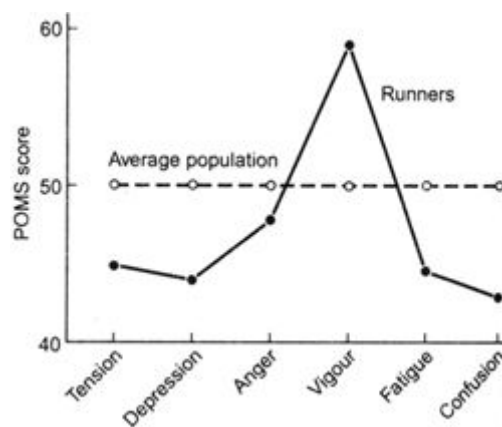


Figure 2

Iceberg Profile

Figure credit: Morgan, W.P. (1980). Test of champions: The ice-berg profile. *Psychology Today*, 14, 92-102.

The iceberg profile has also been called the mental health profile by Morgan and others (e.g., Williams & Krane, 2001). According to Morgan, successful athletes exhibit more positive mental health than their less successful counterparts. That is, Morgan predicted that an athlete

that scored above the norm on the POMS subscales of neuroticism, depression, fatigue, confusion, and anger and below the norm on vigor will be more likely to experience negative mental health than those who yield the opposite profile.

Morgan's work has not been received without criticism. A 1995 meta-analysis of all the iceberg profile research found that the profile did indeed differentiate successful from less successful athletes (Rowley, Landers, Kylo, & Etiner, 1995). However, the authors also concluded that the profile accounted for less than 1% of their performance variation (Rowley et al., 1995). That is, the athletes classified as successful had a mental health profile that was only 1/6 more positive than the less successful athletes. Finally, Rowley and his co-authors concluded that the findings reflected poorly on the proposed mental health model and also warned against using the profile as a basis of team selection or achievement prediction.

Personality profiles: Athletes vs. non-athletes

Researchers interested in studying the possible differences between athletes and non-athletes have disagreed extensively on how to define what constitutes athlete status. They have considered criteria such as: intercollegiate or professional status, possesses adequate "skill level," competes in intramural sports, or exercises daily (Weinberg & Gould, 2007). This ambiguity in definitions has weakened this line of research and also complicated its interpretation.

An early comparative study of athletes and non-athletes tested approximately 2,000 college males using Cattell's 16 PF, which measures 16 personality factors (traits) (Schurr, Ashley, & Joy, 1977). The data from this study indicated that no single personality profile distinguished athletes (i.e., member of a university intercollegiate team) from non-athletes. However, when the athletes were stratified by sport, several differences did emerge. For

example, compared with non-athletes, athletes who played team sports exhibited less abstract reasoning, more extroversion, more dependency, and less ego strength (Schurr et. al., 1977).

Additionally, compared with non-athletes, athletes who played individual sports displayed higher levels of objectivity, more dependency, less anxiety, and less abstract thinking (Schurr et. al., 1977).

Despite these findings, actual personality differences between athletes and non-athletes should not be considered definitive. Additionally, it is possible that certain personality types are drawn to a particular sport, rather than participation in a sport somehow changes one's personality (Weinberg & Gould, 2007).

CHAPTER 3

RESEARCH METHODOLOGY

Results of the Pilot Study

A previous study by the author examined some of the purported research questions with a sample of NCAA Division I swimmers ($n = 30$) at a large southeastern university (Brannon, 2008). Correlation and regression analyses were conducted to assess possible relationships between the types of motivation (i.e., intrinsic, extrinsic, amotivation) and the personality dimensions and traits. Analyses were conducted with both the dimension total scores (e.g. Conscientiousness) and also the trait scores (e.g. anxiety). Correlational analyses yielded several significant relationships between personality traits and forms of motivation:

- Intrinsic motivation was significantly correlated with self-discipline ($r = -.552, p = .002$).
- Extrinsic motivation was significantly correlated with warmth ($r = .443, p = .014$), competence ($r = .529, p = .003$), and positive emotions ($r = .362, p = .049$).
- Amotivation was significantly correlated with the dimension of Neuroticism ($r = .456, p = .011$) and the traits of anxiety ($r = .572, p = .001$), gregariousness ($r = -.507, p = .004$), depression ($r = .475, p = .008$), self consciousness ($r = .425, p = .019$), excitement-seeking ($r = -.484, p = .007$), and deliberation ($r = .373, p = .042$).

Complete results are reported on the following page in Table 2:

Table 2

Correlational analysis summary of sport motivation forms and personality dimensions/traits from pilot study (Brannon, 2008)

Personality factor/trait	Form of motivation		
	Intrinsic	Extrinsic	Amotivation
Self-discipline	-.552**		
Warmth		.443*	
Competence		.529**	
Positive emotions		.362*	
Anxiety			.572**
Gregariousness			-.507**
Depression			.475**
Self-consciousness			.425*
Excitement-seeking			-.484**
Deliberation			.373*
Neuroticism			.456*

Note: * $p < .05$, ** $p < .01$

After determining the significant correlational relationships, regression analyses were conducted to examine possible significant predictors of one's form of motivation. It is noted that, although several individual personality traits (e.g. anxiety) yielded significant findings, none of the personality dimensions (e.g. Conscientiousness) reached statistical significance ($p < .05$). The significant findings were as follows:

- Self-discipline ($\beta = -.621, p = .000$) and competence ($\beta = .349, p = .027$) emerged as significant predictors of one's level of intrinsic motivation.
- Competence ($\beta = .529, p = .003$) was a significant predictor of one's level of extrinsic motivation.
- Anxiety ($\beta = .572, p = .001$) was a significant predictor of one's level of amotivation.

These regression analyses are reported below Tables 3-5:

Table 3

Regression analysis summary for personality traits predicting Intrinsic Motivation (IM) from pilot study (Brannon, 2008)

Variable	B	SEB	β
Self-discipline	-1.206	.290	-.621**
Competence	1.024	.438	.349*

Note: * $p < .05$, ** $p < .01$

Table 4

Regression analysis summary for personality traits predicting Extrinsic Motivation (EM) from pilot study (Brannon, 2008)

Variable	B	SEB	β
Competence	1.826	.554	.529*

Note: * $p < .05$

Table 5

Regression analysis summary for personality traits predicting Amotivation (AMOT) from pilot study (Brannon, 2008)

Variable	B	SEB	β
Anxiety	.508	.138	.572**

Note: ** $p < .01$

This pilot study yielded several significant relationships between motivation and personality in both the correlational and the regression analyses. In light of these results, the author hypothesized that additional significant findings could emerge following further data collection.

The Sample

The sample of the present study consisted of 144 NCAA Division I student-athletes at a large southeastern university in the United States. The sample contained 97 (67 %) females and 47 (33 %) males. The participants ranged in age from 17 to 24 ($M = 19.8$; $SD = 1.387$). The majority of the participants were Caucasian ($n=115$, 80 %) and the second largest racial/ethnic group was African American ($n=18$; 13 %). The sample included student-athletes who ranged from freshman to senior status in terms of NCAA eligibility. The largest group represented was freshman ($n=45$; 31 %). The following sports were represented in the sample: football (men), gymnastics (women), cross country (men and women), track & field (men and women), soccer (women), swimming and diving (men and women), tennis (men and women), and volleyball (women). The author sampled student-athletes in as many different sports as possible in order to attain sport diversity. This step was taken in order to promote racial/ethnic diversity as certain

groups are more prevalent in certain sports (*NCAA Student-Athlete Race and Ethnicity Report, 2007*). All demographic information is reported in detail below in Table 6.

Table 6

Demographic Characteristics of Participants (N = 144)

Characteristic	<u>n</u>	%
Gender		
Female	97	67 %
Male	47	33 %
Age		
17	2	1.4 %
18	24	16.7 %
19	41	28.5 %
20	33	22.9 %
21	28	19.4 %
22	12	8.3 %
23	2	1.4 %
24	2	1.4 %
Ethnicity		
Asian	2	1.4 %
Black or African American	18	12.5 %
White	115	79.9 %

(Table 6 continues)

International Student	3	2.1 %
Other Ethnic Minority	6	4.2 %
Class Status		
Freshman	45	31.2 %
Sophomore	41	28.5 %
Junior	28	19.4 %
Senior	22	15.3 %
Other	8	5.6 %
Sport Played		
Cross Country	28	19.4 %
Football	15	10.4 %
Gymnastics	8	5.6 %
Soccer	20	13.9 %
Swimming	43	29.9 %
Tennis	9	6.2 %
Track & Field	9	6.2 %
Volleyball	12	8.3 %
Grade Point Average (GPA)		
< 2.0	1	0.7 %
2.0-2.49	5	3.5 %
2.5-2.99	25	17.4 %
3.0-3.49	56	38.9 %

(Table 6 continues)

3.5-4.0	41	28.5 %
N/A	16	11.1 %
Athletic Scholarship Status		
Receiving Scholarship	121	84.0 %
Not Receiving Scholarship	23	16.0 %
Plan to Pursue Professional Athlete Status		
Yes	34	23.6 %
No	65	45.1 %
Uncertain	44	30.6 %
Other	1	0.7 %

The Instruments

Demographic Questionnaire: A detailed demographic questionnaire was used to obtain relevant information from the participants. The questionnaire consisted of several variables, including: gender, age, race/ethnicity, class status (e.g., freshman, sophomore), sport played, current grade point average (GPA), athletic scholarship status, and desire to pursue professional athlete status following completion of collegiate eligibility. See Appendix B for a copy of the demographic questionnaire.

Sport Motivation Scale (SMS): All participants completed the *Sport Motivation Scale* (SMS; Pelletier et al., 1995). The SMS consists of 28 items that assess the dimensions of intrinsic motivation (IM), extrinsic motivation (EM), and amotivation (AMOT). Intrinsic and extrinsic motivation are measured using three subscales each and amotivation is assessed with one subscale (total of 7 subscales). Participants used paper and pencil to complete the items,

which are rated on a 7-point ordinal scale ranging from *Not at all* (1) to *Exactly* (7). Further details of the SMS (e.g., validity, reliability) were reported in Chapter 2. See pages 83-84 (Appendix C) for a copy of the SMS. Finally, it is noted that the SMS yielded mostly above average psychometric properties, as measured by Cronbach's alpha scores, which can be found on pages 85-86 in Appendix D.

NEO Personality Inventory-Revised (NEO PI-R): The NEO PI-R provides a comprehensive and detailed assessment of personality within the framework of the Five Factor Model (FFM). It was developed primarily as a tool to assess the normal adult population and provides a systematic assessment of emotional, interpersonal, experiential, attitudinal, and motivational styles. The NEO PI-R is a concise measure of the five major personality dimensions, as well as the six traits that define each dimension. It is noted that further details of the NEO PI-R were discussed in Chapter 2.

For the present study, the participants used paper and pencil to complete all items associated with the three dimensions of Neuroticism (N), Extraversion (E), and Conscientiousness (C). This decision to eliminate the dimensions of Openness (O) and Agreeableness (A) was made because (1) the chosen personality dimensions correlate well with the assessed forms of motivation and (2) the student-athlete population is heavily scheduled and has limited time to fill out instruments. By using these three dimensions, the author was able to gather the desired information while minimizing the time needed to complete the inventory. Each dimension included 48 items for a total of 144 items. Each item was answered with a 5-point Likert scale format ranging from *Strongly Disagree* to *Strongly Agree*. In the present study, the three NEO PI-R dimensions used yielded strong psychometric properties (as measured by Cronbach's alpha statistics), which can be found on pages 87-88 in Appendix D. It is noted

that the author paid a royalty fee and obtained permission to utilize the three NEO PI-R dimensions from Psychological Assessment Resources, Inc. The assessed personality dimensions and their corresponding traits can be found below in Table 7:

Table 7

NEO PI-R Dimensions and Traits used in study

Neuroticism (N)	Extraversion (E)	Conscientiousness (C)
Anxiety	Warmth	Competence
Angry-Hostility	Gregariousness	Order
Depression	Assertiveness	Dutifulness
Self-Consciousness	Activity	Achievement Striving
Impulsiveness	Excitement-Seeking	Self-Discipline
Vulnerability	Positive Emotions	Deliberation

Procedures

The author scheduled and conducted a meeting with the team's coaching staff to inform them of the purpose of the study and to answer any questions. After obtaining permission from the coaches, the author coordinated a meeting time with the student-athletes to administer the selected instruments. Before completing the research packets, the student-athletes were given an informed consent document and were made aware that their participation was completely voluntary. The student-athletes were given the author's contact information in the event they had additional questions or desired to be debriefed following completion of the instruments.

Statistical Treatment

Following the completion of all instruments, the author conducted both correlational and regression analyses. After identifying the significant correlational relationships between amotivation and the personality dimensions and traits, the author considered these independent variables in a series of regression analyses to identify possible significant predictors and to determine the best fitting model. Following these analyses, the author also conducted two one-

way ANOVAS to detect possible mean differences in levels of amotivation across the demographic variables of gender and sport played. It is noted that, due to the exploratory nature of the present study, all statistical analyses were evaluated as significant in light of the .05 cut-off. Additionally, when evaluating hypotheses that had a priori predictions, the author conducted 1-tailed tests of significance.

Limitations

Collegiate student-athletes can be difficult to study due to various factors (e.g., demanding schedules, protective coaches, etc.). Thus, the present study relied upon a convenience sample of willing coaches and student-athletes. Due to this fact, the sample could have possessed a greater degree of diversity (e.g., ethnic/racial, sport played, gender) if the author had been able to be more selective about participants. It is noted that the lack of diversity in these demographic variables could impact the findings by creating a gender imbalance. However, as mentioned above, the convenience nature of the sample heavily influenced this lack of diversity.

Additionally, the author was not able to control the point in the training/competitive calendar in which the student-athletes completed the instruments. Thus, some test administrations occurred while student-athletes were in-season, while others occurred during an “off-season” period. It is noted that the “off-season” is when student-athletes are most accessible for such projects. In the present study, of the 8 teams utilized, 4 teams were in-season and 4 teams were out-of-season. In addition to in-season/off-season factors, the timing of the test administration (e.g., following a difficult practice, during a losing streak, etc.) could have affected the responses given by the participants.

Also, the present study did not have any form of control in place to detect possible socially desirable responses, which has long been a concern in self-report personality testing (Edwards, 1957, 1990). Thus, participants could have responded in a socially desirable ways, especially if the student-athletes were concerned about their coaches knowing about their responses. Prior to the test administration, the author explicitly stated that the student-athletes had anonymity and confidentiality in their responses. However, this step may or may not have alleviated all possible concerns. It is noted, however, that socially desirable responses are always a concern when utilizing self-report measures.

Hypotheses

Because the proposed study has not been examined in the sport context previously, guiding theory is limited. Thus, it is noted that some of the hypotheses do not have previous evidence in the literature. However, the author's pilot study produced several significant findings, which guided some of the stated hypotheses (Brannon, 2008). The hypotheses for the present study were as follows:

- I. Amotivation will be significantly positively correlated with the personality trait of anxiety.
- II. The personality trait of anxiety will be a significant positive predictor of a student-athlete's level of amotivation.
- III. There will be a significant mean difference between male and female levels of amotivation.
- IV. Student-athletes participating in more "individual" sports (e.g., cross country, tennis) will have significantly higher levels of amotivation than those participating in more "team" oriented sports (e.g., football, volleyball).

CHAPTER 4

RESULTS

Presentation of Data Analyses

Descriptive statistics were calculated for all subscales from both the *Sport Motivation Scale* (SMS) and the NEO PI-R. These statistics were analyzed by gender and also as a total group. It is noted that the SMS norms can be found in Table 19, as published by Pelletier et. al. (1995). The NEO PI-R scales have a mean of 50 and a standard deviation of 10. The descriptive data for both the SMS and the NEO PI-R are reported below in Tables 8 and 9:

Table 8

Means (M) and Standard Deviations (SD) of Sport Motivation Scale (SMS)

Scale	<u>Female (n=97)</u>		<u>Male (n=47)</u>		<u>Total (n=144)</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Intrinsic Motivation (IM) Total	59.0	12.1	60.3	9.8	59.4	11.4
IM Know	17.3	5.1	17.8	4.9	17.5	5.1
IM Stimulation	21.4	4.3	21.9	2.9	21.6	3.9
IM Accomplishment	20.3	4.5	20.6	4.3	20.4	4.4
Extrinsic Motivation (EM) Total	47.1	11.8	47.7	12.5	47.3	12.0
EM External	15.0	4.7	14.9	5.0	15.0	4.8
EM Identity	18.6	4.7	18.6	4.8	18.6	4.7

(Table 8 continues)

EM Introjection	13.5	4.9	14.1	5.6	13.7	5.1
Amotivation (AMOT)	7.3	5.2	7.5	5.6	7.4	5.3

Table 9

Means (M) and Standard Deviations (SD) of NEO PI-R

Scale	<u>Female (n=97)</u>		<u>Male (n=47)</u>		<u>Total (n=144)</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Dimensions						
Neuroticism (N)	53.2	9.7	53.5	9.7	53.3	9.6
Extraversion (E)	58.6	11.1	55.7	9.0	57.6	10.5
Conscientiousness (C)	50.0	10.6	45.1	11.0	48.4	10.9
Traits						
Anxiety	53.8	9.5	53.2	9.2	53.6	9.4
Warmth	50.3	11.7	48.0	9.5	49.6	11.1
Competence	51.1	10.2	46.0	9.6	49.5	10.3
Angry	52.5	10.2	50.7	10.2	51.9	10.2
Gregariousness	56.6	11.5	56.0	8.5	56.4	10.6
Order	47.0	12.0	46.5	9.7	46.9	11.3
Depression	52.5	10.2	53.6	8.7	52.8	9.7
Assertiveness	56.6	9.7	52.7	8.4	55.3	9.4
Dutifulness	46.3	10.7	45.5	9.3	46.0	10.2
Self Consciousness	50.0	10.6	50.6	9.7	50.2	10.3

(Table 9 continues)

Scale	<u>Female (n=97)</u>		<u>Male (n=47)</u>		<u>Total (n=144)</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Activity	55.4	8.3	54.6	7.6	55.2	8.1
Achievement Striving	56.8	11.0	51.1	10.8	54.9	11.2
Impulsiveness	53.8	10.1	51.1	9.1	52.9	9.9
Excitement Seeking	60.1	8.7	58.8	7.9	59.7	8.5
Self Discipline	47.9	10.5	42.0	12.3	46.0	11.4
Vulnerability	51.8	9.8	53.7	11.2	52.4	10.3
Positive Emotions	54.4	10.7	52.0	10.8	53.6	10.8
Deliberation	51.3	11.3	47.9	11.3	50.2	11.4

Hypothesis Testing

A series of data analyses were conducted to examine each of the hypotheses stated in Chapter 3. All data were analyzed using SPSS (version 16) at the .05 level of significance cut off. Several of the hypotheses were upheld through the data analyses. Each of the hypotheses are presented, in turn, as follows:

Hypothesis I

Amotivation will be significantly positively correlated with the personality trait of anxiety.

This hypothesis was tested by conducting a correlational analysis of amotivation and the personality data yielded from the NEO PI-R to generate a Pearson Correlation Coefficient (r). It is noted that both the dimensions (e.g., Extraversion) and the traits (e.g., depression) were tested. As hypothesized, anxiety emerged as significantly positively correlated with amotivation ($r = .351, p < .001$). It is noted that this result was consistent with the data obtained through the

author's pilot study (Brannon, 2008). It appears that, in this student-athlete population, levels of anxiety increased as levels of amotivation increased.

In addition to this finding regarding anxiety, other significant correlational relationships emerged as well: warmth ($r = -.177, p < .05$), achievement striving ($r = -.177, p < .05$), positive emotions ($r = -.216, p < .001$), and extraversion ($r = -.232, p < .001$). It is noted that each of the examined relationships were negatively correlated with amotivation, which indicated that lower levels of these traits correlated with higher levels of amotivation. These correlational results can be found below in Table 10.

In summary, it appears that several measured personality traits/dimensions have statistically significant relationships with levels of student-athlete amotivation in the studied sample. Finally, it is noted that the author chose to maintain a .05 cutoff level of significance when analyzing this data due to the exploratory nature of this hypothesis. However, if the Bonferroni corrected value of .01 were used instead, the variables of anxiety, positive emotions, and Extraversion would have still emerged as significant.

Table 10

Correlational analysis summary of Amotivation (AMOT) and personality dimensions/traits

Personality factor/trait	Amotivation
Anxiety	.351**
Warmth	-.177*
Achievement Striving	-.177*
Positive Emotions	-.216**
Extraversion	-.232**

Note: * $p < .05$, ** $p < .01$

Hypothesis II

The personality trait of anxiety will be a significant positive predictor of a student-athlete's level of amotivation.

The author conducted a linear regression analysis to determine if anxiety was a significant positive predictor of a student-athlete's level of amotivation. After finding several statistically significant correlational relationships during the previous analysis, the author chose the significant variables to build the regression model. The regression analysis yielded several significant predictors, including anxiety ($\beta = .220, p < .01$), which had emerged as a statistically significant positive predictor in the pilot study as well (Brannon, 2008). This finding indicates that, in the studied sample, a high level of anxiety was a significant predictor of a student-athlete's level of amotivation. Other significant predictors included achievement striving ($\beta = -.105, p < .05$), extraversion ($\beta = -.087, p < .05$), and assertiveness ($\beta = .089, p < .05$), which did not yield statistically significant result in the correlational analysis. In summary, the traits of anxiety and assertiveness emerged as significant positive predictors of amotivation, while the trait of achievement striving and the dimension of Extraversion were significant negative predictors. The final regression model, which accounted for approximately 22% of the variance, can be found below in Table 11:

Table 11

Regression analysis summary for personality dimensions/traits predicting Amotivation (AMOT)

Variable	B	SEB	β
Anxiety	.220	.044	.390**

(Table 11 continues)

Achievement Striving	-.105	.037	-.223*
Extraversion	-.087	.039	-.173*
Assertiveness	.089	.043	.158*

Note: *Adj. R*² = .222 (N = 144, *p* = .000)

* *p* < .05, ** *p* < .01

Hypothesis III

There will be a significant mean difference between male and female levels of amotivation.

The author conducted a one-way ANOVA to determine if there existed a significant mean difference in amotivation between the male and female student-athletes in the sample. This hypothesis was not grounded in any previous evidence due to the fact it had not been examined in this way prior to the present study utilizing a sample of NCAA collegiate student-athletes. However, due to the exploratory nature of the present study, the hypothesis was examined despite its lack of theoretical grounding.

The data analysis of hypothesis 3 did not yield significant results $F(1, 142) = .061, p = .801$. In the studied sample, it appears that there are not significant differences in amotivation levels between male and female student-athletes. Results of the analysis can be found on the following page in Table 12:

Table 12

One-Way Analysis of Variance Summary by Gender

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>Sig.</u>
Between Groups	1	1.718	0.061	.805
Within Groups	142	28.085		
Total	143			

Hypothesis IV

Student-athletes participating in more “individual” sports (e.g., cross country, tennis) will have significantly higher levels of amotivation than those participating in more “team” oriented sports (e.g., football, volleyball).

The author conducted a one-way ANOVA with a Bonferroni post-hoc analysis to determine if there were significant mean differences in levels of amotivation amongst different sports. The author hypothesized that student-athletes participating in more “individual” sports would yield higher levels of amotivation than student-athletes participating in more traditional “team” sports. Sports such as cross country are often considered to have a more “individual” focus because much of the training and competing is done in a solitary fashion and is, thus, less dependent on teammates in determining outcomes. Previous studies have demonstrated the relationship between individual sports and increased risk of burnout, which is often a component of amotivation. Conversely, the more traditional “team” sports are thought to create increased support systems for student-athletes, which could act as an effective buffer toward amotivation

and/or burnout. Due to these relationships, the hypothesis of amotivation differing significantly across sports was plausible.

The one-way ANOVA yielded a significant mean difference in amotivation levels across all sports. The result of this analysis was $F(7, 136) = 1.945, p = .0335$ when using an a priori test of significance (1-tailed). These results can be found below in Table 13. Despite this significant finding, the Bonferroni post-hoc analysis did not yield significant differences between specific sports. Means and standard deviations of amotivation by sport can be found below in Table 14.

Table 13

One-Way Analysis of Variance Summary for Sport Played

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>Sig.</u>
Between Groups	7	51.866	1.945	0.0335*
Within Groups	136	26.667		
Total	143			

* $p < .05$

Table 14

Means and Standard Deviations of Amotivation (AMOT) by Sport Played

Sport	<u>n</u>	<u>M</u>	<u>SD</u>
Cross Country	28	8.32	5.464

(Table 14 continues)

Football	15	10.13	7.405
Gymnastics	8	5.12	2.031
Soccer	20	6.60	4.570
Swimming	43	6.47	4.361
Tennis	9	5.44	3.245
Track & Field	9	10.67	7.450
Volleyball	12	8.75	5.225

Results Summary

In summary, Hypotheses I and II were supported following the data analyses. The personality trait of anxiety yielded a statistically significantly positive relationship with amotivation and also emerged as a significant predictor following a regression analysis. Additionally, several other personality traits yielded statistically significant correlational and regression relationships.

An analysis of Hypothesis III did not yield significant results. This finding indicated that there were not significant mean differences in amotivation levels of female and male student-athletes. Hypothesis IV was supported as well following a 1-tailed test of significance. Following this analysis, it appears that, in the studied sample, there exists a significant mean difference in student-athlete amotivation when compared across multiple sports. Despite this demonstrated effect, the Bonferroni post-hoc analysis did not yield significant mean differences between specific sports.

CHAPTER 5

DISCUSSION

Summary of the Study

The present study sought to examine possible relationships between amotivation and personality traits in a sample of NCAA Division I student-athletes. Although the construct of motivation has been heavily studied, there remains much disagreement about its definition and also its variability amongst different populations. Few of the previous motivation studies have considered the role that individual differences might play in its development, maintenance, decline, etc. Despite the lack of evidence in this specific area, previous studies have examined the role of personality in college students' academic motivation (e.g., Komarraju & Karau, 2005). The significant findings generated in such studies made establishing similar relationships in a sport motivation context plausible.

The purpose of the following study was to examine sport motivation and personality traits in a sample of NCAA Division I student-athletes, while focusing on the construct of amotivation. The study aimed to address the void in the knowledge base regarding forms of motivation for Division I collegiate student-athletes, while also examining the role of individual personality differences. This study critically examined amotivation in student-athletes due to its potential impact on mental health and well-being in general. The construct of amotivation has become particularly relevant as psychologists increasingly find themselves embedded in sport organizations (e.g., NCAA athletic departments). As these trends continue, such psychologists

become critical members in helping to promote and maintain student-athlete mental health and well-being (Bennett, 2007).

The sample consisted of 144 NCAA Division I student-athletes at a large southeastern university in the United States. The sample contained 97 (67 %) females and 47 (33 %) males. The participants ranged in age from 17 to 24 ($M = 19.8$; $SD = 1.387$). The majority of the participants were Caucasian ($n=115$, 80 %) and the second largest racial/ethnic group was African American ($n=18$; 13 %). The sample included student-athletes who ranged from freshman to senior status in terms of NCAA eligibility. The largest group represented was freshman ($n=45$; 31 %). The following sports were represented in the sample: football (men), gymnastics (women), cross country (men and women), track & field (men and women), soccer (women), swimming and diving (men and women), tennis (men and women), and volleyball (women).

After obtaining permission from the coaches, the author coordinated a meeting time with the student-athletes to administer the selected instruments. All participants in the study completed a detailed demographic questionnaire, the *Sport Motivation Scale* (SMS), and questions from three dimensions of the the *NEO Personality Inventory-Revised* (NEO PI-R). Because the present study had not been examined in the sport motivation context previously, guiding theory for hypotheses was limited. However, the author's pilot study produced several significant findings relating to Hypotheses I and II, which then guided some of the hypotheses chosen for the present study (Brannon, 2008). The hypotheses for the study were as follows:

- I. Amotivation will be significantly positively correlated with the personality trait of anxiety.

- II. The personality trait of anxiety will be a significant positive predictor of a student-athlete's level of amotivation.
- III. Female student-athletes' levels of amotivation will be significantly higher than male student-athletes'.
- IV. Student-athletes participating in more "individual" sports (e.g., cross country, tennis) will have significantly higher levels of amotivation than those participating in more "team" oriented sports (e.g., football, volleyball).

Conclusions

As has been stated throughout the previous chapters, there exist few, if any, studies of this kind in the psychology literature. Despite the many challenges associated with examining the student-athlete population, the present study was able to navigate these potential barriers successfully to generate 144 participants. Additionally, the data gathered by the author yielded several significant findings that bear consideration and further inquiry. The following section will address each of the studied hypotheses in turn:

Hypothesis I

Following a correlational analysis, the data yielded several significant relationships between amotivation and personality traits. These significant relationships included: anxiety ($r = .351, p < .001$), warmth ($r = -.177, p < .05$), achievement striving ($r = -.177, p < .05$), and positive emotions ($r = -.216, p < .001$). It is noted that several of these findings were consistent with the previous pilot study conducted by the author (Brannon, 2008). Despite the exploratory nature of this study, each of these findings should be considered noteworthy when thinking about the potential impact of amotivation on student-athlete motivation toward sport, as well as well-being in general. The trait of anxiety yielded a significant positive relationship with increased

levels of amotivation. Individuals who score highly in anxiety are described as fearful, prone to worry, nervous, tense, and jittery (Costa & McCrae, 1992). This finding highlights the importance of monitoring this construct in the student-athlete population. Considering the ways in which significant levels of anxiety can thwart action, this finding seems critical for those people working with student-athletes.

Hypothesis II

Hypothesis II was examined using a regression analysis. Several significant predictors emerged from this analysis. These predictors included: anxiety ($\beta = .220, p < .01$), achievement striving ($\beta = -.105, p < .05$), and assertiveness ($\beta = .089, p < .05$), which, interestingly, had not yielded a statistically significant result in the correlational analysis.

The trait of anxiety was found to be a significant predictor of amotivation. It is noted that this finding was consistent with the data generated during the previous pilot study (Brannon, 2008). As stated in the previous section, individuals who score highly in this trait are more likely to be fearful and worrisome. As indicated by the data, the student-athletes who scored highly in trait anxiety could be identified as more likely to become amotivated. Conversely, student-athletes who scored in the lower ranges on anxiety could be labeled as less likely to develop heightened levels of amotivation. However, despite these findings, one must recognize the possibility for other mediating factors to influence this relationship, either positively or negatively.

Hypothesis III

Hypothesis III was tested using a one-way ANOVA to determine if there existed a significant mean difference in amotivation between the male and female student-athletes in the sample. It is noted that this research question was exploratory in nature and had not been

founded upon any previous study. When proposing this possible relationship, the author was guided by anecdotal experience generated through counseling interactions with male and female student-athletes. The data yielded following the ANOVA did not yield significant results: $F(1, 142) = .061, p = .805$.

Although this analysis did not yield statistically significant results, the author expected that the relationship would be more disparate than it appeared to be. Possible reasons for this lack of statistical significance are many. First, it must be re-stated that such relationships have not been surfaced earlier in previous studies. Also, although the author has detected differences between males and females in clinical encounters, such examples are purely anecdotal and far from representative. Finally, a larger and more diverse sample could yield different results. It is recommended that this research question continue to be examined.

Hypothesis IV

A one-way ANOVA with a Bonferroni post-hoc analysis was utilized to determine if there were significant mean differences in levels of amotivation amongst different sports. The author hypothesized that student-athletes participating in more “individual” sports would yield higher levels of amotivation than student-athletes participating in more traditional “team” sports. Following a 1-tailed a priori analysis, the data yielded significant mean differences in amotivation levels across all sports. The result of this analysis was $F(7, 136) = 1.945, p = .0335$. Despite this significant finding, a Bonferroni post-hoc analysis did not yield significant differences between specific sports.

The findings regarding sport played impacting one’s level of amotivation are noteworthy for several reasons. First, it appears that there exists a difference across the groups in terms of amotivation levels. Next, it is possible that certain mediating variables that accompany specific

teams are impacting levels of amotivation. Identifying these relationships would clearly require continued, in-depth study. Finally, it is important to note that significant mean differences between specific sports could be detected in future studies. Because this study utilized a convenience sample, certain sports consisted of much larger populations than others. This imbalance could have affected post-hoc analysis. Future studies that utilized larger and more balanced groups could generate different results that could provide critical information about specific sports differing significantly from others in terms of amotivation levels.

Additional Significant Findings

When examining the stated hypotheses, the author found other statistically significant results that were reported earlier in Chapter 3. Although these findings had not been noted in the stated hypotheses, they are discussed below in the following section due to the fact that they emerged as significant at the .05 level. Considering the apparent strength of association in the studied sample, these findings could be excellent beginning points for further inquiry.

Significant Correlational Findings

The trait of warmth yielded a significant negative relationship with amotivation. High scores in warmth are usually synonymous with people who are affectionate and friendly, genuinely like others, form close relationships with others, and enjoy interpersonal intimacy (Costa & McCrae, 1992). In light of this description, this negative relationship with amotivation could involve the impact of support systems on one's level of motivation. Logically, people who were described as "warm" would be more likely to possess adequate support systems, which could serve as a buffer to the inevitable stressors that impact student-athletes. Such stressors (e.g., demanding schedule, outcome oriented culture, pressure-filled environment, etc.), along with many others unnamed here, are thought to be some of the factors that deprive some student-

athletes of the desire and/or ability to maintain motivation toward their sports. In contrast, student-athletes who lacked warmth would be more likely to possess less extensive support systems, which could create a lack of a practical mechanism to assist them in dealing with the challenges they face. Experiencing these realities without the support of others could certainly impact one's level of amotivation.

Next, high scorers in positive-emotions also yielded a significant negative relationship with amotivation. The trait of positive-emotions is described as the tendency to experience emotions such as joy, happiness, love, and excitement. High scorers on this trait often laugh easily and are cheerful and optimistic (Costa & McCrae, 1992). Considering the nature of this trait, it is plausible to imagine that such student-athletes could be impacted by these positive tendencies, which could serve as a different type of buffer against the daily demands placed upon them by prompting them to experience challenges with an increased sense of optimism. Conversely, low scorers on the positive-emotions trait would be described as less exuberant and often less happy (Costa & McCrae, 1992). Student-athletes who yielded scores who fit this description could be more inclined to experience hardships through a negative lens, and thus feel an increased sense of amotivation toward sport and life in general.

Finally, high scorers on the trait of achievement striving yielded a significant negative relationship with amotivation. Individuals who score highly on the trait of achievement striving are likely to have high aspiration levels and are prone to work hard to achieve their goals. They are thought of as diligent and have a sense of direction in their life (Costa & McCrae, 1992). Similar to the previous discussions, this finding seems logical as well. Student-athletes who scored highly in this trait would be more likely to be highly motivated and self-directed in their pursuits. This type of vested motivation would be contrary to lacking motivation and thus should

yield a negative relationship with amotivation. Similarly, student-athletes who scored in the lower ranges on achievement striving would be more inclined to suffer from a lack of motivation, which would heighten their levels of amotivation.

Significant Regression Findings

The trait of achievement striving emerged as a significant predictor of amotivation. As one might expect, this relationship was a negative association, which meant that high scores on achievement striving predicting lower scores of amotivation. Student-athletes who manifest high levels of this trait are likely to be invested in their personal pursuits, which would, in theory, yield lower levels of amotivation. It is noted, though, that extremely high levels of achievement striving could, ultimately, lead to burnout if student-athletes did not possess other outlets in life to balance their interests. This association could be useful in predicting a student-athlete's level of amotivation.

Also, the trait of assertiveness emerged as a significant predictor of amotivation. The relationship was a positive association, which meant that higher scores on assertiveness predicted higher levels of amotivation. Individuals who score highly on assertiveness are described as dominant, forceful, and socially ascendant. They often speak without hesitation and become group leaders (Costa & McCrae, 1992). This finding was somewhat confusing for the author. Intuitively, assertiveness seems like a trait that could bolster or reduce levels of amotivation. If an individual was highly assertive, it is possible that he/she could encounter occasional periods of burnout. Because being assertive demands continual action and initiative, it is plausible to consider that such demands could deprive individuals of needed motivation and/or energy. However, conversely, some individuals who scored highly on assertiveness could be more likely to possess lower levels of amotivation. Because assertive behaviors often require motivation and

intent, one could conclude that these individuals would be less prone to become amotivated. It seems that the source or reasoning behind the assertive behavior could be a major factor in determining if the behaviors served to bolster or reduce motivation. Following the data analysis, this relationship remains unclear. Further research on this trait's relationship with amotivation is recommended.

Implications

The reported results have implications for all parties involved in student-athlete well-being and/or sport participation. For example, the findings of the relationship between amotivation and anxiety highlight a potential need to be addressed by health care providers. Prevalence studies have demonstrated that anxiety is one of the leading mental health concerns of undergraduate students (College Mental Health Statistics, 2008). Thus, because collegiate student-athletes are a part of this population, one can safely surmise that they face significant struggles in this regard as well. Considering both the demonstrated relationship between anxiety and amotivation and the potential threat for amotivation to heighten and promote additional stressors, it seems imperative that steps be taken to facilitate prevention efforts or increased psycho-educational programming for student athletes. These steps could prove effective in equipping anxious student-athletes with skills to manage their feelings effectively with the hope of reducing the probability of becoming amotivated. In addition to such efforts, individual counseling could also be an effective intervention for these student-athletes. These services could be accessed through various means (e.g., outside practitioners, in-house mental health practitioners, university counseling centers).

In contrast to this relationship between anxiety and amotivation, efforts should also be made to foster the traits that yielded negative relationships with amotivation (e.g. warmth,

achievement striving). Although these measured constructs are traits, which are thought to be less pliable, it remains possible that student-athletes who scored highly in these areas could be encouraged to foster these tendencies and those student-athletes who scored more lowly could be educated, trained, and then encouraged to bolster these tendencies. For example, a student-athlete who first scored in a lower range in achievement striving could be identified and then assisted in developing tendencies such as drive, determination, goal setting, etc. These efforts would be worthwhile if the student-athlete were to establish more consistent achievement striving tendencies, which could possibly reduce the probability of becoming amotivated.

Next, the data that demonstrated that higher levels of trait warmth have a negative relationship with amotivation highlights the potential effect of support systems on student-athlete well-being. It is logical to assume that, in many cases, student-athletes who have a “warmer” personality will also have more support systems. These support systems could be valuable assets in combating possible amotivation. If this relationship continued to surface in future studies, launching efforts to bolster support systems, with both student-athletes and non-athletes, could be a valuable effort. Although some student-athletes currently have such support, many others do not. The notion of this effort would be the idea that support systems could act as an effective buffer on amotivation.

Application for Mental Health Practitioners

In addition to interested researchers, the data generated from the present study also has implications for those working in the roles of sport psychology practitioners (e.g., sport psychologists, sport psychology consultants). In addition to being consumers of the aforementioned research, these professionals must strive to act on the yielded data. For example, many of the self-determination studies highlight the role of the social context in which the

individual functions. Clearly, there are stark contrasts in the different settings in which most athletes will thrive versus those in which they will struggle. Training environments that support the athlete's autonomy appear to enhance self-determined motivation, which appears to affect performance outcomes positively (Treasure et. al., 2007).

Sport psychology professionals, to the extent possible, should strive to educate coaches and athletic administrators about the athlete's need for autonomy. Because coaches are always interested in improving performance outcomes, they would be wise to heed these recommendations. Also, sport psychology professionals should work with team leaders and/or captains to educate and empower them to advocate for themselves and teammates for improved training environments. Several studies have demonstrated that athletes who are able to internalize a self-determined motivation regulation and train in an autonomy-supportive environment are likely to experience adaptive responses such as persistence, task perseverance, and coping mechanisms that have been determinants of athletic development and performance (Treasure et. al., 2007).

Next, if able to attain the opportunity, sport psychology professionals can use formal assessment scales (i.e., SMS) to monitor athletes' motivational quality throughout the competitive season. Having this objective data in hand could be an effective means of raising awareness of coaches and athletic trainers that certain athletes might need additional recovery time or altered training regimens. In a world that thrives on numbers and outcomes, having this measurable evidence could be necessary in order to garner legitimate attention and/or concern. If implemented properly and consistently, the use of objective scales could be an effective means of reducing burnout prevalence among student-athletes.

Lastly, sport psychology professionals are encouraged to challenge student-athletes to carefully consider their sources of motivation and/or goals. Although most athletes are fueled by positive performance outcomes, these results are not always obtainable. It is critical that athletes be able to set goals that they can exercise some level of control over (e.g., sustained effort, positive attitude, physical preparation for success) instead of relying too heavily on extrinsic motivators (e.g., medals, awards, money). Also, it is important that athletes be able to motivate themselves on a daily basis by linking their training to their desired destination. Sport psychology professionals can work with athletes to develop relevant questions to consider day in and day out to help maintain needed motivation. Examples of specific questions could include: “How will this drill get me closer to my goals?” and “How is getting up this early helping me become more mentally tough for performance?”

In summary, the construct of motivation is critically important for athletes, who must maintain consistent effort over the long haul. Sport psychology professionals must be aware of the relevant research on motivation in sport and then must work with all members of the sport culture to help create environments in which athletes can thrive and combat adverse conditions such as burnout. With the proper provisions in place, athletes can embrace a self-determined form of motivation and can strive to reach performance goals.

Future Directions

In thinking about the future directions of this line of inquiry, there are several important factors to consider. First, and most generally, it is important for researchers to make a more concerted effort to conduct mental health related studies on the collegiate student-athlete population. Currently, the number of such studies that have been conducted on this population is extremely few. Thus, one must assume that there is much about this population’s mental health

statuses that is unknown. Although this task will assuredly be difficult for reasons stated in the earlier chapters of this work, it is critical that able individuals either launch such efforts themselves or act as facilitators to those who are capable of conducting such studies.

As athletic departments increasingly hire mental health practitioners to provide services to student-athletes, it is imperative that these individuals be willing to advocate for further research to be conducted. Because these practitioners are likely to be hired to provide services to a large population of athletes, conducting independent research is unlikely to be feasible due to time constraints. However, once positioned within the context of the athletic department organization, these mental health providers possess the needed established relationships with involved parties, which could allow them to collaborate with researchers. Of course, any actions by the mental health provider must adhere to strict ethical guidelines or else the project (and their future employment) would be jeopardized.

Next, the present study surfaced several significant findings regarding student-athletes' level of amotivation. Also, the author's data yielded significant relationships between amotivation and certain personality traits. The exploratory nature of this study warrants further inquiry. The present study utilized a convenience sample on a single university campus. Future study should seek to incorporate larger and more diverse populations on multiple campuses across the United States. These steps would, in theory, add diversity in many domains (e.g., race/ethnicity, gender) and would also shed increased light on potential generalizability to the student-athlete population in general. These studies should also target samples of more diverse sports. As noted, the present study was not able to incorporate as many sports as the author would have desired.

In terms of future studies, it is recommended that some of the studied research questions continue to be examined, as well as launching others as well. Although the present study, as well as the author's pilot study, demonstrated several significant findings, additional replication is required before solid conclusions can be made. Additionally, the present study focused on the construct of amotivation, but future efforts should also examine possible differences intrinsic motivation and extrinsic motivation. Although these data were gathered in the present study, the scope of the project could not consider all of these constructs extensively. Considering the findings of the present study, it appears that future directions in this realm could be promising and could influence mental health outcomes for student-athletes in positive ways.

REFERENCES

- Abramson, L.Y., Seligman, M.E.P., & Teasdale, J.D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*, 49-74.
- American Psychological Association. (2002). Ethical principles of psychologists and code of conduct. *American Psychologist, 57*, 1060-1073.
- American Psychological Association. (2003). Guidelines on Multicultural Education, Training, Research, Practice, and Organizational Change for Psychologists. *American Psychologist, 58*, 377-402.
- Anastasi, A.A., & Urbina, S.U. (1997). *Psychological testing* (7th ed.). Upper Saddle River, NJ: Prentice Hall.
- Bennett, G. (2007). The role of a clinical psychologist in a Division I athletics department. *Journal of Clinical Sport Psychology, 1*, 261-269.
- Botwin, M.D. (1995). Review of the NEO PI-R. In The twelfth mental measurements yearbook. Retrieved July 10, 2008 from EBSCO Mental Measurements Yearbook database.
- Brannon, D.R. (2008). *An examination of sport motivation and personality traits in collegiate student-athletes: A pilot study with NCAA division I swimmers*. Unpublished manuscript, University of Georgia, Athens, GA.

- Briere, N.M., Vallerand, R.J., Blais, M.R., & Pelletier, L.G. (1995). Development et validation d'une mesure de motivation intrinsèque, extrinsèque, et d'amotivation en contexte sportif: L'Echelle de Motivation dans les Sports (EMS). [Development and validation of the French form of the Sport Motivation Scale]. *International Journal of Sport Psychology*, 26, 465-589.
- Buckworth, J., & Dishman, R.K. (2002). *Exercise Psychology*. Champaign, IL: Human Kinetics.
- Busato, V.V., Prins, F.J., Elshout, J.J., & Hamaker, C. (1999). The relation between learning styles, the big five personality traits and achievement motivation in higher education. *Personality and Individual Differences*, 26, 129-140.
- Butcher, J.N. (1995). *Clinical personality assessment: Practical approaches*. New York: Oxford University Press.
- Cashmore, Ellis. (2002). *Sport Psychology: The Key Concepts*. New York: Routledge.
- College Mental Health Statistics. (2008). Retrieved January 26, 2009, from <http://www.healthyminds.org/collegestats.cfm>.
- Costa, P.T., Jr., & McCrae, R.R. (1984). Personality as a lifelong determinant of well-being. In C.Z. Malatesta & C.E. Izard (Eds.), *Emotion in adult development* (pp. 141-158). Beverly Hills, CA: Sage.
- Costa, P. T., & McCrae, R. R. (1985). The NEO Personality Inventory. Odessa, FL: Psychological Assessment Resources.
- Costa, P. T., & McCrae, R. R. (1992). Professional manual for the NEO Personality Inventory (NEO-PI-R) and NEO Five Factor Inventory (NEO-FFI). Odessa, FL: Psychological Assessment Resources.

- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper Perrenial.
- Deci, E.L. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology*, 18, 105-115.
- Deci, E.L. (1972). Intrinsic motivation, reinforcement, and inequity. *Journal of Personality and Social Psychology*, 22, 113-120.
- Deci, E.L., & Ryan, R.M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.
- Digman, J.M. (1990). Personality structure: Emergence of the five factor model. *Annual Review of Psychology*, 41, 417-440.
- Duda, J.L., Fox, K.R., Biddle, S.J.H., & Armstrong, N.J. (1992). Children's achievement goals and beliefs about success in sport. *British Journal of Educational Psychology*, 62, 313-323.
- Duda, J.L., & Treasure, D.C. (2001). Toward optimal motivation in sport: Fostering athletes' competence and sense of control. In J.M. Williams (Ed.), *Applied Sport Psychology: Personal Growth to Peak Performance* (4th ed., pp. 43-62). Mountain View, CA: Mayfield.
- Dweck, C.S. (1986). Motivational processes affecting learning. *American Psychologist*, 41, 1040-1048.
- Dwyer, J. (1988). *Development of the Sports Intrinsic Motivation Scale*. Unpublished doctoral dissertation. University of Saskatchewan.
- Edwards, A.L. (1957). *The social desirability variable in personality assessment and research*. New York: Dryden.

- Edwards, A.L. (1990). Construct validity and social desirability. *American Psychologist*, 45, 287-289.
- Egloff, B., & A.J. Gruhn. (1996). Personality and endurance sports. *Personality and Individual Differences*, 21, 223-229.
- Goldberg, L. R. (1981). Language and individual differences: The search for universals in personality lexicons. *Review of Personality and Social Psychology*, 2, 141-165.
- Goldberg, L.R. (1993). The structure of the phenotypic personality traits. *American Psychologist*, 48, 26-34.
- Gould, D., Dieffenbach, K., & Moffet, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology*, 14, 172-204.
- Griffith, C.R. (1928). *Psychology and athletics*. New York: Scribners.
- Guay, G., Vallerand, R.J., & Blanchard, C. (2000). On the assessment of situational intrinsic and extrinsic motivation: The Situational Motivation Scale (SIMS). *Motivation and Emotion*, 24, 175-213.
- Furnham, A., Forde, L., & Ferrari, Kirsti. (1999). Personality and work motivation. *Personality and Individual Differences*, 26, 1035-1043.
- Juni, S. (1995). Review of the NEO PI-R. In The twelfth mental measurements yearbook. Retrieved July 10, 2008 from EBSCO Mental Measurements Yearbook database.
- Kingston, K.M., Harwood, C.G., & Spray, C.M. (2006). Contemporary approaches to motivation in sport. In S. Hanton & S.D. Mellalieu (Eds.), *Literature Reviews in Sport Psychology* (pp. 159-197). New York: Nova Science Publishers, Inc.
- Komaraju, M, & Karau, S.J. (2005). The relationship between the big five personality traits and academic motivation. *Personality and Individual Differences*, 39, 557-567.

- Lanyon, R.I., & Goodstein, L.D. (1997). *Personality assessment* (3rd ed.). New York: Wiley.
- Lepper, M.R., Greene, D., & Nisbett, R.E. (1973). Undermining children's interest with extrinsic rewards: A test of the "overjustification effect." *Journal of Personality and Social Psychology*, 28, 129-137.
- Li, F., & Harmer, P. (1996). Testing the simplex assumption underlying the Sport Motivation Scale: A structural equation modeling analysis. *Research Quarterly for Exercise and Sport*, 67, 396-405.
- LeUnes, A., Hayward, S.A., & Daiss, R. (1988). Annotated bibliography on the Profile of Mood States in sport. *Journal of Sport Behavior*, 11, 213-240.
- LeUnes, A., & Burger, J. (2000). Profile of Mood States research in sport and exercise Psychology: Past, present, and future. *Journal of Applied Sport Psychology*, 12, 5-15.
- McCrae, R.R., & Costa, P.T., Jr. (1997). Personality trait structure as a human universal. *American Psychologist*, 52, 509-516.
- McCrae, R.R., Costa, P.T., Jr., Pilar, G.H.D., Rolland, J.P., & Parke, W.D. (1998). Cross-cultural assessment of the five-factor model: The revised NEO personality inventory. *Journal of Cross-Cultural Psychology*, 29, 171-188.
- McNair, D.M., Lorr, M., & Droppleman, L.F. (1971). *EDITS manual for POMS*. San Diego, CA: Educational and Industrial Testing Service.
- Maehr, M.L., & Nicholls, J.G. (1980). Culture and achievement motivation: A second look. In N. Warren (Ed.), *Studies in cross-cultural psychology*, 3, 221-267. New York: Academic Press.

- Martens, M.P., & Webber, S.N. (2002). Psychometric properties of the Sport Motivation Scale: An evaluation with college varsity athletes from the U.S. *Journal of Sport and Exercise Psychology*, 24, 254-270.
- Maslow, A. (1970). *Motivation and personality* (3rd ed.), New York: Harper & Row.
- Morgan, W.P., & Johnson, R. (1978). Personality characteristics of successful and unsuccessful oarsmen. *International Journal of Sport Psychology*, 9, 113-133.
- Morgan, W.P. (1979). Prediction of performance in athletics. In P. Klavara & J.V. Daniel (Eds.), *Coach, athlete, and sport psychologist* (pp. 173-186). Champaign, IL: Human Kinetics.
- Morgan, W.P. (1980). Test of champions: The ice-berg profile. *Psychology Today*, 14, 92-102.
- Motivation. *Oed.com*. Oxford University Press. Retrieved July 9, 2008, from http://dictionary.oed.com/cgi/entry/00316490?single=1&query_type=word&queryword=motivation&first=1&max_to_show=10
- National Collegiate Athletic Association (NCAA). (2007). *NCAA Race and Ethnicity Student-Athlete Report*. Indianapolis, IN: NCAA Publications.
- Nicholls, J.G. (1984). Achievement motivation: Concepts of ability, subjective experience, task choice, and performance. *Psychological Review*, 91, 328-346.
- Nicholls, J.G., & Miller, A.T. (1984). Development and its discontents: The differentiation of the concept of ability. In J.G. Nicholls (Ed.). *Advances in motivation and achievement: The development of achievement motivation*, 3, 185-218. Greenwich, CT: JAI Press.
- O'Sullivan, D.M., Zuckerman, M., & Kraft, M. (1998). Personality characteristics of male and female participants in team sports. *Personality and Individual Differences*, 25, 119-128.

- Orlick, T.D., & Mosher, R. (1978). Extrinsic rewards and participant motivation in a sport Task. *International Journal of Sport Psychology*, 9, 27-39.
- Pelletier, L.G., Fortier, M.S., Vallerand, R.J., Tuson, K.M., Briere, N.M., & Blais, M.R. (1995). Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: The Sports Motivation Scale (SMS). *Journal of Sport and Exercise Psychology*, 17, 35-53.
- Personality. *Oed.com*. Oxford University Press. Retrieved July 9, 2008, from http://dictionary.oed.com/cgi/entry/50176230?single=1&query_type=word&queryword=personality&first=1&max_to_show=10
- Quintana, S., & Atkinson, D. (2002). A multicultural perspective on principles of empirically supported interventions. *The Counseling Psychologist*, 30, 281-291.
- Reid, G., Poulin, C., & Vallerand, R.J. (1994). *A pictorial motivation scale in physical activity for people with a mental disability: Development and initial validation*. Paper presented at the annual conference of NASPSPA.
- Roberts, G.C. (Ed.). (1992). *Motivation in sport and exercise*. Champaign, IL: Human Kinetics.
- Roberts, G.C. (2001). Understanding the dynamics of motivation in physical activity: The influence of achievement goals on motivational processes. In G.C. Roberts (Ed.), *Advances in motivation in sport and exercise* (2nd ed., pp. 1-50). Champaign, IL: Human Kinetics.
- Rowley, A.J., Landers, D.M., Kyllö, L.B., & Etner, J.L. (1995). Does the iceberg profile discriminate between successful and less successful athletes? A meta-analysis. *Journal of Sport and Exercise Psychology*, 17, 185-199.

- Ryan, R.M., & Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.
- Sage, G.H. (1977). *Introduction to motor behavior: A neuropsychological approach*. (2nd ed.). Reading, MA: Addison-Wesley.
- Schultz, D.P., & Schultz, S.E. (2001). *Theories of personality* (7th ed.). Belmont, CA: Wadsworth.
- Schurr, K.T., Ashley, M.A., & Joy, K.L. (1977). A multivariate analysis of male athlete characteristics: Sport type and success. *Multivariate Experimental Clinical Research*, 3, 53-68.
- Vallerand, R.J., Pelletier, L.G., Blais, M.R., Briere, N.M., Senegal, C., & Vallieres, E.F. (1992). The academic motivation scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement*, 52, 1003-1019.
- Vallerand, R.J., & Fortier, M.S. (1998). Measures of intrinsic and extrinsic motivation in sport and physical activity: A review and critique. In J.L. Duda (Ed.), *Advances in sport and exercise psychology measurement* (pp. 81-101). Morgantown, WV: Fitness Information Technology, Inc.
- Vealey, R.S. (2002). Personality and sport behavior. In T.S. Horn (Ed.), *Advances in sport psychology* (pp. 43-82). Champaign, IL: Human Kinetics.
- Weinberg, R.S., & Gould, D. (Eds.) (2007). *Foundations of sport and exercise psychology* (4th ed., pp. 489-509). Champaign, IL: Human Kinetics.
- Weiss, M.R., Bredemeier, B.J., & Shewchuk, R.M. (1985). An intrinsic/extrinsic motivation scale for the youth sport setting: A confirmatory factor analysis. *Journal of Sport Psychology*, 7, 75-91.

- Weiss, M.R., & Ferrer-Caja, E. (2002). Motivational orientations and sport behavior. In T. Horn (Ed.), *Advances in sport psychology* (2nd ed., pp. 101-183). Champaign, IL: Human Kinetics.
- White, R.W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, 66, 297-333.
- Williams, J.E., Satterwhite, R.C., & Saiz, J.L. (1998). *The importance of psychological traits: A cross-cultural study*. New York: Plenum Press.
- Williams, J.M., & Krane, V. (2001). Psychological characteristics of peak performance. In J.M. Williams (Ed.), *Applied Sport Psychology: Personal Growth to Peak Performance*. (4th ed., pp. 162-178.

APPENDICES

APPENDIX A

Consent Form

To Whom It May Concern:

My name is Drew Brannon and I am a doctoral student under the direction of Dr. Linda Campbell in the Department of Counseling and Human Development Services at The University of Georgia. I invite you to participate in a research study examining relationships between forms/levels of sport motivation and personality profiles in collegiate student athletes. The purpose of this study is to assess differing forms/levels of sport motivation in collegiate student athletes (e.g. intrinsic, extrinsic) and to then analyze possible correlations with personality profile data. Through this study, I will seek to ascertain if certain personality profiles are predictive of corresponding forms/levels of sport motivation.

Your participation in this study will involve filling out a demographic questionnaire and then completing two short tests. The total time needed should not exceed 40 minutes. Your involvement in this study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits. If you choose to participate in the study, your test results will be kept confidential. The results of the research study may be published, but will not contain any identifying information.

The results of this study should aid in collegiate student-athletes gaining an improved understanding of the factors that serve to motivate them toward sport. Also, student-athletes could gain increased insight of their personality profile status and how it might interact with or predict their forms/levels of sport motivation. There are no known risks or discomforts associated with this research.

If you have any questions about this research project, please feel free to contact Drew Brannon at drewbran@uga.edu. Questions or concerns about your rights as a research participant should be directed to The Chairperson, University of Georgia Institutional Review Board, 612 Boyd GSRC, Athens, Georgia 30602-7411; telephone (706) 542-3199; email address irb@uga.edu.

By completing the following questionnaire and tests, you are agreeing to participate in the above described research project.

Thank you for your consideration. Please keep this letter for your records.

Sincerely,

Drew Brannon, M.Ed.
Doctoral Student
Counseling Psychology

APPENDIX B

Demographic Questionnaire

1. Gender: ☐ Female ☐ Male
2. Age: _____
3. Which of the following best describes your ethnicity? (Please check all that apply)
- | | |
|--|---------------------------------------|
| <input type="checkbox"/> American Indian or Alaskan Native | <input type="checkbox"/> Asian |
| <input type="checkbox"/> Black or African American | <input type="checkbox"/> Hispanic |
| <input type="checkbox"/> Native American or other Pacific Islander | <input type="checkbox"/> White |
| <input type="checkbox"/> International Student | <input type="checkbox"/> Other: _____ |
4. Current Classification: ☐ Freshman ☐ Sophomore ☐ Junior
☐ Senior ☐ Other: _____
5. Current Institution: _____
6. Competitive Division: ☐ NCAA Division I ☐ NCAA Division II
☐ NCAA Division III ☐ Other: _____
7. Sport(s) played:
- | | |
|--|-------------------------------------|
| <input type="checkbox"/> Baseball | <input type="checkbox"/> Basketball |
| <input type="checkbox"/> Cross Country | <input type="checkbox"/> Diving |
| <input type="checkbox"/> Equestrian | <input type="checkbox"/> Football |
| <input type="checkbox"/> Golf | <input type="checkbox"/> Gymnastics |
| <input type="checkbox"/> Hockey | <input type="checkbox"/> Lacrosse |
| <input type="checkbox"/> Soccer | <input type="checkbox"/> Softball |
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Tennis |
| <input type="checkbox"/> Track & Field | <input type="checkbox"/> Volleyball |
| <input type="checkbox"/> Other: _____ | |
8. Current GPA: ☐ Less than 2.0 ☐ 2.0 – 2.49
☐ 2.5 – 2.99 ☐ 3.0 – 3.49
☐ 3.5 – 4.0 ☐ N/A
9. Athletic Scholarship Status: ☐ Receiving scholarship ☐ Not receiving scholarship

10. Do you plan to pursue professional status in your sport following collegiate competition?:

☐ Yes

☐ Uncertain

☐ No

☐ Other: _____

APPENDIX C

The Sport Motivation Scale (SMS)

Using the scale below, please indicate to what extent each of the following items **corresponds** to one of the reasons for which you are currently competing in your sport.

Why do you practice your sport?

This statement corresponds

	Not at all	A little	Moderately	A lot	Exactly		
1. For the pleasure I feel in living exciting experiences.	1	2	3	4	5	6	7
2. For the pleasure it gives me to know more about the sport that I practice.	1	2	3	4	5	6	7
3. I used to have good reasons for doing sports, but now I am asking myself if I should continue doing it.	1	2	3	4	5	6	7
4. For the pleasure of discovering new training techniques.	1	2	3	4	5	6	7
5. I don't know anymore; I have the impression that I am incapable of succeeding in this sport.	1	2	3	4	5	6	7
6. Because it allows me to be well regarded by people that I know.	1	2	3	4	5	6	7
7. Because, in my opinion, it is one of the best ways to meet people.	1	2	3	4	5	6	7
8. Because I feel a lot of personal satisfaction while mastering certain difficult training techniques.	1	2	3	4	5	6	7
9. Because it is absolutely necessary to do sports if one wants to be in shape.	1	2	3	4	5	6	7
10. For the prestige of being an athlete.	1	2	3	4	5	6	7
11. Because it is one of the best ways I have chosen to develop other aspects of myself.	1	2	3	4	5	6	7
12. For the pleasure I feel while improving some of my weak points.	1	2	3	4	5	6	7
13. For the excitement I feel when I am really involved in the activity.	1	2	3	4	5	6	7

This statement corresponds

	Not at all	A little	Moderately	A lot	Exactly		
14. Because I must do sports to feel good about myself.	1	2	3	4	5	6	7
15. For the satisfaction I experience while I am perfecting my abilities.	1	2	3	4	5	6	7
16. Because people around me think it is important to be in shape.	1	2	3	4	5	6	7
17. Because it is a good way to learn lots of things which could be useful to me in other areas of my life.	1	2	3	4	5	6	7
18. For the intense emotions that I feel while I am doing a sport that I like.	1	2	3	4	5	6	7
19. It is not clear to me anymore; I don't really think my place is in sport.	1	2	3	4	5	6	7
20. For the pleasure that I feel while executing certain difficult movements.	1	2	3	4	5	6	7
21. Because I would feel bad if I was not taking time to do it.	1	2	3	4	5	6	7
22. To show others how good I am good at my sport.	1	2	3	4	5	6	7
23. For the pleasure that I feel while learning training techniques that I have never tried before.	1	2	3	4	5	6	7
24. Because it is one of the best ways to maintain good relationships with my friends.	1	2	3	4	5	6	7
25. Because I like the feeling of being totally immersed in in the activity.	1	2	3	4	5	6	7
26. Because I must do sports regularly.	1	2	3	4	5	6	7
27. For the pleasure of discovering new performance strategies.	1	2	3	4	5	6	7
28. I often ask myself; I can't seem to achieve the goals that I set for myself.	1	2	3	4	5	6	7

Individual subscale items:

SMS Subscale	Items
Intrinsic Motivation (IM) Know	2, 4, 23, 27
Intrinsic Motivation (IM) Accomplishment	8, 12, 15, 20
Intrinsic Motivation (IM) Stimulation	1, 13, 18, 25
Extrinsic Motivation (EM) Identified	7, 11, 17, 24
Extrinsic Motivation (EM) Introjected	9, 14, 21, 26
Extrinsic Motivation (EM) External Regulation	6, 10, 16, 22
Amotivation	3, 5, 19, 28

APPENDIX D

Additional Statistical Tables

Table 15

Coefficient Alphas for Sport Motivation Scale (SMS) subscales

Scale	<u># of items</u>	<u>α</u>
IM Stimulation	4	.698
IM Accomplishment	4	.777
IM Know	4	.845
EM Introjection	4	.709
EM Identification	4	.738
EM External	4	.724

Table 16

Coefficient Alphas for Sport Motivation Scale (SMS) total scales

Scale	<u># of items</u>	<u>α</u>
Intrinsic Motivation (IM)	12	.883
Extrinsic Motivation (EM)	12	.843
Amotivation (AMOT)	4	.915

Table 17

Coefficient Alphas for NEO PI-R dimension scales

Scale	<u># of items</u>	<u>α</u>
Neuroticism (N)	48	.894
Extraversion (E)	48	.892
Conscientiousness (C)	48	.893

Table 18

Coefficient Alphas for NEO PI-R trait scales

Scale	<u># of items</u>	<u>α</u>
Anxiety	8	.727
Angry Hostility	8	.715
Depression	8	.775
Self-Consciousness	8	.634
Impulsiveness	8	.626
Vulnerability	8	.665
Warmth	8	.773
Gregariousness	8	.753
Assertiveness	8	.695
Activity	8	.452
Excitement Seeking	8	.552
Positive Emotions	8	.795
Competence	8	.567
Order	8	.671
Dutifulness	8	.600
Achievement	8	.723
Self-discipline	8	.763
Deliberation	8	.720

Table 19

Means and Standard Deviations of the SMS Subscales (Pelletier et. al., 1995)

Motivation Subscales	<u>Females</u>		<u>Males</u>	
	M	SD	M	SD
Amotivation	6.89	3.0	6.98	3.1
EM External Regulation	10.82	3.59	11.56	3.72
EM Introjected Regulation	12.46	4.04	12.29	3.7
EM Identified Regulation	13.13	3.24	12.90	3.15
IM To-know	13.05	3.73	12.42	3.47
IM Accomplishment	14.88	3.4	14.17	3.3
IM Stimulation	14.57	3.49	14.76	2.99