The Relationship between Personality Differences, Motivation, and Behavior: A Study of Collegiate Varsity Rowers

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Abstract

The focus of this paper includes the exploration of the relationship between personality, motivation, and behavior. According to research by Abraham Maslow and the findings of Henry Murray, motivation and the resulting behavior stems from basic, innate needs and desires possessed by every individual in some form and degree. Because of differences in personality, these needs emerge in various degrees in each individual. Considering this variety, diverse methods of motivation must be adopted by authority figures such as teachers, coaches, managers, doctors, and physical therapists.

This project primarily focuses on the need for coaches and physical therapists to realize the importance of varying motivational styles based on the personality of each individual under their supervision. In an effort to prove the correlation between differences in personality and preferred motivational styles, an experiment involving the male and female varsity rowers of the UTC Rowing Team was performed. A personality assessment, the NEO-FFI, and a survey including a variety of adjectives meant to describe motivational characteristics of a coxswain on a rowing team, were presented to the rowers. The varsity rowers, male and female, were instructed to select adjectives that best describe their preferred motivational characteristics of a coxswain, the primary motivator while participating in practice or a race.

This data was collected and analyzed, resulting in a high overall correlation between the high and low personality type groups and their adjective choices, ranging between .556 to .729. These numbers indicate a lack of relationship between

personality variations and motivational preferences. Despite this, an observation of individual adjective choices and personality type yields a greater difference between various personalities.

Based on the calculations performed, personality difference among varsity rowers is not related to motivational preference. Several errors may have contributed to this result, details regarding these errors follow.

Realizing the extent of relationship between personality variances and motivational preferences may assist in effectiveness of leaders, such as teachers, coaches, physical therapists, etc. Additional research implications include relationships between various personality differences of leaders and motivational styles and gender differences in motivational preferences. This first future research possibility may be applicable to pair a leader with an athlete, student, or patient with corresponding motivational needs. The second is potentially valuable in individualizing motivational techniques based on gender.

Background Information on Motivation and Personality

Motivation and Personality-Needs

Motivation is defined as the internal drive or externally arising stimulus to action or thought (Venes, 1997). Motivation occurs based on various innate needs that every human possesses. In his work Motivation and Personality, Maslow categorizes these needs into seven groups including physiological, safety, belongingness and love, esteem, self-actualization, cognitive, and aesthetic needs.

Physiological needs include those that maintain homeostasis or satisfy physiological appetites such as water, food, oxygen, etc (Maslow, 1970). Regarding appetite, Young believes that if the body lacks some chemical, the individual likely develops an appetite or hunger for that particular element of food (Young, 491-492 as cited in Maslow, 1970). In addition to these, sexual desire, sleep, activity and exercise are also physiological needs. Any of these needs, including the behavior resulting from their experience, may serve as channels for other needs. For instance, an individual who thinks he/she is experiencing hunger pangs may actually be seeking more for dependence or comfort, rather than vitamins (Maslow, 1970). The opposite may be experienced as well: i.e. hunger could be staved off by smoking cigarettes or drinking water. Clearly it seems that the physiological needs could be described as the most primal and vital drives that motivates an individual towards a particular behavior.

When the physiological needs are reasonably gratified, another set of needs surfaces categorized as safety needs. These include stability, dependency, security,

freedom from fear, anxiety and chaos, protection, need for order, law, limits, structure, strength in the protector, etc. Satisfaction of the safety needs often includes, simply, an undisturbed rhythm or routine (Maslow, 1970). Humans are creatures of habit who generally take comfort in familiarity, lacking unexpected events.

Extreme behavior invoked by a need for safety is demonstrated more frequently in neurotic individuals then in individuals without neurotic tendencies. According to Maslow, "Their reaction is often to unknown, psychological dangers in a world that is perceived to be hostile, overwhelming, and threatening" (Maslow, 1970). The neurotic adult often reverts to childish attitudes of threat and fear reaction to a seemingly dangerous world. Yet, the clearest form of the safety needs appears in the obsessive-compulsive neurotic who attempts to stabilize the world in a fanatical way so that no unfamiliar, unexpected, or unmanageable dangers emerge. Aside from these exceptions, the emergence of any urgency for the safety needs often occurs when law, order, or the authority of society are threatened. (Maslow, 1970).

Following the gratification of the physiological and safety needs, a controlling desire for affection, belongingness and love surfaces. The individual experiencing this need begins experiencing a profound absence of friends or a significant other while suffering feelings of loneliness, rejection, friendlessness, and isolation. (Maslow, 1970). These feelings likely result from our increased ability to travel by automobile, airplane, etc., the scattering of families, the generation gap, the lack of the traditional togetherness of ancient tribes and other such groups, and the shallow

American friendships so common in today's society (Maslow, 1970). The desire to belong to such groups is likely responsible, in part, for the existence of youth rebellion groups such as gangs, and other groups such as fraternities and sororities. This need often results in a sense of rejection when acceptance does not occur often leading to extreme measures being taken with the hope of becoming accepted into a societal group. Therefore, the belongingness and love needs inspire each individual towards particular behaviors throughout their lives.

The majority of individuals in this society, with few pathological exceptions, aspire for a solid, foundational, often high perception of themselves. The esteem needs stem from this desire for a sense of self worth and confidence, and the esteem of peers. According to Maslow, these needs are categorized into two supplementary sets including first "the desire for strength, for achievement, for adequacy, for mastery, and competence, for confidence in the face of the world, and for independence and freedom" (Maslow, 1970). Secondly, people generally have a desire for "prestige or reputation (defining it as respect or esteem from other people), status, fame and glory, dominance, recognition, attention, importance, dignity, or appreciation" (Maslow, 1970). The satisfaction of these needs results in feelings of capability, strength, adequacy, and worth (being necessary and useful in society). Yet, neglecting these needs may lead to feelings of inferiority, helplessness, or weakness and, in extreme cases, to extreme neurotic tendencies as well. Because of the dangers of self-confidence and esteem based on the opinion of others rather than actual personal competence, the healthiest form of self-esteem results from deserved

respect from other individuals rather than on popularity or fame and unjustifiable admiration (Maslow, 1970).

Although they may be considered basic needs, cognitive and aesthetic needs are as much personality needs as they are basic. A cognitive need is the desire to know and understand; it is the freedom of expression and inquiry. "Acquiring knowledge and systemizing the universe have been considered as techniques for the achievement of basic safety in the world, or for the intelligent man, expressions of self-actualization" (Maslow, 1970). In addition, this freedom to seek knowledge has been considered a precondition for the other basic needs (Maslow, 1970).

Both negative and positive determinants contribute to the acquisition of knowledge. The negative determinants derive from fear or anxiety about the unknown or needing to know as much as possible in order to feel secure in the world. Beyond this are many positive motivations for inquiry. First, the innate attraction to the mysterious, unknown, and unexplained drives man to adopt an overwhelming curiosity often resulting in discovery. The frustration of this drive to acquire knowledge may lead to boredom, a lack of excitement for life, dislike of oneself, and intellectual deterioration (Maslow, 1970), while the gratification of cognitive desires results in an insight and understanding usually associated with a positive, bright, favorable time in an individual's life (Maslow, 1970).

Despite the amount of information individuals learn and retain throughout life, people continue to desire more. Therefore, the gaining of knowledge, no matter how detailed and minute, lacks the complete intellectual satisfaction people desire.

Because of this, the "desire to understand, systematize, to organize, to analyze, to look for relations and meanings, [and] to construct a system of values" becomes vital as well (Maslow, 1970). These two desires, to know and to understand, form a hierarchy in which the desire to know precedes the desire to understand. Although these needs may be considered personality needs, they are necessary basic needs as well.

Finally, the aesthetic need lacks the research of the previously mentioned needs, yet history and the humanities prevent any bypass of this category. According to Maslow and his study of this phenomenon, only some individuals experience this basic aesthetic need. He describes that these individuals become "sick (in special ways) from ugliness, and are cured by beautiful surroundings; they crave actively and their cravings can be satisfied *only* by beauty" (as cited in Maslow, 1970).

Of the aforementioned needs, sport and physical therapy may potentially satisfy physiological needs through activity and exercise, belongingness needs through participating in a group, esteem needs through gaining recognition and praise from others, self-actualization needs through realizing a talent for a particular sport or activity, and cognitive needs by learning various techniques and methods of physical activity.

Maslow states that "an act is psychologically important if it contributes in directly to the satisfaction of basic needs" (Maslow, 1970). The level of importance of the behavior, therefore, must be based on the amount of its contribution to the direct satisfaction of needs. All of these basic needs must not be assumed as

exclusive determinants of specific kinds of behaviors. Clinical psychologists have found that any behavior may be a channel through which various impulses and actions emerge. Behavior can be said to be multimotivated and any behavior tends to be determined by many or all of the basic needs simultaneously rather than only by one of them (Maslow, 1970). An example involves the act of eating in that it could be for the purpose of filling the stomach, but also for comfort, boredom, anger, or frustration. It is possible to analyze a single behavior as a manifestation of physiological needs, love needs, safety needs, esteem needs, self-actualization, etc. As Maslow points out, "this contrasts sharply with the more naïve brand of trait psychology in which one trait or one motive accounts for a certain kind of act, i.e., and an aggressive act is traced solely to a trait of aggressiveness" (Maslow, 1970).

Shultz and Shultz focused on Henry Murray's list of needs as it pertains to learning and behavior. The first of these needs is referred to as abasement, defined as the need "to submit passively to an external force; to accept injury, blame, criticism, and punishment; to become resigned to fate; to admit inferiority, error, wrongdoing, or defeat; to blame, belittle, or mutilate the self; to seek and enjoy pain, punishment, illness, and misfortune" (Shultz, 1999). This need is illustrated in the negative reinforcement often used in coaching and leadership strategies. Secondly, the need for achievement involves the desire "to accomplish something difficult; to master, manipulate, or organize physical objects, human beings, or ideas; to overcome obstacles and attain a high standard; to rival and surpass others" (Shultz, 1999). This need encompasses an individual's motives and drives for competition, the joy of

conquering a situation or another individual, in realms such as sports and physical therapy activities. Opposing this instinctual competitive desire is the need for affiliation, "to draw near and enjoyably cooperate or reciprocate with an allied other who resembles one or likes one; to adhere and remain loyal to a friend" (Shultz, 1999). Joining a sports team satisfies this particular need which is often the primary purpose for an individual to participate in sports. Somewhat in opposition to the affiliation need is the need for autonomy involving a longing "to get free, shake off restraint, or break out of confinement; to resist coercion and restriction; to be independent and free to act according to impulse; to defy conventions" (Shultz, 1999). Also opposing affiliation is rejection: "to exclude, abandon, expel, or remain indifferent to an inferior other…to snub another" (Shultz, 1999). This need is often apparent in men or women who avoid commitment in relationships or who must live alone in order to obtain and enjoy their own space without the interference or obligation of or to others.

The next need may be found in men more often than women and is often associated with high levels of testosterone: aggression. Aggression includes forcefully overcoming opposition; "to fight, attack, injure or kill another; to maliciously belittle, censure, or ridicule another" (Shultz, 1999). Aggression is frequently experienced and observed in sports settings such as football, hockey, and many other contact sports and non-contact sports as well. Next, the natural fear of failure innate in each individual stems from and is often solved by the need of counteraction defined as the necessity to make up for a failure by continuing to

attempt to prevail; “to obliterate a humiliation by resumed action; to overcome weakness and to repress fear; to search for obstacles and difficulties to overcome; to maintain self-respect and pride on a high level” (Shultz, 1999). Fear of failure motivates many individuals to overcome injuries or disabilities through rehabilitation. Much like a combination of counteraction and aggression is the need for defendance; “to defend the self against assault, criticism, and blame; to conceal or justify a misdeed, failure, or humiliation” (Shultz, 1999). This becomes apparent in a sports setting when an athlete becomes defensive towards the coach who may be applying some sort of negative reinforcement Next is deference-to admire and support a superior other, to conform to custom, and to yield enthusiastically to the influence of an allied individual (Shultz, 1999). This need is beneficial in a coach/athlete and physical therapist/patient relationship in that if the athlete or patient admires and respects their leader it is more likely that they will be effectively motivated.

Every individual often experiences feelings of helplessness and, in turn, an overwhelming desire to control their life in every way. This becomes evident in the need for dominance; “to control one’s environment; to influence or direct the behavior of others by suggestion, seduction, persuasion, or command; to get others to cooperate; to convince another of the rightness of one’s opinion” (Shultz, 1999). A coxswain, coach, doctor, physical therapist, etc. embody this need by using techniques to persuade those they lead to perform in particular ways. Order parallels the need for dominance in that one wants the environment in order and the other wants to control their environment. Order includes the need “to put things in order;

to achieve cleanliness, arrangement, organization, balance, neatness, and precision" (Shultz, 1999). In addition to this eagerness for control, each person experiences a longing to be known and admired by others, a need for exhibition: "to make an impression; to be seen and heard; to excite, amaze, fascinate, entertain, intrigue, amuse, or entice others" (Shultz, 1999). One motivation to participate in sports may be a result of this need. Many individuals wish to gain attention, praise, or fame by impressing others in a sporting atmosphere.

No individual of sound mind desires pain and sickness, but rather comfort and wellness, the source of the need for harm avoidance-to avoid pain, physical injury, illness, and death; to escape from a dangerous situation; to take precautionary measures" (Shultz, 1999). Harm-avoidance can be compared to Maslow's safety needs in that the need to avoid pain and discomfort coincides with the need for safety and harmless situations. Murray refers to another form of avoidance as infavoidance meaning the tendency "to avoid humiliation; to quit embarrassing situations to avoid conditions that may lead to scorn, derision, or indifference of others; to refrain from action because of the fear of failure" (Shultz, 1999). Again, this can be observed in many situations in which performance or accomplishment is expected such as sport and rehabilitation settings. Often, individual's possessing this need to a greater degree than others quit a sport to spare themselves of humiliation. This could be remedied by the coach or other leader through an encouraging, supportive, positive motivational style.

On the lighter side of human desires, the longing for fun involves acting for fun, without any other purpose (Shultz, 1999). This is often the primary motivation for individuals involved in physical activities that lack the pressure of competition. A combination of all of these needs resides in every individual, causing a variation in motivation, and therefore a variation in behavior.

Although many behaviors may be explained by exploring the basic needs of individuals, other determinants of behavior and actions exist, such as the external field. External stimuli may include other individuals, associations of ideas, or certain conditioned reflexes (Maslow, 1970). For example, if in response to the word "sand" one automatically pictures a memory image of a sandy beach, or thinks of the ocean in association with it, the response is likely not motivated by any of the basic needs. Although behaviors may be highly motivated, weakly motivated, or not motivated at all, all are determined.

Another vital point that should be mentioned includes the basic difference between expressive and coping behavior. An expressive behavior is purely a reflection of the personality. By definition, coping behavior is "purposive and motivated; expression is often unmotivated (Maslow, 1970). Coping is determined more by the external environment, such as other individuals; expressions are chiefly determined by the physical, emotional, or mental state of the individual. Expression is more often unlearned, while coping is learned. As mentioned previously, expression is not designed to create a result and if it causes environmental changes, it is unintentional. Unlike expression, coping is usually intended to have some sort of

effect on the environment. Normally, coping behavior is conscious; expressive behavior is more often than not unconscious. Finally, expression results effortlessly in most situations while coping requires definitive effort and action (Maslow, 1970). Participation in sports, physical therapy, and other achievement- oriented situations involves coping behavior, in that particular needs are gratified through these activities.

Understanding the desires and needs leading to the motivation of human behavior is a complex task. Every human action involves one or a combination of many needs. It is critical that these needs be recognized as the cause of every action and behavior pattern of humans. In order to understand behavior in it entirety, we must first realize the intricacy of the human psyche. The variety of these needs makes abundantly clear that individual differences contribute to the motivation behind human behavior in that each individual possesses all of the previously explored needs and desires in some form and degree. This knowledge may be applied to a substantial variety of areas and situations from the motivation to emerge from bed in the morning, to eating breakfast, to the involvement in a sporting activity, or to overcome the pain inherent in a physical disability or an injury.

Motivation and Coaching

Considering the various personality types found among individuals, including athletes, a coach's role becomes quite complex. These differences between the athletes necessitate a wide variety of coaching roles and styles in order to motivate

each individual, as his/her personality requires. The roles of coaches will first be explored.

Versatility is one of the many requirements of an individual in a coaching position who must modify his/her demeanor depending on what type of personality he/she encounters. Many roles are included in the duties of a coach, the first being "advisor". The athletes require advisement on the appropriate training, including workouts and equipment to be used and the proper use of the equipment. The role of assessor demands that a coach assess an athlete's performance in competition as well as in training. As counselor the coach must address emotional problems in the attempt to resolve them on the basis that sharing anxieties can be both reassuring and relieving (MacKenzie, "*Coaching*"). The demonstrator instructs the athletes in whatever skill is required of them to perform, demanding that the coach remain fit considering he/she is requesting the same from his/her athletes. One role of a coach that often seems neglected is the vital role as a friend. In addition to providing coaching advice, the coach as a friend becomes an individual whom athletes may share their problems or successes, requiring a level of confidentiality between coach and athlete in order to retain the respect built between them.

Coach as facilitator identifies fitting competitions for athletes to participate in to assist them in achieving their overall objectives. Gathering data of collegiate, national, and international results and remaining knowledgeable of advancements in training techniques requires that a coach be a fact finder (MacKenzie, "*Coaching*"). In addition to knowing information regarding their particular sport, a coach may often

be asked questions related to any sporting event, sports injuries and their treatments, or other topics, therefore compelling him to be a virtual fountain of knowledge. As instructor, a coach instructs the athletes in the skills of their sport, and the mentor must ensure their parents, family, and friends of their safety and security by monitoring their health and safety while training and supporting them through any problems or injuries.

The next role of a coach encompasses the focus of this paper; coach as a motivator who must maintain the motivation of all athletes, regardless of personality differences, not only during the competition season, but also throughout the year. The organizer/planner prepares training plans for every athlete and organizes attendance at meetings and other related events. Finally, the supporter understands that with competition comes anxiety and fatigue for most athletes requiring the presence of the coach to support them through the pressures of the sporting experience (MacKenzie, "*Coaching*"). Considering the diversity and number of roles required of a coach and extensive differences between the athletes themselves, it is understandable that one coaching style is unrealistic, and therefore several styles have been defined and performed.

Two major styles of coaching are democratic and autocratic. The democratic coaching style may be further divided into two types--sharing and allowing--just as autocratic style can be subdivided into telling and selling. The democratic sharing style requires the coach to outline the training requirements for the athletes and invite suggestions and alternative ideas from them. The coach then makes a decision based

on the athlete's suggestions and defines what to do and how to do it. Like the sharing type of the democratic style, the allowing type involves the outlining of the requirements for training for the athletes. He/She then defines the training conditions requesting that the athletes brainstorm to investigate possible solutions for the training conditions. Unlike the "sharing type", the "allowing type" allows the athletes to make the decision and define what to do and how it should be done (Mackenzie, "*Coaching Styles*").

Contrasting significantly with the democratic styles of coaching, autocratic styles adopt a demanding, drill sergeant quality. The first type of autocratic style, telling, involves the coach deciding on what is to be done and how it is to be done. The athletes are not involved in any way in the decision-making. Autocratic-style sharing is somewhat less harsh in that although the coach defines what to do and how to do it. He or she explains what is required of the athletes and the objectives. The athletes are also encouraged to ask questions in order to confirm understanding (Mackenzie, "*Coaching Styles*").

In addition to the contrasting autocratic and democratic coaching styles, another alternative coaching styles is the command style, which involves direct instruction that the coach dictates. Also, reciprocal style, which includes the athlete taking some responsibility for his/her own athletic development while being monitored by the coach. Using the problem solving style, the athlete solves problems presented by the coach. Finally, guided discovery includes the athlete having the freedom to explore various options of training (MacKenzie, "*Coaching Styles*"). It is

necessary for a coach to understand and be willing to adopt any or all of these styles based on the personalities of the athletes and their corresponding motivation needs.

Along with these numerous coaching styles, various coaching behaviors stem from the need to motivate a variety of individuals. Chelladurai and Saleh (1980, as cited in Jambor and Zhang, 1997) investigated five leadership behaviors-training and instruction, democratic, autocratic, social support, and positive feedback. Chelladurai and Selah used the results of this research to create the Leadership Scale for Sports. This instrument uses the five behaviors identified in their initial research to measure the coaches' personal perceptions of their behavior. Considering the variety of individuals coaches interact with and instruct, the situational leadership theory suggests that leaders should vary behaviors related to the members or athletes involved. Yet situational behavior is not present in the Leadership Scale for Sports (LSS) (Hersey and Blanchard, 1977 as cited in Jambor and Zhang, 1997). To include this vital leadership behavior, Zhang, Jenson, and Mann developed a scale modeled after Chelladurai and Selah's known as the Revised Leadership Scale for Sport (RLSS) defining six different leadership behaviors: democratic, autocratic, training and instruction, social support, positive feedback, and situation consideration (Zhang, Jenson, and Mann, 1996 as cited in Jambor and Zhang, 1997). Elizabeth Jambor and James Zhang sought to use the RLSS to explore the extent of differences in the leadership behavior of coaches as it relates to individual differences of their athletes, including gender and age. Obviously, personality differences may be included within

gender and age differences considering they are inherent in both (Jambor and Zhang, 1997).

As Elizabeth Jambor and James Zhang suggest when exploring the differences in coaching behavior, among three coaching levels (junior high, high school, and college), leadership styles as a whole vary significantly. High school coaches reported the democratic leadership style, defined as "encouraging involvement of the athletes, admitting mistakes, and confronting problems," to a higher degree than did college coaches (Jambor and Zhang, 1997). This demonstrates the differences in involvement and environment between a high school athlete and a college athlete. These differences require distinction in leadership. Next, training and instruction leadership behavior described as planning training practices and evaluating performance of the athletes, as well as having knowledge regarding their sport and other related subjects, and being responsible becomes more apparent in a college environment than in junior high. A possible explanation may be that often times junior high coaches focus on training athletes in a similar manner to that of the high school at which the junior high athlete will attend, and therefore the coach lacks the freedom of his or her own training and instructive leadership style. Unlike junior high coaches, a college coach's success vastly depends on his or her own instruction and training (Jambor and Zhang, 1997). Lastly, social support leadership behavior was defined as "helping the athletes with personal problems and making sport part of the enjoyment of an athlete's life" (Jambor and Zhang, 1997). This behavior becomes much more evident in high school and college coaches than junior high

coaches for two possible reasons; one being that athletes begin reaching a higher level of maturity in which they may relate in a greater degree to their coach on a personal level as opposed to exclusively as an authority figure. Yet, the primary reason concerns the subject of time constraints. In the study performed by Jambor and Zhang, the junior high coaches had greater teaching commitments and athlete to coach ratios than did the high school or college coaches. Because of this time constraint, the lack of additional time to interact with athletes on a personal level impacts the amount of involvement coaches may have with their athletes making the social support behavior virtually impossible (Jambor and Zhang, 1997).

Inherent in motivational differences among various personality types is motivational variances among the sexes. While Chelladurai and Selah (1980, as cited in Jambor and Zhang, 1997) found that male athletes preferred coaches to be more autocratic, and therefore more firm and forceful in their motivational styles, Tracy Woodridge states that a key factor in coaching female athletes is the use of positive reinforcement (Wooldridge, *Coaching Motivation for Females: Coaches Tip*). The development of female athletes depends predominantly on positive, constructive feedback and praise making it necessary to provide constant encouragement and feedback in order to assist in their skill development. The majority of females loath the following emotional displays: screaming, yelling, and throwing things and prefer a more meditative, serene approach to preparing for participation in practice or competition (Wooldridge, *Coaching Motivation for Females: Coaches Tip*). In addition, when coaching females, one must be a good listener and teacher. The

female athletes prefer to be taught the basics, fundamentals, or essentials rather than just be told what to do in a performance. Along with being a good listener, the coach should also be a sensitive ear for complaints, problems, and wishes regarding the athletic and outside lives of his or her female athletes. A good coach will be forceful, yet democratic while setting goals to help motivate and allowing for substantial individual input into the everyday organization of the sport. Although the athletes should not be allowed to make all the decisions, they should have considerable input because they are a vital source of information and insights regarding how they personally perform and react to the pressures of competition (Wooldridge, *Coaching Motivation for Females: Coaches Tip*). Yet, when misbehavior occurs, the coach must be able to discipline firmly, yet lacking harshness. As evident in most environments, self-confidence is not characteristic of female athletes. Therefore, the coaches of females must practice various strategies to exude the spirit of self-confidence such as instruction drilling encouraging the use of positive self-talk, liberal use of praise, and vigorous physical conditioning. All of these techniques encompass the necessary motivational repertoire when coaching female athletes (Wooldridge, *Coaching Motivation for Females: Coaches Tip*).

As mentioned previously, positive reinforcement and feedback act to motivate athletes in their participation and performance in a sporting activity. According to Dr. Richard Stratton, feedback does this by giving direction to future attempts at the particular skill (Stratton, *Feedback: A Key to Skill Development*). It often helps the athletes focus their efforts and allows the athlete to know that the coach cares about

their level of performance and desires to help them improve. Feedback serves as reinforcement by providing players with information regarding their progress towards goals that they are attempting to achieve. Another purpose of feedback is error correction. This error correction information should only be used if skill correction information immediately follows. In other words, athletes usually know when they make mistakes and do not need to be reminded of them. Instead, athletes should be given information that will help them perform the skill better or execute their strategy properly (Stratton, *Feedback: A Key to Skill Development*).

The Positive Coach

The Positive Coaching Alliance developed The Positive Coach Mental Model in an effort to communicate the importance of developing positive character traits in addition to teaching skills and strategies for a particular sport (Positive Coaching Alliance, *The Positive Coach Research Summary*). By focusing on the person as a whole, a coach earns respect and trust from the athletes leading to the sense of self-worth necessary to motivate each athlete. This model includes three elements: redefining "winner," filling the emotional tank, and honoring the game. Only the first two will be explored as the last lacks relevancy for this study (Positive Coaching Alliance, *The Positive Coach Research Summary*).

Redefining what it means to be winner is the first step necessary to becoming a positive coach. This includes emphasizing the importance of mastery rather than a scoreboard. The coach focuses on effort rather than outcome, learning rather than

comparison to other athletes, and victory as a by-product of the pursuit of excellence (Positive Coaching Alliance, *The Positive Coach Research Summary*). A feeling of mastery and competence in sport, characteristic of Maslow's cognitive needs mentioned previously, becomes much more motivational for continuing participation than an emphasis on winning. Additionally, a positive coach recognizes and emphasizes the importance of mistakes as an inevitable part of learning, and creates an environment in which the players lack the fear of making mistakes. This is done by not ignoring the teaching opportunities inherent in mistakes, but rather, the coach teaches each player that a vital part of success is how they react to their mistakes (Positive Coaching Alliance, *The Positive Coach Research Summary*). According to Nicholls, students who perceive themselves as possessing a low ability compared to others may lower their effort and further reduce their chances of learning the fundamentals of the sport and their motivation for participation (Nicholls, 1984c as cited in (Positive Coaching Alliance, *The Positive Coach Research Summary*). Also, an ego orientation involving the primary external focus on winning may reduce an athlete's interest in an activity (Nicholls, 1984a as cited in Positive Coaching Alliance, *The Positive Coach Research Summary*). Supporting Nicholls findings, Duda states that those athletes who drop out of sports tend to define their success and failure in sport in terms of comparison to others, characteristic of the previously mentioned need for esteem (Duda, 1987 as cited in Positive Coaching Alliance, *The Positive Coach Research Summary*). Burton also tested Nicholls developmental theory of achievement motivation in youth sports and found that female and male

intercollegiate swimmers who adopted mastery-based goal-setting training program rather than an ego-based program demonstrated greater performance improvements and higher effort than a control group of athletes (Burton, 1985 as cited in Positive Coaching Alliance, *The Positive Coach Research Summary*). At Stanford University, Michael Wolf and Robert Roeser recently addressed the issue of anxiety and enjoyment and found that ego orientation leads to a greater sense of tension, pressure, and anxiety (Roeser, 1996 as cited in Positive Coaching Alliance, *The Positive Coach Research Summary*). Wolf found that as focus on mastery and improvement increases, anxiety decreases and self-efficacy increases. Thus a mastery goal focus is linked to lower levels of worry and tension regarding performance (Wolf, 1998 as cited in Positive Coaching Alliance, *The Positive Coach Research Summary*). Like Wolf and Roeser, Albert Bandura participated in studies at Stanford University on self-efficacy, which can be considered a situation-specific form of self-confidence. He found that as self-efficacy increases, individuals tend to stick to tasks longer and work harder on these tasks. He determined that coaches could influence the development and maintenance of self-efficacy by reducing discouragement over competitive difficulties by emphasizing self-improvement and reducing focus on victories and defeats. By giving positive corrective feedback rather than criticism of mistakes, coaches motivate their athletes by increasing self-efficacy (Bandura, 1997 as cited in Positive Coaching Alliance, *The Positive Coach Research Summary*). Each of these methods contributes to the redefinition of "winner" necessary for increased motivation for involvement in sporting activities.

The second element of the Positive Coach Mental Model involves using positive motivation techniques while refusing to motivate through intimidation, shame, or fear (Positive Coaching Alliance, *The Positive Coach Research Summary*). The "positive motivator" recognizes that each player has an "Emotional Tank" that must be maintained to participate and perform to his/her best ability. A positive coach realizes that praise, compliments, and positive recognition fills this emotional tank and understand the importance of giving truthful and specific feedback while resisting the temptation to give unwarranted praise (Positive Coaching Alliance, *The Positive Coach Research Summary*). Communication of criticism in ways that do not undermine an athlete's sense of self-worth is used when correction is necessary. A positive coach also involves the players in decisions that affect the team by listening to and respecting them as vital, indispensable members of the team. Finally, he or she maintains discipline and establishes order with a positive approach (Positive Coaching Alliance, *The Positive Coach Research Summary*).

A large body of research supports the superiority of motivation through positive reinforcement compared to a harsh style of coaching often associated with youth sports. Susan Hayashi (1999, as cited in Positive Coaching Alliance, *The Positive Coach Research Summary*) found that gymnasts who sensed that their coaches provided great amounts of punishment-oriented, negative feedback were more likely to discontinue their participation in gymnastics. According to studies by Smith and Smoll, players enjoyed their sport experiences more while playing for coaches who gave more reinforcement in response to good performance and effort,

and responded to mistakes with more encouragement and technical instruction rather than punitive responses (Smith & Smoll, 1991 as cited in Positive Coaching Alliance, *The Positive Coach Research Summary*). Research also found that male baseball players whose coaches used positive techniques such as positive reinforcement, corrective feedback, and frequent encouragement, had significantly higher levels of self-esteem over the course of a season than the individuals whose coaches used these techniques less frequently (Smith, Smoll, and Curtis, 1979 as cited in Positive Coaching Alliance, *The Positive Coach Research Summary*). Based on this and other research, the Positive Coaching Association maintains that the ideal positive (compliment) to negative (criticism) ratio that coaches should aspire to is 5:1 or higher (Positive Coaching Alliance, *The Positive Coach Research Summary*). Research done in the 1970's observing elementary school children in the classrooms and in the 1990's looking at the relationships of married couples also supports this optimal ratio (Positive Coaching Alliance, *The Positive Coach Research Summary*).

Although it seems that most individuals respond to praise and encouragement in a positive way, others may be motivated through strict, negative reinforcement. Therefore, it is vital that the coach knows the personality of each player in order to achieve the highest level of motivation for the entire team.

Motivation and Physical Therapy

Until now, the focus has primarily included the relationship between motivation and coaching. The same principles mentioned regarding motivational

coaching techniques could also be applied to many other areas including that of the physical therapist/patient relationship. This relationship depends on the therapist's ability to recognize that an individual's attitudes towards pain play a crucial role in the ability to help patients (Lipkowitz, 1990). Despite body similarities, cultural influences in addition to personality differences cause patients to deal with suffering and pain differently. Some may be extremely stoic and have difficulty admitting to being in pain or in the inability to perform physical tasks, such as speaking, lifting, or walking. Contrastingly, others with relatively minor ailments, injuries, or physical deformities may complain unremittingly about pain or become depressed and difficult to manage (Lipkowitz, 1990). Yet, most patients fall between these two extremes. Some patients refuse medication for pain even though they may be in intense discomfort while others cannot tolerate pain and want immediate relief (Lipkowitz, 1990). Because of the painful nature usually associated with physical therapy, adjusting one's motivational techniques becomes necessary when dealing with a wide variety of individuals.

According to Rebecca Lewthwaite(1990), an individual's motivation has a significant impact on physical performance and on the results of physical therapy given to that individual. She considers motivation to be defined as "a process in which internal and external factors direct and energize thoughts, feelings, and actions" (Lewthwaite, 1990). It 'is derived from a combination of personal and social factors, including personal goals or incentives, expectations of personal efficacy, movement-related perceptual and affective experiences, and social and physical

features of the environment" (Lewthwaite, 1990). Perception and meaning of a situation, such as therapy, arises from various personal factors including goals and perceptions of competency and other traits, and social influences such as hostile or supportive influences, novelty of equipment, and sociocultural values related to gender, health, age, and illness behavior (Lewthwaite, 1990). The key personal motivational factors to follow include goal orientations (intentions of personal involvement, self-perceptions of capabilities), and perceptual-affective experiences in physical activity (sensory and emotional experiences intrinsic to physical activity). One conclusion resulting from the following research includes that variation among patient's personalities causes different responses to exercise environments (Lewthwaite, 1990).

Internal motivational processes, such as thoughts and feelings, activate or intensify observable behavior. Variations in behavior may involve activity choice (including avoidance or approach of physical activity), intensity or effort, persistence of activity, and performance. Research in motivational theories state that an individual will act in particular ways because of the meaning a given situation holds for that person, meaning being the sense that is made or the personal implications that are drawn (Lewthwaite, 1990). Meaning is believed to arise from a combination of social and personal factors. These personal factors include personal goals or incentives, self-perceptions regarding one's characteristics and competencies, and cognitive-affective experiences in similar situations (Lewthwaite, 1990). The social influences mentioned may involve physical and social features of the immediate

environment, such as the presence of hostile or supportive others, the urgency or speed of other individuals' movements, task design, and the novelty or familiarity of surrounding machinery or equipment. In addition, sociocultural norms, values, expectations, and constraints including those related to gender, age, health, disability, exercise, and illness behavior are social influences that could affect motivation in a physical therapy environment (Lewthwaite, 1990).

There are many personal motivational factors applicable to "activity choice, effort, persistence, and athletic or exercise performance" including "cognitive and affective variables such as sport or exercise attitudes, goal orientations and exercise incentives, perceived competence or self-efficacy, self-motivation, perceptual-affective responses to physical exertion, and competitive and social physique anxiety"(Lewthwaite, 1990). Three of these are explored further because of their crucial effects in physical activity environments and their amenity to exercise-context influence: self-perceptions of an individual's capabilities, goal orientations, and perceptual-affective experiences in physical activity (Lewthwaite, 1990).

"Goal orientations are context-specific concerns or aims of personal involvement that, in part, create the framework or meaning through which people act and react to events in their environment" (Dweck & Leggett, 1988; Dweck, 1986; Nicholls, 1984 as cited by Lewthwaite, 1990). In order to become or remain involved in physical activity an individual's goal orientations must be considered. Two issues regarding goal orientation significant to a physical therapist include "(1) common

goals and their associated consequences and (2) factors that influence individual's goal orientations" (Lewthwaite, 1990).

Recent research in motivation, including that conducted in a physical activity context, has shown that "individual differences in goal orientations are related to differences in cognitive, affective, and overt behaviors in children and adults" (Duda, Smart & Tappe, 1989; Berg, 1990; Lewthwaite, 1990; Duda & Tappe, 1988; Nicholls, 1984; Elliott & Dweck, 1988, as cited in Lewthwaite, 1990). According to Lewthwaite, a number of similar goal orientations have been proposed that center around distinctions between "self-referenced achievement (variously referred to as development, learning, mastery, or task-involved goals) and social comparison-based achievement (variously termed judgment, competitive achievement, outcome, or ego-involved goals)" (Dweck & Leggett, 1988; Lewthwaite, 1990; Nicholls, 1984 as cited by Lewthwaite, 1990). Dweck and associates found that young individuals who hold development goals respond to tasks in a mastery-oriented manner using "self-monitoring and self-instruction to enhance performance, display positive affect and interest in the task, opt for challenging tasks that will provide opportunities for skill acquisition, increase their effort and persistence in the face of difficulty, and maintain or increase the sophistication of their problem-solving strategies and thus their performance following failure" (Elliott & Dweck, 1988; Diener & Dweck, 1978 as cited in Lewthwaite, 1990). Contrastingly, those who hold judgment goals combined with perceptions of low ability respond with a learned-helpless pattern characterized by selecting "easy tasks (which will neither reveal their inadequacy nor enhance their

skill) or very difficult tasks (on which failure would be expected for most people and thus not be indicative of low ability)" (Elliott & Dweck, 1988; Diener & Dweck, 1978 as cited in Lewthwaite, 1990). They use less effective strategies following failure than they previously demonstrated after success. In addition, these learned-helpless individuals decrease persistence and withdraw effort; show signs of frustration, anxiety, or task aversion; and attribute failure to uncontrollable factors such as personal character flaws and inadequacies. They are also less likely than master-oriented individuals to choose challenging tasks that may result in public errors (Dweck & Leggett, 1988 as cited in Lewthwaite, 1990). Master-oriented (adaptive) and learned-helpless (maladaptive) patterns are associated to development and judgment goal orientations, respectively. These goals have been related to differences in performance and learning (Dweck, 1986 as cited in Lewthwait, 1990).

Various differences in the rated importance of numerous goals in exercise and sport have been related to age, gender, cultural background, and personal social situations with peers, parents, and teachers/coaches, suggesting that social influences as well as personal differences contribute to an individual's goal orientations. Because of the obvious role of situational and social factors regarding goal orientation mentioned previously, physical therapists must realize the importance of understanding the impact individual differences have on goal orientations in order to effectively motivate their patients.

The level of belief in an individual's personal capabilities to cope or perform in a rehabilitative situation is a vital cognitive variable affecting willingness to put

forth effort and persist with rehabilitation. Self-efficacy refers to a "situation-specific self-confidence or belief in oneself", and is used as a central concept in Self-Efficacy Theory (Bandura, 1977 & 1982 as cited in Lewthwaite, 1990). Self-efficacy could be thought of in relation to Murray's need for counteraction-to maintain self-respect and pride on a high level and to search for challenges to surmount. Albert Bandura described two types of expectations: "self-efficacy or efficacy expectations (one's belief in personal capabilities to perform the specific actions that will lead to outcomes) and outcome expectations (one's belief in the outcomes that can be produced when people act in certain ways)" (Bandura, 1977 & 1982 as cited in Lewthwait, 1990). Both of these forms of expectations are important in performance of activity in that it is not enough to believe that a given set of exercises will increase range of motion. The patient must also believe that he/she has the ability to withstand pain, move the injured limb as prescribed, and possess the willpower to practice these exercises at home. Without the belief in personal psychological and physical capacities, effort will be withdrawn and full recovery unlikely.

According to Self-Efficacy Theory, there are four fundamental sources of efficacy expectations: "(1) past performance accomplishments in identical or similar situations, (2) vicarious experience (e.g., in which similar others enact the relevant behaviors), (3) verbal persuasion (in which experts or others attempt to convince the individual that he or she can be successful), and (4) one's psychological or arousal states" (Bandura, 1977 & 1982 as cited in Lewthwaite, 1990). Based on research, this theory has been exceptionally useful in predicting successful behavior change when

the involved behavior is feared, difficult to adopt, or aversive, as is often the case with rehabilitative and preventive exercise. Therefore, "exercise performance and persistence have been related to perceptions of personal efficacy"(Dzewaltowski, 1989; Ewart, Stewart, Gillilan, & Keleman, 1986; Kaplan, Atkins, & Reinsch; 1984; Fox & Dirkin; 1989; Sallis, Haskell, & Fortmann, et al., 1986 as cited in Lewthwaite, 1990).

Ewart and associates explored the impact of self-efficacy as a motivational variable in exercise for cardiac rehabilitation. In order to analyze the mediation effects of self-efficacy on subsequent strength gains, changes in self-efficacy from immediately following pretraining to posttraining changes in actual strength. In addition, self-efficacy at the beginning of the study was also examined and compared to strength and endurance gains at the end of the study and found that "the belief in personal capability, and not just actual capability, was influential in later performance"(Ewart, 1986 as cited in Lewthwait, 1990).

Considering the relationship between motivation and success in activities and self-efficacy, therapists must be willing to assist in increasing a patient's self-efficacy level. Physical therapists "manage the immediate social environment and design interventions that implicitly and explicitly operate as sources of self-efficacy" (Lewthwaite, 1990). To discover which patients most need self-efficacy enhancement to ensure optimal recovery and which therapeutic activities are most effective in facilitating patients' self-efficacy, clinical researchers and clinicians

should include pretreatment and posttreatment self-efficacy assessments (Lewthwaite, 1990).

Affective responses and perceptions also act as motivational factors in exercise involvement and success, some motivating physical activity avoidance. These include "perceived exertion and the extent to which physical activity is associated with negative affect, such as feelings of aversion…"(Lewthwaite & Hasbrook, 1989; Fox & Dirkin, 1989 as cited in Lewthwait, 1990). Of course the opposite may be true, resulting in positive emotions of satisfaction. Although two individuals may perceive an identical level of exertion, they may experience diverse emotional responses to this exertion. One may not have participated in hard physical work since adolescence and may worry about his or her capability to undergo that type of stress, and therefore experiencing this level of exertion could be aversive (Lewthwaite, 1990). Conversely, another individual may consider this level of exertion to be therapeutic progress or contributing to his/her physical fitness, athleticism, or personal character, and therefore may experience satisfaction at sensing this degree of effort (Lewthwaite, 1990). Because of this, therapists must attempt to design exercise protocol in such a way that exertion intensity, pain, and discomfort remain within tolerable limits.

The final motivational influence on behavior includes social-environmental factors. "These factors include those sociocultural, socialization, and social-situational variables that influence participants' goal orientations, efficacy

expectations, and perceptual-affective experiences in physical activity" (Lewthwaite, 1990).

"Social factors relevant within the setting [of physical activity] include the leader's, staff's, or therapist's behavior toward or interactions with the patient (Martin, Dubbert, Ketell, et al., 1984; Garrity, 1981; Rodin & Janis, 1979, as cited in Lewthwaite, 1990), the program structure (Thompson & Wankel, 1980 as cited in Lewthwaite, 1990), the reinforcements and support of fellow patients, the cohesiveness of the exercise of physical activity program, and the program structure (Carron, Widmeyer, & Brawlye, 1988 as cited in Lewthwaite, 1990). In addition, social motivational influences outside the program include the supportive of undermining actions of the family and friends of the patient (Dishman & Dunn, 1988; Heinzelman & Bagley, 1970 as cited in Lewthwaite, 1990), employer or supervisor support and accommodation for therapy appointments or regular physical activity; the extent of isolation or integration within community social networks (House, Landis, & Umberson, 1988 as cited in Lewthwaite, 1990); sociocultural norms or values for exercise, health, and illness behavior; and socioeconomic influences related to opportunities for exercise education, facilities, equipment, leisure time, and physically active occupational pursuits (Lewthwaite, 1990).

The aforementioned motivational influences make apparent the importance of external motivational factor in directing behavior. The role of the physical therapist is vital in influencing a patient's behavior and willingness to participate in physical activity despite fear, anxiety, discomfort, and pain. Understanding the motivational

roles of authority figures such as physical therapists, doctors, managers, teachers, coaches, etc. is the fundamental basis of the remainder of this project. In turn, the realization that individual differences contributing to personality type influence the way in which an individual can be effectively motivated is a necessity for success in situations regarding achievement.

Personality Differences vs. Preferred Motivational Styles: Experiment

Instruments

The research instruments used in this project include a condensed version of The Adjective Checklist (ACL) and the NEO Five-Factor Inventory (NEO-FFI). The Adjective Check List (ACL) includes 300 adjectives often used to describe attributes of any given individual. Developed by Professor Harrison G. Gough at the University of California's Institute of Personality Assessment and Research, this tool has been utilized by a number of psychologists nationwide since 1952 (Gough, Publisher's Introduction, 1965). Professor Alfred B. Heilburn, Jr., developed a series of experimental scales for the ACL based on Murray's need-trait system in 1958 while at the State University of Iowa. A total of 24 scales are now available. The value of this checklist format is the offering of words and ideas often used in everyday life for description, and its standardization and systematic approach (Gough, 1965). The length of the list contributes to the need to delineate various minute differences and nuances between similar persons. To evaluate the personality traits and differences between those traits, the NEO-FFI was administered to the subjects.

The NEO-FFI is a condensed 60-item version of the NEO PI-R that is scored for five domains including Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. This consists of five 12-item scales making a total of 60 statements to which the subject must respond with one of the following: strongly agree, agree, neutral, disagree, or strongly disagree. A copy of this test follows in the appendix for reference. To understand personality at the broadest level, the five domains must be examined.

The Five Factors

As mentioned above, the NEO-FFI includes five personality domains, all of which should be described in detail. The core of the Neuroticism domain includes the general tendency to experience negative emotions such as sadness, fear, anger, embarrassment, guilt, and disgust (Costa, 1992). In addition, individuals scoring high in the N domain are likely to encounter irrational ideas, poorer coping skills when facing stressful situations, and have less ability to control their impulses (Costa, 1992). Individuals scoring low in the Neuroticism domain are likely to be emotionally stable, usually even-tempered, calm, relaxed, and are able to face stressful situations without becoming distraught (Costa, 1992).

Extraverts not only enjoy being in large groups and social gatherings, but are also often active, talkative, and assertive. One scoring high in the extroversion domain usually experiences a need for stimulation and excitement, a cheerful disposition, and characteristics such as being upbeat and optimistic. Subjects scoring

low in this domain could be categorized as Introverts. Many people consider introverts the opposite of extraverts, therefore being unfriendly, etc. Yet, Introversion should be thought of as the lack of extroversion rather than its opposite (Costa, 1992). Qualities typical to introverts include being reserved, independent, even-paced, and not given to the enthusiastic high-spirits of extraverts. Yet, this should not imply their unhappiness or pessimism (Costa, 1992).

Openness, the third domain tested by the NEO-FFI considers the level of an individual's openness to experience. Primary elements of this personality dimension include aesthetic sensitivity, imagination, preference for variety, attentiveness to inner feelings, independence of judgment, and intellectual curiosity pertaining to inner and outer worlds (Costa, 1992). Willingness to entertain unconventional values and novel ideas, and a tendency to experience both negative and positive emotions more acutely than others are traits of the open individual (Costa, 1992). Finally, open persons are unconventional, willing to question authority, and prepared to express new social, ethical, and political ideas. Men and women scoring low on Openness are often conservative in outlook and conventional in behavior (Costa, 1992). They prefer familiarity of experience and express subdued emotional responses to stimuli. Although open individuals may seem healthier to many psychologists, both openness and closedness serve useful purposes in society (Costa, 1992).

Altruism is the fundamental trait of agreeable persons, the fourth type of individuals. They are sympathetic towards others with a fervor to help them, believing that others will be equally helpful in return. Conversely, the disagreeable

individual is skeptical of the intention of others, egocentric, and competitive rather than cooperative (Costa, 1992). Although the agreeable personality seems healthier, the opposite is often preferred, such as the critical and skeptical thinking required in accurate analysis in the sciences, and disagreeableness in the courtroom or on the military (Costa, 1992).

The fifth and final domain explored and analyzed by the NEO-FFI is conscientiousness. According to Costa and McCrae, a major portion of personality theory, in particular psychodynamic theory, concerns the ability to control impulses. Self-control may not only refer to the ability to resist temptations and impulses, but also a more active process of organizing, planning, and task completion (Costa, 1992). Individuals high in this domain are strong-willed, determined and purposeful, and are usually high achievers in academics and occupations. A negative side of this personality domain may include compulsive neatness and workaholic tendencies. In addition, high conscientiousness scorers are reliable and punctual, while low scores imply a lackadaisical attitude towards accomplishing goals.

Validity of the NEO-FFI

According to the NEO-FFI Professional Manual, validity refers to "the success with which a scale measures the construct it purports to" (Costa, 1992). The content validity considers whether the test samples accordingly from the range of characteristics it is anticipated to represent while criterion group validity means that identifiable groups of individuals' mean scores differ in theoretically meaningful

ways (Costa, 1992). As evidence supports, the NEO PI-R, the scale which the NEO-FFI stems, shows evidence of validity in several ways and in many various samples. The following will refer to the NEO PI-R scale, yet the same can be said for the NEO-FFI considering the development of the later based on the previous. Specifics regarding validity of the NEO-FFI will follow. First, the validity of the five factors used in these scales must be explored. This type of model was originally discovered through analyses of language trait adjectives. The developers of this scale, McCrae and Costa, administered 80 bipolar adjective scales to individuals and their peer raters. When these scales were factored, five familiar factors emerged, and these showed strong evidence of discriminate and convergent validity with NEO-PI factors (Costa, 1992). It was requested that judges select items from Heilbrun and Gough's Adjective Check List (ACL) that could represent the five factors that were described in literature. These adjectives were then summed to form five scales, each showing convergent and discriminate validity (Costa, 1992). Many studies have shown strong correlations between various adjective measures and the NEO-PI scales including Trapnell and Wiggins,1990 (as cited in Costa, 1992) who expanded their measure of the Interpersonal Circumplex to measure the Big Five factors and Ostendorf, 1990 (as cited in Costa, 1992) who administered a sizeable set of adjective scales to a German sample resulting in the same five factors showing a strong correlation between them and his German translation of the NEO-PI (Costa, 1992).

The discussion of validation must now turn to the NEO-FFI considering its significance in this study. This scale was developed as an abbreviated version of the

NEO-PI. In order to select the items for the NEO-FFI, McCrae and Costa used the validimax factors from the NEO-PI as a criteria (Costa, 1992). Each of the 180 items was factored, creating five fundamental components. This validimax method was then utilized to rotate the item factors to maximize discriminate and convergent validity with the NEO-PI validimax factors (Costa, 1992). According to Costa and McCrae, "the 12 items having the highest positive or negative loading on the corresponding factor were selected as preliminary items for the NEO-FFI" (Costa, 1992). Following the evaluation of these items, 10 substitutions were made to expand item content, eliminate items with "joint loadings", and guarantee that no more than two-thirds of the items on any given scale were keyed in the same direction for the purpose of control for compliant responses (Costa, 1992).

The NEO-FFI was correlated with the NEO-PI validimax factors resulting in ranges from .75 for Conscientiousness to .89 for Neuroticism (Costa, 1992). A correlation was also made between the NEO-FFI and the domain scales for the NEO-PI yielding .92, .90, .91, .77, and .87 for Neuroticism, Extroversion, Openness, Agreeableness, and Conscientiousness domains respectively (Costa, 1992). "Internal consistency for the NEO-FFI was calculated using coefficient alpha; data from the Employment Sample (N=1539) because this sample had not been used in item selection. Coefficients were .86, .77, .73, .68, and .81 for N, E, O, A, and C, respectively" (Costa, 1992).

Reliability and Stability

Test-retest reliability and internal consistency are considered the most commonly used indicators of the reliability of measures and tests, such as the NEO-FFI. "Internal consistency, calculated as coefficient alpha, can be roughly understood as the degree to which items in a scale measure the same thing" (Costa, 1992). The theory behind the NEO PI-R scales, and therefore also the NEO-FFI scales, is that the individual items evaluate some small aspect of the trait it is designed to consider. Then, by summing them, a more extensive and reliable measure is achieved (Costa, 1992). Coefficient alpha is used to calculate internal consistency, which is determined by "the average intercorrelation of items-together with the number of items-determines coefficient alpha" (Costa, 1992). Coefficient alpha was calculated for both forms of the NEO PI-R scales, the Employment sample (N=1539) for Form S scales and the Peer Rating sample (N=277). The 48-item domain scales yielded coefficient alphas ranging from .86 to .95 (Costa, 1992).

"Retest reliability refers to the extent to which individuals approximate the same scores on two different occasions," which is vital in personality assessments when little change is expected over short intervals of time (Costa, 1992). Using a subset of college students (N=208) "who provided normative data on the NEO PI-R had completed the NEO-FFI about three months previously" (Costa, 1992). It was possible to evaluate the retest reliability of NEO-FFI scales in a college sample by scoring the NEO-FFI scales from the NEO PI-R data. "Coefficients were found to be .79, .79, .80, .75, and .83 for N, E, O, A, and C, respectively, $p < .001$ (Costa, 1992). Although most personality measures illustrate adequate retest reliability, the NEO-PI

is one of the few that does, in fact, measure enduring dispositions, whether assessed by peers or spouses or by self-report (Costa, 1992).

Methodology

The following describes the process involved in the completion of this project. The decision for the focus of this paper came as a result of consultation with Project Director, Cathie Smith. Considering the lack of background within the Physical Therapy major itself, the decision was made that a project involving a familiar subject that could be related to physical therapy was necessary. Therefore, the original thesis was formed with the intent of exploring the motivational techniques of a physical therapist and a coxswain on a rowing team. Gradually, a transition was made to the present thesis of investigating to what extent personality differences affect preferred motivational styles of an external motivator such as a coach, coxswain, physical therapist, etc. The subjects for the experiment included the 13 male and 13 female varsity rowers on the University of Tennessee at Chattanooga Rowing Team.

The instruments necessary for this experiment were a personality evaluation and a survey to seek the rowers' preferred motivational styles of their coxswain. The NEO-Five Factor Inventory (NEO-FFI) was chosen to evaluate the rowers' personality types and a modified version of the Adjective Check List (ACL) to conclude as to what descriptive characteristics of a coxswain were found to be most motivational for each individual rower. The NEO-FFI includes a series of statements which the subjects responded to with an answer of strongly agree, agree, neither,

disagree, or strongly disagree. Each individual was given instruction to complete the evaluation in its entirety, at one sitting, without any external interference such as other people. The numbers corresponding to each response were summed resulting in a number corresponding to the level at which that personality type exhibited itself in the individual.

The ACL originally contained 300 adjectives and therefore was condensed for the purpose of this experiment. Robert Espeseth, the rowing coach, Jane Dickerson, a varsity coxswain, and I, a varsity coxswain, each chose 30-40 of the 300 adjectives we personally believed to be significant motivational characteristics of a coxswain. The three sets of adjectives chosen were then compared and 41 were chosen based on their frequency of selection by either two or three of the previously mentioned individuals. A survey was created using these 41 adjectives requesting that the rowers choose the words that best described the characteristics of a coxswain most vital to motivate them individually, and then rank the top ten adjectives, one being the most critical. This information was then collected and evaluated comparing the choices and rankings of the various personality types.

Data Analysis

The following methods of data analysis resulted from the assistance of Robert Jones, a graduate student at UTC. The scores in each of the five domains of the NEO-FFI were ranked and a mean was calculated in order to separate each domain into a high and low group. This was done in an effort to compare the adjective

choices of high extroverts versus low extroverts, etc. Table 1(Appendix A) shows the various scores for each domain of the NEO-FFI, ranked from lowest to highest and Table 2(Appendix A) represents the means and standard deviation of each of these domains. The adjectives chosen for each of these high and low groups were then compared. This was done by first, evaluating the number of times each of the adjectives was mentioned based on their rank. For example, the number of times Aggressive was ranked first as a motivational characteristic by those individuals scoring high in the agreeable domain. Following this, each adjective was weighted based on its ranking. For instance, a ranking of first would receive a weight of ten, while a ranking of ten would receive a score of one. Therefore, if two subjects in the high openness group ranked Aggressive first, and three ranked it ninth, the score for the adjective Aggressive would be 26 (10 points for each of the rankings of first, and two points for each of the rankings of ninth). The weighted incidences were then summed for each group and then compared to the other group within its domain, i.e. the weighted adjectives for those individuals scoring high in the openness domain were compared with those scoring low in the openness domain. This method was chosen because of the necessity of including the number of incidences each adjective occurred and it's ranking. Tables 3-7(Appendix A) illustrate the weighted score for the high and low groups of each of the five domains. Following the calculation of the weighted adjective scores, a correlation was calculated, using the Spearman Correlation, between the high and low groups for each domain, yielding high to significantly high correlations for each (see Table 8, Appendix A for these results).

The Spearman correlation, which is non-parametric, was chosen for analysis because of its ability to measure ranked data.

Conclusion

Based on this data, the conclusion was reached that personality differences of rowers do not affect their preferred motivational styles of coxswains.

Several sources of error are evident in the design of this experiment that perhaps contributed to the lack of proof for the original hypothesis. First, the small number of subjects resulted in a difficulty to obtain a significantly diverse group that could generate differing data. In addition, by selecting a group such as rowers, it is likely that many of the subjects have similar personality types. Considering the nature of the sport, some individuals lack the type of personality suited for rowing. For example, because of the 6:00am practices throughout the year, lackadaisical individuals would lack the desire to participate in such a sport. Because of this, a high correlation between the adjectives selected by the high and low groups was inevitable. In addition, the 41 adjectives from the 300 of the Adjective Check List lacked significant variety. The three individuals chosen to condense the ACL were not the rowers themselves and, therefore, may not have been able to predict what characteristics would be motivational to the rowers. In addition, perhaps these individuals possessed similar personalities making it unlikely to choose a significantly diverse group of adjectives. Another possible source of error included the similarity in definition of many of the adjectives chosen, such as aggressive and

assertive, or dependable and responsible. Therefore, a subject may have chosen aggressive over assertive simply because he or she read it first on the list or that particular adjective appealed to him or her more for some undisclosed reason. Because of this lack of variety in the adjective list, the motivational characteristics of each personality type represented in the sample may not have been available. Finally, human error in data collection and calculation could be responsible for error within the experiment. Yet, when comparing individual adjectives among various personality types, significant differences can be observed such as adaptable, cautious, and patient in the high and low neuroticism groups; determined, persistent, and praising between the high and low extraverts; demanding in between the open and non-open groups; dependable, praising, and self-confident in the high and low agreeableness groups; and, finally, ambitious, clear-thinking, efficient, and helpful among the conscientious and non-conscientious groups. Considering these obvious individual variances, despite the statistical data calculated using the adjectives collectively, it can be stated the personality differences are in fact related to differences in motivational preferences and behavior.

Future Research Implications

Possibilities for future research related to the above research include exploring the relationships between various leader personalities and motivational styles or gender differences among motivational preferences. The first could attempt to discover to what extent that personality differences among various leaders, whether

they are coaches, physical therapist, etc, relates to successful motivation of athletes or patients. If a relationship was revealed, efforts could be made to provide a variety of personality types within an athletic or rehabilitation setting to accommodate the various motivational demands of participants.

A second possibility for future research includes focus on gender differences and how they relate to variances in preferred motivational techniques. Advancements in this area could allow for specificity when training or rehabilitating an individual, whether male or female.

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Appendix: Table of Contents

Appendix A

Table 1: Scores for Each Domain of the NEO-FFI

Neuroticism	Extroversion	Openness	Agreeableness	Conscientiousness
7	19	12	17	18
10	21	16	20	25
10	22	18	24	27
11	24	19	24	27
11	27	20	29	28
13	29	25	30	28
13	29	25	31	29
15	30	26	32	29
17	30	26	33	30
18	32	26	33	31
18	32	28	33	32
19	34	30	33	32
20	34	30	34	32
20	34	30	34	33
21	35	31	34	34
22	36	32	35	34
22	36	34	35	35
22	36	34	35	37
23	37	36	37	37
23	37	36	37	37
24	38	37	37	38
28	39	37	37	39
29	40	37	38	40
30	43	39	39	41
34	44	44	39	43
35	44	46	40	45

Table 2: Descriptive Statistics for High and Low groups of NEO-FFI Subscales

Personality Dimension	Number of Subjects: n	Mean: x	Standard Deviation
Neuroticism High	12	13.50	3.87
Neuroticism Low	14	25.21	4.58
Extroversion High	11	26.82	4.58
Extroversion Low	15	38.13	3.36
Openness High	11	21.91	5.17
Openness Low	15	35.53	4.85
Agreeableness High	12	29.25	4.35
Agreeableness Low	14	36.50	2.03
Conscientiousness High	14	28.64	3.86
Conscientiousness Low	12	38.33	3.45

Tables 3-7: Weighted Incidences of Adjectives for High and Low Groups of the NEO-FFI Subscales

Table 3: Neuroticism

	N-Low	N-High
Adaptable	0	26
Aggressive	50	41
Alert	48	53
Ambitious	16	7
Assertive	28	19
Calm	20	7
Capable	14	18
Cautious	0	25
Clear-thinking	23	28
Confident	65	50
Conscientious	0	12
Cooperative	0	9
Deliberate	26	4
Demanding	40	30
Dependable	27	68
Determined	12	21
Efficient	16	14
Enthusiastic	47	31
Forceful	9	2
Helpful	12	45
Honest	25	6
Humorous	0	4
Initiative	2	7
Insightful	4	6
Intelligent	8	36
Methodical	0	9
Organized	7	0
Patient	1	23
Persistent	17	25
Praising	29	31
Precise	8	0
Realistic	6	12
Reliable	23	15
Responsible	6	4
Self-Confident	40	44
Sincere	7	6
Sociable	5	0
Steady	1	2
Tactful	22	27
Tolerant	0	2
Versatile	3	4

Table 4: Extroversion

	E-Low	E-High
Adaptable	0	26
Aggressive	42	32
Alert	46	55
Ambitious	10	13
Assertive	17	19
Calm	17	10
Capable	20	12
Cautious	17	8
Clear-thinking	31	20
Confident	36	68
Conscientious	9	3
Cooperative	0	9
Deliberate	14	16
Demanding	24	46
Dependable	40	55
Determined	3	39
Efficient	9	21
Enthusiastic	21	50
Forceful	0	11
Helpful	6	27
Honest	23	8
Humorous	4	0
Initiative	0	9
Insightful	5	5
Intelligent	23	30
Methodical	2	7
Organized	2	5
Patient	12	12
Persistent	8	34
Praising	39	13
Precise	0	8
Realistic	18	0
Reliable	9	29
Responsible	7	3
Self-Confident	44	36
Sincere	0	11
Sociable	0	5
Steady	2	1
Tactful	30	20
Tolerant	0	2
Versatile	1	6

Table 5: Openness

	O-Low	O-High
Adaptable	16	10
Aggressive	23	49
Alert	31	55
Ambitious	7	16
Assertive	15	32
Calm	18	7
Capable	16	16
Cautious	17	8
Clear-thinking	28	23
Confident	63	52
Conscientious	0	12
Cooperative	0	9
Deliberate	11	19
Demanding	13	57
Dependable	42	42
Determined	13	20
Efficient	9	17
Enthusiastic	26	45
Forceful	0	11
Helpful	23	31
Honest	18	13
Humorous	4	0
Initiative	2	7
Insightful	6	4
Intelligent	19	29
Methodical	0	9
Organized	0	7
Patient	13	11
Persistent	21	15
Praising	25	32
Precise	0	8
Realistic	13	5
Reliable	11	27
Responsible	6	4
Self-Confident	45	35
Sincere	0	13
Sociable	0	5
Steady	0	3
Tactful	16	34
Tolerant	2	0
Versatile	4	3

Table 6: Agreeableness

	A-Low	A-High
Adaptable	7	19
Aggressive	60	45
Alert	52	49
Ambitious	18	5
Assertive	19	16
Calm	12	15
Capable	16	16
Cautious	9	16
Clear-thinking	28	37
Confident	52	59
Conscientious	3	9
Cooperative	0	9
Deliberate	12	18
Demanding	34	36
Dependable	27	69
Determined	23	10
Efficient	12	18
Enthusiastic	42	29
Forceful	11	0
Helpful	9	45
Honest	16	19
Humorous	4	0
Initiative	0	9
Insightful	4	6
Intelligent	20	24
Methodical	2	7
Organized	7	0
Patient	5	19
Persistent	15	27
Praising	31	19
Precise	8	0
Realistic	3	15
Reliable	13	25
Responsible	3	6
Self-Confident	30	50
Sincere	7	6
Sociable	5	0
Steady	1	2
Tactful	25	25
Tolerant	0	2
Versatile	1	6

Table 7: Conscientiousness

	C-Low	C-High
Adaptable	17	9
Aggressive	31	50
Alert	60	41
Ambitious	0	23
Assertive	23	24
Calm	22	5
Capable	18	14
Cautious	0	39
Clear-thinking	35	16
Confident	64	51
Conscientious	12	0
Cooperative	9	0
Deliberate	19	11
Demanding	33	37
Dependable	62	33
Determined	18	15
Efficient	26	4
Enthusiastic	24	47
Forceful	11	0
Helpful	35	19
Honest	21	10
Humorous	0	4
Initiative	9	0
Insightful	9	1
Intelligent	23	21
Methodical	2	7
Organized	5	2
Patient	7	17
Persistent	17	25
Praising	22	31
Precise	8	0
Realistic	16	2
Reliable	23	15
Responsible	3	7
Self-Confident	39	41
Sincere	6	7
Sociable	5	0
Steady	1	2
Tactful	17	37
Tolerant	2	0
Versatile	3	4

Table 8: Correlation Coefficients for High vs. Low Groups of the NEO-FFI Subscales

	Neuroticism High vs. Low	Extroversion High vs. Low	Openness High vs. Low	Agreeableness High vs. Low	Conscientiousness High vs. Low
Correlation Coefficient	.556	.563	.700	.729	.589

Appendix B

1. NEO-FFI Personality Assessment

2. ACL (complete 300 adjective version)

3. Adjective List (condensed version given to subjects)