A COMPARISON OF PERSONALITY TRAITS BETWEEN SUCCESSFUL
AND UNSUCCESSFUL COLLEGIATE MALE SWIMMERS

A thesis submitted in partial satisfaction of the
requirements for the degree of Master of Arts in

Physical Education

by

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The thesis of William E. Humphrey is approved:

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DEDICATION

This thesis is respectfully dedicated to my loving wife Carol, and to my parents, whose faith and encouragement made this study possible.
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ABSTRACT

A COMPARISON OF PERSONALITY TRAITS BETWEEN SUCCESSFUL AND UNSUCCESSFUL COLLEGIATE MALE SWIMMERS

by

William E. Humphrey

Master of Arts in Physical Education

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The study was designed to test the following null hypothesis: there are no significant differences between any personality traits, as measured by the Cattell Sixteen Personality Factor Test, and the degrees of success among collegiate male varsity swimmers.

The purpose of this study was to measure each individual's personality traits and further to determine whether successful and unsuccessful swimmers could be identified on the basis of individual personality characteristics.

The subjects comprising the groups in this investigation were the members of the men's varsity swimming team, at California State University, Northridge. The members of the swimming team consisted of seventeen college-age males.
The Cattell Sixteen Personality Factor Test (16 PF) was selected for use in determining the personality factors of each individual. The review of related literature indicated that this test was one of the most valid instruments in measuring an individual's personality profile. It provides scores for sixteen different personality factors in which people may differ. One of the major advantages of using this test was the ease with which it can be administered and scored. Application of the t-test was the method employed for analyzing and comparing the data because it is particularly appropriate for small samples.

Based on the data received and the evaluation of these data, it was found that scores on some personality traits differentiated significantly between the two groups of successful swimmers and unsuccessful swimmers. In all, the data indicated five personality traits which differentiated between the two swimmer groups. The personality traits which were found to be significantly different were Factor C: Emotional Stability; Factor N: Shrewdness; Factor O: Self-security; Factor Q2: Self-dependency; and Factor Q3: Self-sentiment.

Based upon the findings and within the scope and limitations of this study, the null hypothesis was rejected, as there were statistically significant differences found between personality traits, as measured by the Cattell Sixteen Personality Factor Test, and the degree of success.
among collegiate varsity swimmers. It was further concluded that, due to the existence of statistically significant differences in five of the sixteen personality traits measured, these traits should be examined and results considered when attempting to distinguish between prospective successful male collegiate swimmers.
CHAPTER I

INTRODUCTION

Sports have evolved from the mayhem of the past to the sophistication of the present. The strategy behind the performance of both team sports and individual sports is that of outmaneuvering the opposition: knowing and taking advantage of the opponents' weaknesses, and taking full advantage of one's own strengths. The responsibility for making this type of strategy effective lies with the coach.

Different types of sport activities require different methods of preparation. In swimming, it is the responsibility of the coach to prepare his athletes in such a way that they will be in top physical condition at the championship meet. Many athletes often practice under the same conditions and perform under the same conditions, yet some athletes, of near equal physical ability who have been practicing under the same coach and conditions often vary greatly in their performance at a championship meet. This may not necessarily be a reflection of the coach's qualifications and practice procedures, but, perhaps, rather a reflection of the personality traits of the individual athlete. The coach is able to observe the athlete's ability both during practice and during meets, but observation alone is not always a true indication of how the individual
will perform at a championship meet under an extreme amount of stress. The performance of only one individual could affect the entire team if his performance was, in fact, the deciding factor relative to whether the team won or lost the championship. Knowing how each individual may perform would be very valuable to the coach in determining which athlete should compete in which event, especially if two athletes were of near equal physical ability but varied greatly in their personality traits.

There are many factors to take into consideration in attempting to determine the make-up of an outstanding athlete. Selected structural and functional features of importance in the make-up of an athlete are:

**Physical Factors**: height; weight; strength; hearing; vision; proprioception; motor ability; physiological adaptation; and any physical handicaps or limitations.

**Mental Factors**: general intelligence, with its specific attitudes; perceptual abilities; and mental state or level of readiness or arousal.

**Socio-Psychological Factors**: previous accomplishments and competitive experiences; family and peer relationships; character traits; environmental affects; motives; interests; attitudes; active reaction; and level of aspiration.

Personality traits can and do determine one's performance in certain situations and in different ways. Personality tests have been developed to measure an individual's
personality traits. Therefore, it seems possible that by identifying an individual's personality traits, it would be possible to anticipate an individual's performance in competitive situations.

THE PROBLEM

The problem for this study was whether or not personality traits could be used in predicting an athlete's level of performance. The purpose of this study was to measure individual personality traits to determine whether successful and unsuccessful swimmers could be identified on the basis of individual personality characteristics.

HYPOTHESIS

This investigation was designed to test the following null hypothesis: there are no significant differences between any personality traits, as measured by the Cattell Sixteen Personality Factor Test, and the degrees of success among collegiate male varsity swimmers.

ASSUMPTIONS

The following assumptions were made prior to the initiation of this study:

1) There would be personality traits which could distinguish successful swimmers and could be measured and used to determine the success of an individual's performance.
2) It was also assumed that each individual would attend nearly every practice and would remain in good health and maintain his individual personality traits throughout the entire season.

3) That the measuring instrument and methods used would give valid and reliable data.

SCOPE AND LIMITATIONS

This study was concerned only with discovering those personality factors which might be identified as distinguishing between successful and unsuccessful swimmers. It was limited to the members of the varsity male swimming team at California State University, Northridge.

The study was limited by factors which may have affected and biased the subjects tested. These included physical characteristics of the swimmers, the numbers and types of their past experiences, the small number of subjects involved, the affects of shaving, and the general health of each individual participating in the study. Also included were the facts that all of the subjects did not start at the same level of ability. Other factors which may have influenced this study were the types of weather conditions in which the seasonal meets and conference championships were held and the swimming pool conditions at those meets.
In many athletic events it has been observed that the coach who knows his athletes best is often more successful. However, more important than winning, the coach who understands his athletes is better equipped to help those athletes develop toward their full potential.

The use of personality information for athletics has been, until recently, relatively unexplored. Some possible implications for the use of personality information might be to provide a better understanding of an individual's behavioral tendencies; thus, coach-player interaction might be better affected by producing situations which might eliminate undesirable consequences. If personality traits are highly predictive as to athletic performance, then coaching might be improved to the extent of maximizing each athlete's training, participation, and competitive performance. Also, one might differentiate, for selective purposes, between two players of equal skill; and, bring individuality into the coach's program to help develop each individual athlete's maximal capacities for performance (33).

Personality information provides a better understanding of an individual and can be used advantageously for better communication between coach and athlete. It gives some indication of the varying degrees of behavioral differences among individuals and an indication of
individual differences in behavioral patterns within a close group.

DEFINITION OF TERMS

The following terms have been operationally defined:

**Successful Swimmers:** Those swimmers who equal or better the time standard required to qualify for the National Collegiate Athletic Association, College Division, Swimming and Diving Championships.

**Unsuccessful Swimmers:** Those swimmers who fail to meet the time standards required to qualify for the National Collegiate Athletic Association, College Division, Swimming and Diving Championships.

**Shaving:** Shaving refers to a ritual which most swimmers go through the night prior to a championship meet. It involves shaving the hair off the observable parts of the anatomy. Usually swimmers will limit this to just the arms and legs, but some will also shave their chest, back and head.

The following terms have been defined according to their use by Cattell (18).

**Personality Traits:** Different characteristics distinctive to each individual according to his beliefs, inherited manners, and environment.

**Factor A:** A continuum scale ranging from Reserved, low score direction, to Outgoing, high score direction. The person scoring low on Factor A tends to be stiff, cool,
skeptical, and aloof. The person scoring high on Factor A tends to be good natured, easy-going, emotionally expressive, and ready to cooperate.

Factor B: A continuum scale ranging from Less Intelligent, low score direction, to More Intelligent, high score direction. The less intelligent individual tends to be slow to learn and grasp, dull, given to concrete and literal interpretation. The more intelligent individual tends to be quick to grasp ideas, a fast learner, and alert.

Factor C: A continuum scale ranging from Affected By Feelings, low score direction, to Emotionally Stable, high score direction. The person who scores low on Factor C tends to be low in frustration tolerance for unsatisfactory conditions, changeable, easily emotional and annoyed. The person who scores high on Factor C tends to be emotionally mature, stable, realistic about life, unruffled, possessing ego strength, and better able to maintain solid group morale.

Factor E: A continuum scale ranging from Humble, low score direction, to Assertive, high score direction. The person scoring low on Factor E tends to give way to others, to be docile, and to conform. The person who scores high on Factor E is assertive, self-assured and independent-minded.

Factor F: A continuum scale ranging from Sober, low score direction, to Happy-Go-Lucky, high score direction. An individual scoring low on Factor F tends to be
restrained, reticent, and introspective. The individual scoring high on Factor F tends to be cheerful, active, talkative, expressive, and carefree.

Factor G: A continuum scale ranging from Expedient, low score direction, to Conscientious, high score direction. An individual scoring low on Factor G tends to be unsteady in purpose, casual, and lacking in effort. An individual scoring high on Factor G tends to be exacting in character, dominated by sense of duty, responsible, and planful.

Factor H: A continuum scale ranging from Shy, low score direction, to Venturesome, high score direction. A person who scores low on Factor H tends to be withdrawing, cautious, retiring, and feelings of inferiority. A person who scores high on Factor H tends to be sociable, bold, ready to try new things, spontaneous, and abundant in emotional response.

Factor I: A continuum scale ranging from Tough-minded, low score direction, to Tender-minded, high score direction. The person scoring low on Factor I tends to be practical, realistic, masculine, independent, and responsible. The person scoring high on Factor I tends to daydream, to be artistic, fastidious, feminine.

Factor L: A continuum scale from Trusting, low score direction, to Suspicious, high score direction. The individual scoring low on Factor L tends to be free of jealous tendencies, adaptable, cheerful, un-competitive,
concerned about other people. The individual scoring high on Factor L tends to be mistrusting and doubtful.

**Factor M.** A continuum scale from Practical, low score direction, to Imaginative, high score direction. The person who scores low on Factor M tends to be anxious to do the right things, attentive to proper matters, and subject to what is obviously possible. The person who scores high on Factor M tends to be unconventional, unconcerned over everyday matters, self-motivated, imaginatively creative.

**Factor N:** A continuum scale from Forthright, low score direction, to Shrewd, high score direction. A person scoring low on Factor N tends to be unsophisticated, sentimental, vague, lacking self insight, simple in taste, unskilled in analyzing motives, and content. A person scoring high on Factor N tends to be polished, experienced, worldly, socially alert, exact, aloof, ambitious, esthetically fastidious, and exhibits insight regarding self and others.

**Factor O:** A continuum scale from Placid, low score direction, to Apprehensive, high score direction. An individual who scores low on Factor O has a mature, unanxious confidence in himself and his capacity to deal with things, has unshakable nerve. An individual who scores high on Factor O tends to be depressed, moody, a worrier.

**Factor Q1:** A continuum scale ranging from Conservative, low score direction, to Experimenting, high score direction. The individual who scores low on Factor Q1 is
confident in what he has been taught to believe, tends to oppose and postpone change. The individual who scores high on Factor Q1 tends to be interested in intellectual matters, is skeptical and inquiring regarding ideas.

Factor Q2: A continuum scale ranging from Group-dependent, low score direction, to Self-sufficient, high score direction. A person scoring low on Factor Q2 prefers to work and make decisions with other people, likes and depends on social approval and admiration. A person scoring high on Factor Q2 is temperamentally independent, accustomed to going his own way, making decisions and taking action on his own.

Factor Q3: A continuum scale ranging from Undisciplined self-conflict, low score direction, to Controlled, high score direction. An individual scoring low on Factor Q3 will not be bothered with will-control and regard for social demands. An individual scoring high on Factor Q3 tends to have strong control of his emotions and general behavior, is inclined to be socially aware and careful.

Factor Q4: A continuum ranging from Relaxed, low score direction, to Tense, high score direction. The person who scores low on Factor Q4 tends to be sedate, composed, and satisfied. The person who scores high on Factor Q4 tends to be excitable, restless, fretful, impatient.
CHAPTER II

REVIEW OF LITERATURE

This chapter presents related literature important to this study and was arranged from general to specific information. The first part of the chapter presents information concerning personality differences between athletes and non-athletes. This section is followed by another in which studies are cited concerning the different types of personality traits of athletes competing in different sports. The presentation of information becomes more specific in the following section, which discusses the personality differences of the champion athlete compared to the near-champion athlete within the same sport. The chapter concludes with a section dealing specifically with those personality traits found in successful swimmers compared to those personality traits found in unsuccessful swimmers.

ATHLETES VERSUS NON-ATHLETES

A basic premise for personality work in the area of athletics was that definable differences in traits exist between athletes and non-athletes (24:49). Studies had included age groups ranging from ninth graders through college seniors, and had both male and female subjects.
In a comparison of personality profiles (35:65), it was found that ninth grade and twelfth grade athletes possess greater leadership qualities and greater strength in qualities which lead to status, social behavior, a greater sense of personal wealth, and more social maturity than do non-athletes. Furthermore, athletes possess reactions which are more conventional in social situations, capable of higher individual achievement, possess greater intellectual efficiency, and have greater self-security than do non-athletes of the same age. In a study by Slusher (38), it was found that male high school athletes scored higher on personality traits in areas of depression, hysteria, hypomania, and psychopathic deviation than non-athletes at the high school level. Results also showed that male athletes scored lower in areas of femininity, intelligence, and paranoia than the non-athletes.

One possible explanation as to why young boys who are athletically inclined seem to differ in their personality traits from young boys who are not athletically inclined was observed in a statement by Jones, "As individuals gain status for successful performance of tasks valued by a group, they become more outgoing, less anxious, and more self-confident" (22:129). In short, Jones was referring to the fact that early maturing males perform physical skills best in early adolescence and gain feelings of superiority, which enhance certain personality traits within the individual. However, the late maturing male often feels
physically inferior, which may cause a suppression of one's self-image and may directly affect his personality traits. Jones (10) summarized this dilemma very well in the statement "Athletic success by boys in childhood and adolescence enhances their self-esteem. Physical ineptitude accompanies feelings of inferiority." These results seem to support the commonly stated assertions that early success in physical education and athletics are valuable in the psychological development of the individual (36). However, further personality studies, of different age groups, seem to refute these assertions (20, 35).

Tests by Booth (20) and Schendal (35) indicated college seniors who do not participate in athletics possess more desirable traits than college juniors and seniors who do participate in athletics. It was found that non-athletes are more responsible, more tolerant, capable of greater independent achievement, more interested in needs of others, more adaptable to proper social behavior and possess a greater interest in members of the opposite sex than athletes.

In conclusion, it would seem that successful participation in sports at younger age levels aids in the maturation and psychological development of the individual (10, 22, 36). Although participation in athletics appears to be very beneficial in the psychological development of the individual, some test results (20, 35) seem to indicate that extended participation in athletics reverses this
psychological adjustment to social maturity. While other studies (38, 39) indicate athletes score similarly to non-athletes in many personality traits, in a few traits athletes score either considerably higher or considerably lower than non-athletes. These traits are not necessarily undesirable; in some cases they are very desirable. Nevertheless, the literature suggests that personality differences do exist between athletes and non-athletes, and at different age levels.

PERSONALITY VARIABLES AMONG ATHLETES OF DIFFERENT SPORTS

It has been observed that variations of personality traits exist among champion athletes of different sports. Ryan indicated, "Each individual athlete tends to show a consistent and characteristic way of reacting to formal competition in his event." (24:113). Major differences seem to appear in the areas of personality profiles of athletes participating in different sports as well as differences in psychological traits of men compared to women in the same sports, and immature compared to the mature athlete.

It has been suggested that certain types of athletes have similar characteristics which differentiate them from other groups of athletes. Cratty stated, "Certain personality traits have been demonstrated to be predictive of athletic activities which individuals select." (3:21). He
indicated (3) that research has shown athletes who participate in individual sport activities tend to be more social. He also implied that many who participate in certain sports do so in order to bolster some perceived personality deficiencies. Both Kane (23) and Lakie (26) also indicated that there are differences in the personality profiles of male athletes participating in different sports. They found that athletes in the same sports were very similar in all personality traits. In comparing athletes of different sports, it was noted that athletes were similar in most traits, but slight variations did exist between groups of athletes in different sports. Kane (23) indicated football players scored lower than other athletes in social introversion, while athletes who participated in tennis and golf scored higher than others in social maturity. He also found that basketball players and wrestlers scored the highest in liberalism. Slusher (38) found that baseball players scored higher than others in depression.

In his research, Kane (23) found that track athletes scored very high while swimmers scored very low in emotional stability. In testing women, Kane (23) found they are more consistent; and their profile shapes, when comparing groups from other sports, are almost identical. In comparing the personality factors of men and women athletes, both David (20) and Kane (23) indicated that women do not commit themselves to athletics as fully as do men, except in swimming. Furthermore, whereas Kane
indicated that all male champions showed a strong tendency toward introversion, he also indicated that all female champions are extroverts. Kane explained that:

Personality may clearly be a selection factor for top athletic performance among women in our culture. From among those with basic ability, it would appear that only the surgent extroverts who are easily involved emotionally take the field and persevere. (23:207).

Controversy often arises concerning whether the individual sports or the team sports provide the athlete with the most desirable opportunities for personality development. It had been assumed that the individual sports provided opportunities to develop self-reliance, self-discipline and self-confidence, and that team sports provided a good medium for developing those personality traits which relate to social behavior (31). However, a recent study by Slusher (39), indicated this assumption may have been misleading. It was found that athletes performing in individual sports possessed greater leadership characteristics, were more venturesome, more extroverted, and more imaginative than athletes who participated in team sports. It was also found that those athletes competing in individual sports were less anxious than those in the team sports group. The two groups were very similar in many other personality traits. The author indicated, "Those traits which differ seem to be necessary for independent and autonomous action." (39:18).

The literature indicated that the same psychological traits are not common to all athletes in different
sports; therefore, all athletes cannot be stereotyped to fit one particular personality profile (23, 26). Understanding that swimmers, as a group, are different from other groups, it seems apparent they would require individual analysis. Yet, just as one group of athletes is uniquely different when compared to athletes of other groups (9, 12), those individuals competing in the same sport are also different when compared against each other (30). These differences in personality traits of athletes competing in the same sport are of prime importance if they can be measured and used in predicting performance.

The literature indicated that personality differences between the athlete and the non-athlete do exist, and that personality differences also exist between athletes participating in different sports. The question arises then, as to whether participation in different sports is responsible for the molding of the personality traits of the individual found in that sport, or if the personality of the individual subconsciously leads to participation in a particular sport. Warren Johnson pointed to the fact that:

No longitudinal studies seem to have been undertaken in an effort to determine whether certain types of personalities merely gravitate into certain types of activities and/or whether participation in sports is in part responsible for personality traits found. (9:547).

Because a lack of evidence to support a conclusion on the above question was found; it appears that this area of
Differences in personality traits of athletes in different sports and differences between personality profiles of men and women would tend to suggest that there may be differences in personalities between the youth starting in a sport and the experienced athlete in the same sport. Hendry (20), Kane (23), and Schendel (35), suggested that a change does take place in the athlete, male or female, from youth, when the athlete is improving his ability, to maturity, when the athlete is trying to become the best in his or her event. Both Kane and Schendel felt that the male youth expressed an extroverted behavior, the athlete is concerned about achieving a level of ability at which he feels others expect him to perform, and strives to be accepted by others. As he nears perfection, this changes to introverted behavior. The athlete is not concerned with others, but with satisfying his own needs and emotions. Hendry (21) found the process to be different with women. The female never changed to the introvert, except for the swimmer.

In a paper presented to the National College Physical Education Association concerning a correlation between personality and motor performance, Cratty (3) gave support to the idea of using personality information to provide a
better understanding of an individual and to be used for better communication between coach and athlete. He referred to the fact that more and more professional teams request personality trait analysis of all players prior to selection of their regular starters. He implied that coaches at the high school and college level recognize the importance of the individual's personality profile, but because of the expense, these coaches are forced to analyze their athletes subjectively. However, to assume that these subjective interpretations of individuals' personalities are continually correct is an erroneous assumption.

Coaches are not psychologists, and even if they were, they work with such a large number of athletes in such a short period of time that it is virtually impossible to identify each individual's personality profile and to work out a program to take full advantage of this information. The development of a simple, yet valid, personality test which could determine the difference between the faster and slower swimmers, those who improve under pressure as opposed to those who fold under pressure, would alleviate one of the coach's major problems and allow him more time to work with and help develop his athletes to their fullest potential.

A study by Kroll and Peterson (25), which tested values of individuals of successful versus unsuccessful varsity football teams, supported the previously mentioned statements. They concluded, "The results of this study
were highly suggestive that the sportsmanship standards
possessed by athletes were considerably different from
those advocated by the profession." (25:46). It was also
found that individuals on successful football teams scored
lower on social adjustment traits than did the individuals
on the unsuccessful football teams. It was also observed
that those athletes who were receiving athletic scholar­
ships, individuals who are considered outstanding in
athletic ability, scored lower in sportsmanship than those
athletes not receiving athletic scholarships (25).

The difference between a champion and a near cham­
pion often lies in the psychological make-up of the indi­
vidual. Rushall (32) suggested that the physiological
ability of the individual contributes to about 80 percent
of his performance, the other 20 percent of his performance
being dependent upon his psychological make-up. He felt
personality traits to be the deciding factors of the indi­
vidual's level of success.

Johnson stated, "Champion athletes are sometimes
called 'A special breed' for reasons other than exceptional
physical ability." (9:547). Olson (30) contributed to
this idea by suggesting that characteristics which differ­
etiate the "champion" from the "near-champion" lie in the
psychological make-up of the individual. Olson found that
highly successful individuals have expectations of success
foremost in their minds, whereas the less successful indi­
viduals concentrate more on avoiding failure than on
anticipating victory. Olson implied that differences between these characteristics are slight, but that the manner in which it affects behavior and achievement is rather revealing. The literature indicated athletes participating in the same sports tend to show similar characteristics, but the difference in performance of athletes of near equal ability lies in the varying strengths of these similar characteristics within the individual.

"Good" athletes have commonly been stereotyped as aggressive, persistent, and dominating types who express a great deal of drive. However, Kane indicated, "He is often regarded as an 'Easy-going sociable individual without anxieties or inner urgencies'." (23:202). All of the above traits are a valuable part of the athletes psychological make-up, but the degree to which these factors affect the individual depends upon the circumstances under which he participates (23). The results of a study by Ogilvie, Tutko, and Young (29) help to substantiate Olson's ideas. Ogilvie, Tutko, and Young made a comparison of the personality profile of Olympic champions with that of swimmers who were not of Olympic champion caliber. They found the Olympic champions to have a higher need for achievement and success; a greater need for attention from others; and to have more easy-going, self-reliant personalities than those of athletes who were not Olympic champions. It was also found that Olympic champions were rated among the top fifteen percent of the college population in
abstract thinking, that they were more able to face reality, needed constant change in their lives, and were relatively free of physical fears. The results of another study of seventy-seven outstanding Viennese sport champions presented by David revealed that:

... the prevailing type shows high psychological stability and resistance, a tough attitude, a need to achieve, and some obsessive-compulsive tendencies. The psychological constitution of female champions is of a less robust nature. In sports requiring close personal interaction, a close connection between personality and style of playing was observed. (20:452).

Kane (23) summarized that, although extroversion, a term referring to the idea that one's interests lie mainly in external objects, correlated highly with competitive athletic success of the young, the world-ranking athletes showed a strong tendency toward introversion with the individual primarily preoccupied with his own thoughts, emotions, and motives. He felt, "The explanation lies in the development of intense subjectivity and self-analysis that results from constant competitive crisis." (23:208). He also declared, "What is certain is that all champion athletes must be high in surgency (happy-go-lucky and enthusiastic)." (23:208).

PERSONALITY DIFFERENCES BETWEEN SUCCESSFUL AND UNSUCCESSFUL SWIMMERS

The literature indicated that there are differences in personality profiles of athletes as compared to personality profiles of non-athletes. Behrman (16) completed
research in the area of personality differences between swimmers and non-swimmers. His subjects consisted of college freshmen. The non-swimmers were those individuals unable to swim seventy-five feet, or one length of the pool. Those capable of swimming seventy-five feet or more were classified as swimmers. Behrman administered the Guilford-Zimmermann Temperament Survey to each group. He found those individuals classified as swimmers seemed to score higher in those traits related to being impulsive, sociable, hostile, and belligerent while those classified as non-swimmers scored higher in those traits associated with seriousness, shyness, and agreeableness.

The literature further implied that differences in performance of many athletes of near equal ability in a highly competitive swim meet are dependent upon each individual's psychological ability to adjust to the situation and mentally meet the demands of such an experience. In such instances some athletes performed extremely well, others performed neither better nor worse than their previous performance, while still others performed at a capacity somewhat inferior to their potential. Those personality factors which may have an affect upon the athlete's performance have been the target of numerous personality profile studies.

Ogilvie, Tutko, and Young (29) in their study of Olympic swimming champions as compared to swimmers not of this high a caliber, found: Olympic champions to be more
stable, more self-disciplined and more individualistic; they
avoided taking an interest in others’ troubles; and, were
more ambitious than those swimmers not of Olympic champion
caliber. They also found champion swimmers to be quicker
in personally accepting the blame for a defeat. They were
also better prepared to pay an emotional price for success
than were the non-champion swimmers.

A study indicating existing personality differences
among faster and slower competitive swimmers by Newman (28),
concerned varsity high school swimmers and a measurement of
their personality traits in order to determine if there
were any traits which could be used in distinguishing the
faster swimmers from the slower swimmers. Newman used the
Thurston Temperament Schedule in measuring his athletes’
personality profiles. The success of each swimmer was
measured by improvement in times taken in actual competi-
tion. Newman concluded that high scores in two personality
traits, dominance and sociability, were good determinants
of faster swimmers in the sprints; up to and including one-
hundred yards, while a low score in the area of sociability,
concerned with being less sociable and quiet, was a good
indicator of a successful distance swimmer; two-hundred
yards or farther.

A study even more specific in stating the person-
ality differences among great swimmers and average swimmers
was performed by Rushall (32). After testing swimmers of
known champion caliber and swimmers of good physical ability,
but not champion caliber, he found a number of personality traits which related to all swimmers. The difference in the swimmers' ability correlated very highly with their scores in these particular personality areas. Rushall implied that athletes who do not perform up to their capabilities in large meets are usually emotionally unstable, shy, worrisome, and frustrated. He also indicated that those athletes who performed in excess of their previous performances are usually very happy-go-lucky. He further suggested that individuals who perform consistently at the same level, neither improving nor faltering under stressful conditions, scored favorably in some areas, but not in others. Because of this, their personality prevented them from either improving under stress or breaking down under a stressful situation (32).

Rushall suggested that certain stable personality traits can be tested and the results used in predicting how well the athlete will perform when competing in a large swimming meet under an extreme amount of stress. Rushall (32) administered the Cattell Sixteen Personality Factor Tests (16 PF) to a group of known champion swimmers and also to a group of non-champion swimmers. He concluded that a few definable personality traits can be measured and used in determining how an individual will perform under the stress of a highly-competitive meet. However, Rushall had administered this test to swimmers who were already known champions and non-champions. In contrast to Rushall's
study, this study was concerned with giving the same test to swimmers prior to drawing any conclusions as to whether an individual would be classified as a successful or unsuccessful swimmer. This was done in order to determine whether there are certain personality traits or combinations of personality traits within each individual which can be measured and used in determining how he would perform.

In summary, a review of the literature indicated that there are differences in the personality make-up of athletes compared to non-athletes, athletes competing in different sports, and among great athletes compared to near-great athletes. It was also implied that there are personality traits common to champion swimmers and personality traits common to near-champion swimmers.
CHAPTER III

METHODS AND PROCEDURES

The purpose of this chapter is to present the methods and procedures selected for this study. The first section of the chapter is concerned with the selection of subjects. It is followed by a discussion of the selection of tests used in measuring personality traits, as well as the procedures followed in scoring and evaluating the results.

This study was designed to serve as a follow-up study to research completed by Rushall (32). The literature has indicated that swimmers, as a group, score similarly in personality traits. However, in further research, Rushall indicated that personality traits in the areas of emotional maturity, surgency, shyness, confidence and composure can be scored and used in predicting differences between individuals who may be champion swimmers and individuals who may develop into good swimmers, but not champion swimmers. Yet, Rushall obtained his results by testing and comparing proven champion swimmers against proven near-champion swimmers. The purpose of this study was to measure individual personality traits prior to performance and determine if they could be used in the prediction of successful swimmers and unsuccessful swimmers.
Subjects for this study were members of the varsity swimming team at California State University, Northridge. There were seventeen male swimmers who comprised the team. The members of the team included freshmen, sophomores, juniors, and seniors ranging in ages from eighteen to twenty-two. All seventeen swimmers participated in the study.

**SELECTION OF TEST**

*Cattell Sixteen Personality Factor Test (16 PF)*

The Cattell Sixteen Personality Factor Test (16 PF) was selected for use in determining the personality factors of each individual. The 16 PF is a personality test which provides a score of the total personality in all of its dimensions (18). It provides scores in sixteen different areas in which people may differ. The 16 PF test rates the individual on a scale from one to ten in the areas of sensibility, general intelligence, emotional maturity, dominance, surgency, persistence, shyness, sensitivity, trustfulness, imagination, sophistication, confidence, temperament, dependency, self-control, and composure. Personality scores ranging from 4.5 to 6.5 fall within the normal population; only when scores are below 4.5 or above 6.5 does a personality trait depart from the norm. According to
Cattrell (18), these traits may be measured and may have a bearing on one's performance.

As previously indicated, Rushall (32) believed the level of performance of swimmers could be predicted prior to competition based on scores obtained on certain personality traits. The Cattell 16 PF accurately measures each of the five personality traits set forth by Rushall, as well as eleven other individual personality traits. The literature indicated this test to be one of the most valid instruments in assessing an individual's personality profile, and both the validity and reliability correlation of this test has been reported as acceptable (1, 18).

PROCEDURE

One of the major advantages of this test is the ease and quickness with which it can be administered and scored. The test is virtually self-administering to individuals as well as to groups. For this investigation, the test was administered one day prior to the first dual swim meet. The methods and procedures for administering the test paralleled those suggested by the testing manual. The test was administered to the entire group at the same time. Each individual was given a question booklet and an answering sheet. Directions were then given as to proper procedure in filling out information on the answer sheet. The group was then asked to read along silently as the directions on the front page were read aloud. After
reading the directions, the administrator of the test asked for questions. After dealing with questions, the subjects were reminded to answer each question as quickly and honestly as possible. Once the subjects had begun their test, they were reminded every ten minutes of the approximate number they should have completed. The test took approximately forty-five minutes to complete.

The Cattell 16 PF test contains 187 questions which relate to the sixteen different personality traits, with ten to thirteen different questions assigned to each personality trait. Three possible answers are presented for each question: "(A) or Yes," "(B) or In Between," "(C) or No." The subject was allowed only one answer for each question. The subjects were allowed to change their answers, as long as the first answer was erased completely.

Once completed, the tests were scored objectively, and scoring was completed according to prescribed procedure. The scoring was done by hand using two cardboard stencils, with punched holes, which were the answer keys. Each of the two cardboard stencils was applied in succession to the answer sheet, and each gave eight scores which were entered in the raw score column to the right hand side of the answer sheet. In all cases the "right" answer scored two points; the "intermediate," one, and the "wrong," zero. The scoring required an average of three minutes to score each individual test. Once the testing and scoring had been completed, it was then necessary to collect the times
of each swimmer to find which would be successful and which would be unsuccessful. These times were collected at each swimming meet throughout the season.

At the beginning of the season, qualifying standards for the National Collegiate Athletic Association, College Division Swimming Championships were posted for each event. These standards were minimum times which had to be either equalled or bettered before an individual would be allowed to participate in the National Collegiate Athletic Association, College Division Swimming Championships. By noting these standards, each individual knew what was expected of him in order to qualify. Throughout the season, times were recorded for each individual in each event at each meet. These meets served as stepping stones to the conference swimming championships, which provided each individual with his last opportunity to qualify for the Nationals. After the conference swimming championships were completed, the swimmers were divided into two separate groups: successful swimmers (those who qualified to participate in the Nationals), and unsuccessful swimmers (those who failed to qualify to participate in the Nationals).

The scores of each personality trait for both successful swimmers and unsuccessful swimmers were then plotted on separate charts. A mean was then computed for each trait for both the successful swimmers and unsuccessful swimmers, by using the raw scores obtained from the answer.
sheets. The means for each trait for members of both the successful swimmer group and unsuccessful swimmer group were compared by use of a t-test to determine if there were any significant differences between the scores. The t-test was used, as designed, to determine a significant difference between two sample means. The t-test was deemed to be particularly appropriate for small samples. The results of these computations have been presented in Chapter IV.
CHAPTER IV

PRESENTATION AND INTERPRETATION OF THE DATA

The purpose of this study was to ascertain whether specific personality traits could be identified between successful and unsuccessful collegiate male swimmers.

A pilot study in this same area had been completed by Rushall (32), who administered the Cattell Sixteen Personality Factor Tests (16 PF), the same test administered in this study, to a group of known champion swimmers and also to a group of non-champion swimmers. However, Rushall administered this test to swimmers who were already known champions and non-champions, whereas this study did not. This study was concerned with giving the same test to swimmers prior to drawing any conclusions as to whether an individual would be classified as a successful swimmer or an unsuccessful swimmer. It was important to note that a significant difference to the 5 percent level of confidence was established for this study to determine whether or not the two groups differed significantly on their scores in each personality trait. In evaluating the true significance of the reported significance levels, the reader is encouraged to consider the total spectrum of the data; that is, the raw scores, standard deviations, sample size, and normative group characteristics.
THE RESULTS

The null hypothesis for this study, that there are no significant differences between any personality traits, as measured by the Cattell Sixteen Personality Factor Test, and the degree of success among collegiate male varsity swimmers, was rejected as it was found that significant differences did exist between some personality traits of the successful collegiate swimmers and unsuccessful collegiate swimmers. A total of five personality traits were found to be significantly different between the two swimmer groups. The five traits found to differentiate the two swimmer groups were; Factor C: Emotional Stability versus Affected by Feelings; Factor N: Shrewdness versus Forthright; Factor O: Apprehensive versus Self-Assured; Factor Q2: Self-Sufficient versus Group Dependent; and Factor Q3: Controlled versus Undisciplined Self-Conflict. The successful swimmers appeared to be more emotionally stable, more shrewd, more self-assured, more self-sufficient, and more controlled than were the unsuccessful swimmers.

Personality Traits Found To Be Significantly Different Between the Two Groups

The first trait presented is that of personality trait Factor C: Emotional Stability versus Affected by Feelings. The Emotionally Stable individual tends to be emotionally mature, realistic about life, unruffled, high
in ego strength, and better able to maintain solid group morale. The individual, Affected by Feelings tends to be low in frustration tolerance for unsatisfactory conditions, changeable, and easily annoyed.

The results indicated that a significant difference, to the .02 level of confidence, existed between how the successful swimmers group scored compared to how the unsuccessful swimmers group scored on the Emotionally Stable versus Affected by Feelings trait (refer to Table I). The successful swimmers scored much closer to the Emotionally Stable side of the scale than did the unsuccessful swimmers.

The data indicated that successful swimmers are more Emotionally Mature and more Emotionally Stable than are unsuccessful swimmers. The information indicated successful swimmers have a realistic goal and a knowledge of the sacrifices which must be endured in order to achieve these set goals. The successful swimmer also has the maturity to cope with and overcome unexpected problems. Unlike the successful swimmer, the unsuccessful swimmer is easily

<table>
<thead>
<tr>
<th>Sub-Groups</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t-Value</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1.26</td>
<td>2.66</td>
<td>.02</td>
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<tr>
<td>Unsuccessful</td>
<td>11</td>
<td>13.27</td>
<td>2.69</td>
<td></td>
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</tr>
</tbody>
</table>
annoyed by things and people and is dissatisfied with the world situation, his family, the restrictions of life, and his own health. In short, the successful swimmer was able to cope with daily situations, overcome unexpected problems, and perform under the greatest of pressures. The unsuccessful swimmer was emotionally unable to handle these stress situations.

The second trait, Factor N: Shrewdness versus Forthright trait, might also be termed the Sophisticated or Complex versus Simple trait. The individual representing Shrewdness is socially alert, exact, aloof, ambitious, esthetically fastidious and exhibits insight regarding self and others. The Forthright individual is lacking in social etiquette, and in self insight, is vague, warm, simple in tastes, unskilled in analyzing motives, and content.

| TABLE II |
| COMPARISON OF FACTOR N: SHREWDNESS VS. FORTHRIGHT |

<table>
<thead>
<tr>
<th>Sub-Groups</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t-Value</th>
<th>Significance Level</th>
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<td>.01</td>
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<tr>
<td>Unsuccessful</td>
<td>11</td>
<td>8.91</td>
<td>2.31</td>
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</tr>
</tbody>
</table>

The results indicated that a strong significant difference, to the .01 level of confidence, existed between the two swimmer groups compared in the trait Shrewdness versus Forthright (refer to Table II). The successful
swimmers scored closer to the Shrewdness end of the scale than did the unsuccessful swimmers.

In studying the characteristics unique to this trait, Shrewdness versus Forthright, it was indicated that the Shrewd individual tends to exhibit ambition and insight while the Forthright individual tends to be content and unskilled in analyzing motives. These characteristics would seem extremely important in developing any athlete, regardless of the sport. The very essence of athletic competition, and the main goal of competition is to determine the best individual or team in any activity. In referring to the Shrewdness versus Forthright trait, which relates to attitude, the Shrewd individual would be ambitious, would set goals, perhaps high goals, and would strive to attain these goals. The Forthright individual would be content with what comes, practice only the amount required by the coach, and be satisfied with the awards achieved. The data indicated that successful swimmers were more shrewd than unsuccessful swimmers.

The third trait presented was Factor 0: Apprehensive versus Self-assured trait. The individual who is Apprehensive is often worried, depressed, easily upset, fussy, and moody; he exhibits phobic symptoms, and has a strong sense of duty. The Self-assured individual is self-confident, cheerful, tough, expedient, easy-going, given to simple action, and has no fears.
The results indicated that a significant difference, to the .05 level of confidence, existed between how the successful swimmers scored compared to how the unsuccessful swimmers scored on the Apprehensive versus Self-assured trait (refer to Table III). The successful swimmers scored much closer to the Self-assured side of the scale than did the unsuccessful swimmers.

The amount of confidence one feels and exhibits is often the difference between two individuals of equal physical ability. Positive mental preparation is extremely important in preparing for an athletic event or athletic contest. If an individual has self-confidence and lacks fear of his opponent, he can concentrate more efficiently on his own efforts. An individual who worries and is easily upset cannot concentrate fully on his mental preparation and will also lose valuable energy through nervous tension. In essence, the individual who is secure in his ability tends to be more relaxed and more capable of proper mental and physical preparation for any activity.

<table>
<thead>
<tr>
<th>Sub-Groups</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t-Value</th>
<th>Significance Level</th>
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</thead>
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<td>6.17</td>
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<td>.05</td>
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<td>11</td>
<td>10.82</td>
<td>2.95</td>
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</table>
The fourth trait was Factor Q2: Self-sufficient versus Group-dependent. The Self-sufficient individuals are resourceful, accustomed to making their own decisions. The Group-dependent individual is socially dependent on others, values social approval from others, and is fashionable.

The research indicated a significant difference, to the .05 level of confidence, existed between the two swimmer groups in the trait Self-sufficient versus Group-dependent (refer to Table IV). The successful swimmers scored more towards the Self-sufficient end of the scale, while the unsuccessful swimmer scored more towards the Group-dependent end of the scale.

The data indicated that successful swimmers were interested in self-satisfaction in their performance and, therefore, strive for self-achievement and perfection. The successful swimmer knew whether or not he had satisfied his own goals and was happy with his performance. The unsuccessful swimmer was also interested in doing well but

<table>
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<tr>
<th>Sub-Groups</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t-Value</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful</td>
<td>6</td>
<td>10.50</td>
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<td>.05</td>
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<td>11</td>
<td>8.64</td>
<td>1.77</td>
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</tr>
</tbody>
</table>
apparently was not as interested in the values he placed on his own performance as he was in the values others placed on his performance.

The fifth trait which discriminated between the two swimmer groups was Factor Q3: Controlled versus Undisciplined Self-conflict. The Controlled individuals demonstrate socially approved character responses, maintain self-control, show persistence, maintain foresight, exhibit consideration for others, and are conscientious.

<table>
<thead>
<tr>
<th>Sub-Groups</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t-Value</th>
<th>Significance Level</th>
</tr>
</thead>
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<tr>
<td>Successful</td>
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<td>12.00</td>
<td>1.41</td>
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<td>.01</td>
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<tr>
<td>Unsuccessful</td>
<td>11</td>
<td>8.36</td>
<td>2.27</td>
<td></td>
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</tr>
</tbody>
</table>

The results for this trait indicated that a strong significant difference, to the .01 level of confidence, between the two groups for the trait Controlled versus Undisciplined Self-conflict (refer to Table V). This was the strongest trait measured which differentiated between the two groups. The successful swimmers scored towards the controlled end of the scale, and the unsuccessful swimmers scored towards the uncontrolled self-conflict end of the scale.
Perhaps the most important factors related to this trait and swimmers success are self-control and persistence. Successful swimmers indicate the ability to set a goal and exhibit the self-control to continue toward that goal until it is achieved. Unsuccessful swimmers may set identical goals, but lack the self-control and persistence to continue working towards those goals until they are achieved. The unsuccessful swimmer's training and thoughts may wander periodically rather than maintaining the same goals and standards required for attaining these goals from day to day.

Personality Traits Found Not To Be Significantly Different Between the Two Groups

The Cattell Sixteen Personality Factor Tests (16 PF) measures sixteen different personality traits. Five personality traits were found to be significant in determining the difference between the two swimmer groups. The following eleven traits were found not to be significant in determining the difference between the two swimmer groups. The presentation of the following findings resulted from analysis of those traits which did not sufficiently differentiate between the two swimmer groups: Factor A: Outgoing versus Reserved; Factor B: Bright versus Dull; Factor E: Assertive versus Humble; Factor F: Happy-Go-Lucky versus Sober; Factor G: Conscientious versus Expedient; Factor H: Venturesome versus Shy; Factor I: Tender-minded versus
Tough-minded; Factor L: Suspicious versus Trusting; Factor M: Imaginative versus Practical; Factor Q1: Experimenting versus Conservative; Factor Q4: Tense versus Relaxed.

Factor A measured Outgoing versus Reserved, whether the individual tends to be warm hearted, easy-going, good natured, and co-operative or whether the individual is cold, rigid, critical, and obstructive.

**TABLE VI**

**COMPARISON OF FACTOR A: OUTGOING VS. RESERVED**

<table>
<thead>
<tr>
<th>Sub-Groups</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t-Value</th>
<th>Significance Level</th>
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<tr>
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<td>6</td>
<td>8.83</td>
<td>1.77</td>
<td>.44</td>
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<tr>
<td>Unsuccessful</td>
<td>11</td>
<td>9.91</td>
<td>2.87</td>
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</tr>
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</table>

The results indicated no significant difference existed between the successful swimmer group and the unsuccessful swimmer group for the Outgoing versus Reserved trait (refer to Table VI).

The data suggested that both groups, successful and unsuccessful swimmers, scored near the middle of the scale, but tended to shade just a little toward the reserved side of the scale.

Factor B: Bright versus Dull, is a measure of general intelligence. As the Cattell 16 PF is not an intelligence test in itself, the main purpose of measuring this
trait is not to add personality information, but to complete the measurement of factors important in most predictions by adding a good general ability measure. This trait is basically involved with determining whether the individual is conscientious, persevering, and cultured or whether the individual is of low morale, a quitter, and boorish in nature.

TABLE VII

COMPARISON OF FACTOR B: BRIGHT VS. DULL

<table>
<thead>
<tr>
<th>Sub-Groups</th>
<th>Number</th>
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<th>Standard Deviation</th>
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<tr>
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<td>.96</td>
<td>1.65</td>
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<tr>
<td>Unsuccessful</td>
<td>11</td>
<td>7.91</td>
<td>2.12</td>
<td></td>
<td></td>
</tr>
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</table>

The results indicated that no significant difference existed between the successful swimmer group and the unsuccessful swimmer group when compared for Factor B: Bright versus Dull (refer to Table VII).

Although there appeared to be no significant difference between the two swimmer groups in the area of general intelligence, it might be noted that the mean score for the successful group was higher than that of the unsuccessful group. The successful group was also the most stable in its scoring, as the amount of deviation for the successful group was much smaller than that of the other group.
Factor E measured the Assertive versus Humble trait. This trait differentiates between the individual who has tendencies toward being independent or whether he has tendencies toward being dependent on others. An individual of independent nature tends to be solemn, stern, tough, dominant, and aggressive. The individual expressing a dependent nature tends to be expressive in his/her feelings, kind, easily upset, submissive, and mild.

### Table VIII

**Comparison of Factor E: Assertive vs. Humble**

<table>
<thead>
<tr>
<th>Sub-Groups</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
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<td>11</td>
<td>13.82</td>
<td>2.76</td>
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</table>

The data indicated that no significant difference existed between the two groups in the Assertive versus Humble trait (refer to Table VIII).

Past studies in the area of Assertive versus Humble traits have indicated that dominance, a characteristic of the Assertive trait, tends to be positively correlated, to some extent, with social status and is somewhat higher in established leaders than in followers (18:12). With this information, one might expect the successful group to score significantly higher than the unsuccessful group, but this was not the case. One reason for this lack of significant
difference may be that successful swimmers are not always leaders. As stated earlier, dominance tends to be somewhat higher in established leaders. The Cattell 16 PF Test was administered near the beginning of the season; therefore, none of the swimmers had established themselves as leaders of the group.

The next trait measured was that of Factor F: Happy-Go-Lucky versus Sober. A Happy-Go-Lucky person will tend to be alert, talkative, expressive, cheerful, and serene while the Sober individual will appear slow, silent, incommunicative, depressed, and concerned.

<table>
<thead>
<tr>
<th>Sub-Groups</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t-Value</th>
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The results indicated that no significant difference existed between the successful swimmer group when compared to the unsuccessful swimmer group for the trait Happy-Go-Lucky versus Sober (refer to Table IX).

Literature indicated the Happy-Go-Lucky person to be more popular than the Sober person (18:13). In other words, this particular personality trait does not necessarily measure the ability of an individual to achieve, but
rather the attitude of the individual. It seems fair to assume that a person who appears cheerful and talkative would be more popular and more widely accepted than the individual who appears depressed and silent. However, neither characteristic appears characteristic of either the successful group or the unsuccessful group.

The next personality trait, Factor G, measured Conscientious versus Expedient. In the examination of Factor G it might be noted that this trait has a close resemblance to the third personality trait presented in this chapter: Emotional Stability. However, although this factor is indicative of self-controlled rather than emotional behavior, it is characterized most by energy and persistence. One may observe that the conscientious individual is determined, responsible, emotionally mature, and attentive to other people while the expedient individual may be a quitter, frivolous, impatient, and obstructive.

In a sport as demanding as competitive swimming, it would seem that both groups would tend to fall into the category of conscientious. However, whether or not any significant difference does exist may be found by studying Table X.
TABLE X

COMPARISON OF FACTOR G: CONSCIENTIOUS VS. EXPEDIENT

<table>
<thead>
<tr>
<th>Sub-Groups</th>
<th>Number</th>
<th>Mean</th>
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<th>t-Value</th>
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There appears to be no significant difference between the two swimmer groups, successful and unsuccessful, when compared for the trait Conscientious versus Expedient (refer to Table X).

With swimming a grueling, and very often boring, sport, and with the motivation to continue coming basically from within the individual, it would seem that swimmers should distinguish themselves solidly as conscientious individuals, however, this was not the case.

Factor H measured the trait Venturesome versus Shy. The Venturesome individual is characterized by being care-free, impulsive, friendly, responsive, outgoing toward the opposite sex, and as one who likes meeting people. The Shy individual is characterized as being careful, restrained, somewhat embittered, aloof, retiring with the opposite sex, and withdrawn.
As indicated by the data, there appears to be no significant difference between the two swimmer groups in the trait Venturesome versus Shy (refer to Table XI).

Although an individual's personality is generally considered to be a product of his environment, the complete personality is based on a number of individual characteristics or traits. Many of these traits are developed through learning experiences; however, present evidence indicates the Venturesome versus Shy trait to be one of the most highly inherited of personality factors (18:14).

The next trait, Factor I measured Tender-mindedness versus Tough-mindedness. The Tender-minded individual is demanding, dependent, gentle, imaginative, attention seeking, and artistically fastidious. The Tough-minded individual expects little, is self-reliant, hard, and self-sufficient, with few artistic responses. The Tender-minded individual is usually associated with an over-protected home environment.
The results indicated no significant difference between the two swimmer groups involving Tender-minded versus Tough-minded personality traits (refer to Table XII).

It is interesting to note that, among school-age children, tender-minded individuals are more interested in school and very dependent on the instructor, whereas tough-minded individuals have a significantly greater participation in sports and athletics (18:15).

The next trait, Factor L measured Suspicious versus Trusting. This pattern has rather a larger variance in male than in female populations. The range differs from the jealous, suspecting individual to the relaxed, adaptable individual. The Suspicious person is characteristically jealous, self-sufficient, withdrawn, tyrannical, hard, and irritable. Some of the traits characteristic of the Suspicious individual were also observed as traits characteristic of the Tough-minded individual. The opposite of Suspicious is Trusting; this individual is easy-
going, friendly, accepting, outgoing, trustful, open, tolerant, soft-hearted, and cheerful.

TABLE XIII

COMPARISON OF FACTOR L: SUSPICIOUS VS. TRUSTING

<table>
<thead>
<tr>
<th>Sub Groups</th>
<th>Number</th>
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The data indicated no significant differences existed between the successful swimmers group compared to the unsuccessful swimmers group for the trait Suspicious versus Trusting (refer to Table XIII).

Research indicated that the Suspicious individual, in group situations, is rated unpopular by his peers. It was also pointed out that individuals scoring high, showing relaxed traits, are significantly less cohesive. The two extremes of this characteristic would seem detrimental both to an athlete and to an athletic team. It is apparent from the scores that the individuals in this study tend to gravitate toward the middle of the scale.

The next trait measured was that of Factor M: Imaginative versus Practical. The Imaginative individual is self-absorbed, interested in basic beliefs, creative, immature in practical judgement, and generally cheerful. The Practical individual is alert to practical needs,
interested in immediate issues, not extremely creative, dependable, sound in practical judgement, and concerned.

TABLE XIV

<table>
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<th>Sub-Groups</th>
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The data indicated that no significant difference existed between the two swimmer groups and their scores on the Imaginative versus Practical trait scale (refer to Table XIV).

Both groups scored very close to the middle of the scale, indicating that this particular trait probably had little or no bearing on an individual's athletic ability or athletic performance.

The next trait measured was that of Factor Q1: Experimenting versus Conservative. The literature indicated that the Experimenting person is more well-informed, more inclined to experiment with problem solutions, less inclined to moralize, and contributes more significantly to group discussions than does the Conservative person (18:18).
The data indicated that there was no significant difference between swimmer groups in the personality area of Experimenting versus Conservative (refer to Table XV).

Both groups scored in the middle of the scale, with the mean of the unsuccessful swimmers scoring more towards the experimenting end of the scale than the mean of the successful swimmers.

Factor Q4 measured the Tense versus Relaxed trait. Tense individuals have a tendency to be irrationally worried, irritable, anxious, and in turmoil. Relaxed individuals are more composed, easy going, and controlled.
The data indicated that no apparent difference existed between the successful swimmer group compared to the unsuccessful swimmer group for the Tense versus Relaxed trait (refer to Table XVI).

It would seem that the successful swimmers would score towards the Relaxed end of the scale as they should exhibit more self-composure and more self-control than the unsuccessful swimmers. However, this was not the case as both groups scored towards the middle of the scale for the Tense versus Relaxed trait.

Summary and Discussion of Major Findings

In summary, the Cattell 16 PF Test measures individuals in sixteen personality traits. An analysis of each trait and comparison of the two swimmer groups, successful and unsuccessful swimmers, indicated that the two groups differed significantly among certain traits while scoring similarly in others. A total of five personality traits were found to be significantly different between the two swimmer groups. The five traits found to differentiate the two swimmer groups were Emotional Stability versus Affected-by-Feelings, Shrewdness versus Forthright, Apprehensive versus Self-assured, Self-sufficient versus Group-dependent, and Controlled versus Undisciplined Self-conflict. In analyzing these five personality traits, the data indicated that successful swimmers were found to be more emotionally
stable, more shrewd, more self-assured, more self-sufficient, and were more controlled than were the unsuccessful swimmers.

A comparison of the results of this study with the study by Rushall (32), indicated that both studies found five personality traits which significantly differed between the two swimmer groups of successful and unsuccessful swimmers. However, even though both studies used the Cattell 16 PF Test as their measuring devise, only two of the five traits found by Rushall (32) to differentiate between the two swimmer groups were found to be the same as the five traits which this study found to differentiate between the two swimmer groups. Rushall's study indicated that Factor C: Emotionally Stable versus Affected-by-Feelings; Factor F: Happy-Go-Lucky versus Sober; Factor H: Venturesome versus Shy; Factor O: Apprehensive versus Self-Assured; and Factor Q4: Tense versus Relaxed, were five traits which differentiated between the two swimmer groups. According to Rushall (32), in analyzing the five personality traits, a successful swimmer was emotionally stable, happy-go-lucky, venturesome, self-assured, and relaxed. Of the five traits found by Rushall and the five traits in this study to differentiate between the two swimmer groups, only two traits, Factor C: Emotionally Stable and Factor O: Self-assured, were found to appear in both studies. It would appear that these two personality
traits may be significant indicators as to whether a swimmer will be either successful or unsuccessful.

Whether or not one or all of the five traits affect the individual and has any influence on whether the individual is either a successful swimmer or an unsuccessful swimmer is not known, but this study does indicate that significant differences do exist in personality traits among athletes in the same sport.
CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

The study was designed to test the following null hypothesis: there are no significant differences between any personality traits, as measured by the Cattell Sixteen Personality Factor Test, and the degrees of success among collegiate male varsity swimmers.

The purpose of this study was to measure each individual's personality traits and further to determine whether successful and unsuccessful swimmers could be identified on the basis of individual personality characteristics.

The subjects comprising the groups in this investigation were the members of the men's varsity swimming team, at California State University, Northridge. The members of the swimming team consisted of seventeen college-age males.

The Cattell Sixteen Personality Factor Test (16 PF) was selected for use in determining the personality factors of each individual. The review of related literature indicated that this test was one of the most valid instruments in measuring an individual's personality profile. It provides scores for sixteen different personality factors in which people may differ. One of the major advantages of
using this test was the ease with which it can be administered and scored. Application of the t-test was the method employed for analyzing and comparing the data because it is particularly appropriate for small samples.

Based on the data received and the evaluation of these data, it was found that scores on some personality traits differentiated significantly between the two groups of successful swimmers and unsuccessful swimmers. In all, the data indicated five personality traits which differentiated between the two swimmer groups. The personality traits which were found to be significantly different were Factor C: Emotional Stability; Factor N: Shrewdness; Factor O: Self-security; Factor Q2: Self-dependency; and Factor Q3: Self-sentiment.

Conclusion

Based upon the findings and within the scope and limitations of this study, the null hypothesis was rejected, as there were statistically significant differences found between personality traits, as measured by the Cattell Sixteen Personality Factor Test, and the degree of success among collegiate varsity swimmers. It was further concluded that, due to the existence of statistically significant differences in five of the sixteen personality traits measured, these traits should be examined and results considered when attempting to distinguish between prospective successful male collegiate swimmers.
Recommendations

Because of the limitations of this study, the following recommendations have been made for either related future studies or new studies to further support or reject the findings of this study:

1. Studies need to be conducted with different age groups to determine if the same results could be expected.

2. Studies need to be conducted with personality tests administered in pre-swim season and post-swim season to determine whether or not personality traits change significantly through the course of the season.

3. Research needs to be conducted to determine if predictions based on pre-season personality trait scores are valid and reliable in differentiating between successful and unsuccessful swimmers at the end of the season.

4. Individual and group testing is needed to determine environmental influences, the day of the meet, on the swimmer.

5. Research needs to be conducted to determine whether an individual's personality traits determine level of success, or whether the level of success an individual achieves influences or brings about certain personality characteristics.

6. No information was taken concerning amount of experience each swimmer had prior to competing on the team. A study should be made to determine the extent of and what,
if any, the effect of prior swimming and competitive experience may influence the swimmers ability level and/or personality traits.

7. Research should be conducted to determine when, and under what conditions each swimmer achieved their best times of the season, whether they be successful or unsuccessful.
BIBLIOGRAPHY

Books


Periodicals and Other Publications


## APPENDIX

### RAW SCORES OF SUBJECTS

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|        | S.D.     | 1.8 | 1.0 | 1.3 | 3.0 | 5.2 | 2.2 | 4.2 | 2.3 | 3.1 | 1.9 | 2.1 | 2.5 | 1.3 | 1.4 | 2.3 |

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*Factors which were found to be significantly different.*