A STUDY
OF THE RELATIONSHIP
BETWEEN
KARATE TRAINING AND PERSONALITY TRAITS

A thesis submitted in partial satisfaction of the requirements for the degree of Master of Arts in Physical Education
by
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May, 1975
The Thesis of Victor John Masi is approved:

California State University, Northridge

May 1975
DEDICATION

This thesis is respectfully dedicated to my fiancee Linda, and to my parents and sister, whose faith and encouragement made this study possible.
ACKNOWLEDGMENTS

The author acknowledges the tremendous assistance and guidance of Drs. Sam Winningham, E. Ann Stitt and Merrill Hardy.

A special recognition and thanks must be given to Dr. Chris Johnson whose technical assistance and encouragement made this study a reality.
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ABSTRACT

A STUDY OF THE RELATIONSHIP BETWEEN KARATE TRAINING AND PERSONALITY TRAITS

by

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Master of Arts in Physical Education

May 1975

The purpose of this study was to determine the personality traits of a sampling of beginning and advanced karate students and to ascertain whether or not specific personality consistencies and/or differences exist between:

1. Beginning karate students and the "general or normal" population;
2. Between advanced karate students and the general population;
3. Between beginning and advanced karate students; and
4. Between male and female karate students.

Cattell's Sixteen Personality Factor Questionnaire, Form C, was administered to sixty-eight beginning (N=35) and advanced (N=33) karate students at various selected commercial dojos during the summer and fall of 1974.
Data from the questionnaire identified personality traits of beginning and advanced karate practitioners.

Raw scores were collected and converted into their equivalent sten scores. Sixteen mean sten scores and the standard deviations for each group, as well as a univariate F test between groups for the sixteen variables was administered, recorded and compared. The data was then analyzed using analysis of variance, which determined whether groups could be distinguished from each other. Each karate sub-group was compared with the norms for the "general" population, and a final comparison was made between male and female subjects. The alpha level was established at the .05 level of confidence.

Based on the findings and within the limitations of this research, it was concluded that there was no significant difference between the personality profiles of the following: (a) beginning karate students and the general population; (b) advanced karate students and the general population; (c) beginning and advanced karate students; or (d) male and female karate students.
CHAPTER I

INTRODUCTION

Since World War II the United States has experienced the introduction of numerous martial arts, the most popular of which seems to be Karate. Karate was first introduced as a means of unarmed self-defense, which is purported to develop physical fitness, self-confidence, and mental discipline. This is consistent with other combative activities such as boxing and wrestling. Combative activities are recognized for developing numerous physical and mental attributes such as: a high degree of skill development in self-defense maneuvers; excellent physical and mental fitness; a high degree of self-confidence and self-assurance; a healthy and socially acceptable release of aggression and tension; and for providing an opportunity to express oneself by displaying one's prowess.

Karate requires tremendous dedication. Through sacrifice, self-discipline and vigorous training, the karate student will come to have a closer understanding and awareness of himself. It has been said that "the
only true competition a man has in life is with himself."
(19:13) Through karate a man will have the opportunity to develop, both physically and mentally, via the self competition and the competition experiences provided by other karate students.

The Greek philosophers recognized that in governing human conduct, the most important factor, and perhaps the most difficult, was "to know thyself." Today, philosophers and educators also recognize the need and desire of individuals to express themselves as fully as possible according to their means. What better means are available "to know oneself" and "express oneself" than karate, which provides numerous movement experiences that reveal an individual's strengths and weaknesses. One soon learns his capabilities, both physical and mental, when tested by this vigorous combative activity.

Karate masters claim that karate training develops various personality characteristics such as: courage, courtesy, integrity, humility, self-control (10:13); confidence and poise (17:VI); character, sincerity, effort, and etiquette (23:15); decorum and gentleness (22:7). Each karate master believes that a variety of personality traits are being favorably developed. There is some disagreement among instructors, however, as to which traits are receiving the most emphasis and benefit.

As a result of the American public's sudden
interest in karate, there has become an awareness among educators, particularly physical educators, of the lack of knowledge in this area. Physical educators can learn a great deal in the following areas: The biomechanics involved in karate training and self-defense techniques; the strength and fitness parameters involved in training; and the philosophical and psychological aspects of karate training.

Physical educators and coaches have become increasingly more interested in the psychological aspects of athletics and sport. Recently the personality traits of athletically gifted performers, the average performer, the non-athlete and/or the "general or normal" population have been examined and studied. There has also been considerable interest generated in the similarities and distinctions in personality traits of team sport members versus individual and dual sport practitioners. However, there have been a variety of differences in the tests offered to measure personality; in the groups investigated; in the procedures used in collecting data; in the evaluation of the test results; and in the conclusions derived.

Kroll and Carlson state,

It seems clear that the definition of personality characteristics of individuals initially selecting and subsequently realizing successful and satisfying experiences in various physical activities is needed.
In the same manner, studying the effects such experiences may have upon participants, and whether or not successful participation can be linked with personality factors needs current emphasis. Such information is not only desirable in affording a sound basis for curriculum decisions in physical education but in the prescription of physical activities as a therapeutic adjunct as well. (52:405-6)

Importance of the Study

There have been many books written about karate and the effects of karate training in developing self-defense, physical fitness and character. Furthermore, books such as Cooper's (9) have provided the general public with the basic understanding and value of physical activity. It is expected that people, after becoming aware of the benefits of physical activity would participate, yet many do not. Therefore, it is important to determine the extent which personality, together with other factors, influence and motivate a person to become physically active. More specifically, it has not been determined whether karate attracts individuals with particular personality traits, or individuals develop particular personality traits as a result of karate training, or both. It is assumed that conclusions found in this area would be of great interest and assistance to educators and physical educators. Furthermore, it is possible that an investigation of karate students profiles may suggest what type of people enjoy karate, or what
common personality traits are found among beginning and advanced karate students.

Physical educators realize the importance of developing the total individual, both physically, mentally and socially. Recently there has been extensive research on the psychological development of individuals through physical activity and athletics.

It is hoped that this study will lead to a greater understanding and provide more insight into the relationship between personality and karate training.

The Problem

Statement of the Problem

The problem of this study was to investigate the relationship between karate training and personality characteristics.

Statement of the Purpose

The purpose of this study was to determine the personality traits of a sampling of beginning and advanced karate students and to ascertain whether or not specific personality consistencies and/or differences exist between: (1) Beginning karate students and the "general or normal" population; (2) Between advanced karate students and the general population; (3) Between beginning and advanced karate students; and (4) Between male and female karate
Hypotheses

This investigation was designed to test the following null hypotheses:

1. There are no significant personality differences between beginning karate students and the general population.

2. There are no significant personality differences between advanced karate students and the general population.

3. There are no significant personality differences between beginning karate students and advanced karate students.

4. There are no significant personality differences between male and female karate students.

Assumptions

This study was based on the following assumptions:

1. That the individuals who volunteered to take Cattell's Sixteen Personality Factor Questionnaire (16P.F.) were a representative sample of their particular karate sub-group;

2. That the table of norms provided with the 16 P.F. Questionnaire is a representative sample of the "general" population; and

3. That the 16 P.F. Questionnaire used to deter-
mine personality was a reliable and valid measure to
determine personality characteristics.

Delimitations

This study was delimited by the following
variables:

1. Only those volunteer karate students who were
   present at selected commercial karate schools (dojos), and
   who met the qualifications of either a beginning or
   advanced karate-ka.

2. Only those personality traits assessed by
   Cattell's 16 Personality Factor Questionnaire, Form C,
   were considered in this study.

Limitations

The following were limitations of the study:

1. Those karate-ka who volunteered may have had
   some different personality traits than those karate
   students who did not participate.

2. Those karate-ka who volunteered at each dojo
   may have been reflecting personality traits of their
   instructor or sensei.

3. The small size of the sample was considered
   a limiting factor, but this could not be avoided. Some of
   the subjects who met the established criteria did not
   choose to participate in the test situation because of
   time conflicts or unwillingness.
4. The imbalance in the number of volunteer men and women karate participants was a limiting factor, because it made it difficult to compare the sexes.

**Definition of Terms**

The following terms were used in this study:

1. **Advanced karate-ka**: Those students who have achieved the rank of first degree black belt or above.

2. **Beginning karate-ka**: For the purpose of this study, any student with six months or less of karate training.

3. **Dojo**: Karate school or gymnasium.

4. **Field of Personality**: "That branch of psychology which deals with dimensions of individual differences."

5. **General Population**: The basic data collection design employed in this standardization required sampling across ten levels of community size (ranging in population from less than twenty-five hundred to more than a million), ten levels of socioeconomic status, geographic location and race. Regional proportions in the final norm sample matched as closely as possible the U.S. Census figures currently available. The final norm sample included data from thirty states.

6. **Karate**: The art of "empty" handed or "weaponless" fighting.

7. **Karate-ka**: Karate student.
8. **Kata:** "The art of combining in a sequence of moves all the attacking and blocking techniques of karate in a rational and highly skilled and refined manner." (29:51) Kata's are also referred to as "forms" by some karate instructors.

9. **Kumite:** "The training in specific blows, kicks, chops, and blocks, involving the use of the knuckles of the fist, the chopping edge of the hand, and the ball and outside edge of the foot." (32:748) This training is done with a partner in pre-arranged or freestyle fighting. It is also referred to as free sparring.

10. **Personality:** "The combination of all the relatively enduring dimensions of individual differences on which he can be measured." (1:15)

11. **Personality differences:** The situation in which two or more groups show a significant difference in a specific personality trait at the .05 level of confidence.

12. **Personality similarities or consistencies:** The situation in which two or more groups show no significant difference in a specific personality trait at the .05 level of confidence.

13. **Sensei:** Karate instructor.

14. **Sixteen Personality Factor Questionnaire** (16 P.F.):
An objectively scorable test devised by basic research in psychology to give the most complete coverage of personality possible in a brief time. The test was designed for use with individuals aged sixteen and above. (5:5)

15. Personality Trait: "An abstract structure inferred from many instances of behavior. It is something in the subject's mind which functions on those occasions when he acts." (4:24)

The selected personality traits used in this study (numbers 16-31) were: (See Appendix A for definitions)

16. Factor A: Reserved vs. Outgoing
18. Factor C: Affected by Feelings vs. Emotionally Stable
19. Factor E: Humble vs. Assertive
20. Factor F: Sober vs. Happy-go-lucky
21. Factor G: Expedient vs. Conscientious
22. Factor H: Shy vs. Venturesome
23. Factor I: Tough-minded vs. Tender-minded
24. Factor L: Trusting vs. Suspicious
25. Factor M: Practical vs. Imaginative
26. Factor N: Forthright vs. Shrewd
27. Factor Q: Placid vs. Apprehensive
28. Factor Q₁: Conservative vs. Experimenting
29. Factor Q₂: Group-dependent vs. Self-
sufficient

30. Factor Q₃: Undisciplined self-conflict vs. Controlled

31. Factor Q₄: Relaxed vs. Tense

Organization of Remaining Chapters

Chapter II contains a review of literature related to karate, personality, and studies evaluating the relationship between physical activity and athletics with personality traits.

The design, methods, and procedures employed in this investigation are described in Chapter III.

Chapter IV contains an analysis of the data gathered. The discussion of these findings are located in Chapter V, and the summary, conclusions and recommendations are contained in Chapter VI.
CHAPTER II

REVIEW OF THE RELATED LITERATURE

The purpose of this chapter is to review the literature in the areas of karate, personality and athletics, and, to present studies that display personality consistencies or inconsistencies, within the athletic population as compared to the non-athletic and/or the "general or normal" population. Chapter II will also review similarities and differences between various athletic groups and will compare personality traits between beginning and advanced skill level participants. Numerous studies have been conducted over the years, assessing personality profiles of athletes and comparing them with the "general or normal" population (33, 36, 39, 42, 46, 51, 52, 64, 66, 67, 70, 71, 76, 79, 80, 81, 82, 83, 85). Personality assessment is a valuable tool which can aid a physical educator and coach toward more effective teaching and coaching. Personality assessment also provides an insight into the athletes' needs, which once met, may lead to greater athletic achievement.

For the purposes of this investigation, the review of literature is subdivided and discussed under the
following headings: Karate (definition, origin, and development); Personality (definition and description); Athletics and personality; and, Karate and personality.

Karate

Karate is the art of "empty handed" or "weapon-less" fighting. The karate-ka uses his entire body as a weapon: feet, legs, knees, arms, elbows, hands, fingers, and head. These appendages are used defensively, implementing blocking and parrying techniques, and offensively employing punching, hand strikes, gouging, kicking, elbow strikes, head butts, throwing, and leg sweep techniques.

Karate, in essence is "scientific street fighting" in that there are no restrictions. Karate utilizes techniques from many of the combatives known to man. When studying karate techniques carefully, one can recognize moves, forms, attacks and counter attacks from boxing, wrestling, judo, akido, savate, kick-boxing and many other forms of fighting. In addition, the ancient masters developed many fighting forms from observing animals fight.

Another view of karate as seen and described by Nakayama is as follows:

Karate is, and always has been, a method of self-defense, never a technique of aggression. But it is much more than that. It is a form of combined physical and mental discipline from which one can learn the value of personal attributes such as
kindness and sincerity. To the karate master, self-control is quite as important as mastery of the various techniques. . . . Decorum, humility and gentleness are the hallmarks of the karate-ka. (22:7)

Oyama expressed his philosophy and meaning of karate as follows:

Karate is a way of life, the purpose of which is to enable men to realize their full potentialities, both physical and spiritual. Because the practice of karate enables a human being to concentrate tremendous physical strength in a blow of the hand or foot, karate can be dangerous, or even deadly. Many people regard it as a distinctly warlike sport or even as a technique that has no meaning other than in mortal combat. Karate has a deeper meaning. The ultimate purpose of karate is to develop the better features of human character rather than merely to strengthen human beings against physical enemies. Karate does of course promote confidence, courage, and other qualities suited to soldiers. (25:35)

An intriguing quality of karate which is similar to other combative and self-defense activities, is the training required to command complete control between mind and body. The karate-ka must develop his will or mind so that his body can react immediately and express itself dynamically. In karate training emphasis is placed upon developing the entire student, mind and body. To develop one and ignore the other is depriving the karate-ka of the total experience.

Karate masters associate the development of numerous personality traits with karate training. For example, a few of the traits purported to be developed in karate training are: inner peace, serenity, perfection
of character (16:v); confidence and poise (17:vi); courage, courtesy, integrity, humility, and self-control (10:13).

Karate training is practiced in a dojo. The training is done barefoot on a wooden floor or canvas mats, and consists primarily of calisthenics, kumite, and kata. The exercises involved develop all the limbs, both dominant and non-dominant through a full range of motion and improve hand-eye, foot-eye, and hand-foot coordination.

Workouts begin and end with meditation. The traditional workout uniform is called "gi," which is a loose-fitting canvas pants and jacket, usually white, with a cotton belt or sash. The belt color denotes the individual's rank. The belt rankings start at white, use various intermediate color belts, and black designates an expert rating. There are also various degrees of black belts, depending upon the skill and teaching ability of the individual.

Karate's exact beginnings are questionable since there were not any books written about it at its inception. Karate's early history is based primarily on word of mouth from instructor to student.

It seems logical to start with the origin of man and trace the early beginnings of his struggles and fights for survival. Prior to, and even after the development of weapons, man placed a great deal of emphasis on his physical strength and fighting techniques to battle with
the beasts around him, and defend himself against other men.

As man developed, he gained mastery over the animals and learned crude methods and principles of agriculture. With the development of agriculture, communities sprang up, and within the communities emerged one class of society, the warrior class. The warrior class and the religious class together, became the ruling faction in that early society, which seems to be consistent with the development of most early societies.

As a result of these emerging classes, new practices also developed.

In addition to the ancient practice of fighting between man and man, we find in many societies a highly sophisticated ritual, a branch of fighting, designed to represent the preservation or service of a god or gods. With the development of modified and improved weapons, elaborate rules of procedure for these rituals were formulated and the foundations were laid for practices and techniques which still persist today. (29:11)

It is difficult to synthesize an accurate chronological recordation of unarmed fighting. Numerous countries and cultures at different times, and some concurrently, have shown evidence of some types of fighting form.

Fighting techniques resembling present day karate have been seen on the hieroglyphics in Egyptian pyramids painted approximately 6000 years ago.
Other known records concerning combat techniques, dating as far back as 4000 B.C., describe military training fights similar to modern boxing and even prescribing the use of a kind of leather glove that covered the hand and the arm to the elbow. Artifacts dating from about 3000 B.C., reveal that boxing and wrestling practiced then in the Sumerian kingdom of Mesopotamia, and murals from the Beni-Hassan tomb, in Egypt, dated about 2300 B.C., show the more refined boxing, which was later to cross the Mediterranean to Greece. (24:13)

India had karate-like techniques approximately 3000 B.C., and China is thought to have developed Chinese Kempo boxing about 5000 years ago. Bohidharma, (Daruma Daishi in Japanese), was an Indian Buddhist priest who traveled to China in the Sixth century A.D. He developed a system of karate training and meditation, and taught these arts at the Shao Lin monastery. This method of self-defense (Shōrin-ji Kempo), spread through China and eventually reached Okinawa.

Okinawa is the principle island of the Ryu Kyu archipelago, which is a string of islands that stretch from Japan in the north to China in the south. In 1609 the Ryu Kyu Islands were conquered by the Satsuma clan in Japan. The Okinawan people were prohibited from having any weapons. Any weapons found in an Okinawan's possession were confiscated and the holder severely punished. This forced the Okinawan people to develop a system of self-defense. The style of fighting which resulted was called "Te" (meaning hand). "Te" was a very violent art, developed primarily to kill or maim the enemy. It can be
said that Chinese karate masters considered karate part of their religion, whereas Okinawan karate masters considered it a way of life, a means of survival.

It was not until 1916 that Okinawan karate master Gichin Funakoshi traveled to Japan and exposed the Japanese people to karate. In 1922 Master Funakoshi lectured and demonstrated at a martial arts exhibition sponsored by the Ministry of Education. People were so impressed that they pursuaded Master Funakoshi to remain in Japan and teach karate.

The tremendous immigration of people into the United States from Asian countries such as China, Japan, and Okinawa, gave the United States its first exposure to karate; but it was not until after World War II, and more specifically the Korean War, that karate became popular in the United States. Recently, mass media has contributed greatly to its popularity. The television and movie industries have exposed and spectacularized the art.

**Personality**

Personality can be described as that magnetic attraction possessed by individuals, easy to notice, but difficult to define. It is not so much something acquired from without, as it is that special something released from within. Man's personality is projected through his
According to Byrne, man's behavior acts in a cause and effect relationship. He stated that:

Behavior is lawful: The lawfulness of behavior is the basic premise in psychology; animal organisms, including human beings, do not behave in a random or otherwise unpredictable manner. There is a lawful regularity of antecedent and consequent events for every aspect of behavior, regardless of its importance or unimportance in human affairs ...(1:21)

Man's personality, which is expressed through his actions or behavior, refers to the acquired habits of an individual, or the characteristic way in which the individual does things. Other terms used synonymously with personality, although having distinct meanings are character and temperament. Character generally refers to those aspects of personality which are favorable or unfavorable. Temperament usually denotes the emotional make up of the person.

There are several definitions and concepts of personality. There are also several theories regarding personality traits, personality types, and the methods used to measure and evaluate personality. For the purpose of this study, personality will be defined as "the combination of all the relatively enduring dimensions of individual differences on which he can be measured."(1:15) Expressed further, personality refers to "dispositions in the person that help to determine his behavior, and
that differ from one person to another." (28:587)

Observed consistencies in overt behavior, and the individual's historical and self evaluation reports are valuable in making inferences regarding that individual's personality. The researcher attempts to discover or discern not the person's behavior, but rather the dispositions that lie behind behavior. As a result of studying behavior and recognizing consistencies and differences in personality, researchers have classified these various relationships as personality "traits." Investigators observing an individual with numerous specific traits, then classify that person into a personality "type."

A personality type refers to:

A whole pattern that is repeated with a striking frequency and that can be distinguished from a number of other patterns that also have a noteworthy frequency of representation among individuals in the population. (6:123)

Cattell defines a personality trait in the following manner. A personality trait is not behavior "it is an abstract structure inferred from many instances of behavior. It is something in the subject's 'mind' which functions on those occasions when he acts." (4:24)

An example of personality types and traits has been given by Cattell. "A certain fruit may be described in terms of traits, as an object that is spherical, about three inches in diameter, orange in color, and soft to palpation." (6:123) Thus, consider personality as
consisting of an aggregate of traits. An aggregate of traits comprise a personality type.

Personality theory and testing has an important place in a variety of fields including psychology and physical education. It is relevant and beneficial in improving the functioning of people, in curing or correcting malfunctioning, in preventing disorders, or in providing conditions favorable to the individual's growth and development. (1, 2, 4, 34, 49, 63, 70, 72, 74)

Personality development is what happens through the process of interaction, for better or for worse, during the course of contacts with other individuals. This has special implications for physical educators.

It is important for physical educators and coaches to realize that by organizing, teaching and guiding physical education activities and sports, they are also guiding personality adjustment.

As Watson stated, "the cue to personality and its needs is usually found less in what people do, and more in why they do it." (76:408)

Athletics and Personality

Most of the research conducted in the past in the area of physical education and athletics was generally in the physiological area. However, recently there has been a great deal of interest and research in the psychological
There have been several studies conducted dealing with attitudes toward physical activity and athletics (38, 59); with emotion and athletics (45, 48, 69); and with adjustment and achievement in relation to athletic participation (34, 39, 63, 71, 72, 73, 74, 78). In addition, there has currently been a great deal of research by physical educators and psychologists, studying the personality traits of various athletes and non-athletes, as well as semi-skilled and highly skilled athletes (35, 39, 41, 43, 47, 49, 51, 52, 55, 70, 75, 77, 82, 84).

The following studies demonstrate the extensive research done in the area of athletics and personality.

Hedrick (82) administered the Comrey Personality Scale to forty-five male college athletes comprising three athletic sub-groups; football, basketball and wrestling. These results were compared with a non-athletic college sample. Hedrick concluded that collegiate football players were significantly more active than basketball players and wrestlers; and that collegiate basketball players were significantly less masculine than either football players or wrestlers. Athletes were significantly higher in orderliness, social conformity and emotional stability than non-athletes.

Sperling (72) found differences in adjustment and achievement between the personalities of varsity and intramural athletes, and non-athletes. The varsity and intra-
mural athletes scored higher on ascendence and extroversion, and were significantly more motivated by a desire for power, and to a lesser extent by a social love of people as compared to the non-athlete. There was no significant difference found between the varsity and intramural group on these personality traits.

Thune (75) found that weightlifters are more shy, lacking in self-confidence and more concerned with body build than non weightlifters. Lifting groups wanted to be strong, healthy and dominant, and to emulate other strong men. Statistical differences were found in all categories of present health, self-confidence and manly-individualism, between lifters and non-weightlifters.

Slusher (70) using the Minnesota Multiphasic Personality Inventory (M.M.P.I.) test found personality differences existing among athletes in various sports. He concluded that femininity and intelligence were significantly lower for all athletic groups than non-athletic groups. His findings conflicted with other studies regarding intelligence (39, 40, 71). He also found that athletes generally possessed an abnormal concern for bodily functions. They were worried and preoccupied with physical symptoms and somatic processes. Hypochondria was higher for all athletic groups than non-athletic groups, the only exception being swimmers. Stanton's (73) findings on somatic illness agreed with Slusher's (70),
indicating that there was a positive and significant relationship between the existence of certain emotional problems and the frequency of somatic illness; this relationship appeared to be moderate in degree for hypochondria. Slusher also found that basketball players possessed a high degree of concern with themselves and accompanying feelings of strict adherence to social custom, and delusional beliefs, frequently including grandeur. The football group revealed a strong neurotic profile, whereas the swimming group demonstrated the least neurotic profile. Wrestlers were typed as possessing a dominant neurotic profile, and the baseball group was recognized as a high risk taking group. The basketball group indicated the greatest deviation of personality traits from all groups, athletic and non-athletic.

Seymour (67) in studying the behavior characteristics of participant and non-participant boys in little league baseball found that the data derived from the Ohio Acceptance Scale presented conclusive evidence that in grades 4 to 7, the boys who participated in athletic programs were accorded a higher level of social acceptance. Boys who took part in the little league program came into it somewhat better endowed in terms of desirable personality traits, and retained that position during and after participation with little change in the differences between the two groups.
Skubic (69) using the Galvanic Skin Response Test to measure emotion, found that little league-type competition is no more stimulating than competition in school physical education.

Harlow (43) studied weightlifters and compared them to non-weightlifters by means of the Thematic Appreciation Test and the Sentence Completion Test. Harlow found that weightmen have significantly greater feelings of masculine inadequacy; appear decidedly more concerned with establishing manliness; and are more narcissistic than non weightmen. These findings are in agreement with Thune's (75).

Darden (41) used Cattell's Sixteen Personality Factor Questionnaire (16 P.F.) to establish personality profiles of competitive bodybuilders and weightlifters. Separate personality components revealed deviation from the normal population. Bodybuilders were described as less surgent and more suspicious than the norm; and weightlifters were more suspicious and more dominant than the norm. Bodybuilders and weightlifters were very similar in their profiles. Darden's findings are in agreement with those of Thune (75) and Harlow (43).

Brunner's (37) investigation revealed participants in vigorous activity scored higher on eight scales than non-participants. These scales revealed more extroverted traits among the participants, and more introverted traits
among non-participants.

Rarick (63) studied twenty third-grade children in relation to their achievement on motor proficiency tests. Rarick concluded that children who have attained a high level of motor proficiency tend to be more frequently well adjusted in their school and personal relationships. They appear to have had fewer irregularities and difficulties in infancy and early childhood, and appear now to have more wholesome and well integrated personalities.

Tillman (74), Biddulph (34) and Merriman (58) found similar results to those of Brunner's (37). Tillman (74) found that the personality traits of boys who ranked in the upper 15 percent on the physical fitness test were found to differ significantly from the lower 15 percent group. Biddulph (34) found that students ranking high in athletic achievement demonstrated a significantly greater degree of personal and social adjustment than did students ranking low in athletic achievement; and Merriman (58) found that the upper motor ability group scored significantly higher than the lower motor ability group on measures of poise, ascendency, self-assurance and on the other measures of intellectual and interest modes.

Hunt (46) investigated a cross-racial comparison of personality traits between athletes and non-athletes. Hunt utilized the Gordon Personal Profile and concluded that athletes, regardless of ethnic background, tend to
have similar selected personality traits, as do Negro and white non-athletes.

Pyecha (62) compared the effects of judo with handball, volleyball, badminton and basketball using Cattell's 16 P.F. Questionnaire. Three measures were taken and recorded during the course of the sixteen week experiment. Pyecha concluded that the judo group became more warm-hearted, easygoing, and participating than the other selected groups.

Johnson (49) measured and compared the personality traits of twelve national champions; football players, lacrosse players, wrestlers, boxers, a track man and a rifle man by two projective tests: Rorschach and House-Tree-Person (H-T-P). These groups were identified as possessing extreme aggression, emotions lacking strict controls, high in generalized anxiety, a high level of intellectual aspiration, and exceptional feelings of self-assurance. These groups were exceptionally able to concentrate personality resources upon desired objectives. Johnson's conclusions that these groups possessed an unusual concern for physical power and physical perfection were in partial agreement with the findings of Slusher (70) and Sperling (72). Being a champion appeared to be a matter of psychological necessity.

Olson's (84) findings are compatible with those of Johnson (49). Olson studied twelve top level tennis
competitors and found that the "champions" appeared to be more purposefully intense and serious. Their aggressiveness was directed toward a recognizable external object, while the "near-greats" seemed to focus on something inside themselves, not easily recognized by others.

Schendel (66) tested personality differences between athletes and non-participants in athletics at three educational levels, using the California Psychological Inventory Test. Schendel found that ninth and twelfth grade athletes possessed desirable personal-social-psychological characteristics to a greater extent than non-participants. Non-participating college seniors were found to possess desirable personal-social-psychological characteristics to a greater extent than junior and senior college athletes.

Riccio (85) using another personality evaluation test, the Edwards Personal Preference Schedule (E.P.P.S.), found similar results to those of Schendel (57) when he compared differences between tenth, eleventh, and twelfth grade wrestlers and non-athletes at the same grade levels. Riccio concluded that wrestlers in general were more dependent on other people than the non-athlete, and had a higher achievement level. Non-athletes in general were more autonomous and aggressive than wrestlers. Twelfth grade wrestlers were found to score higher than tenth grade wrestlers on aggression.
Kroll (51) studied ninety-four amateur and collegiate wrestlers with the 16 P.F. Questionnaire. Groups were subdivided into superior, excellent and average participants. Kroll was unable to establish any profile difference between criterion groups. When compared to the norm, wrestlers were significantly more tough minded, self-reliant and masculine. This study contradicted those findings predicting a wrestler as possessing a neurotic profile as suggested by Slusher (70). Other investigators were able to find personality trait differences between skill levels of athletes (47, 49, 66, 77, 85).

Brown (80) using the Edwards Personal Preference Schedule (E.P.P.S.), compared the personality traits of varsity skiers, varsity wrestlers, varsity swimmers, and collegiate non-athletes at selected institutions of higher learning in the intermountain area of the Northwestern United States. He found generally, on all variables except intraception, autonomy and nurturance, that the groups had similar mean scores and profile patterns. Brown identified wrestlers as being more structured, less adventurous, more rigid, and more content with the status quo than all the other populations studied. These findings tended to be in agreement with those of Kroll (51).

La Place (59) studied personality relationships between degrees of success in professional baseball by
using major league players and minor league players. He administered the Minnesota Multiphasic Personality Inventory (M.M.P.I.) and a biographical data sheet to his subjects. Conclusions derived were that major league players appeared better able than minor league players to: apply their strong "drive" toward a definite objective by exercising self discipline; to adjust to occupations requiring social contact or the ability to get along with other people; and to exercise initiative.

Williams, Hoepner, Moody, and Ogilvie (77) used the 16 P.F. Questionnaire and the Edwards Personal Preference test to determine personality traits of champion level female fencers. It was concluded that only the personality trait known as dominance distinguished between achievement levels. The competitive female fencer was described by the investigators as being a very reserved, self-sufficient, autonomous individual with a below average desire for affiliation and nurturance. In addition, she possessed the following traits: a need to be the very best; intelligence; creativity, experimentalism; imagination; assertion; and aggression. These findings are compatible with those of Johnson (49) and Olson (84).

Singer (68) examined personality differences between and within baseball and tennis players by administering the Edwards Personal Preference Schedule. No significant differences in personality profiles were
observed between the tennis and baseball groups, or between the highest and lowest ranked players. These findings are in accord with those of Kroll (51, 52) and contrary to those of Johnson (49), Ogilvie (60), Williams (77) and Olson (84) who were able to distinguish between average and outstanding athletes.

Hazelton and Piper (44) studied the social values derived from a team game (speedball) and from two individual sports (tennis and archery) as judged by the attitude of freshman college women. Hazelton and Piper found that the women preferred the team game speedball, over tennis and archery. They found that speedball ranked over tennis and archery with a significant differences in the following: enjoying playing with others, and enjoying the feeling that one belongs to a group. Speedball also ranked over the two individual sports in learning to be considerate of other people.

Peterson (61) used the 16 P.F. Questionnaire to compare the personality traits of women in team sports versus women in individual sports, and found that women participating in individual sports scored higher on such traits as: dominance, self-sufficiency and impulsiveness. It was found that these women liked to make their own decisions. They expressed dissatisfaction with team sports and its high premium on procedural rules. Team sport athletes showed themselves to be self-sufficient,
steady, practical, dependable and interested in immediate issues. They were self-reliant, responsible, and emotionally disciplined. Both groups were a little more serious than the average and may have a tendency to express themselves less fully. These women were intellectually brighter, more conscientious, aggressive and persevering than the norms for others of equivalent age and education.

Brichin (36) used Cattell's 16 P.F. Questionnaire and discovered that athletes (female) scored significantly higher than female non-participants on those factors reflecting emotional stability, assertiveness, group dependence and placidity. These traits are opposite to those generally associated with mental disorder, thus suggesting that sports participation and mental health may be interrelated.

Jerome (83) used the California Psychological Inventory test and compared the personality characteristics of female athletes and non-participants. Athletes appeared to have greater leadership potential, more qualities and attributes which lead to status, a more sociable temperament, greater self-confidence and a higher degree of personal and intellectual efficiency. They also appeared to be more competitive by nature, more conscientious, more cooperative and more capable of independent achievement than the non-participants. These findings tend to be in general agreement with those of Brichin (36).
and Peterson (61). In addition, Jerome found that individual-dual and combined sport athletes exhibit desirable social characteristics to a greater extent than do participants in team sports. The individual-dual and combined sport participants have more of the qualities leading to status, are more tolerant, more cooperative, and more aware of psychological needs than others.

Johnson (47) compared personality traits of superior skilled women athletes in basketball, bowling, field hockey and golf. Johnson discovered that basketball players were quite different from the other three groups of superior skilled women athletes. Basketball players were pictured as being more inward, self-centered, immature, and somewhat defensive and inhibited. These results are consistent with those of Slusher (70), and inconsistent with those of Lakie (55). Golfers were identified as being somewhat more socially and intellectually mature than the basketball, bowling and field hockey groups.

Foster (81), using Cattell's 16 P.F. Questionnaire, compared personality traits of highly skilled female athletes participating in basketball and softball. Foster found that basketball players proved to be more "happy-go-lucky" than softball players. There was no difference on the other fifteen factors between the groups. She also determined that successful women athletes (basketball and softball players) tended to be more relaxed than non-
successful women athletes. Foster concluded that non-collegiate women participants tended to be more "happy-go-lucky" and imaginative than the intercollegiate women athletes tested. These findings are in partial agreement with those of Johnson (47).

Husman (45), using two personality inventory tests, the Thematic Appreciation Test (T.A.T.) and the Rosenweig Scoring Factor Test, compared aggression in boxers with wrestlers and cross-country runners. Husman concluded that boxers possessed less overall intensity of aggression, were less extra-punitive (where aggression is employed overtly and directed outwardly toward the environment), more intra-punitive (where aggression is turned by the subject upon himself), and impunitive (where aggression is evaded in an attempt to gloss over frustration) than the other groups of wrestlers and cross-country runners.

In Johnson's study (48) regarding the emotion involved in football players and wrestlers prior to contests, he found that strong pre-contest emotion in the nature of fear and anxiety does not seem to be a particularly prominent factor in football. There is strong indication that it is of serious importance in wrestling. Yet it was found that those wrestlers who experienced excessive emotional drain prior to their match, rarely performed well.

Koocher (50) found that teaching an individual
competence in an area previously marked by failure or fear (swimming) enhances self-esteem, and ultimately the self concept.

Booth (35) used the M.M.P.I. to measure personality differences between college athletes and non-athletes, and between participants in individual sports, and in team sports. He found that non-athletes scored higher than college athletes on the interest variable. Varsity athletes scored lower on anxiety than freshmen athletes, freshmen non-athletes and upper class non-athletes. Varsity athletes and upper class non-athletes scored higher on the dominance variable than freshmen athletes and non-athletes. These findings contradict those of Johnson (49) particularly in regard to the anxiety factor.

Cassell and Childers (40) studied attributes of forty-five high school varsity football players and compared them with the normal population. They determined that football players were as bright as typical Lompoc High School students, but considerably brighter than the typical youth of the same age. These findings are consistent with those of Carter and Shannon (39), Snoddy (71) and Kroll and Peterson (53) who also found a positive relationship concerning the intelligence factor between winning and losing football teams. Winning teams scored higher in intelligence.
Berger (33) compared outstanding football athletes, non-outstanding football athletes, and non-athletes by means of the California Psychological Inventory and the Scholastic Aptitude Test scores. Berger found no significant difference among any of the three groups tested. These findings are in disagreement with the findings of Hedrick (82), and Johnson (49), yet in partial agreement with those of Slusher (70).

Lakie (55) used the Omnibus Personality Inventory to test 230 intercollegiate athletes representing wrestling, basketball, football, golf, tennis and track at two state colleges, a private university, and a state university. He found that scores on personality scales differentiated, (a) among sports groups within the state university and the private university, but not within the state colleges, and (b) between athletes attending the private university and those attending each of the other three schools. He found that when the 230 athletes were grouped by sports, irrespective of the school, no significant differences were observed. According to Slusher (70) data from other studies conflict. Lakie found a significant difference on the social maturity scale, with athletes from a private university scoring higher than athletes at the other schools tested.

Snoddy (71) used the Otis Self Administering Tests of Mental Ability, and the Myers-Ruch High School Progress
Test and reported that neither athletes nor non-athletes were superior in intelligence.

Carter and Shannon (39) compared athletes and non-athletes on adjustment and personality traits. They found that the comparisons between intelligence and high school progress were not great enough between the two groups to be significant. These findings agree with those of Snoddy (71), and Cassell and Childers (40).

This review of literature was designed to review a portion of the vast number of studies conducted in the areas of personality and athletics. It also revealed the numerous procedures employed to test and measure personality traits, and the type of groups that were investigated, and, provided evidence of the conflicting results and conclusions reported. In spite of the disagreement among some researchers regarding personality traits of athletes and non-athletes, there was an abundance of studies indicating that some personality differences existed between athletes and non-athletes (36, 37, 40, 43, 46, 50, 51, 63, 66, 67, 70, 72, 75, 61, 80, 82, 84, 85).

It was also found that, one of the tools most frequently used to assess personality traits of athletes and non-athletes, and to compare various sports groups, was Cattell's 16 P.F. Questionnaire (36, 41, 51, 52, 53, 61, 62, 74, 77, 81).
Karate and Personality

There has been very little research done in the area of karate. Rasch and O'Connell (64) compared total proportional strength (T.P.S.) of karate students with intercollegiate wrestlers, and concluded that karate students were significantly stronger in legs per pound of body weight, and consequently scored higher in total score per weight than intercollegiate wrestlers.

Lomen (57), a recreational and martial arts instructor stated that, from his many observations, there are definite personality types attracted to various martial arts. He has stated:

The precise, rigid, and possibly more aggressive individual will probably choose karate; the less precise, milder personality will lean toward judo; the gentle, less aggressive will pick aikido; and the aggressive, less rigid individual will like jujitsu. (57:73)

The only other study found, concerning karate and personality, was one conducted by Kroll and Carlson (52). Seventy-one amateur karate participants were tested on Cattell's 16 P.F. Questionnaire. These subjects were subdivided into novice, intermediate, and advanced classifications according to their belt ranking and length of participation. They concluded that no profile components or patterns were found which differentiated between levels of karate participation, or karate participants and the
normal population.

Due to the lack of research concerning karate and its psychological effects upon individual practitioners, it would seem beneficial to conduct a follow up investigation. Perhaps a clearer and more definite distinction between criterion groups might reveal some significant relationships between personality traits and beginning and advanced karate-ka, or beginning and advanced karate-ka with the norm.

This study was conducted to investigate the personality profiles of karate practitioners, found in selected commercial dojos, who volunteered to take Cattell's 16 P.F. Questionnaire. The results of these tests were compared with the norms provided by Cattell, for the "general population" whereas Kroll and Carlson's study (52) dealt primarily with college karate clubs, and compared their results with the norms provided by Cattell for "college students." This study was more encompassing than Kroll and Carlson's study (52) by including all karate participants, and not limiting the subjects to college students. In addition, Kroll and Carlson (52) divided their subjects into three groups. The advanced group had one year or more of experience; the intermediate group had six months or more of experience; and the novice group had six months or less of experience. It seemed to this investigator that distinctions between karate groups were
too fine, possibly possessing too much overlap between groups, and not allowing enough time between criterion groups for possible personality trait changes to occur.

This study divided the karate sub-groups into beginning and advanced classifications. Beginning karate students had six months or less of karate experience, and advanced students possessed a black belt or above. These two classifications allowed enough time and experience between groups for possible personality trait changes or distinctions to appear. In most dojos, the black belt represents a minimum of two and one half years to three years of regular training, depending upon one's skill. In some dojos it takes even longer to acquire. Therefore, there is a minimum of approximately two to two and one half years experience between groups tested. The years and months of training for the advanced group tested ranged from two years six months to twenty-one years of experience, the mean being eight and one half years.

Beginning students ranged from one week to six months of training, the mean being two and one half months of experience.

The mean difference between the groups tested was eight years, three and one half months of experience.
CHAPTER III

RESEARCH PROCEDURES

This chapter is designed to present the method and procedures used in the selection of subjects; to describe the test administered; to outline the testing procedures; and to present the statistical design used to analyze the data.

Preliminary Procedures

This study was prompted by an earlier study conducted by Kroll and Carlson (52), who administered Cattell's 16 P.F. Questionnaire to three groups of karate practitioners; novice, intermediate and advanced. Seventy-one personality profiles were examined. It was concluded that on the basis of the 16 P.F. test and the sample studied, there were no profile components or patterns which differentiated between the various groups of karate participants, or between karate practitioners and the normal population. These conclusions raised some doubts in the investigator's mind because of the extensive research indicating personality trait differences between athletes and non-athletes (36, 37, 40, 43, 46, 50, 51, 63,
66, 67, 70, 72, 75, 82), and other research indicating personality trait differences between average and highly skilled athletes (47, 49, 53, 56, 77, 80, 81, 84). These questions together with doubts regarding group classification, prompted the following study.

Cattell's 16 P.F. Questionnaire, Form C, was administered to volunteer beginning and advanced karate students at various selected commercial dojos in the San Fernando Valley, Los Angeles, and Temple City during the summer and fall of 1974. Classification of karate groups in this manner provided the means to consider possible personality trends from beginning to advanced student status. Data from the questionnaire identified personality traits of beginning and advanced karate practitioners. In addition, comparisons were made between beginning karate students and the general population; advanced karate students and the general population; between beginning and advanced karate students; and between male and female karate students, to determine personality trait consistencies and/or inconsistencies.

The Subjects

Beginning karate students consisted of thirty-five subjects (nine females and twenty-six males) who were present at selected commercial dojos, sixteen years of age or above, with six months of karate training or less, who
volunteered as subjects for the 16 P.F. Questionnaire, Form C. Beginning females ranged in age from seventeen through thirty-six years, while beginning males ranged from seventeen through thirty-seven years. The mean age for the beginning karate group was twenty-three years, nine months.

Advanced karate students consisted of thirty-three males present at selected commercial dojos, sixteen years of age or above, with the rank of black belt or above, who volunteered as subjects for the 16 P.F. Questionnaire, Form C. The subjects ranged in age from seventeen through fifty years, the mean age being twenty-six years, six months.

The norms for the "general" population are provided in Cattell's tabular supplement to the 16 P.F. handbook. Thus, a specific set of normative scores has been established for each personality factor measured on Cattell's 16 P.F. Questionnaire, Form C.

Cattell's Sixteen Personality Factor Questionnaire

Cattell defines his sixteen personality questionnaire as:

... an objectively scorable test, designed by basic research in psychology to give the most complete coverage of personality in a brief period of time... Comprehensive coverage of personality rests upon measurement of sixteen functionally independent and psychologically meaningful dimensions isolated and replicated in more than thirty years of factor analytic research in normal
and clinical groups. (5:5)

Translations of the 16 P.F. into twenty-four languages and adaptations for five other English Speaking cultures exist to facilitate international comparisons. The primary source traits measured by the 16 P.F. are:

Factor A: Reserved vs. Outgoing
Factor B: Less Intelligent vs. More Intelligent
Factor C: Affected by Feelings vs. Emotionally Stable
Factor E: Humble vs. Assertive
Factor F: Sober vs. Happy-go-lucky
Factor G: Expedient vs. Conscientious
Factor H: Shy vs. Venturesome
Factor I: Tough Minded vs. Tender Minded
Factor L: Trusting vs. Suspicious
Factor M: Practical vs. Imaginative
Factor N: Forthright vs. Shrewd
Factor O: Placid vs. Apprehensive
Factor Q1: Conservative vs. Experimenting
Factor Q2: Group Dependent vs. Self-Sufficient
Factor Q3: Undisciplined Self-Conflict vs. Controlled
Factor Q4: Relaxed vs. Tense

The 16 P.F. Questionnaire, Form C, was selected to measure personality traits because: (A) It is
recognized as one of the most reliable and valid measures of personality inventories; (B) It is purported to measure the main components of personality; (C) It is based on extensive research with clinical and general or normal populations; and (D) It has been used by numerous researchers in comparing various athletic groups (36, 41, 51, 52, 53, 61, 62, 74, 77, 81). Form C was used because it is shorter than Forms A and B, and time was a crucial factor in attaining volunteers at these commercial dojos. Form C also contains an index which guards against distorting one's self image.

Testing Procedures

The examiner administered the 16 P.F. Questionnaire, Form C, individually and in groups, to volunteer subjects in their respective dojos. A total of 68 subjects were surveyed, 35 beginning karate students and 33 advanced karate students. Prior to administration of the test, the examiner gave a brief description of the test. Subjects were informed of the directions verbally, and advised to read the detailed directions on the front of the test booklet. Prior to the test, the subjects filled in information regarding age, sex, months or years of training, and rank. All questions were answered prior to the beginning of the test. Subjects were instructed that there was no time limit, but to answer all questions and
to move along quickly.

**Statistical Design**

Following test manual recommendations, all tests were hand scored and raw test scores were used in the analysis. Raw scores were obtained from each individual's answer sheet, on each of the 16 factors, for each specific group. The beginning karate group was separated into male and female sub-groups, while the advanced karate group was comprised of only male subjects. The mean age for the "general population" provided for by Cattell was 30 years, therefore it was necessary to make age corrections on those subjects whose ages were greater or lesser than 30 years. Refer to Tables 1 and 2 below, for age correction values for females and males.

**TABLE 1**

Age Correction Values for General Adult Females

<table>
<thead>
<tr>
<th>Raw Score Change Per Year</th>
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<tr>
<th>Form C</th>
<th>Factor</th>
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<tbody>
<tr>
<td></td>
<td>A B C E F G H I L M N O Q1 Q2 Q3 Q4</td>
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<td>.03 .03 -.04 -.04 .04 -.04</td>
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</table>

(3:39)
TABLE 2
Age Correction Values for General Adult Males
Raw Score Change Per Year

<table>
<thead>
<tr>
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<th>Factor</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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</tbody>
</table>

(3:39)

These raw scores were then converted into their equivalent sten scores as recommended by Cattell. Cattell describes sten scores as follows:

Sten scores are distributed over ten equal-interval standard score points from one through ten (assuming normal distribution), with the population average or mean fixed at sten 5.5. Stens 5 and 6 extend, respectively, a half standard deviation below and above the mean, constituting the solid center of the population, while the outer limits for stens 1 and 10 are two and one-half standard deviations above and below the mean. One would consider stens of 5 or 6 as average, 4 or 7 slightly deviant (respectively in a low and high direction) 2, 3, 8, and 9 strongly deviant and 1 or 10 extreme, all these being placements of the person relative to the defined population on which the standardizations are based. (5:15)

As with the other scales in the 16 P.F. Questionnaire, the raw score for motivational distortion was obtained from the scoring key, and its equivalent sten score was determined. Correction coefficients for motivational distortion, as required by trait-view theory
were calculated from Cattell's table for motivational distortion (3:32), resulting in the final sten score for each individual group. (Refer to Table F in Appendix B).

Krug and Cattell stated:

Trait-view theory proposes to consider the distortion as itself the product of the personality factors one is out to measure, together with effects of role adoption tendencies more specific to the testing situation. The weight of the personality factors and dynamic role identification factors will vary with different motivational situations in testing. By finding the weights, and storing them for a sufficient variety of testing situations, it should be possible for the practicing psychologist routinely to correct scores for the above distortions. (54:721)

In addition, the trait-view theory states, "that an individual's misperception of himself on a particular trait is a function of that trait and all his other traits, plus motivation specific to the particular role." (54:722)

Sixteen mean sten scores and the standard deviations for each group, as well as a univariate F test between groups for the sixteen variables was administered, recorded and compared. (Refer to Table G in the Appendix B for raw mean scores and standard deviations of each group tested). The data was then analyzed using analysis of variance, which determined whether groups could be distinguished from each other, using the entire personality profile of each karate group simultaneously. Finally, each karate sub-group was compared with the norms for the "general population" as supplied in Cattell's Tabular
Supplement to the 16 P.F. handbook. (Refer to Tables H and I in Appendix B for the norms of the general population used in this study). The alpha level was established at the .05 level of confidence.
CHAPTER IV

ANALYSIS OF DATA

In analyzing the data, the beginning karate group was sub-divided into male and female participants, as there were 26 male subjects and 9 female subjects. This was necessary because the table of norms supplied by Cattell for the "general population" was separated according to sex. The advanced karate group was comprised of 33 male subjects.

Group mean raw scores were calculated, an analysis of variance was administered, and univariate F tests were conducted. (Refer to Table G in Appendix B). Raw scores were then converted into sten classifications, as recommended by Cattell, using the norms provided for the "general population." Comparisons were made between (1) beginning karate students and the general population; (2) advanced karate students and the general population; (3) beginning and advanced karate students; and (4) male and female karate students.

Table 3 presents the group sten scores for beginning males, beginning females and advanced male karate participants on each of the sixteen personality factors.
tested.

The mean raw scores were converted into stens, and factor Q₂ (group dependent vs. self-sufficient), emerged in sten 7 for the beginning karate group, identifying them as being slightly more self-sufficient and resourceful than the general population.

The advanced karate group did not deviate significantly on any of the sixteen personality factors when compared to the norms for the general population. Therefore, the personality factors of the advanced karate group tested were consistent with those of the general population as provided by Cattell.

There was a statistical difference at the .01 level of confidence on factor Q₄ (relaxed vs. tense) for advanced karate participants. The advanced karate group was identified as being more relaxed than the beginning karate group tested. Yet when these mean raw scores were converted into their sten equivalent classifications, no significant deviation emerged between the groups. However, when the karate groups were divided into sex classifications, some tendencies and differences appeared.

There were statistical differences at the .01 level of confidence between females and males on factor I (tough-minded vs. tender-minded); and H (shy vs. venture­some). Beginning females were identified as being more tender-minded and shy than beginning or advanced males.
TABLE 3
16 P.F. Profile Group Sten Scores of Karate Groups

<table>
<thead>
<tr>
<th>16 Factors:</th>
<th>N=26 Beginning Males:</th>
<th>N=9 Beginning Females:</th>
<th>N=33 Advanced Males:</th>
</tr>
</thead>
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<tr>
<td>A</td>
<td>5.4</td>
<td>4.9</td>
<td>5.0</td>
</tr>
<tr>
<td>B</td>
<td>5.7</td>
<td>6.0</td>
<td>4.9</td>
</tr>
<tr>
<td>C</td>
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Females were also statistically different at the .03 level of confidence on factor O (placid vs. apprehensive). Females were identified as being more apprehensive than beginning or advanced males tested. Advanced karate participants (comprised of only males) were statistically different at the .01 level of confidence on factor Q4 (relaxed vs. tense). The advanced group tested was identified as being more relaxed than either the beginning males or beginning females tested.

Although there were statistical differences between the groups tested on factors H, I, O and Q4, when mean raw scores were converted into sten classifications, all scores fell within the "normal" range for the general population with the exceptions of factor H (shy vs. venturesome) and factor Q2 (group dependent vs. self-sufficient). Beginning females scored in sten 4 on factor H, and sten 7 on factor Q2, while beginning males scored in sten 7 on factor Q2, indicating that both groups deviated slightly from the norm. According to Cattell (5:17) however, only scores that fell within stens 1 through 3 are considered low, and scores that fell within stens 8 through 10 are considered high, or definite departures from the norm.

All three groups tended to score slightly low on factor Q3 (undisciplined self-conflict vs. controlled), yet failed to score a significant difference between
CHAPTER V

DISCUSSION OF FINDINGS

The data gathered from the subjects tested in this study revealed that beginning male and female karate participants deviated slightly from the norm of the general population scoring slightly higher on factor Q2 (group dependent vs. self-sufficient). According to Cattell, this score on factor Q2 indicated that the groups displayed a tendency toward being temperamentally independent, accustomed to going their own way, making decisions and taking action on their own. These groups tended to discount public opinion, but were not necessarily dominant in their relationships with others. These groups did not dislike people, but simply did not need their agreement or support. (5:22)

The beginning female karate participants scored slightly low on Factor H. According to Cattell this indicated that they had the following tendencies:

... shy, withdrawing, cautious, retiring, a "wallflower." She usually has inferiority feelings. She tends to be slow and impeded in speech, and in expressing herself, dislikes occupations with personal contacts, prefers one or two close friends to large groups, and is not given to keeping in contact with all that is going on around her. (5:19)
This finding seemed consistent with those of individuals scoring slightly high on factor $Q_2$. According to the results of this study, and Cattell's definitions for each factor, beginning females were identified as having a tendency toward being temperamentally independent, accustomed to going their own way, making decisions and taking action on their own. The beginning females, because of their low score on factor $H$, were also identified as being "shy, withdrawing, cautious, retiring, a wallflower." (5:19) Perhaps a reason these women were independent and went their own way was because they were shy and cautious, not interacting with others, forcing themselves to find their own means of entertainment and enjoyment. Beginning women were also described as discounting public opinion, but were not necessarily dominant in their relationships with others. These women did not dislike people but did not need their agreement or support. By scoring low on factor $H$, these women were also identified as possessing inferiority feelings, disliking occupations with personal contacts, and preferring one or two close friends to large groups. Perhaps a reason these women were not dominant in their relationships with others, and preferred a few close friends rather than a group, was because they were shy and felt inferior.

All three karate groups (beginning males and
females and advanced males) indicated a tendency toward scoring low on factor $Q_3$ (undisciplined self-conflict vs. controlled) and high on factor $Q_2$ (group-dependent vs. self-sufficient). None of those groups indicated any significant statistical difference between mean raw scores on either of these factors, nor were they significantly different from the norms of the general population when organized into stens as suggested by Cattell.

Therefore, the beginning male karate participants' profiles fall within the range of "normality" for the general population on all factors tested with the exception of factor $Q_2$. Factor $Q_2$ falls within the 7th sten indicating that there is a slight deviation upward from the norm of the general population, but not enough of a deviation to be considered a significant departure from the norm. Cattell considers high scores in stens 8, 9 and 10 significant departures from the norm.

The beginning female karate participants' profiles also fall within the range of "normality" for the general population on all factors with the exception of $Q_2$ and $H$. Factor $Q_2$ falls within the 7th sten and factor $H$ falls within the 4th sten, indicating that there were slight deviations upward and downward, respectively, from the norm of the general population, but not enough of a deviation to be considered a significant departure from the norm.
participants with beginning male and advanced karate participants was statistically significant at the .01 level of confidence on factors H and I, yet when organized into sten classifications these differences were not significant departures from the norm.

Therefore, in comparing the results of this study with those of Kroll and Carlson (52) there were some interesting comparisons. Kroll and Carlson (52) tested male karate practitioners from various college karate clubs, whereas this study dealt with male and female karate subjects from several selected commercial dojos. They used the norms provided for the "college" students, whereas this study used the norms for the "general" population.

Kroll and Carlson (52) divided their subjects into three groups. The advanced group had one year or more of experience; the intermediate group had six months or more of experience; the novice group had six months or less of experience. They concluded that on the basis of the 16 P.F. test and the sample studied, "no profile components or patterns were found which differentiated between (a) levels of karate participation and proficiency, or (b) karate participants and the normal population." (52:411)

These classifications seemed to allow too few years between karate groups for possible personality changes or distinctions to occur.
This study divided the karate sub-groups into beginning and advanced classifications. Beginning karate students had six months or less of karate experience, and advanced students possessed a black belt or above, which in most dojos the black belt represents a minimum of two and one half years to three years of regular training, depending upon one's skill. In some dojos it takes even longer to acquire. Therefore, there is a minimum of approximately two to two and one half years experience between groups tested, which offered a longer time period for personality trait changes than did that of Kroll's and Carlson's (52).

Kroll and Carlson (52) found no difference between karate groups tested, but did indicate that there was a slight departure from the norm on factor Q2 for the intermediate group. Their study revealed the following:

Only one sten score reached 7.0 (factor Q2 for the intermediate group), and the lowest sten score was 4.8 (factor L for the intermediate group). Since the order of scores by criterion groups on these two factors (Q2 and L) demonstrate no collinearity, it seems unreasonable to attach much significance to these two events. (52:410)

In this study beginning karate participants scored slightly higher than the norm on factor Q2 (males 7.0, females 7.3), while advanced karate participants scored at the upper end of the normal range on this factor.

The primary difference in results between Kroll and Carlson's study (52) and this study, was that in this
study there was a slight departure from the norm on factor H for beginning female karate participants. There were significant statistical differences between the mean raw scores of beginning females with beginning males, and between beginning females and advanced karate participants. These differences were at the .01 level of confidence. However when organized into sten classification, these differences on factor H were not considered a significant departure from the norm.

Perhaps this slight difference between results of both studies can be contributed to the sex differences. Kroll and Carlson (52) used an entirely male population, whereas this study included female subjects. In addition, according to the table of norms supplied for both males and females in the general population, female mean scores are lower than male mean scores on factor H, which could explain the difference between beginning female and beginning male karate practitioners, as well as between beginning females and advanced male karate practitioners.

Therefore, this study is compatible with that of Kroll and Carlson (52) in finding no significant differences between the personality profiles of the (a) karate participants studied and the general population, or (b) between proficiency levels within the karate population surveyed.

Other studies finding no significant difference
between athletic skill levels, or between athletes and non-athletes are those of: Berger (33), Carter (39), Kroll (51), Singer (68) and Snoddy (71).
CHAPTER VI

SUMMARY, CONCLUSION, RECOMMENDATIONS

Summary

The purpose of this study was to determine the personality traits of a sampling of beginning and advanced karate students, and to ascertain whether or not specific personality consistencies and/or differences exist between: (1) beginning karate students and the general population; (2) advanced karate students and the general population; (3) beginning and advanced karate students; and (4) male and female karate students.

Cattell's Sixteen Personality Factor Questionnaire, Form C, was administered to volunteer beginning and advanced karate students at various selected commercial dojos in the San Fernando Valley, Los Angeles, and Temple City during the summer and fall of 1974. Beginning karate students were defined as those students, sixteen years of age and over, with six months of karate training or less. This group was comprised of thirty-five subjects, twenty-six males and nine females. Advanced karate students were defined as those students, sixteen years of age and older, with the rank of black belt or above. This group was
comprised of thirty-three male subjects. Classification of criterion groups in this manner provided the means to consider possible personality trends from beginning to advanced student status. Results of the questionnaire identified traits of beginning and advanced karate practitioners. In addition, comparisons of personality traits were made between: beginning karate students and the "general population"; advanced karate students and the "general population"; beginning and advanced karate students; and between male and female karate students.

The norms for the "general population" were provided in Cattell's Tabular Supplement to the 16 P.F. handbook. Raw scores were obtained on each factor for each participant. These scores were age corrected, corrected for motivational distortion and placed into stens as recommended and published by Cattell. Analysis of variance was used to determine differences between the mean raw scores of each group, on each factor. The alpha level was set at the .05 level of confidence.

The major findings from the data gathered were:

A. Null hypothesis #1 -- The null hypothesis was accepted because the results of the data indicated that there were no significant personality differences between beginning karate students and the general population.

Although there was a slight deviation from the norm on factors H and Q2, sten classifications indicated that
the departure was not a significant departure from the norms of the general population.

B. Null hypothesis #2 -- The null hypothesis was accepted because the results of the data indicated that there were no significant personality differences between advanced karate students and the general population.

C. Null hypothesis #3 -- The null hypothesis was accepted because the results of the data indicated that there were no significant personality differences between beginning karate students and advanced karate students.

Although there was a significant difference between the mean raw scores of beginning female subjects on factor H, when converted into sten equivalents this difference was not a significant departure from the norm. Also, there was no significant difference between beginning males and advanced karate students on this factor. It is for these reasons that the third null hypothesis was accepted.

D. Null hypothesis #4 -- The null hypothesis was accepted because the results of the data indicated that there were no significant personality differences between male and female karate students tested.

There were statistical differences between male and female students tested on factors H, I, O and Q4. However, when the mean raw scores were converted into their sten classifications, all scores fell within the
"normal" range. It was for this reason that the fourth null hypothesis was accepted.

Conclusions

Based on the findings and within the limitations of this research, it was concluded that there was no significant differences between the personality profiles of the following: (a) beginning karate students and the general population; (b) advanced karate students and the general population; (c) beginning and advanced karate students; or (d) male and female karate students.

Recommendations

1. Studies should be conducted comparing personality traits of karate students with those of their sensei to determine, if through training, they are acquiring traits similar to those of their sensei.

2. A study should be conducted comparing personality profiles of karate participants with practitioners of other martial arts.

3. A long range study should be conducted on the personality traits of numerous beginning karate students shortly after they have begun training; then subsequently after predetermined lengths of time, until well beyond the black belt rank, to determine possible personality trait changes.
4. An instrument should be developed to measure specific personality traits which karate masters and authorities claim to be developed by karate training.

5. A study should be conducted comparing the personality profiles of full contact karate participants, with traditional controlled or light contact karate participants.
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BIBLIOGRAPHY

Books


**Periodicals**


77. Williams, Jean M., Barbara J. Joepner; Dorothy L. Moody; and Bruce C. Ogilvie. "Personality Traits of Champion Level Female Fencers," Research Quarterly, 41:446-53, 1970.


Unpublished Material


APPENDIX -- A
PERSONALITY TRAITS AS MEASURED BY CATTELL'S 16 P.F. QUESTIONNAIRE

The following definition of terms (numbers 1-16) have been taken from the manual for the 16 P.F. (5:17-28). These were the selected personality traits used in this study.

The definition of a low score is that score which falls within stens 1, 2 or 3, whereas a high score falls within stens 8, 9 or 10.

1. **Reserved vs. Outgoing (A):**

The person who scores low (sten of 1 to 3) on Factor A tends to be detached, critical, cool, (sizothymia). The person who scores high (sten 8 to 10) on Factor A tends to be warmhearted, easy-going, participating, (affectothymia).

2. **Less Intelligent vs. More Intelligent (B):**

The person who scores low on Factor B tends to be concrete-thinking (lower scholastic mental capacity). The person who scores high on Factor B tends to be abstract-thinking, bright, (higher scholastic mental capacity).

3. **Affected by Feelings vs. Emotionally Stable (C):**

The person who scores low on Factor C tends to be emotionally less stable, easily upset, (lower ego strength). The person who scores high on Factor C tends to face reality, is calm and mature, (higher ego strength).

4. **Humble vs. Assertive (E):**

The person who scores low on Factor E tends to be mild, accommodating, conforming, (submissive). The
person who scores high on Factor E tends to be independent, aggressive, competitive, stubborn, (dominant).

5. Sober vs. Happy-go-lucky (F):

The person who scores low on Factor F tends to be prudent, serious, taciturn, (desurgency). The person who scores high on this trait tends to be impulsively lively, enthusiastic, (surgency).

6. Expedient vs. Conscientious (G):

The person who scores low on Factor G tends to evade rule, feels few obligations, (weaker super ego strength). The person who scores high on Factor G tends to be persevering, staid, rule-bound, (stronger super ego strength).

7. Shy vs. Venturesome (H):

The person who scores low on this trait tends to be restrained, diffident, timid, (threctia). The person who scores high on Factor H tends to be socially bold, uninhibited, spontaneous, (Parmia).

8. Tough-minded vs. Tender-minded (I):

The person who scores low on Factor I tends to be self-reliant, realistic, no-nonsense, (harria). The person who scores high on Factor I tends to be dependent, over-protected, sensitive (premsia).

9. Trusting vs. Suspicious (L):

The person who scores low on Factor L tends to be adaptable, free of jealousy, easy to get on with, (aladix). The person who scores high on Factor L tends to be self-opinionated, hard to fool, (pro-tension).

10. Practical vs. Imaginative (M):

The person who scores low on Factor M tends to be careful, conventional, regulated by external realities, proper, (praxernia). The person who scores high on Factor M tends to be wrapped up in inner urgencies, careless of practical matters, absent-minded, (autia).
11. **Forthright vs. Shrewd (N):**

The person who scores low on Factor N tends to be natural, artless, sentimental, (artlessness). The person who scores high on Factor N tends to be calculating, worldly, penetrating, (shrewdness).

12. **Placid vs. Apprehensive (O):**

The person who scores low on Factor O tends to be self-assured, confident, serene, (untroubled adequacy). The person who scores high on Factor O tends to be worrying, depressive, troubled, (guilt proneness).

13. **Conservative vs. Experimenting (Q1):**

The person who scores low on Factor Q1 tends to be tolerant of traditional difficulties, respecting established ideas, (conservatism). The person who scores high on Factor Q1 tends to be critical, liberal, analytical, free-thinking, (radicalism).

14. **Group-dependent vs. Self-sufficient (Q2):**

The person who scores low on Factor Q2 tends to be a "joiner" and sound follower, (group adherence). The person who scores high on Factor Q2 tends to be resourceful, prefers own decision, (self-sufficiency).

15. **Undisciplined self-conflict vs. Controlled (Q3):**

The person who scores low on Factor Q3 tends to be careless of protocol, follows own urges, (low integration). The person who scores high on Factor Q3 tends to be socially precise, following self image, (high self-concept control).

16. **Relaxed vs. Tense (Q4):**

The person who scores low on Factor Q4 tends to be tranquil, torpid, unfrustrated, (low ergic tension). The person who scores high on Factor Q4 tends to be frustrated, driven, overwrought, (high ergic tension).
APPENDIX -- B
### TABLE A

16 P.F. Dependability Coefficients: Test-Retest with 2- to 7-Day Intervals

<table>
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<tr>
<th>Form</th>
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<sup>a</sup>Canadian subjects: N=243 high school males and females.

<sup>b</sup>American subjects: N=146; 79 employment counselors and 67 undergraduate students.

<sup>c</sup>New Zealand subjects: N=95 high school males and females.

<sup>d</sup>American subjects: N=150 undergraduate males and females.

Note: Decimal points have been omitted.
### TABLE B

16 P.F. Stability Coefficients: Test-Retest with 2- to 48-Month Intervals

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<sup>a</sup>Two-month interval, \(N=132\).

<sup>b</sup>Two-and-one-half-month interval, \(N=44\), from LaForge (1962).

<sup>c</sup>Four-year interval, \(N=432\), from Nichols (1965).

<sup>d</sup>Four-year interval, \(N=204\), from Nichols (1965).

Note: Decimal points have been omitted. (3:10)
### TABLE C

Equivalence Coefficient of Test Forms for Each Trait

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Note: Decimal points have been omitted.
TABLE D

Direct Concept Validities of the 16 P.F. Scales

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<th>M</th>
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Note: Decimal points have been omitted.  

(3:12)
TABLE E

Indirect Concept Validities
of the Full 16 P.F.

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Note: Based on 606 males and females. Decimal points have been omitted. (3:12)

TABLE F

Motivational Distortion Scale

1) When the MD sten score is 10, add 2 to the sten scores for Factors O and Q₄; subtract 2 from C and Q₃; add 1 to L, N, and Q₂; and subtract 1 from A, G, and H.

2) When the MD sten scores is 9 or 8, add 1 to L, N, O, Q₂, and Q₄; and subtract 1 from A, C, G, H, and Q₃.

3) When the MD sten score is 7, add 1 to O and Q₄; and subtract 1 from C and Q₃.

(3:32)
Table of Means, Standard Deviations, and F Tests
(for the 16 P.F. of beginning males, beginning females, and advanced karate participants)

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* Significant difference at .01 level for beginning females.
** Significant difference at .03 level for beginning females.
*** Significant difference at .01 level for advanced students.
TABLE H
Norms for GENERAL POPULATION (Female: Form C)
(Based on age 30 years; N=1355)

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(3:3)
# TABLE I

## Norms for GENERAL POPULATION (Male: Form C)
(Based on age 30 years: N=2298)

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<td>8-9</td>
<td>10</td>
<td>11-12</td>
</tr>
</tbody>
</table>

### (3:6)