

AN ANALYSIS OF THE DIFFERENCES BETWEEN SELECTED  
PERSONALITY TRAITS OF SUCCESSFUL AND UNSUCCESSFUL  
COACHES IN FOOTBALL WRESTLING, AND BASKETBALL

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A Thesis  
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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Science

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by  
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## ABSTRACT

## AN ANALYSIS OF THE DIFFERENCES BETWEEN SELECTED PERSONALITY TRAITS OF SUCCESSFUL AND UNSUCCESSFUL COACHES IN FOOTBALL WRESTLING, AND BASKETBALL

The purpose of this study was to relate the personality traits of varsity coaches in football, wrestling, and basketball as measured by the Cattell Sixteen Personality Factor Inventory to their records as varsity coaches.

Subjects were selected randomly from high school varsity coaches in Northern Illinois. Two groups were established within each of the three sports. The successful group in each was composed of coaches who had achieved a sixty percent or higher total of victories as a varsity coach in the specified sport. Those with less than a sixty percent total of victories were placed in the unsuccessful group.

The 16 P. F. test was administered to both groups and results were analyzed through the application of the "t" test of significance for difference between means. It was established that the null hypothesis would be accepted or rejected at the five percent level of confidence. Conclusions made as a result of the analysis were as follows: The unsuccessful basketball coaches were slower to learn and grasp ideas than the successful group. The unsuccessful wrestling coaches were emotionally less stable and more easily upset than the successful group. The successful wrestling coaches were shy, diffident, and more careful of detail than the unsuccessful group. No

statistically significant differences existed between successful and unsuccessful football coaches.

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## CHAPTER I

### I. Statement of the Problem

The problem was to analyze the differences between selected personality traits of successful and unsuccessful coaches in Wrestling, Football, and Basketball.

### II. Purpose

The purpose of this study was to relate the personality traits of varsity coaches in football, wrestling, and basketball as measured by the Cattell Sixteen Personality Factor Inventory, Form A, to their records as varsity coaches.

### III. Objectives of the Study

The objectives of this study were to point out the importance of selected personality traits in relation to coaching high school athletics. This study could enable coaches to analyze themselves in terms of the selected personality traits and their success and lack of success in coaching. This study could also serve as an aid to administrators who are often held solely responsible for the employment of coaches.

Numerous studies have been done concerning personality factors and participating athletes, but a relatively small amount has

done in the area of coaching. The psychology of coaching has become an integral part of high school athletics today, and studies are needed in this area.

#### IV. Limitations of the Study

The tests were administered at different times and places which may possibly have affected the results. Individuals may react differently on different days.

The tests were administered by guidance counselors at the various schools and these different methods of administration may have also had an effect.

A third factor which may have affected the results is the situation of the coach with the school. Conflicts as a result of pressure from the school or a lack of success could have a direct bearing on the response of an individual coach to questions on the test.

Individuals change rapidly to meet environmental situations. Such a situation in close proximity to the actual time of testing may have affected the individual thus promoting different responses than would normally have been given.

#### V. Delimitations

Subjects for the study were experienced high school coaches in football, wrestling, and basketball in Northern Illinois. The study was conducted during the spring semester of the 1971-72 school year.

## VI. Definition of Terms Used

Successful coaching is defined in terms of won and lost records. A successful coach is defined as one who has achieved a sixty percent or higher total of victories as a head varsity coach in the specified sport on the high school level.

An experienced coach is a coach who has been a head varsity coach in the specified sport for a minimum of three years.

## VII. Assumptions and Hypotheses

It was assumed that a relationship exists between selected personality traits and coaching success.

It was hypothesized that: There is no difference in the personalities of successful and unsuccessful coaches in each of football, basketball, and wrestling.

## CHAPTER II

### Review of Literature

Little has been written concerning selected personality traits and coaching success. Ogilvie and Tutko (27) in 1966 stated that "no successful programme or technique can be applied to modify the behavior of athletes that does not take into account the personality of the coach".(17) The best protection against limiting your coaching effectiveness is to engage in some serious introspection and put your attitudes to a critical personal test.(11)

In their study of sixty-four coaches of basketball, football, track and baseball, coaches were found to be different from the average male and identical to outstanding athletes in these sports.

Traits found high or dominant in this study were:

1. Highly success-driven men, a need to be on top.
2. Highly orderly, preferred to plan ahead and concerned with looking ahead to the future.
3. Outgoing and warm, enjoyed being with others.
4. Finely developed consciences, in tune with appropriate values of our culture.
5. Well equipped by personality and temperament for handling their emotions when under considerable stress.
6. Open, trusting, not defensive in their relationship with others.

7. High leadership qualities when compared with norms based upon men who were selected or elected leaders.
8. Dominant, take charge, actively seek roles of leadership.
9. Prone to accept blame and blame themselves when things go wrong rather than pass responsibility to someone else.
10. Highest average of psychological endurance of any men studied. Stick-to-it-ness most prominent feature of personality of successful coaches.
11. Unusually mature emotionally, face reality in a direct manner.
12. Free to express natural aggressive tendencies in a manner appropriate to their role as coach.

Low traits found were:

1. Low tendency to give a great deal of emotional support. Coaches felt that job is to teach how to win, not to be a social worker. Because void of dependency needs themselves, they failed to recognize that it can be a necessary form of satisfaction in others.
2. Inflexibility or rigidity in terms of utilization of new learning.

Successful coaching has been defined in various ways by different authors. Rushall (19) mentioned three essential factors for coaching success. The first and one often used as a defense mechanism by coaches today is the skill and ability of team members. Second is the consistency of the sports system. He stated that "the training and competitive regime, coaching behaviors, expectancies and consequences of behavior if consistent, will lead to reliable and systematic response

from players". This has certain feedback to Factor A of the Sixteen Personality Factor Questionnaire which is reserved versus outgoing, warmhearted, easygoing, and participating because it enhances and elevates the possibility of teaching and learning of good skills. The third critical factor mentioned by Rushall is the psychological structure of each individual in terms of motivation and disposition to act. Knowledge of these factors can bring individuality into the program which will help develop each individual player's potential for performance. This could apply in particular to individual or team sports when he mentions that it is better to address a squad in a manner to which the majority respond, as group control and appeal is for the benefit of the majority.

Grzebein (4) stressed that successful coaching puts a demand on the coach to be able to communicate in a diversity of situations. Many times a verbal directive fails because the attribute of pitch is most expressive of one's personality. In fact, Grzebein noted, that to command respect, one should speak in a controlled low pitch, and, also, one should not exaggerate.

Placing emphasis on the coaches' shoulders to aid in alleviating the constant pressure being experienced by today's young athletes is a factor mentioned by Stark (22) as essential to good coaching. Methods of coaching are changing and young athletes are facing current problems such as war, drugs, and poverty which must not be overlooked. A coach needs to be

acutely aware and concerned about what is happening. Winning can be accomplished by merely teaching fundamentals, but a good coach must prepare today's athletes for life's winnings and losings. The young athlete of today wants to know more than simply technique. As this human element emerges as a more prominent factor, it is essential that to be a successful coach, one must be able to show that there is more to today than unrest, and he also must be able to accept the changes that accompany the changing times.

The father figure seems to have no significance in successful coaching says Hendry (6). In fact many times the coach over forty may be approaching a lack of true coaching communication, while those under forty are more apt to be bright, driving and aggressive considered by Hendry to be imperative as he studied personality traits in the coach-swimmer relationship. Successful coaches should be able to gauge their swimmers accurately in certain aspects of personality.

Coaches, whether or not successful in terms of won and lost record, often leave their jobs. In fact many times winning coaches are often asked to leave their jobs because they are lacking according to Moore (15) in certain personality traits. These necessary traits are:

1. Sense of Humor
2. Sociability
3. Good Health
4. Humility
5. Loyalty
6. Honesty and Fairness
7. Humor and Understanding
8. Imagination

- |                             |                        |
|-----------------------------|------------------------|
| 9. Attention to Planning    | 12. Love of Teaching   |
| 10. Professional Mindedness | 14. Good Sportsmanship |
| 11. Youthful spirit         | 14. Personal Conduct   |

Without these traits, Moore concluded that a coach is not successful since the traits are more important than winning and losing.

Johnson (8) stressed the importance of personality in coaching when he says that "a coaches life is full of activities and in terms of the exacting personal relations involved, these activities are likely to keep his nervous system working overtime." Research shows what athletics does for the young man but it seldom shows what coaching does for the coaches. If success is based solely on record and this position depends on this type of success, the individual is in a hazardous condition healthwise. Athletes, research shows are intense before competition, slightly less intense when the contest begins and are normal shortly after the conclusion of the competition. Coaches on the other hand, are intense before and during the competition and this intensity frequently lingers after the competition concludes. Such stress often is detrimental to the health of the coach necessitating the change in determination of coaching success on winning and losing.

How successful is the "hard nosed" coach? He is one usually regarded by the public as successful according to Richards and Tutko (28). This is particularly evident in contact sports where extremely strict discipline and inflexibility characterize a coach as hard nosed. The public in this

case rules out of successful coaching the player-coach relationship in terms of understanding. The more authoritarian the coach, the more he is regarded as successful.

They also mention that when a coach is able to determine not only the personal characteristics of his players, but also his own personality characteristics, he will be able to develop a positive philosophy of coaching.

Corresponding to the study by Tutko (27) which showed that successful coaches were identical to the outstanding athletes in their selected sports is an address by Kane (10) where he mentioned that "there is an increasing amount of accurate evidence to relate general athletic ability with dimensions of personality. Personality ratings or traits of aggression, dominance, persistence, drive, confidence and general extroversion have been found to go most often with success in athletic skills."

Johnson (9) through use of the Minnesota Multiphasic Personality Inventory with major and minor league baseball players found that the exceptional performers have strong drive, self-discipline, initiative and a tendency to worry. Kroll and Crenshaw (12) note that most individuals involved with athletics subscribe to the notion that personality is an important factor in successful performance. Through use of the Cattell Sixteen PF test, they found that football players and wrestlers demonstrated similar profiles. Apparently, these two sports attract athletes with similar personalities. They differed markedly from gymnasts in personality.

Useful detailed reviews of current knowledge are available which tend to support the notion that athletic ability goes with such personality dimensions as aggression, dominance, drive, tough-mindedness and others associated with the outgoing social behavior of the extrovert. Confidence, lack of anxiety, and emotional stability are another set of traits which have often been formed. Many top individual athletes are found to be quite extroverted. (11)

Rushall (20) mentioned that knowledge of the personality of an individual is important for maximizing individual responses while Neal (16) found that there are psychological consistencies within the personality of high level competitors in a study of personality traits of United States women athletes who participated in the 1959 Pan-American Games.

A conflict exists in philosophy of success since today, success is not measured in terms of whether each athlete has done his best, but in terms of whether he has won. Tutko (26) continues by saying that winning has become all important. If one does not win, the implication is that he has not done his best, or that if he has, he should have in some way done more.

Qualifications of the applicant for a coaching position vary within individual systems, but Bucher (1) stated that rather than emphasizing the "hard-nose" win or else attributes an administrator should look for four qualifications in making his selection. First, he should determine if the applicant has the ability to teach fundamentals and strategies of his

sport. Second, and perhaps most important of the four is the ability of the applicant to develop an understanding of the boy who is a player. Third, the applicant should demonstrate an understanding of the game and fourth he must have a desirable personality. This desirable personality makes the study of selected personality factors and coaching success an invaluable aid to administrators.

The area of coaching is a branch of the teaching profession. Thus it is necessary to examine the relationship of personality to teaching success. Although coaching is in many ways different from the classroom, in reality many similarities do exist.

Symonds (24) through use of the Rorschach and the Thematic Apperception Test found that teachers who are inadequate are often bossy and lack feeling. Their effectiveness is closely related to satisfaction with their work. Teaching is actually an expression of one's own personality. The teacher would tend to adapt himself to teaching in such a manner that is harmonious with his expressions toward life situations in general.

Start (23) used the Cattell Sixteen Personality Factor in an attempt to find personality traits of better teachers. He found that the better teachers scored high in Factor B or more intelligent and capable of abstract thinking. They also scored high on Factor E which characterizes a person who is assertive, self-assured, and independent-minded. The better teachers tended to score low in Factors A, L, Q1, and Q3.

A negative score in Factor A distinguishes an individual who is cool, skeptical and aloof rather than warm and sociable. The low

score on Factor L characterizes the better teacher as free of jealous tendencies, adaptable, cheerful, and a good team worker. His low scores on Q1 and Q3 indicate that he is generally conservative and inclined to go along with tradition. He also will not be bothered with regard for social demands. He is usually not overly considerate, careful or painstaking.

Jersild and Helfant (7) noted that every teacher functions to a certain degree as a psychotherapist, and much of this psychotherapy is incidental. A good teacher is one who helps the students discover their individual talents and also to face limitations.

A teacher must be able to recognize the signs that a student is disturbed. In fact, the teacher's ability to recognize these signs and the teacher's own personality rather than the subject matter are the most important factors.

Through use of the Minnesota Teacher Attitude Inventory, Getzels and Jackson (3) found that teachers who have pupils for longer periods during the day are interested not only in the pupils' acquisition of the subject matter but also with the pupils' whole personality. Being concerned with this requires the teacher to have knowledge of the pupils' home background, physical and mental health and also his outside activities.

Physical education often is lacking in this concern for the student's whole personality. Physical education majors scored lower on the Minnesota Teacher Attitude Inventory than those who majored in early childhood education. This demonstrates that physical education majors tend to think more in terms of the subject matter to be covered

than in the development of a self-diverting personality. It must be noted in defense of the physical education major that they have contact with the pupil for only limited time as compared to the early education major who will be in direct contact with the student for the major part of each school day.

Also noted was the idea that teaching behavior and the teacher's attitude towards pupils and administrators are closely related. A correlation between the major of the student in education and his values was shown. For example, the theater arts major are higher in aesthetic values while lower in religious, political, and economic values.

In contrast to Getzels and Jackson, Thorpe and Schmilller (25) believe that the physical educator can be more concerned with the personality of the pupil. Although in its beginnings physical education was stereotyped and ritualistic, and pupils rebelled, now the physical education period makes possible relaxation and release of tension. Organized games provide an opportunity for developing cooperation through necessity and enjoyment rather than force. Intramurals encourage a wider socialization in terms of the community culture. The development of the school community further enhances the possibilities of the student blending in to the adult community. Physical education classes also enable the instructor to diagnose the individual child's difficulties and suggest a possible solution.

With intelligent and personable handling, the teacher can stimulate confidence in the timid child as well as provide a sense of security for the child who may not be enjoying acceptance in the

home, school, or community. It is the responsibility of the teacher to make the child feel secure or he is likely to suffer psychologically. Pullias & Young (17) confirm this idea when they say that the teacher is a guide on a learning journey and that he is the chief influence in every aspect of this journey.

Many teachers do not want to counsel or feel inadequate because of their own personality to do so, but it is a necessary facet of teaching. The mere nature of teaching demands this. The learner is faced with many decisions both scholastically and socially and to make these decisions, he will turn to the teacher if the teacher's personality warrants this confidence from the student.

The pupil is growing up in an increasingly complex civilization which is full of challenges and dangers. This process of growing up and the building of a personality is replete with hazards. The hazards are such that a student is in constant need of counseling and the teacher is the most available counselor and confidant if his personality is such that a student respects him and is able to be open with him. In this role of counselor and confidant, every student is special and unique, and the teacher must be capable of realizing this uniqueness.

Skinner (21) stated that pupil guidance is a continuous process. Teachers should be trained in the observation and diagnosis of pupil behavior. The evaluation of pupil progress is an area which can aid in the diagnosis of pupil behavior.

The teacher should be constantly concerned with the mental health of the pupils and also with their growth in ability to make

adjustments to their problems. This requires growth in a pupil's self-understanding, skill in getting along with others as well as skill in subject matter technique.

Teacher behavior influences pupil behavior. Havighurst & Neugarten (5) express this when they say that a teacher's attitude or behavior creates a climate or atmosphere for student learning. Teachers are expected to be not only the epitome of knowledge but also expert in regard to children. They are to be a source of information and guidance with respect to the best methods of child rearing and the understanding of child development.

The physical educator stands somewhat apart from fellow faculty members because of the uniqueness of his situation. His relationship to his students can be the foundation for their guidance because of this uniqueness. In this unique role the coach can even be more of an aid to students through his day by day working experience with his athletes.

### CHAPTER III

#### Procedure

Subjects for the study were selected randomly from high school varsity coaches in Northern Illinois. The three sports selected for the study were football, basketball, and wrestling which are considered to be the three major sports in Illinois. Major sports are so indicated by participation by both student and adult spectators. These three sports are also generally used for income purposes while other interscholastic sports generally have no individual means of financial support.

These three sports were also chosen because of relative close proximity of football players and wrestlers as noted in (12) and both sports involve contact.

It was necessary to choose only experienced coaches for the study. Three years in a position was deemed as the criterion for meeting the experience level. The reason three years was chosen was that this normally indicates a tenure teacher and also should give the coach sufficient time to implement his methods of coaching and for his personality to assert itself and reflect on the performance of his teams.

Basketball is comparatively void of contact but it like football is a sport dependent upon team play while wrestling is an individual undertaking. It was hoped to gain from the study

what effect if any, the personality traits of the coach had on the team as compared to the individual type of activity.

The instrument used in the study was Form A of the Sixteen Personality Factor Questionnaire developed by Raymond B. Cattell and Herbert W. Eber. This test is an objectively scoreable test devised to give the most complete coverage of personality in a brief time. It is planned for age seventeen through mature adult.

The sixteen dimensions measured are for the most part independent as the correlation between each is small.

The sixteen primary factors to be measured are:

Factor A

<p><u>Reserved</u>, (detached, critical, vs. cool) The person who scores low on Factor A tends to be stiff, cool, skeptical, and aloof. He likes things rather than people, working alone, and avoiding compromises of viewpoint.</p>	<p><u>Outgoing</u>, (warmhearted, easy-going, participating) Person who scores high (8 to 10) tends to be good natured, easy-going, ready to cooperate. He likes occupations dealing with people.</p>
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Factor B

<p>Less Intelligent (concrete thinking) Slow to learn and grasp, dull, concrete and literal interpretations.</p>	<p>vs. More Intelligent (abstract thinking, bright) Quick to grasp ideas, a fast learner.</p>
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Factor C

<p>Affected by feelings (emotionally less stable, easily upset) <i>low in frustration tolerance,</i> fretful, easily emotional and annoyed.</p>	<p>vs. Emotionally Stable (faces reality, calm nature) Stable, realistic about life, unruffled, able to maintain solid group morale.</p>
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Factor E

Humble (mild, accomodating, conforming) vs. Assertive (independent, aggressive, stubborn)  
 Gives way to others, docile, Self assured and independent-minded. Authoritarian and  
 Often dependent, confessing. disregards authority.

Factor F

Sober (prudent, serious) vs. Happy-go-lucky (impulsive, lively, gay, enthusiastic)  
 Restrained, pessimistic, smug. Cheerful, active, frank.  
 dependable. Frequently elected leader.

Factor G

Expedient (evades rules, feels few obligations) vs. Conscientious (persevering, rulebound)  
 Unsteady in purpose, casual Exacting in character,  
 lacking in effort. Freedom dominated by sense of duty,  
 from group influence. responsible, planful.

Factor H

Shy (restrained, diffident, timid) vs. Venturesome (socially-bold, uninhibited, spontaneous)  
 Inferiority feelings, slow, Ready to try new things,  
 impeded in speech, dislike careless of detail, interested  
 occupations with personal actively in opposite sex.  
 contact.

Factor I

Tough minded (self reliant realistic) vs. Tender-minded (dependent, over-protected, sensitive)  
 Unmoved, hard, cynical Daydreaming, artistic,  
 smug, keeps group operating feminine, demanding of  
 on practical and realistic attention and help, impatient,  
 no-nonsense. impractical. Tends to slow  
 up group performance by  
 fussiness.

Factor L

Trusting (adaptable, free of jealousy) vs. Suspicious (self-opinionated, hard to fool)  
 Concerned about other people, Unconcerned about other  
 a good team worker. people, a poor team member.

Factor M

Practical (careful, conventional, proper) vs. Imaginative (Bohemian, careless of practical matters)  
 Anxious to do the right things, attentive to practical matters. Able to keep his head in emergencies. Unconventional, unconcerned over everyday matters, oblivious of physical realities. Rejected in group activities.

Factor N

Forthright (natural, artless, sentimental) vs. Shrewd (calculating, worldly, penetrating)  
 Unsophisticated and simple. Polished, experienced, worldly and shrewd. Hard headed and analytical. Cynicism related.  
 Crude and awkward.

Factor O

Placid (self-assured, confident, serene) vs. Apprehensive (worrying, depressive, troubled)  
 Unshakeable nerve, mature, Depressed, moody, worrier.  
 unanxious, confidence in himself. Does not feel accepted in groups or free to participate.

Factor Q<sub>1</sub>

Conservative (respecting established ideas, tolerant of traditional difficulties) vs. Experimenting (critical, liberal, analytical, free thinking)  
 Cautious and compromising in regard to new ideas. Doubts fundamental issues. Skeptical and inquiring regarding ideas. Tolerant of inconvenience and change.  
 Tends to oppose and postpone change.

Factor Q<sub>2</sub>

Group-dependent (joiner and sound follower) vs. Self-sufficient (own decisions, resourceful)  
 Depends on social approval and admiration. Tends to go along with the group. Temperamentally independent, accustomed to going his own way, making decisions and taking action on his own.

Factor Q<sub>3</sub>

Undisciplined Self Conflict vs. Controlled (socially precise, following self image)  
 (careless of protocol, follows own urges) Has strong control of emotions and general behavior.  
 Not overly considerate, careful, or painstaking).

Factor Q<sub>4</sub>

<p>Relaxed (tranquil, torpid, unfrustrated) Sedate, relaxed, composed and satisfied. High tension level may disrupt school and work performance.</p>	vs.	<p>Tense (frustrated driven) Often fatigued but unable to remain inactive.</p>
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As well as the sixteen primary factors, the 16 PF lends itself to scoring four broad second order factors. They are:

- I. Adjustment vs. anxiety
- II. Introversion vs. extroversion
- III. Tenderminded emotionality vs. absolute poise
- IV. Subduedness vs. independence

Factor I

<p>Low anxiety (adjustment) Life is generally satisfying and able to achieve those things that to him seem important.</p>	vs.	<p>High anxiety Dissatisfied with the degree to which he is able to meet the demands of life and to achieve what he desires.</p>
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Factor II

<p>Introversion Shy, self sufficient, and inhibited in interpersonal contacts. Precision workmanship.</p>	vs.	<p>Extroversion Socially outgoing, uninhibited, good at making and maintaining interpersonal contacts.</p>
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Factor III

<p>Tenderminded Emotionality Discouraged frustrated type. Likely to be artistic and gentle.</p>	vs.	<p>Alert Poise An enterprising, decisive, and resilient personality.</p>
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Factor IV

<p>Subduedness Group dependent, chastened, passive personality: desires and needs support from other persons.</p>	vs.	<p>Independence Aggressive, independent, daring, incisive person.</p>
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The test was administered by guidance counselors at the selected school. This procedure was chosen in order to have a

person experienced in testing handling the procedure. The test is easily administered. Simple and clear instructions are printed on the cover page of each booklet. It is best, however, to reinforce the instructions orally and to emphasize that the examinee will be doing himself the most good by being frank and honest in describing himself.

The test is untimed, but it is best to move along at a steady rate. It will usually take an examinee from forty-five to sixty minutes to complete the test.

Another reason for choosing the test is that it is easily scored by hand. Two stencil scoring keys are used, one covering Factors A, C, F, H, I, N, Q<sub>1</sub>, and Q<sub>3</sub> while the other covers Factors B, E, G, I, M, Q<sub>1</sub>, Q<sub>2</sub>, and Q<sub>4</sub>. The raw scores then must be converted into a system which places the examinee's score in relation to other scores in the population. Raw scores are conveniently converted to standard ten or sten scores. The population average is 5.5. A sten score of 5 or 6 would be classified as average. 4 or 7 slightly deviant; two, three, eight and nine strongly deviant and one or ten extreme, in relation to the defined population.

There are distinct advantages to using this test. One of primary importance is that the sixteen factors are essentially independent, in other words the correlation between one and another is usually quite small. Thus, having a certain position on one of the factors does not prevent the person from having any position on any other factor. Each of the sixteen scales, therefore brings an entirely new piece of information about the person.

In Form A there are ten to thirteen questions for each factor. The questions are arranged in a somewhat cyclic order determined by

a plan to give maximum convenience in scoring and to insure variety and interest for those taking the test. Three alternative answers are provided for each of the questions. Three answers are provided since the two alternative method often forbids a compromise position and can force a distorted distribution (2).

## CHAPTER IV

### Organization and Analysis of Data

Differences in personality factors as measured by the 16 P. F. test were examined. The "t" test of significance for differences between means was utilized to analyze the data statistically. The five percent level of confidence was used for acceptance or rejection of the null hypothesis.

To test the hypothesis that no difference exists in personality factors of successful and unsuccessful basketball coaches a "t" ratio of 2.052 was needed at the five percent level with twenty-seven degrees of freedom. The only factor for which this was significantly different was Factor B. (Table I)

A high score on Factor B tends to indicate a more intelligent, fast learner while a low score tends to indicate an individual who is slow to learn and grasp ideas.

Although the differences on other factors of the 16 P. F. were not statistically significant, several trends were noted from the results of basketball coaches.

TABLE I

MEANS, STANDARD DEVIATIONS AND t RATIOS FOR  
BASKETBALL COACHES ON 16 PERSONALITY FACTORS

Factor	Successful			Unsuccessful			df.
	Norms*	Mean	S.D.	Mean	S.D.	t.	
A	9-11	10.6	2.61315	8.85714	2.65612	1.78061	27
B	6-8	7.33333	1.83874	5.57143	2.17377	2.36231	27**
C	15-18	11.2	4.27952	13.2857	3.09909	1.49361	27
E	11-14	13.5333	2.97289	12.8571	2.71342	.638257	27
F	12-16	13.4667	2.97289	12.1429	2.95758	1.20125	27
G	12-15	12.2667	2.08623	10.4286	2.76556	2.0296	27
H	13-17	13.1333	3.60291	13.3571	2.06089	.203304	27
I	7-10	9.8	2.39642	10.2857	2.94641	.488548	27
L	6-8	9.66667	1.9518	10.4286	2.47182	.924607	27
M	11-14	12.6	2.41425	11.6429	2.43712	1.062	27
N	8-10	10	2.50713	8.92857	2.78635	1.08995	27

TABLE I (Continued)

Factor	Successful			Unsuccessful			df.
	Norms*	Mean	S.D.	Mean	S.D.	t.	
O	8-11	12.1333	3.64234	13.2143	1.84718	.996436	27
Q <sub>1</sub>	8-10	10	1.85164	9.5	1.9115	.71542	27
Q <sub>2</sub>	9-11	10.2	2.95683	10.0714	2.49505	.126079	27
Q <sub>3</sub>	12-15	10.6667	2.84521	9.42857	2.50274	1.24049	27
Q <sub>4</sub>	9-12	12	3.35942	14.2857	2.61441	2.03419	27

\*Norms for general male population as noted in 16 P. F. Handbook.

\*\* Significant at the .05 level. A t ratio of 2.052 was required.

On Factor A, the unsuccessful group had a slightly lower mean score than did the average male population. A low score on Factor A indicates a reserved, somewhat skeptical and aloof person who likes working alone.

Both successful and unsuccessful groups scored lower than the normal mean on Factor C, with the successful group falling considerably below the norm. A low score on Factor C signifies an individual who is affected by feelings, easily emotional and annoyed.

Unsuccessful coaches had a lower than normal mean on Factor G. This low score indicates an individual who is unsteady in purpose and often lacking in effort.

Both groups scored high on Factor L with the unsuccessful group scoring much higher than the normal mean. This high score signifies a suspicious, hard to fool individual as compared to a low score which signifies a trusting, adaptable individual.

Factor O provided another area in which basketball coaches varied from the normal mean. Both groups scored higher than average with the unsuccessful group once again being farther from the normal. This high score on Factor O indicates a worrying, apprehensive individual.

Factors Q<sub>3</sub> and Q<sub>4</sub> provide the final areas in which basketball coaches tended to differ from the general population. A low score in Factor Q<sub>3</sub> indicates an individual who follows his own urges and is not overly considerate or careful. Both groups fell below the general norm for this factor with the unsuccessful group being lower.

On Factor Q<sub>4</sub>, the unsuccessful group was considerably higher than the general norm. This high score on Factor Q<sub>4</sub> indicates a tense, frustrated and driven individual.

An analysis of the factors which tend to distinguish basketball coaches from the general norm tend to indicate a nervous, high strung individual, and could indicate the intense stress placed on a coach as mentioned by Johnson. (8)

A "t" ratio of 2.052 was also needed at the five percent level to test the hypothesis that no difference exists in personality factors of successful and unsuccessful wrestling coaches. The results were found to be significantly different for Factor C and Factor H. (Table II)

Factor C can be described as individuals affected by feelings, emotionally less stable and easily upset as compared to an emotionally stable, calm individual who faces reality. The latter is characterized by a high score, but both groups scored lower than the general norm for this factor with the unsuccessful group scoring significantly lower than the successful group.

In Factor H, the successful group scored significantly lower than the unsuccessful group. A significantly lower score on Factor H indicates a shy, diffident individual who is careful of detail.

These factors were the only two found to be significantly different, but as in basketball, there were numerous other factors which varied from the general norm and should be noted.

TABLE II

MEANS, STANDARD DEVIATIONS AND t RATIOS FOR  
WRESTLING COACHES ON 16 PERSONALITY FACTORS

Factor	Successful			Unsuccessful			t	df.
	Norms*	Mean	S.D.	Mean	S.D.			
A	9-11	9.46154	1.98391	8.8125	1.83371	.91392	27	
B	6-8	6.46154	3.12558	7.125	2.87228	.594756	27	
C	15-18	13.8462	2.82389	11.75	2.46306	2.13488	27**	
E	11-14	13.2308	3.00427	13.4375	1.93111	.224477	27	
F	12-16	13.8462	3.33782	13.25	2.48998	.551003	27	
G	12-15	10.1538	2.37509	10.1875	2.85701	.0339638	27	
H	13-17	11.9231	1.84199	14.0625	1.65202	2.53566	27**	
I	7-10	10	1.52753	10.0625	2.64496	.0795754	27	
L	6-8	10	1.63299	9.8125	1.63299	.225038	27	
M	11-14	14.6923	2.83973	13.25	3	1.31839	27	

TABLE II (Continued)

Factor	Successful			Unsuccessful			df.
	Norms*	Mean	S.D.	Mean	S.D.	t.	
N	8-10	9.92308	1.5525	9.75	2.59487	.211305	27
O	8-11	12.2308	3.24432	13.1875	2.61327	.880294	27
Q <sub>1</sub>	8-10	11	1.77951	9.375	2.36291	2.04943	27
Q <sub>2</sub>	9-11	10.6923	1.97419	10	2.09762	.907233	27
Q <sub>3</sub>	12-15	10.2308	2.04751	10	2.65832	.256864	27
Q <sub>4</sub>	9-12	13	3.74166	13.625	3.55668	.459938	27

\*Norms for general male population as noted in 16 P. F. Handbook

\*\* Significant at the .05 level. A t ratio of 2.052 was required.

On Factor A, the unsuccessful group measured slightly below the norm which indicates a reserved, cool and critical individual.

A low score on Factor G signifies a person who is expedient, evades rules, and feels few obligations. Both groups scored nearly two points below the norm on this factor.

As with the basketball coaches, both groups scored higher than average on Factor L which indicates a suspicious, hard to fool individual.

A high score on Factor M signifies an imaginative individual who is careless of practical matters. The successful group of coaches scored slightly above the norm on this factor.

The trend of basketball coaches scoring above average on Factor O was also evident with wrestling coaches. Wrestling coaches mirrored this trend even more so as the unsuccessful group had a higher mean than did the successful group. A score above the norm on this factor indicates an apprehensive, worrying individual.

On Factor  $Q_1$  a "t" ratio of 2.0493 was obtained with a ratio of 2.052 being required to show a significant difference. A high score on Factor  $Q_1$  as was the case with the successful group indicates an individual who is experimenting, critical, liberal, and free thinking. This individual is also characterized as being tolerant of inconvenience and change.

Once again, both groups scored below the normal mean on Factor  $Q_3$  which tends to indicate an undisciplined individual who follows his own urges and is not overly considerate.

On Factor  $Q_4$  however, both groups scored above the normal mean signifying tense, frustrated individuals.

A "t" ratio of 2.060 was needed at the five percent level of confidence with twenty-five degrees of freedom to support the hypothesis that no difference exists in selected personality factors of successful and unsuccessful football coaches.

Although the differences were found not to be significant for any factor (Table III), a number of factors varied from the general norm and it is important that they be discussed.

Factor  $Q_2$ , although not reaching the required 2.060 "t" ratio, did approach this level with 2.01582. Factor  $Q_2$  is distinguished by a low score which indicates an individual who is group-dependent, and depends on social approval. On the other hand, a high score is indicative of a self-sufficient individual who is accustomed to going his own way. On Factor  $Q_2$ , the unsuccessful group of football coaches scored higher than the successful groups, although both groups fell within the norm for the general male adult population.

As in the other two areas, football coaches fell below the norm on Factor which indicates an individual who is affected by feelings, emotionally less stable and easily upset. It is possible that the consistently low scores on this factor by coaches is indicative of the pressure of the situations, as many communities place athletic supremacy high on their list of priorities in determining community pride and prestige.

Factor G found both groups falling below the general norm with the unsuccessful group falling well below the norm. The low score on Factor G indicates an individual who is expedient, and free from group influence.

The unsuccessful group of football coaches were the only group to vary from the general norm on Factor I. Their low score on this factor indicates tough-minded, hard, cynical individuals. Characteristics such as these are often admired by the public in their coaches (Tutko and Richards-28).

Both groups scored higher than the norm on Factor L. A high score on Factor L was also reached by the other groups of coaches. This high score indicates suspicious, hard to fool, self-opinionated individuals.

As with the successful wrestling coaches, successful football coaches measured slightly higher than the norm on Factor M. This score is indicative of imaginative, almost Bohemian individuals. They also tend to be unconcerned about everyday matters.

Factor O is distinguished again as an area where coaches differ from the norm. Each group in football, wrestling and basketball has scored above the norm. In football, as in wrestling and basketball, the unsuccessful group scored further above the norm than did the successful group. A high score on Factor O indicates apprehensive, troubled and worrying individuals. The high scores may be indicative again of the pressure on coaches and even moreso of the emphasis placed on winning and losing, as the unsuccessful groups tend to be even more apprehensive and troubled than the successful group.

Again in Factors Q<sub>3</sub> and Q<sub>4</sub>, both groups varied from the norm. On Factor Q<sub>3</sub> both groups scored below the norm indicating individuals who follow their own urges and are not overly considerate.

On Factor Q<sub>4</sub>, both groups scored high indicating once again, tense, frustrated individuals. Also, the unsuccessful group scored higher than the successful group. This again may reflect the extent of the greater pressure placed on losing coaches.

TABLE III

MEANS, STANDARD DEVIATIONS, AND t RATIOS FOR  
FOOTBALL COACHES ON 16 PERSONALITY FACTORS

Factor	Successful			Unsuccessful			df
	Norms*	Mean	S.D.	Mean	S.D.	t	
A	9-11	10.0769	1.60528	10.1429	2.24832	.0881626	25
B	6-8	6	2.82843	7.42857	2.02857	1.50703	25
C	15-18	13.6923	3.68295	12.2143	4.7097	.90335	25
E	11-14	11.6154	2.50128	12.8571	2.56776	1.27125	25
F	12-16	13.9231	2.84199	12.9286	2.97333	.886982	25
G	12-15	10.8462	1.62513	9.5	2.65301	1.57444	25
H	13-17	13.4615	3.20457	13	2.96129	.388997	25
I	7-10	10.0769	2.39658	9.14286	2.17882	1.05701	25
L	6-8	9.69231	3.77237	9.28572	2.26779	.342402	25
M	11-14	14.2308	2.48843	12.7143	2.12778	1.70596	25
N	8-10	9.07692	1.97744	8.92858	2.43261	.173048	25

TABLE III (Continued)

Factor	Successful			Unsuccessful			df
	Norms*	Mean	S.D.	Mean	S.D.	t	
O	8-11	12	3.85141	13.9286	3.14932	1.42903	25
Q <sub>1</sub>	8-10	9.84615	1.67562	9.28572	1.93862	.800745	25
Q <sub>2</sub>	9-11	9.30769	1.60128	11	2.60177	2.01582	25*
Q <sub>3</sub>	12-15	10.2308	2.4179	11.0714	2.43261	.931556	25
Q <sub>4</sub>	9-12	12.3846	3.96943	14.2857	2.61441	1.48033	25

\*Norms for general male population as noted in 16 P. F. Handbook.

## CHAPTER V

### Summary, Conclusions, and Recommendations

It was the purpose of this study to investigate the differences existing between coaching success and selected personality traits as measured by Cattell's 16 P. F. test.

Subjects selected were experienced head varsity coaches in football, wrestling, and basketball in Northern Illinois. They were placed in groups of successful and unsuccessful coaches, with sixty percent victories determining the successful group.

The 16 P. F. test was administered to individuals in each group and the results were analyzed through the application of the "t" test of significance for difference between means. It was established that the null hypothesis would be accepted or rejected at the five percent level of confidence at the number of degrees of freedom for each group. On the basis of this investigation, the conclusions were as follows:

1. There was a statistically significant difference between successful and unsuccessful basketball coaches on Factor B of the 16 P. F. Test. The unsuccessful group was slower to learn and grasp ideas than the successful group.

2. There was a statistically significant difference between successful and unsuccessful wrestling coaches on Factor C of the 16 P. F. Test. This indicated that the unsuccessful group is emotionally less stable and more easily upset than the successful group.
3. There was a statistically significant difference between successful and unsuccessful wrestling coaches on Factor H of the 16 P. F. Test. This signified that the successful wrestling coaches are shy, diffident, and more careful of detail than the unsuccessful group.
4. A statistically significant difference did not exist between any of the personality factors for the successful and unsuccessful ~~basketball~~ *football* coaches.

As a result of this study the following recommendations have been made:

1. More studies be made in the area of personality and coaching success. A wide range of literature in this area does not exist while it does exist in the area of personality and athletic achievement.
2. Investigations are necessary into the amount of pressure placed on coaches in terms of winning and losing. Factors on the 16 P. F. Test in which coaches varied from the norm could possibly be related to pressure from outside sources.
3. Coaches should examine various factors of their personalities, enabling them to understand themselves and possibly enable them to establish a better rapport with their students. It is possible that good rapport encourages learning.
4. A study of this design be made with a different personality test in order to compare the results of tests and to note differences in results.

1. The first part of the paper discusses the general principles of the method of moments, and the conditions under which it can be applied to the estimation of parameters of a distribution.

2. The second part of the paper discusses the method of moments as applied to the estimation of the parameters of a normal distribution, and the conditions under which it can be applied to the estimation of the parameters of a normal distribution.

3. The third part of the paper discusses the method of moments as applied to the estimation of the parameters of a normal distribution, and the conditions under which it can be applied to the estimation of the parameters of a normal distribution.

4. The fourth part of the paper discusses the method of moments as applied to the estimation of the parameters of a normal distribution, and the conditions under which it can be applied to the estimation of the parameters of a normal distribution.

5. The fifth part of the paper discusses the method of moments as applied to the estimation of the parameters of a normal distribution, and the conditions under which it can be applied to the estimation of the parameters of a normal distribution.

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APPENDIX

402 Valley Drive  
Stillman Valley, Illinois 61084  
October 13, 1972

Mr. \_\_\_\_\_  
Title  
Address  
City, State

Dear Mr. \_\_\_\_\_:

I am presently conducting a research project for my Master's thesis at Wisconsin State University--LaCrosse. The project is to investigate the differences in selected personality traits of successful and unsuccessful coaches in football, wrestling, and basketball, an area in which little research has been conducted.

To gain necessary information for the project, I am using Cattell's Sixteen Personality Factor Inventory. The test will require approximately forty-five minutes to complete. Results of the test will be kept strictly confidential, and names will not be used in the study. The test should be administered by guidance personnel. Upon completion, forward the results and the test booklet to me for scoring in the enclosed envelope.

Your cooperation will aid in completing a study which may give insight into our profession. Upon completion, an abstract will be forwarded if so indicated on the personal information sheet.

Sincerely yours,

*Glen Dallman*

Glen Dallman  
Wrestling Coach  
Stillman Valley High School

PERSONAL INFORMATION SHEET

Name \_\_\_\_\_ Date \_\_\_\_\_  
Last First Initial

School \_\_\_\_\_

Number of years in coaching \_\_\_\_\_

Sports coached \_\_\_\_\_

Sport now coaching \_\_\_\_\_

Number of years as head varsity coach in this sport \_\_\_\_\_

Won-Lost Record (Dual Competition) \_\_\_\_\_

Honors received as a coach \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

16 P. F. SCORES FOR SUCCESSFUL BASKETBALL COACHES

Factor															
A	14	7	13	9	11	11	8	8	13	15	12	11	8	7	12
B	8	7	5	7	8	6	11	7	7	11	6	5	9	6	7
C	19	7	12	4	6	8	15	12	14	14	11	14	5	13	14
E	17	13	10	12	14	15	12	9	16	17	9	18	11	16	14
F	19	10	10	11	13	13	14	16	17	14	11	10	17	16	11
G	17	13	13	12	14	11	15	12	13	12	9	12	11	9	11
H	22	11	15	6	15	17	15	11	12	12	15	12	12	11	11
I	7	13	11	12	14	8	5	8	11	9	8	11	11	9	10
L	10	9	12	7	11	12	8	10	7	13	8	11	11	8	8
M	13	12	12	14	18	13	14	14	13	7	14	10	11	13	11
N	7	10	15	7	10	8	13	8	12	11	10	13	7	8	11
O	9	11	15	14	5	16	8	17	11	16	15	7	13	14	11
Q <sub>1</sub>	10	11	13	10	10	9	11	9	11	10	12	8	10	5	11
Q <sub>2</sub>	8	9	8	7	13	8	16	10	10	14	11	13	5	12	9
Q <sub>3</sub>	16	9	8	10	11	9	17	9	10	12	11	11	12	6	9
Q <sub>4</sub>	12	7	7	16	15	14	6	16	11	12	14	10	16	11	13

16 P. F. SCORES FOR UNSUCCESSFUL BASKETBALL COACHES

Factor														
A	6	9	7	6	9	9	6	11	9	15	7	7	11	12
B	7	7	4	6	5	6	7	6	11	2	3	5	4	5
C	9	13	14	14	16	13	10	14	9	14	17	15	19	9
E	11	12	14	11	18	14	12	15	9	10	11	18	12	13
F	9	11	15	10	13	9	10	15	11	9	10	15	15	18
G	10	10	15	8	12	10	8	8	4	12	12	13	12	12
H	12	12	15	16	10	16	15	16	14	12	11	14	12	11
I	14	9	8	10	12	16	12	9	8	5	7	10	11	13
L	11	8	6	15	13	11	12	11	11	7	9	9	10	13
N	9	7	8	8	10	6	10	15	7	13	4	10	10	8
O	10	15	15	13	16	13	12	13	15	13	13	15	10	11
Q <sub>1</sub>	11	8	7	7	12	8	9	10	9	7	10	12	11	12
Q <sub>2</sub>	9	14	9	13	8	8	9	8	7	9	15	11	12	9
Q <sub>3</sub>	11	7	8	12	13	13	8	5	8	7	10	10	9	11
Q <sub>4</sub>	12	14	12	17	17	13	18	13	18	14	12	10	17	13

16 P. F. SCORES FOR SUCCESSFUL WRESTLING COACHES

Factor													
A	9	10	8	11	8	12	10	8	10	7	6	12	12
B	10	9	4	4	6	5	4	10	13	6	2	5	6
C	17	18	13	15	17	12	14	13	13	12	10	17	9
E	18	18	12	15	12	13	12	17	10	9	10	14	12
F	20	14	13	14	18	13	16	14	10	17	9	9	13
G	13	13	13	6	9	11	9	8	11	13	8	8	10
H	10	6	13	15	13	12	17	11	12	12	14	8	12
I	9	9	11	10	10	9	8	11	11	9	9	10	14
L	7	12	10	9	11	9	11	13	10	11	9	10	8
M	17	17	13	14	17	14	17	16	16	10	9	18	13
N	9	9	10	8	12	8	10	9	11	12	11	12	8
O	6	8	10	13	15	17	9	12	13	15	16	12	13
Q <sub>1</sub>	11	13	11	9	12	15	8	12	11	10	10	11	10
Q <sub>2</sub>	8	9	12	8	12	10	9	14	11	10	10	13	13
Q <sub>3</sub>	9	13	15	12	10	9	8	10	9	8	9	11	10
Q <sub>4</sub>	10	18	7	11	11	12	17	12	10	20	14	16	11

16 P. F. SCORES FOR UNSUCCESSFUL WRESTLING COACHES

Factor

A	8	8	8	13	9	7	12	10	6	7	8	8	9	10	10	8
B	8	8	6	8	8	4	8	8	9	5	2	13	12	5	6	4
C	15	12	12	12	7	15	12	10	9	7	14	14	13	13	12	11
E	14	9	13	15	10	14	12	16	15	16	15	13	13	13	13	14
F	15	15	13	11	12	11	11	14	12	12	13	17	11	13	12	20
G	15	9	13	13	8	5	13	5	13	11	10	11	10	10	9	8
H	14	12	11	15	13	15	13	14	14	17	15	12	17	14	15	14
I	9	7	10	11	13	12	9	7	8	11	8	14	9	15	12	6
L	10	6	12	8	11	10	12	16	11	7	11	7	10	11	6	9
M	12	12	18	9	14	14	15	14	17	13	9	12	13	9	12	19
N	10	9	12	10	15	10	12	12	8	10	9	11	6	6	11	5
O	16	13	15	10	16	15	11	15	16	16	10	11	10	9	15	13
Q <sub>1</sub>	11	11	11	10	11	9	8	9	7	12	4	9	11	10	5	12
Q <sub>2</sub>	10	12	14	11	11	8	13	8	7	7	10	10	8	9	12	10
Q <sub>3</sub>	14	9	9	6	10	13	10	8	11	13	8	10	10	8	6	15
Q <sub>4</sub>	12	12	15	10	15	9	19	11	17	11	14	18	14	13	8	20

16 P. F. SCORES FOR SUCCESSFUL FOOTBALL COACHES

Factor													
A	9	11	10	10	11	10	10	7	12	11	13	8	9
B	5	7	8	4	11	7	3	11	5	7	2	4	4
C	11	9	11	16	22	15	14	8	13	12	15	15	17
E	12	14	12	10	14	10	16	8	13	10	8	10	14
F	15	15	14	18	19	15	13	15	13	8	12	13	11
G	13	12	8	13	11	10	10	10	13	9	10	12	10
H	13	11	12	13	21	15	18	13	12	12	13	8	14
I	10	11	3	12	11	10	10	9	11	13	11	9	11
L	11	12	12	7	0	10	14	12	10	12	8	6	11
M	12	11	14	19	14	19	11	14	14	15	15	14	13
N	9	11	8	7	14	8	7	9	9	9	7	11	9
O	10	9	10	8	9	7	14	15	12	10	19	18	15
Q <sub>1</sub>	9	9	10	11	13	11	11	8	9	12	9	7	9
Q <sub>2</sub>	11	10	9	8	8	10	8	13	9	7	10	10	8
Q <sub>3</sub>	10	11	8	12	13	9	14	8	12	9	6	11	10
Q <sub>4</sub>	13	16	10	14	4	8	18	12	13	10	10	16	17

16 P. F. SCORES FOR UNSUCCESSFUL FOOTBALL COACHES

Factor														
A	6	12	7	11	10	9	9	9	12	13	13	9	13	9
B	7	5	7	8	12	8	6	8	10	9	4	6	8	6
C	13	6	15	14	15	7	14	11	7	5	10	19	15	20
E	14	13	16	15	9	7	16	12	11	13	14	13	12	15
F	16	13	14	11	16	12	14	5	14	15	15	14	13	9
G	10	7	10	6	10	6	15	11	6	9	13	9	10	11
H	16	16	10	14	14	11	15	16	14	14	8	7	15	12
I	6	9	11	13	7	10	11	9	6	7	12	10	8	9
L	12	9	8	8	10	7	6	11	7	14	9	8	9	12
M	12	15	16	15	14	16	12	12	11	9	12	11	12	11
N	11	7	10	13	6	12	9	9	7	12	7	9	8	5
O	16	19	11	17	12	9	11	17	16	17	12	10	13	15
Q <sub>1</sub>	10	9	10	10	12	10	9	8	10	10	4	11	10	7
Q <sub>2</sub>	13	9	12	9	9	13	9	10	15	13	9	16	9	8
Q <sub>3</sub>	14	12	9	12	15	10	6	12	8	12	9	12	13	11
Q <sub>4</sub>	13	14	14	15	14	17	10	19	12	15	12	14	19	12

Name:

Comments:

FACTOR	Law Score			Standard Score	LOW SCORE DESCRIPTION	STANDARD TEN SCORE (STEN)										HIGH SCORE DESCRIPTION	
	Form A	Form B	Total			1	2	3	4	Average		6	7	8	9		10
A					RESERVED, DETACHED, CRITICAL, ALOOF (Sizothymia)	.	.	.	.	.	A	.	.	.	.	.	OUTGOING, WARMHEARTED, EASY-GOING, PARTICIPATING (Affectothymia, formerly cyclothymia)
B					LESS INTELLIGENT, CONCRETE-THINKING (Lower scholastic mental capacity)	.	.	.	.	.	B	.	.	.	.	.	MORE INTELLIGENT, ABSTRACT-THINKING, BRIGHT (Higher scholastic mental capacity)
C					AFFECTED BY FEELINGS, EMOTIONALLY LESS STABLE, EASILY UPSET (Lower ego strength)	.	.	.	.	.	C	.	.	.	.	.	EMOTIONALLY STABLE, FACES REALITY, CALM, MATURE (Higher ego strength)
E					HUMBLE, MILD, ACCOMMODATING, CONFORMING (Submissiveness)	.	.	.	.	.	E	.	.	.	.	.	ASSERTIVE, AGGRESSIVE, STUBBORN, COMPETITIVE (Dominance)
F					SOBER, PRUDENT, SERIOUS, TACITURN (Desurgency)	.	.	.	.	.	F	.	.	.	.	.	HAPPY-GO-LUCKY, IMPULSIVELY LIVELY, GAY, ENTHUSIASTIC (Surgency)
G					EXPEDIENT, DISREGARDS RULES, FEELS FEW OBLIGATIONS (Weaker superego strength)	.	.	.	.	.	G	.	.	.	.	.	CONSCIENTIOUS, PERSEVERING, STAID, MORALISTIC (Stronger superego strength)
H					SHY, RESTRAINED, TIMID, THREAT-SENSITIVE (Threctia)	.	.	.	.	.	H	.	.	.	.	.	VENTURESOME, SOCIALLY BOLD, UNINHIBITED, SPONTANEOUS (Parmia)
I					TOUGH-MINDED, SELF-RELIANT, REALISTIC, NO-NONSENSE (Harria)	.	.	.	.	.	I	.	.	.	.	.	TENDER-MINDED, CLINGING, OVER-PROTECTED, SENSITIVE (Premia)
L					TRUSTING, ADAPTABLE, FREE OF JEALOUSY, EASY TO GET ALONG WITH (Alaxia)	.	.	.	.	.	L	.	.	.	.	.	SUSPICIOUS, SELF-OPINIONATED, HARD TO FOOL (Protension)
M					PRACTICAL, CAREFUL, CONVENTIONAL, REGULATED BY EXTERNAL REALITIES, PROPER (Praxernia)	.	.	.	.	.	M	.	.	.	.	.	IMAGINATIVE, WRAPPED UP IN INNER URGENCIES, CARELESS OF PRACTICAL MATTERS, BOHEMIAN (Autia)
N					FORTHRIGHT, NATURAL, ARTLESS, UNPRETENTIOUS (Artlessness)	.	.	.	.	.	N	.	.	.	.	.	SHREWD, CALCULATING, WORLDLY, PENETRATING (Shrewdness)
O					SELF-ASSURED, CONFIDENT, SERENE (Untroubled adequacy)	.	.	.	.	.	O	.	.	.	.	.	APPREHENSIVE, SELF-REPROACHING, WORRYING, TROUBLED (Guilt proneness)
Q <sub>1</sub>					CONSERVATIVE, RESPECTING ESTABLISHED IDEAS, TOLERANT OF TRADITIONAL DIFFICULTIES (Conservatism)	.	.	.	.	.	Q <sub>1</sub>	.	.	.	.	.	EXPERIMENTING, LIBERAL, ANALYTICAL, FREE-THINKING (Radicalism)
Q <sub>2</sub>					GROUP-DEPENDENT, A "JOINER" AND SOUND FOLLOWER (Group adherence)	.	.	.	.	.	Q <sub>2</sub>	.	.	.	.	.	SELF-SUFFICIENT, PREFERS OWN DECISIONS, RESOURCEFUL (Self-sufficiency)
Q <sub>3</sub>					UNDISCIPLINED SELF-CONFLICT, FOLLOWS OWN URGES, CARELESS OF PROTOCOL (Low integration)	.	.	.	.	.	Q <sub>3</sub>	.	.	.	.	.	CONTROLLED, SOCIALLY PRECISE, FOLLOWING SELF-IMAGE (High self-concept control)
Q <sub>4</sub>					RELAXED, TRANQUIL, UNFRUSTRATED (Low ergic tension)	.	.	.	.	.	Q <sub>4</sub>	.	.	.	.	.	TENSE, FRUSTRATED, DRIVEN, OVERWROUGHT (High ergic tension)

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A sten of 1 by about 2.3% 2 4.4% 3 9.2% 4 15.0% 5 19.1% 6 19.1% 7 15.0% 8 9.2% 9 4.4% 10 2.3% is obtained of adults

16 PF-ABp-8A

51

18

Table 16: Norms for  
**GENERAL POPULATION**  
**MALE: FORM A**  
 (Based on age 30 years; N = 2255)

Fac- tor	Sten Score										Fac- tor	Mean	$\sigma$
	1	2	3	4	5	6	7	8	9	10			
	Raw Score												
A	0-3	4-5	6	7-8	9-10	11	12-13	14	15-16	17-20	A	10.22	3.20
B	0-2	3	4	5	6-7	8	9	10	11	12-13	B	7.04	2.17
C	0-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24	25-26	C	16.56	4.11
E	0-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-26	E	12.90	3.86
F	0-5	6-7	8-9	10-11	12-13	14-16	17-18	19-20	21-22	23-26	F	14.17	4.14
G	0-5	6-7	8-9	10-11	12-13	14-15	16	17-18	19	20	G	13.35	3.44
H	0-3	4-6	7-9	10-12	13-14	15-17	18-20	21-22	23-24	25-26	H	14.78	5.18
I	0-1	2-3	4-5	6	7-8	9-10	11-12	13-14	15	16-20	I	9.00	3.43
L	0	1-2	3	4-5	6-7	8	9-10	11-12	13-14	15-20	L	7.38	3.38
M	0-5	6-7	8-9	10	11-12	13-14	15-16	17-18	19-20	21-26	M	13.04	3.66
N	0-3	4	5	6-7	8	9-10	11	12-13	14	15-20	N	9.23	2.88
O	0-1	2-3	4	5-7	8-9	10-11	12-13	14-15	16-18	19-26	O	9.43	4.18
Q <sub>1</sub>	0-3	4	5	6-7	8	9-10	11-12	13	14-15	16-20	Q <sub>1</sub>	9.48	3.02
Q <sub>2</sub>	0-3	4	5-6	7-8	9	10-11	12-13	14-15	16-17	18-20	Q <sub>2</sub>	10.29	3.49
Q <sub>3</sub>	0-6	7-8	9	10-11	12-13	14-15	16	17-18	19	20	Q <sub>3</sub>	13.32	3.37
Q <sub>4</sub>	0-1	2-3	4-5	6-8	9-10	11-12	13-15	16-17	18-20	21-26	Q <sub>4</sub>	10.70	4.66
	1	2	3	4	5	6	7	8	9	10			
	Sten Score												