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BIRD, GEOFFREY JOHN

SPORT MOTIVATION AMONG THREE LEVELS OF HIGH CALIBRE
SOCCER PLAYERS

The University of North Carolina at Greensboro

ED.D.

1980

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**SPORT MOTIVATION AMONG THREE
LEVELS OF HIGH CALIBRE
SOCCER PLAYERS**

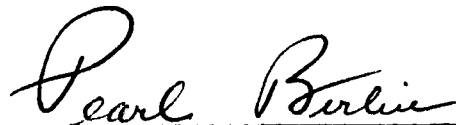
by

Geoffrey J. Bird

**A Dissertation Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
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of the Requirements for the Degree
Doctor of Education**

**Greensboro
1980**

Approved by



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APPROVAL PAGE

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Although motivation theorists have sought to improve the predictability of human behavior by testing notions of achievement motivation, nAch, variability in the notion remains. With the relationship and appropriateness of nAch to sport being obvious, Berlin began in 1971 investigating the theoretical structure of the nAch motives of athletes based on accepted ideas from personality theory and sport literature. Berlin's research was unique in that the strategy was directed toward model building. Stephenson's Q-technique forced-choice procedure was used to generate the data. The Q Sort encompassed a multidimensional theory which acknowledged three major motive categories: self-regard, mediational, and mastery. Successive inquiries and supportive studies carried out by Smith (1975) and Fodero (1976) endeavored to describe, specifically, the motivational tendencies of athletes in terms of a consistent integrated structure.

The purpose of the present study was to validate the 1978 revised Q Sort and to investigate the differences among high calibre athletes in terms of: (a) their need for achievement, both generally and specifically as it relates to sport, and (b) the motive categories encompassed in Berlin's model. A preliminary study using the Berlin Q Sort (1978 edition) and Hall's Q Ach (1974), the validating instrument, was first undertaken to establish the reliability for both instruments.

A subsample from the larger group was used in this part of the project. For the major work, a sample of 120 high calibre soccer players representing three levels of performance, i.e., juvenile, collegiate, and professional, was selected to generate the data.

Responses to the Q Sort were collected by the investigator 24 hours prior to participation in a competitive match. An open-ended, unforced-choice procedure was utilized in Q sorting since the spread and scatter of responses was considered fundamental to the study. After scoring both the Berlin Q Sort and Hall's Q Ach, the following statistical analyses were performed: (a) a correlational analysis between the Berlin Sport Q Sort and Hall's Q Ach, (b) one-way analysis of variance across groups comparing scores on nAch, and (c) one-way analysis of variance of scores for the three motive categories.

The inquiry yielded four major findings: (a) a significant correlation coefficient, .33, indicated concurrent validity for Berlin's Sport motivation Q Sort; (b) for both nAch measures there was a high degree of consistency among performer levels; (c) there were significant differences among performer levels in the following motivational tendencies: professional athletes scored highest on "mastery" (MS), collegiates scored highest on "self-regard" (SR), and juvenile athletes scored highest on "mediational" (Med); and (d) the overall results supported the multidimensionality of Berlin's model.

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CHAPTER I

INTRODUCTION

Motivation is a determinant of human activity arising from one or a combination of factors. Psychologists are interested in why human beings engage in certain activities, the intensity of behavior, its source and significance, and the direction the behavior takes. Motivation theorists purport to measure behavior, interpret it, and offer explanations about causal factors.

As an outcome of psychological research, numerous explanations about the motivation of behavior are documented. One theoretical framework which has considerable intuitive appeal and relevance when attempting to explain motivational factors related to sport is that of achievement motivation. It is based on the concept of need to achieve (nAch). Achievement motivation is defined in the present study as a behavior regulating process induced by an external or internal source which creates an arousal such that the behavior is directed toward a specific goal or set of goals.

Although achievement motivation was first associated with Ach and Lewin, the pioneer researcher was Murray (1938). Murray devised the Thematic Apperception Test (TAT), a psychological projective tool used to assess an individual's interpretation of an ambiguous social situation. Influenced by Murray's theory, McClelland (1951) refined the method of measuring nAch in order to better explain achievement

motivation. Further, theorists (Atkinson, 1950, 1957, 1958, 1964; Atkinson and Feather, 1966; Heckhausen, 1967; and others) added and modified McClelland's theory in order to improve predictability and to better account for behavioral variance.

The variability in data about achievement motivation still remains. Continued research raises the questions of how the construct should be measured. To date, there are three major types of assessment: (a) projective instruments, (b) scales within personality inventories, and (c) questionnaires designed specifically to measure achievement motivation. Fineman (1977) reviewed the literature and found that the statistical interrelationship among the different techniques and instruments was very low. Apparently, the many available measures of achievement motivation do not measure the same construct. Moreover, the generalized notion of achievement motivation is not satisfactory for interpreting specific situations calling for particular behavior.

Sport situations are frequently described as laboratories for achievement learning. Feedback is immediate, thus providing reinforcement contingencies. Reward systems are obvious and extensive. Success is rewarded extrinsically and/or intrinsically (Festinger, 1959; Klausner, 1964; Bernard, 1964; Rotter, 1966; Csikszentmihalyi, 1975; Glasser, 1976). Generalized notions of nAch have minimal relevance to the sport-specific setting.

Despite the complex nature inherent in motivation, researchers in the tradition of McClelland and his followers have been single-minded in their pursuit of a unitary, "fantasy-based" measure of the motive to achieve success. Few investigators organize the motive for success into constituent parts and examine them independently. Helmreich and Spence (1977) declared that a unitary construct of achievement motivation was too simplistic to account for broad patterns of behavior in real life settings.

If one accepts the view that the achievement motive concept explains behaviors such as striving to do well, developing competence, evaluating performance on the basis of one's own standards as well as being judged by others on mastery, then it appears that a multifaceted concept of achievement motivation is necessary for the examination of sport performance. In 1971, Berlin began investigating the structure of the need for achievement (nAch) motives of athletes. She formulated a hypothetical theory of sport motivation based on accepted ideas from personality theory and sport literature. The work focused on athletes. Berlin's research was unique in that the strategy was directed toward model building. An instrument which utilized a variation of Stephenson's (1953) Q technique generated the data. The Q sort encompassed a multidimensional theory which acknowledged three major motive categories: self-regard, mediational, and mastery.

Statement of the Problem

The purpose of this study was to address two sequential problems. The first concern was to test the credibility of Berlin's instrument which purportedly measures achievement motivation in sport. Secondly, the investigation attempted to examine and explain sport motivation among three groups of high calibre athletes, male soccer players. More specifically, the inquiry sought to:

1. Examine the relationship between the Berlin Sport Motivation Q Sort and a generalized measure of achievement motivation. The following hypotheses were tested:

a. Research Hypothesis: There is a linear relationship between the Berlin Q Sort and Hall's Q Ach (1974) both of which purportedly assess achievement motivation.

b. Statistical Hypothesis: There is no significant positive correlation between the Berlin Q Sort and Hall's Q Ach.

2. Determine whether or not there are differences among juvenile, collegiate, and professional soccer players in terms of sport and generalized achievement motivation.

a. Research Hypothesis: Achievement motivation among high calibre soccer players is similar regardless of the level of performance.

b. Statistical Hypotheses: (1) There are no significant differences in nAch among juvenile, collegiate, and professional high calibre soccer players as measured by Hall's Q Ach.

(2) There are no significant differences in sport motivation among juvenile, collegiate, and professional

high calibre soccer players as measured by the Berlin Sport Motivation Q Sort.

3. Determine whether or not there are differences among juvenile, collegiate, and professional soccer players in terms of the three motivational tendencies that comprise Berlin's conceptualization of sport motivation.

a. Research Hypotheses: (1) Professional soccer players score higher than collegiate players, and collegiate players score higher than juveniles in total score on the Berlin Sport Motivation Q Sort.

(2) Professional soccer players score highest on mastery (MS) tendencies; collegiates score highest on self-regard (SR) tendencies; juveniles score highest on mediational (Med) tendencies.

b. Statistical Hypothesis: There are no significant differences among professional, collegiate, and juvenile high calibre soccer players in terms of the three motivational tendencies that comprise Berlin's conceptualization of sport motivation.

Assumptions Underlying the Study

The following assumptions are acknowledged to underlie the present study. That is to say, they are accepted as facts and therefore are not tested as a part of the research.

1. All Star juvenile teams, Division I, N.C.A.A., and professional soccer teams are recognized as "top calibre athletes". Moreover, subjects used in this study are representative of top calibre juvenile, collegiate, and professional soccer players throughout the United States of America.

2. The validity of the structure of Q statements is an empirical matter (Kerlinger, 1973, p. 590).

3. The large number of choices representing a trait universe in Q make it possible for an individual to have a unique sort that can make it objectively analyzed with exactness (Kerlinger, 1956, p. 289).

Definition of Terms

The following meanings are assigned to the terms used in this study for interpretation throughout the report.

Achievement Motivation. The striving behavior displayed by a person when he knows his performance is evaluated by himself or by others in terms of some criteria or standard of excellence. It is also recognized that the outcome of the performance is favorable (success) or unfavorable (failure).

Motivational Tendencies. Specific sport-related feelings and values idiosyncratic to the athlete that comprise his motivational disposition. These are represented by statements describing elements of the sport experience.

Motive Categories. A cluster of tendencies represented by statements which characterize a major part of the sport motivation construct.

a. Mastery (MS) -- the motivational tendencies which are associated with effective task execution and skill in sport performance.

b. Mediational (Med) -- the motivational tendencies which are associated with the environment or the sport setting. The specific situational tendencies are considered to serve a mediational role;

that is, they interface the skill demands of mastery and the esteem elements of self-regard.

c. Self-regard (SR) -- the motivational tendencies which are associated with the valuing of self in experiencing sport performance.

Sport Motivation. The striving behavior demonstrated by an athlete described by attitudes, feelings, and skill demands which occur in the sport environment.

Scope of the Study

The following boundaries were established relative to the present study.

1. The investigation was limited to responses from Hall's (1974) Q Ach inventory and the Q Sort responses from Berlin's (1978) instrument. The inventories were administered by the investigator in the first third of each playing season. Data were collected during the period April 1st to September 30, 1979.

2. Subjects were limited to three specific groups of athletes: juvenile, collegiate, and professional male soccer players considered high calibre athletes. The number of subjects was 120, 40 subjects for each of the three levels selected from teams throughout the United States.

Significance of the Study

The concept of motivation, specifically achievement motivation, has attracted the interest of many physical educators and coaches working with athletes. They recognize achievement motivation as an important factor contributing to athletic performance. McClelland (1961)

acknowledged the strong influence of the achievement motive in sport when he postulated: "People with a high level of need achievement (nAch) show much inner concern with doing something well Shouldn't they, then be interested in competitive games where they will have a chance to achieve" (p. 322)?

McClelland's (1961) theoretical explanation for motivation has been expanded and modified in an attempt to improve predictability and to account for behavioral variance. Still other explanations have been posited and various strategies devised. But the many available measures of achievement motivation do not yield consistent measures. The generalized notion of achievement motivation is not satisfactory for specific situations (Fineman, 1977).

The lack of congruence between instruments may be explained by the lack of reliability of the measurement or by trying to generalize to a single broad construct called achievement motivation rather than examining smaller component parts. Researchers have traditionally been concerned with a unitary measure of the motive to achieve success. But although achievement motivation is inherently complex, few investigators have attempted to examine achievement motivation as a multifaceted construct. The present study not only takes into consideration the multidimensional facets of nAch, it relates the construct specifically to sport. The role of sport as an educational, social, and economic force in the world today is almost universally acknowledged (Beisser, 1967). An increased understanding of sport behavior has the potential to help individual athletes, as well as to enhance the meaning of sport.

CHAPTER II

REVIEW OF RELATED LITERATURE

A selective review of the general literature, research reports, and other materials directly related to the focus of this study was undertaken. The following report of the review is presented under four major headings: (a) achievement motivation, (b) measurement of achievement motivation, (c) Q technique, and (d) Berlin's theoretical model of achievement motivation in sport.

Achievement Motivation

According to Heckhausen (1967) achievement motivation (nAch) was first associated with Ach who, in 1910, utilized the concept of "determining tendency" to explain achievement-related behavior. Later in 1926, the idea was connected with the work of Lewin who employed the concept of "quasi-need". Neither Ach nor Lewin reported any research about nAch. The pioneer researcher was Murray.

Murray (1938) identified the achievement motive, nAch, as one of the psychogenic or secondary needs in his conceptualization of human personality as a "hierarchy of needs". Need to achieve, nAch was described as the need that precipitates behaviors which express "desires" for accomplishment and prestige. For Murray, nAch in terms of "desires" was:

To accomplish something difficult: To master. . . ;
to do this as rapidly, and independently as possible;
to overcome obstacles and attain a high standard;
. . . ; to increase self-regard by the successful
exercise of talent. (p. 164)

At this early time, one can immediately see the obvious relationship between Murray's concept of nAch and the sport milieu.

To measure psychogenic needs, Murray devised the Thematic Apperception Test (TAT). The manner in which the TAT was used led McClelland to investigate nAch and to develop a technique for measuring nAch. The efforts of McClelland and his associates (1953) toward refining the method of measuring nAch sought to determine the direction, intensity, and persistence of behavior in the specific context of a pure achievement setting. McClelland's theory was only applicable when (a) a person knew his performance would be evaluated by himself and/or others in terms of some criteria or standard of excellence, and (b) the outcome of the performance would be regarded as either favorable (a success) or unfavorable (failure). According to McClelland, the achievement motive energized an individual to approach and maintain pleasure. It developed from feelings and expectancies about success and failure in various situations. McClelland (McClelland et al., 1953) believed that all persons possess the motive to achieve to some degree and that individual differences exist in the strength of the motive. He perceived it as a stable, but latent, characteristic of personality originating in early childhood. Heckhausen (1967) suggested age 3 to 3 1/2 years as the time in childhood when nAch began developing.

Further inquiry into nAch by Atkinson indicated that the strength of the tendency to achieve as expressed in performing a specific activity in a specific situation appeared to be determined by both the personality disposition (achievement motive) and immediate environmental influences. Atkinson (Atkinson & Feather, 1966) developed a theory of achievement motivation in which it was postulated that in an achievement situation, such as athletic competition, two kinds of variables were in operation. First there were the achievement-oriented motives that a person brought to each situation. Such motives were considered as fairly specific dispositions which the individual learned and incorporated into his/her psychological structure over the years. These were regarded as relatively stable and permanent. As in McClelland's framework, Atkinson identified two general motives: Ms, the motive to achieve success, and Maf, the motive to avoid failure. Atkinson believed Ms and Maf to be general conditions which a person carried from situation to situation.

The second set of variables operating in Atkinson's framework were situational variables. These varied and changed according to each situation and, in turn, affected the strength of the achievement motive. Incorporation of the interrelated variables, that is, incentive value (Is) and expectancy of success (Ps) added a linkage in the development of nAch theory. These variables embodied the concept of expectancy espoused by Rotter (1954) and Tolman (1955) and had much in common with the concept of aspiration level advanced by Lewin and his associates (1944). They also took into consideration the "intervening variables"

Hull (1943) proposed in his behavior theory regarding stimulus-response. Hence, in addition to the personality disposition referred to as achievement motive, the matter of situational determinants loomed important in arriving at an nAch score when Atkinson and his associates attempted to measure nAch.

Achievement motivation was conceptualized by Atkinson as the result of the two opposing tendencies, to approach success and to avoid failure. Accordingly, for an individual whose motive to achieve success is greater than the motive to avoid failure, the resulting achievement motivation could be positive and the person could be attracted to potential achievement situations. The individual whose motive to avoid failure is greater than the motive to achieve success could avoid potential achievement situations because of the threat of failure. Atkinson's symbolic model of achievement motivation represents a prediction of an individual's behavior under various achievement conditions. The two formulas show the multiplicative elements of the construct.

Ts	=	Ms	x	Ps	x	Is
The tendency to approach success		Motive to achieve success		Probability of success		Incentive value of success
Taf	=	Maf	x	Pf	x	If
The tendency to avoid failure		Motive to avoid failure		Probability of failure		Incentive value of failure

The above formulation, however, is relevant only in those achievement settings where the individual's primary motives are achievement oriented. Such pure achievement settings are relatively rare and are usually found only in rigidly controlled experimental research. Yet, one can speculate that athletic competition comes as close as any setting to satisfying achievement requirements in "real life".

McClelland (1961) emphasized three fundamental conditions necessarily present in achievement-motivated performance. The writer noted their obvious relationship to sport:

1. The individual willingly accepts responsibility for the outcome of his performance, whether successful or not.
2. Explicit knowledge of results is available.
3. Some degree of uncertainty is attached to the success or failure of the performance.

Heckhausen (1967) also conceptualized a two-motive theory of achievement behavior. The motives were: hope of success and fear of failure.

The striving to increase or keep as high as possible, one's own capability in all activities in which a stand of excellence is thought to apply and where the execution of such activities can, therefore, either succeed or fail. (Heckhausen, 1967, pp. 4-5)

The McClelland-Atkinson interpretation of achievement motivation, especially the probability formula, cannot account for or explain all sport situations. However, it does support the following assumptions: that the sport setting is achievement oriented and that high calibre or superior athletes have the propensity to be considered as having high needs to achieve.

The essence of the Murray-McClelland definitions of the achievement motive were fundamental to the works of all the major researchers in the field. Intuitively, the achievement motive concept appeared very plausible for explaining many types of striving behavior. But, there was evidence of considerable variability and the limitations of early work became clear.

Measurement of nAch

In an attempt to measure the nAch construct, researchers developed a number of different projective and questionnaire instruments. The following discussion is concerned with convergent validity which was found to be poor. Figure 1, taken from Fineman (1977), identifies 22 instruments. These were categorised as (a) projective instruments, (b) scales within comprehensive personality inventories, and (c) specific questionnaire measures of nAch (Fineman, 1977).

Projective Measures

The McClelland et al. (1953) version of Murray's 1943 Thematic Apperception Test (TAT) has been a commonly used projective measure of nAch. McClelland argued that the analysis of "fantasy" was the best approach to the measurement of nAch. This was achieved through content analysing the subjects' written stories about four to six picture cards designed to elicit achievement themes.

<u>Acronym</u>	<u>Full Title</u>	<u>Researcher</u>
<u>Projective Measures</u>		
TAT	McClelland's Thematic Apperception Test	McClelland et al. (1953)
Heckhausen	Heckhausen's Thematic Apperception Test	Heckhausen (1967)
FTI	French Test of Insight	French (1958)
IPIT	Iowa Picture Interpretation Test	Hurley (1955)
Graphic	Graphic Expression Technique	Aronson (1958)
Tartan	Knapp Tartan Test	Knapp (1958)
<u>Comprehensive Personality Inventories</u>		
EPPS	Edwards Personal Preference Schedule	Edwards (1959)
CPI	California Psychological Inventory	Gough (1957)
PRF	Personality Research Form	Jackson (1967)
SDI	Self-Description Inventory	Ghiselli (1971)
ACL	Adjective Check List	Gough (1960)
<u>Specific Questionnaire Measures</u>		
MAS	Mehrabian Achievement Scale	Mehrabian (1968)
CAMS	Costello's Achievement Motivation Scale	Costello (1967)
LAMQ	Lynn's Achievement Motivation Questionnaire	Lynn (1969)
HAMQ	Hermans' Achievement Motive Questionnaire	Hermans (1970)
Vach	The v Achievement Measure	de Charmes et al. (1955)
SCT	Mukherjee's Sentence Completion Test	Mukherjee (1965)
RAMQ	Robinson's Achievement Motivation Questionnaire	Argyle & Robinson (1962)
ARPS	The Achievement Risk Preference Scale	O'Connor & Atkinson (1962)
SAS	Sherwood Achievement Scale	Sherwood (1966)
AAMI	Aberdeen Academic Motivation Inventory	Entwistle (1968)
SAMM	Smith's Achievement Motivation Measure	Smith (1973)

Figure 1. List of nAch Measures. (Modified from Fineman, 1977, p. 3)

A projective technique closely related to that used by McClelland was a set of six pictures devised by Heckhausen (1967, 1969). These depicted school and occupational settings featuring blue-collar and white-collar situations. Subjects' stories were keyed for hope of success and fear of failure in a fashion similar to the TAT procedure.

French (1958) constructed a Test of Insight, a nAch measure based on McClelland's rationale but more structured than the TAT. The Iowa Picture Interpretation Test (IPIT) (Hurley, 1955) attempted to add some structure to the traditional projective method.

A different approach was taken by Aronson (1958) who developed a nonverbal measure of nAch using graphic expression or doodles. The scoring system was based on empirical relationships among the scribble patterns and the TAT nAch score. The Tartan Test (Knapp, 1958) was also based on empirical associations with the TAT. Subjects order thirty tartans into a forced distribution of preference. High nAch is indicated by preference for blue in the tartan, while low nAch is associated with a red preference. This idea of relating color preference to nAch was elaborated by McClelland (1961).

Comprehensive Personality Inventories

The Edwards' Personal Preference Schedule (EPPS) (Edwards, 1959) is a 225-item inventory that measures 15 needs, one of which is nAch. Another "personality inventory" is the California Psychology Inventory (CPI) (Gough, 1957), a 480-item true-false questionnaire. Two of the 18 scales in the inventory are related to nAch.

The Personality Research Form (PRF) (Jackson, 1967) is also comprehensive and contains, in the shortest form, 300 true-false items. Of the 15 different scales scored, one of these related to nAch, directly derived from Murray's need theory. Ghiselli (1971) developed an empirically based inventory (SDI). Thirteen traits are scored, one of which is achievement motivation. The Adjective Check List (ACL) (Gough, 1955) presented 300 adjectives to be selectively self-checked according to their relevance to the subject's own behavior. Heilbrun (1958) developed 15 need scales for the ACL; one scale was based on Murray's nAch concept.

Specific Questionnaire Measures

Eleven of the scales in Figure 1 were designed to measure nAch alone. Mehrabian (1968) constructed a male and female version of a 26 item nAch scale (MAS). Costello (1967) described two scales which emerged from factor analytic studies of responses to yes-no questions (CAMS). Another scale was factor analytically derived by Lynn (1969) (LAMQ). Hermans (1970) cluster analysed responses to a 92-item nAch measure (HAMQ). De Charms, Morrison, Reitman, and McClelland (1955) constructed a 9-item measure based on Murray's work related to the value placed on achievement activities (vAch). Mukherjee (1965) developed the Sentence Completion Test (SCT) comprised of 50 items each with three statements matched for social desirability, one of which scored for nAch. Argyle and Robinson (1962) described a questionnaire nAch measure (RAMQ). Fifteen items defined the scale.

The notion of achievement behavior as a function of two motives, (a) a motive to approach success and (b) a motive to avoid failure, is embodied in O'Connor and Atkinson's (1962) Achievement Risk Preference Scale (ARPS). The Sherwood Achievement Scale (SAS) (Sherwood, 1966) was a short self-report questionnaire of nAch. Three items referred to competitiveness, striving for accomplishment, and goal setting. Entwistle (1968) constructed a 24-item yes-no self-rating inventory (AAMI) designed to assess nAch in an academic setting. More recently Smith (1973) presented a nAch measure (SAMB) containing 17 true-false items.

Relationships among nAch measures

Since the instruments cited above all purport to assess the achievement motive, it was reasonable to expect acceptable statistical relationships among the various measures. Weinstein (1969) examined the published relationships between the TAT and FTI, TAT and Graphic, TAT and EPS, TAT and vAch, FTI and EPPS, and TAT and SAS. He also reported results of his own study on intercorrelations between the TAT, FTI, Graphic, ARPS, SAS, EPPS and CIP, and the average r was a nonsignificant .04. Figure 2, with the added PIPT, MAS, Tartan Test, HAMQ, SAMB, ACL, LAMQ and ACT and the review by Weinstein, presents corelations among different measures of nAch (Fineman, 1977).

Of the 78 r 's presented in Figure 2 only 22 were statistically significant. This suggests that if nAch is presented in the TAT score, the same phenomena are not likely to be measured by any simple set of

Table I

Correlations Among Different Measures of nAch

<u>Study</u>	<u>Sample</u>	<u>Measures</u>	<u>Correlation With the TAT</u>
Himelstein et al. (1958)	77 Air Force Academy males	TAT-FTI	-0.07
Hofman (1965)	112 high school males		0.17
Shaw (1961)	18 high school male achievers		0.25
	20 high school male underachievers		0.09
Weinstein (1969)	176-179 college males		0.08
Knapp (1958)	68 college	TAT-Tartan	0.18
Aronson (1958)	26 college males	TAT-Graphic	.27
	18 college males		0.51*
Weinstein (1969)	176-179 college males		-0.01
Atkinson and Litwin (1960)	47 college males	TAT-EPPS	-0.05
Himelstein et al. (1958)	298 Air Force Academy males		0.00
Hofman (1965)	112 high school males		0.20
Marlowe (1959)	44 college males		-0.05
Shaw (1961)	18 high school male achievers		0.12
	20 high school male underachievers		-0.03
Bendig (1959)	244 college (136 male, 108 female)		0.11
Birney (in Atkinson, 1958a, p.38)	300		0.00
Melikian (1958)	69 college (50 males, 19 females)		0.16
Weinstein (1969)	176-179 college males		0.10
Grant et al. (1967)	148 managers		0.20s*
Morrison (in deCharms et al. 1955, p. 421)	College females	TAT-vAch	0.09
deCharms et al. (1955)	78 college males		0.23*
Sherwood (1966)	37 college males	TAT-SAS	0.40*
	80 college males		0.42**
	30 college females		0.29
Weinstein (1969)	176-179 college males		0.07
Hines (1973)	42 college and church	TAT-LAMQ	0.32*
	52 college and church		0.35*
Smith (1973)	89 males	TAT-SAMM	0.48**
Weinstein (1969)	176-179 college males	TAT-CPI	0.05

Table I (Cont.)

Skolnik (1966)	41 boys		0.01
	41 men		0.28
	43 girls		0.23
	43 women		0.39**
Weinstein (1969)	176-179 college males	TAT-CPI _{ac}	0.07
Skolnik (1966)	41 boys		0.09
	41 men		0.42**
	43 girls		0.32*
	43 women		0.18
Hermans (1970)	30 college males	TAT-HAMQ	0.13
	31 college males		0.20
Mehrabian (1968)	108 college males	TAT-MAS	0.28**
	109 college females		-0.11
Weinstein (1969)	176-179 college males	TAT-ARPS	-0.14*
Himelstein et al. (1958)	77 Air Force Academy males	FTI-EPPS	0.02
Hofman (1965)	112 high school males		0.17
Shaw (1961)	18 high school male achievers		0.51*
	20 high school male underachievers		0.26
Weinstein (1969)	176-179 college males		0.00
Gough & Heilbrun (1965, p. 22)	100 males	CPI _{ac} -ACL	0.30**
		CPI _{ai} -ACL	-0.01
Gough & Heilbrun (1956, p. 14)	90 college	EPPS-ACL	0.01
Edwards et al. (1972)	218 college (109 males, 109 females)	EPPS-PRF	0.25
Mukherjee (1965)	58 college mixed	SCT-vAch	0.44**
Weinstein (1969)	176-179 college males	EPPS-CPI _{ac}	-0.12
Gough (1964, p. 37)	45 males		0.04
Weinstein (1969)	176-179 college males	EPPS-CPI _{ai}	0.01
Gough (1964, p. 37)	45 males		0.19
Barnette (1961)	176 college mixed	IPIT-CPI	0.09
Mehrabian (1969)	114 college males	PRT-MAS _{ai}	0.62**
	98 college females		0.37

Table I (Cont.)

Weinstein (1969)

176-179 college males

FTI-ARPS	-0.08
FTI-Graphic	0.05
FTI-SAS	0.10
FTI-CPIac	0.04
FTI-CPIai	-0.07
Graphic-CPIac	-0.07
Graphic-CPIai	-0.03
Graphic-ARPS	-0.06
Graphic-SAS	-0.05
EPPS-Graphic	0.16*
EPPS-ARPS	-0.04
EPPS-SAS	0.11
ARPS-CPIac	0.23*
ARPS-CPIai	0.17
ARPS-SAS	0.18*
SAS-CPIac	0.04
SAS-CPIai	-0.04

* $p < 0.01$
** $p < 0.05$

(Fineman, 1977, p. 6)

choice-type items (McClelland, 1958). The TAT apparently measured "something different" than that which was alleged to be assessed. There was no evidence to suggest that alternative projective measures were assessing the same construct as questionnaire measures, since questionnaire instruments were themselves measuring different things.

One of the reasons for the measurement problem may be the confusion, within tests, of representing the nAch construct. This raises a question as to the psychometric adequacy of the various instruments and whether nAch, as a variable, is best manifested consciously or unconsciously.

According to Fineman (1977), a primary psychometric requirement of an nAch measure was that its items or parts were sufficiently homogeneous to be considered as representing a unitary construct. Provided this was so and, in addition, if there were internal consistency, one could then investigate the stability and validity of the measure.

A number of internal consistency coefficients were presented in Figure 3. Of the six projective instruments, four had acceptable reliabilities: the TAT, FTI, IPIT and Graphic. The most frequently researched instrument, the TAT, had a median coefficient of 0.32 rendering it potentially unsuitable for group and individual use. It is doubtful therefore that the TAT measured any unitary construct, let alone nAch. This would preclude the TAT from correlating with other nAch measures regardless of the psychometric properties of the latter. The internal consistency reported for the FTI, IPIT and Graphic were also too low to reflect a clear construct.

Reported internal reliability for the questionnaire measures revealed results unlike the projectives. The coefficients were much higher; they provided sufficient construct "purity" for group predictions. One could be reasonably confident that the EPPS, PRF, MAS, CAMS, HAMQ, SCT, SAMM, LAMQ and vAch were measuring some dimension of nAch.

A measure which has poor internal consistency is unlikely to be stable over time. This was supported by the stability coefficients for the projective instruments (See Figure 3.) Seven questionnaire measures of nAch reported stability. The stability of over half the questionnaire measures was unknown. Several of the available test-retest reliabilities were over short periods which was questionable particularly when the time span between successive administrations was as short as one week (Edwards, 1959; Jackson, 1967).

The most common and direct way of establishing validity for nAch measure was to seek a relationship within a performance criterion. McClelland et al. (1953) stated that there should be a significantly positive but moderate correlation between nAch and the actual efficiency of performance of various sorts. However, the theoretical propositions of Atkinson and Feather (1966) suggested this view could be an oversimplification. They alleged that performance and nAch most positively relate when an expectancy of satisfying nAch has been aroused.

Table 2

<u>Internal Consistency and Stability of nAch Measures</u>		
<u>Achievement motive measure</u>	<u>Internal consistency</u> ¹	<u>Stability across time</u> ²
	<u>Projective measures</u>	
TAT	0.27, 0.43 (Child et al. 1956) 0.54 (Lindzey & Herman, 1955) 0.28 ^a , 0.32, 0.38 (Reitman & Atkinson, 1958) 0.27 (Weinstein, 1969) 0.31 ^b (Scott & Johnson, 1972)	0.22 ^a (2 weeks)(McClelland, 1955) p.26 (0 weeks)(Krumpoltz & Farquhar, 1957) 0.16 ^{ah} , 0.22 ^h , p.32 ^h (3 years), (Kagan & Moss, 1959) 0.44 ^h (2 weeks)(Lowell, in Kagan & Moss, 1959) 0.34 ⁱ , 0.36 ⁱ , 0.31 ⁱ (10 years)(Moss & Kagan, 1961).
Heckhausen	--	0.40 to 0.60 (5 weeks)(Heckhausen, 1967 p. 20)
FTI	0.48 (Weinstein, 1969)	-0.06 ^a , 0.17 ^a , 0.45 (5 months)(French, 1955) -0.36 (7 weeks)(Himmelstein & Kimbrough, (1960)
IPIT	0.34 ^c (Hurley, 1955)	0.52 ^j (6 weeks)(Hurley, 1955)
Graphic	0.21 ^k (Aronson, 1958)	0.36 (1 week)(Weinstein, 1969)
Tartan	--	--

Cont.

<u>Achievement motive measure</u>	<u>Internal consistency</u> ¹	<u>Stability across time</u> ²
<u>Comprehensive personality inventories</u>		
EPPS	0.74 (Edwards, 1959) 0.59 ^b (Scott & Johnson, 1972)	0.74 (1 week)(Edwards, 1959)
CPI _{Ac} ³	--	0.73, 0.60 (1 year); 0.79 (7-21 days) (Gough, 1964)
CPI _{Ai} ³	--	0.57, 0.63 (1 year); 0.71 (7-21 days) (Gough, 1964)
PRF	0.77 ^d , 0.77, 0.86 (Jackson, 1967) 0.73 ^d , 0.72 ^d (Jackson, 1967)	0.80 (1 week)(Jackson, 1967)
SDI ³	--	--
ACL	--	0.81, 0.74 (10 weeks)(Gough & Heilbrun 1965) 0.60 (6 weeks)(Gough & Heilbrun, 1965) 0.52 (5½ weeks)(Gough & Heilbrun, 1965)
<u>Specific questionnaire measures</u>		
MAS (long form)	--	--
MAS (short form)	0.76 ^e , Male Scale; 71 ^e , Female Scale (Mehrabian, 1968)	0.78 Male Scale, 0.71 Female Scale (10 weeks)(Mehrabian, 1968)

Cont.

<u>Achievement</u> motive measure	<u>Internal consistency</u> ¹	<u>Stability across time</u> ²
<u>Specific questionnaire measures</u>		
CAMS	0.73, 0.82 (Costello, 1967)	--
LAMQ	0.36 ^f (Lynn, 1969)	--
HAMQ	p.82 ^d (Hermans, 1970)	--
vAch	0.30 ^f (de Charmes et al. 1955)	--
SCT	0.72 ^d (Mukherjee, 1965)	0.71 (2 months), 0.75 (6 weeks), 0.83 (3 months) (Mukherjee, 1965)
RAMQ	--	--
ARPS	--	--
SAS	--	--
AAMI ³	--	0.83 (2½ months) (Entwistle, 1968)
SAMM	0.56 (Smith, 1973)	--

¹ Significant split-half r, unless otherwise noted.

² Significant test-retest r, unless otherwise noted.

³ This instrument is empirically constructed, a strategy which depends on the relationship with a criterion as demonstration of item consistency rather than on the internal characteristics of the measure.

Cont.

- a Not statistically significant
- b Coefficient alpha.
- c r between five-choice subgroups
- d Kuder-Richardson Formula 20
- e Average item-whole
- f Median item loading on a single factor.
- g All items loading at least 0.30 point-biserial correlation
- h Phi coefficient.
- i Contingency coefficient.
- j Rank-order correlation
- k Average item-item

(Fineman, 1977, p. 9)

Possibly studies which demonstrated a lack of relationship between a nAch measure and performance were reflecting inappropriate situational circumstances for achievement-motivated performance (Atkinson & Reitman, 1956; Atkinson & Litwin, 1960; Reitman, 1960; Feather, 1961; Andrews, 1967; Litwin and Stringer, 1968). With the exception of the FTI, the performance validity for the projective measures was poor.

Figure 4 reports that criterion validity of questionnaire measures of nAch was generally higher. There seemed sufficient evidence of validity to be reasonably confident that six questionnaire measures operated as a nAch measure: CPI, PRF, MAS, SAS, AAMI and HAMQ. Only the PRF and MAS had good reported internal consistency and stability. It appeared, then, that psychometric properties of the majority of questionnaire instruments do not satisfy a close scrutiny.

Another possible reason why projective measures of nAch tend not to correlate with questionnaire techniques is that questionnaires may be unable to uncover the "real" motive, whereas the projective measures are considered capable of doing so (McClelland, 1958). McClelland argued that responses to a questionnaire may be dictated more by the conscious self-image than the motive. He assumed that individuals were unlikely to be able and willing to report accurately in questionnaires, but were able to do so in projective measures. Holmes (1971) challenged the valid assessment of that which is unconscious. He argued that because the nAch trait is designated as unconscious, it is therefore assessed through the use of time-consuming unreliable projective techniques.

Table 3

Criterion Validities of Questionnaire Measures

<u>Measures</u>	<u>Source</u>	<u>Criterion</u>	<u>Sample</u>	<u>Relationship with criterion !</u>
CPI _{Ac}	Gough (1964)	School grades	1235 females	0.41**
			946 males	0.41**
CPI _{Ai}		Staff ratings	100 military officers	0.30**
		School grades	220 students	0.44**
		Success-potential rating	40 students	0.31**
		Course grades	917 students	0.38**
PRF	Jackson (1967)	Behaviour rating	94 students	0.50**
			36 students	0.62**
			40 students	0.53**
			51 students	0.52**
			202 students	0.46**
		Trait rating form	40 students	0.55**
		Self-rating	51 students	0.42**
		202 students	0.65**	
SDI	Ghiselli (1971)	Job success	177 managers	0.24** (av)
			87 line supervisors	-0.07 (av)
			152 line workers	-0.08 (av)
		Occupational level	34 unskilled, 69 semi-skilled, 64 skilled, 157 foremen, 102 clerks, 177 middle managers, 113 upper managers, 57 professionals	Progressive increase in SDI score the higher the occupational level (no statistical test)

Cont.

<u>Measures</u>	<u>Source</u>	<u>Criterion</u>	<u>Sample</u>	<u>Relationship with criterion !</u>
MAS (long form)	Mehrabian (1968, 1969)	Zeigarnik effect	205 males	Significant tendency favoring high nAch people
MAS (short form)		Match stick problem: No. of problems attempted	57 males	0.38**
		No. of problems solved	50 females 57 males 50 females	0.23 0.37** 0.32*
LAMQ	Lynn (1969)	Known groups	200 students 40 entrepreneurs 28 professors 45 managers	Students score significantly lower than the other groups
HAMQ				
	Hermans	Pursuit rotar: Number of hits	32 male students 35 male students	p = 0.08, 0.11 (neutral condition) p = 0.32, 0.41* (ach condition)
		Academic performance	80 students	p = 0.14 (non-ach condition)
		Exams completed	38 students	p = 0.57** (ach condition)
		Grades	80 students 38 students	p = 0.13 (non-ach condition) p = 0.34* (ach condition)

Cont.

<u>Measures</u>	<u>Source</u>	<u>Criterion</u>	<u>Sample</u>	<u>Relationship with criterion !</u>
SCT	Mukherjee (1965)	Psychology examination Thurstone's Primary Mental Abilities, plus other cognitive and spatial tests	87 students (51 male, 36 female) 87 students (51 male, 36 female)	0.12, 0.10 4 out of 24 r's significant Highest r = 0.26
vACH	de Charms et al. (1955)	Scrambled Words Test	45 females	No significant difference in performance between high and low vAch subjects
ARPS	Weiner (1966)	Zeigarnick effect	33 male students 37 female students	Significant tendency favoring high ARPS males only
	Kasl (in Atkinson & O'Connor, 1966, p. 302)	Slope of reported satisfaction with occupations at different status levels	33 employees	0.51**
SAS	Sherwood (1966)	Scrambled words test, plus digit adding test	37 male students 30 female students 80 male students	0.48* 0.37* 0.45*

Cont.

<u>Measures</u>	<u>Source</u>	<u>Criterion</u>	<u>Sample</u>	<u>Relationship with criterion !</u>
AAMI	Entwistle (1968)	Teacher's motivation rating	41 (high) pupils vs. 67 (low) 12 (high) pupils vs. 38 (low) 158 pupils	Significant difference favoring high AAMI Median p = 0.38**
		Teacher's estimate of attainment	1385 boys: age 13 age 12 1322 girls: age 13 age 12	0.50** 0.41** 0.41** 0.36**
SAMM	Smith (1973)	Known groups	44 men from 'Who's Who' vs. 89 non-exceptional men The 'Who's Who' group broken down into Business and Commerce vs. Universities and Civil Service	Significant difference favoring 'Who's Who' sample Significant difference favoring 'Business and Commerce' sample
EPPS	Edwards (1959)	--	--	--
ACL	Gough (1960)	--	--	--
CAMS	Costello (1967)	--	--	--
RAMQ	Argyle & Robinson (1962)	--	--	--

* P < 0.05; ** P < 0.01; ! r, unless noted otherwise

(Fineman, 1977, pp. 13 & 14)

However, there did not appear to be a clear theoretical case for treating nAch as an exclusively unconscious variable, and therefore it should be amenable to direct measurement (Murray, 1938). In fact, it seems logical to assume that one's nAch can be verbalized. Achievement issues are very much a part of western society. Success, ambition, goals, and so on, make up a person's everyday life. It seems reasonable to expect an accurate self-assessment on these and other achievement dimensions. Thus, there are two sides to the argument of whether direct or projective measures of nAch are preferable.

The future of nAch and its measurement

Although operationalization of the nAch motive poses problems, it does not diminish the plausibility and worth of the construct. Attention must turn to better ways of measurement. Obviously, progress toward studying and understanding human behavior has been slow since the measures used have poor reliability and validity.

The present review suggests that projective measures cannot be justified on conventional psychometric grounds. The evidence for direct questionnaires indicated that reliability and validity were attainable, but it was rare to find both criteria met in any one instrument.

If the problem of measuring nAch is to improve, the following considerations should be kept in mind.

1. People are able to consciously report their level of achievement motivation; therefore, the questionnaire technique is an appropriate device (Fineman, 1977).

2. Validity and reliability depend in part on how well the instrument samples descriptions or attitudes which represent nAch. Most of the existing questionnaire measures either implicitly or explicitly reflect general levels of achievement. It is unlikely that a 3-item (SAS) or 8-item (LAMQ) instrument covers the breadth of the concept. Ideally, items should come directly from the theoretical definitions of the construct, and from as many different consistent findings in the area as possible. If the instrument is to measure a specific domain of nAch, such as sport, the items need to reflect the variety of achievement-related experiences found in sport situations. These measures should not be expected to correlate highly with more generalized instruments although there should be some relationship.

3. Only some questionnaire measures attempt to control for distortion of responses. In nonassessment settings, items similar to those of Argyle and Robinson (1962) have the virtue of being simple and straightforward and should elicit a reasonably honest response.

4. The existing questionnaire and projective measures reviewed were nearly all developed on student populations. Achievement motive measures developed in such a way are invalid beyond the standardization group; hence, demonstrations of cross-validity are required.

If the study of nAch is to be meaningful, there is need for consistent measurement of the construct. The present review suggests that this consideration has been taken for granted. The problem for the test constructor is to balance the structured nature of the

questionnaire with the more ambiguous "real world" of the respondent. If measures are designed with specific populations in mind, such a balance may be more likely to be achieved.

Q Technique

Q methodology is associated with Stephenson (1953). The technique encompasses a set of philosophical, psychological, statistical, and psychometric ideas oriented to study individuals rather than the subject matter of tests. Q technique is a sophisticated way of rank-ordering objects, e.g., items, stimuli, attitudes, etc., and then assigning numerals to subsets of the objects for statistical purposes. Sorting instructions and the objects sorted vary with the purposes of the research. For example, subjects can be asked to sort attitudinal statements on an approval-disapproval continuum. Or, they can be asked to sort personality items on a "most like me"- "least like me" continuum. Abstractions can be sorted according to strength of preference (Kerlinger, 1973). The technique has numerous applications for studying behavior.

The number of cards in a Q distribution is determined by convenience and statistical demands. For statistical stability and reliability a recommended range of cards is from 60 to 90. "In part, Q distribution is an arbitrary matter" (Kerlinger, 1973, p. 584). The important consideration is that there is adequate representation of the population universe under investigation. Most published Q studies used unstructured sorts, sets of items assembled without specific

regard to the organization of underlying variables or factors (Kerlinger, 1973). This approach has more or less dominated Q studies. However, the potential for one of Stephenson's major contributions is overlooked by such an approach. That is, the testing of theory and the principle of building theory into sorts by means of structured samples of items is often ignored by researchers.

In a structured Q sort, the variables of a theory or hypothesis/es are built into a set of items along Fisherian experimental and analysis-of-variance design principles. The items of a structured Q sort are in one domain, and they are partitioned in one or more ways. In using Q technique, as Stephenson sees it, individuals sort the cards to test the theory that has been built into the cards (Kerlinger, 1973).

If a theory is valid, and if the Q sort adequately expresses the theory, the statistical analyses of the sorts support the validity of the theory (Kerlinger, 1973). That is, an individual with "known" values--in the case of the present study, a high calibre athlete--is expected to place cards in such a way as to represent his motivation to achieve. Theories and hypotheses can be tested in this manner by having subjects of known characteristics, attitudes, personality, and roles, sort items which represent a theory.

In addition to the analysis-of-variance structured sort approach, correlation analysis on an unstructured sort is also appropriate (Kerlinger, 1973). To date, most Q studies have utilized the forced-choice response approach since it approximates a normal distribution. That is, the forced procedure standardizes the response set of all

Q sorts so as to obtain a normal distribution. Advances in computer technology since Stephenson's introduction of Q technique has enhanced the computational-statistical convenience needed to carry out Q methodology.

There are a number of researchers who support the forced-response procedure (Block, 1956; Livson & Nichols, 1956; Brown, 1971). There are also those who favor the unforced-response format (Gaito, 1962; Jones, 1956; Cronbach & Gleser, 1954; Fiske, 1971; Brown, 1972). Support for the unforced or free-sorting procedure utilizes the following arguments: (a) the forced procedure imposes unnatural, unreasonable, and artificial constraints on sorters and hence a loss of important statistical information; (b) standard deviation (scatter) and means (elevation) are preserved in the unforced procedure.

In response to the forced/unforced response issue, Kerlinger (1973) maintained that neither procedure was superior and recommended that the appropriateness of the sorting technique was dependent on the nature of research and the judgment of the researcher. Kerlinger saw the main strengths of the Q technique as: (a) its close affinity to theory; (b) suitability to intensive study of the individual; (c) capability of testing the effects of independent variables on complex dependent variables as in the case of sorting before and after the manipulation of some treatment; (d) its heuristic quality and having usefulness in exploratory research; and (e) having possibilities of extensive statistical analyses. The present study acknowledges a, d, and e, above in the use of Q.

In sum, Q methodology has a valuable contribution to make to behavioral research. It is not well suited to testing hypotheses over large cross sections of individuals, nor can it be used too well with large samples. Generalizing to populations is limited when using Q technique; however, this is not the intent of Q. Rather, one tests theories on sets of individuals carefully chosen for their "known" possession of some significant characteristic/s. Variables are explored for their identity, interrelation, and functioning. Used this way, Q is an important and unique approach.

Berlin's Model of Motivation in Sport

Throughout the nAch literature, one finds references or inferences to sport. For example:

.... the association between nAch and sport is not unreasonable: by definition people with a high level of nAch show much inner concern with doing something well with striving to achieve or surpass some standard of excellence. Shouldn't they, then, be interested in competitive games?" (McClelland, 1961, p. 320)

Related marginal studies in sport which pertain in varying degrees to nAch were carried out by Noble (1955), Ryan (1961), Ulrich and Burke (1957), Ryan and Lakie (1965), and Lakie (1967). With respect to the actual context of sport, nAch was researched by Ogilvie (1968), Hammer (1967, 1970), Willis (1968), Gorsuch (1968), Bouet (1969), Plummer (1969), Vanek and Hosek (1970), Vanek and Cratty (1970), Webber (1970), Burton (1971), Ross (1972), Orlick (1973), Butt (1971, 1979), and Hammer and Tutko (1974). These investigations vary greatly in focus and strategies.

In 1971, Berlin began investigating the theoretical structure of the nAch motive of athletes by measuring the motivational tendencies of collegiate women athletes. Her research was directed toward model building. The investigations attempted to understand achievement motivation as a manifestation of the sport milieu. Successive inquiries along with supportive studies (Smith, 1975, Fodero, 1976), endeavored to describe, specifically, the motivational tendencies of athletes in terms of a consistent, integrated structure.

In the initial study, Berlin (1971) formulated a hypothetical theory of the motivation of athletes based on accepted ideas from personality theory and sport literature. The research was carried on to test the theory. Ideas about achievement motivation were accommodated in the work. These are presented in Figure 2. Achievement motivation, as conceptualized by McClelland (1961), Atkinson and Feather (1966), Maehr and Sjogren (1971), Heckhausen (1967), and de Charms (1968) was designated as the broad frame of reference for her theory. Four motive categories purportedly describing competitive sport were identified. Berlin alleged that striving behavior in sport (a) contributed to self-regard, (b) enabled self-expression, (c) provided opportunities for social interaction, and (d) challenged one's ability to be masterful. These were each seen as having positive and negative affects.

As part of the process of model building, Berlin developed an instrument to test the theory. Deciding in favor of a direct measure, rather than a projective one, Berlin (1971) used a variation of

<u>Frame of Reference</u>	<u>Concepts</u>	<u>Proponent</u>
ACHIEVEMENT MOTIVATION	Motives are learned Motives involve two points on an affective continuum (+/-) The achievement motive is the mainspring of entrepreneurial activity.	D. McClelland
	Achievement-oriented activities are goal-directed tendencies determined by: motives, expectations, incentive values	J. W. Atkinson and N. T. Feather
	Achievement motivation must be understood in terms of the sociocultural context in which it is found Situational variables are important	M. L. Maehr and D. Sjogren
		also: R. de Charms H. Heckhausen

Figure 2. Achievement motivation frame-of-reference
(Berlin, 1972, p. 86)

Stephenson's (1953) Q technique to determine responses to ideas embodied in her theory. An 80-item forced-choice Q sort was designed to represent the reasons why women athletes participate in sport. Responses were scored on an 11-point reference continuum ranging from "Most Like Me" to "Least Like Me". Statements were judged for validity by a carefully selected group of sport psychologists.

The sort was administered to 212 women collegiate athletes representing seven colleges and more than a dozen sports. Results of the analysis had several implications for the restructuring of the hypothetical model. Since no significant differences existed between the motive categories self-regard and social interaction, these were both consolidated to become "self-regard". The three major motives underlying achievement motivation in sport were then described as contribution to a participant's self-regard, challenges for attainment of mastery, and opportunity for expression and interaction¹ (Berlin, 1973). These are described in Figure 3.

Results of factor analysis acknowledged the following factors within the theoretical structure of women athletes' motives: (a) the experience of stress, (b) the maneuvering for accomplishment, (c) the gratification of role interests, (d) the consequences of affiliation, and (e) the satisfaction of adjustment and recognition. These were drawn as vertical elements of the model and are presented in Figure 4. They were collectively labeled as Personal Derivatives.

¹The label for this motive cluster has been changed at various stages of the model development. One of the names, Dynamic Interactions, was used in the 1973 schematic.

<u>Motive Category</u>	<u>Concepts</u>	<u>Proponent</u>
MASTERY	Competence	R. W. White also: E. Erikson, S. Butt
DYNAMIC INTERACTIONS	Centering of the organism; self-actualization; "coming to terms" with the environment	K. Goldstein
	The integrating self; time, values, meaning as factors in determining goals	C. Buhler also: A. Angyal, H. A. Murray, H. S. Sullivan
SELF-REGARD	Socially formed self; self as an object of awareness rather than a system of processes	G. H. Mead
	Uniqueness of the individual; extension of self; multiplicity of motivation	G. W. Allport
	Motivation as expressive rather than coping; need gratification; self-actualization	A. H. Maslow

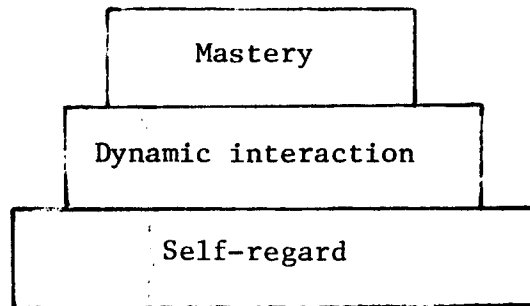


Figure 3. Basic Motive Categories (Berlin, 1973, p. 86)

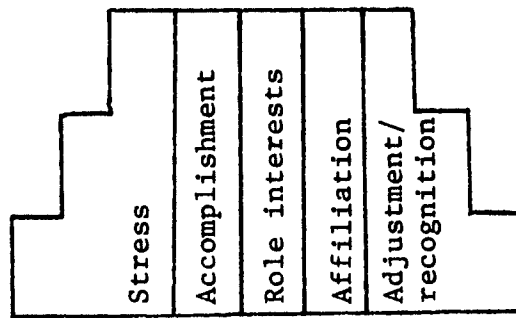
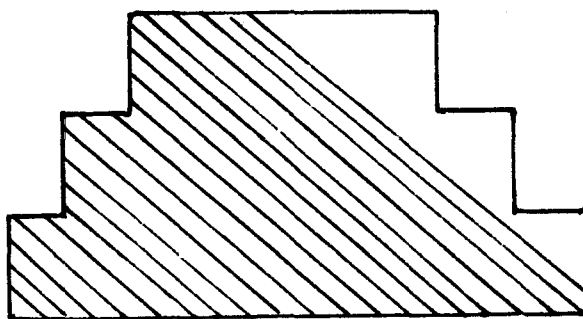


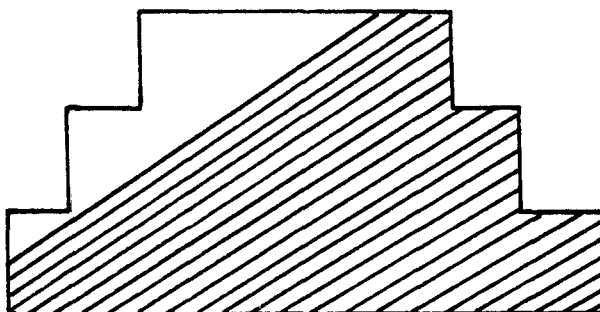
Figure 4. Personal Derivatives (Berlin, 1973, p. 86)

The clustering of positive affect statements at the "Most Like Me" end of the Q sort continuum and the clustering of negative affect statements at the "Least Like Me" end revealed a theme of personal responsibility in relation to the athletes' performance. Berlin interpreted this finding as associated with the increasingly popular psychological construct, "locus of control". Hence another consideration to be structured in the model was identified.

This was accomplished by additional data collection. Groups of athletes were given the series of Q statements to evaluate according to whether or not the source of affect associated with each statement derived from (a) the sport situation, (b) the individuals themselves, or (c) both. Results of the source-of-affect refinement of the sort provided an addition to the analogue as represented in Figure 5. The overlay of personal and situational sources represents athletes' perceptions that most of their affects derive from both themselves and the sport situation, except for certain stress and adjustment/recognition personal derivatives.



Source of Affect: Personal--The Individual



Source of Affect: Situational--The Sport Experience

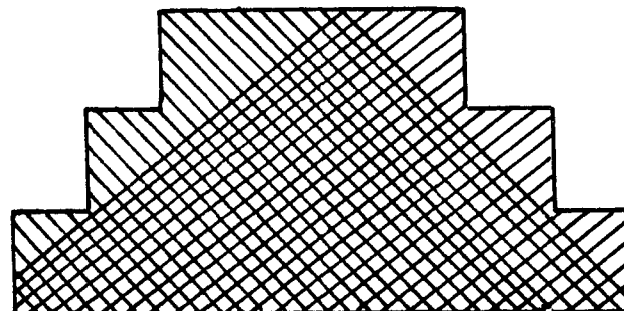
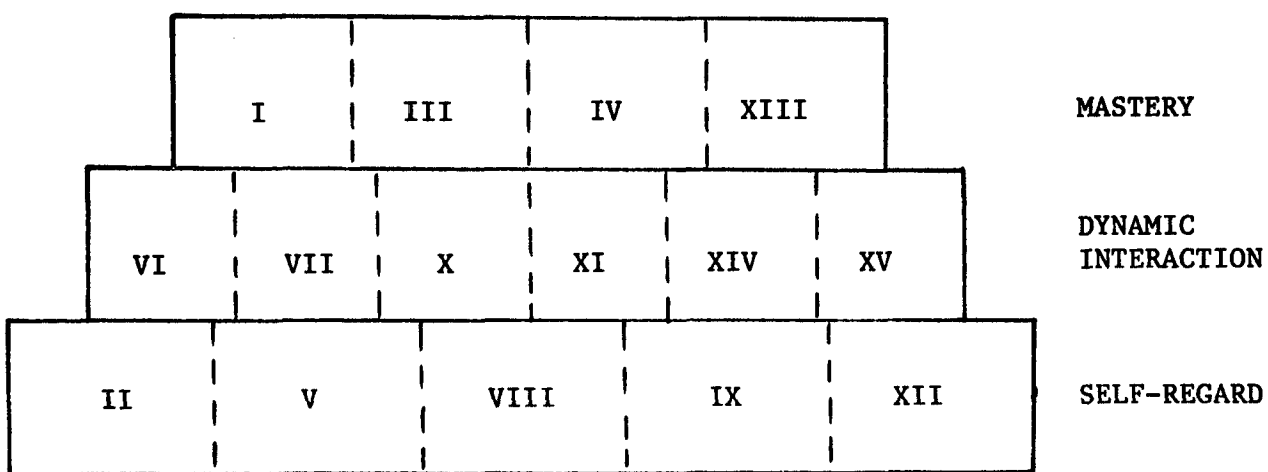


Figure 5. Composite Model (Berlin, 1973, p. 86)

In an attempt to test Berlin's Tentative theory of achievement motivation in sport, Smith (1975) and Fodero (1976) used Berlin's (1973) Q Sort on both male and female athletes. Smith's study supported the horizontal structures, the three motive categories, of the model. Therefore, personal derivative designations were omitted from the structure. In their place, within the three motive categories, 15 more specific factors which have their own meaning and also relate to the horizontal structure, were identified. Smith added them to the model as depicted in Figure 6.

Fodero (1976) studied only the horizontal dimensions of the model. He worked with nationally ranked collegiate gymnastic teams. Fodero found no significant difference in levels of achievement motivation between males and females, between performance levels within or between sexes, or for the combined effect of sex and performance. For the three motivational tendencies he found no significant differences among subjects with respect to sex, performance level, or the combined effect of sex and performance level.

Neither Smith nor Fodero attempted to validate the Q sort used to generate their data; rather the validity of the Q sort was a basic assumption underlying each study. Berlin interpreted both of these inquiries as important contributions to her model. The added specificity of the factors within each of the three motive categories which came from Smith's work was regarded as adding to the integrity of the horizontal structure of the model. The identification of statements which loaded on more than one factor provided the basis of further refinement of the Q sort. Fodero's results provided the evidence



PERSONAL SPORT MOTIVATION FACTORS

Mastery

- I Goal commitment
- III Skill-related adjustment
- IV Response to pressure
- XIII Effectiveness

Self-Regard

- II Coping with failure
- V Self Confidence
- VIII Ego Gratification
- IX Anxiousness
- XII Self Interest

Dynamic Interaction

- VI Sociability
- VII Release
- X Belonging
- XI Adventure
- XIV Social Accommodation
- XV Conflict Adaptation

Figure 6. Revised Model of Collegiate Women's Sport Motivation (Smith, 1975)

necessary to expand the study to include athletes of both sexes.

Berlin maintained that beyond early athletic development, individuals who made a commitment to pursue competitive sport--males and females alike--had similar achievement motivation orientations.

Moreover, the soundness of the fundamental research strategy, that is, using a selected sample of collegiate athletes, was supported by Fodero's similar findings from his high-level and lower-level performers. Given that both groups were on nationally ranked squads, Berlin's assumption that their motivation was not "contaminated" by ability was upheld. Thus, the notion that sport motivation may be generalized across a restricted range of performer levels received some endorsement.

Since the contributions to the model made by Smith and Fodero, Berlin has continued to refine her ideas. The 1980 version of her model is presented in Figure 7.² Continued efforts to study sport motivation have reinforced many of her earlier ideas and, also, caused her to change some earlier thinking about the concept. She called attention to the following characteristics of the model (Berlin, 1980).

The circle surrounding the motivation structure is labeled the sport environment. The idea that human beings function in a variety of situation-specific environments has been strongly documented by Berlin. She claims that there are numerous unique elements in the

²The schematic drawing of the model, Figure 7, and the subsequent explanation in the text are taken from Berlin's work-in-progress. At the time of writing the present report, her culminating effort in the building of the model is being documented.

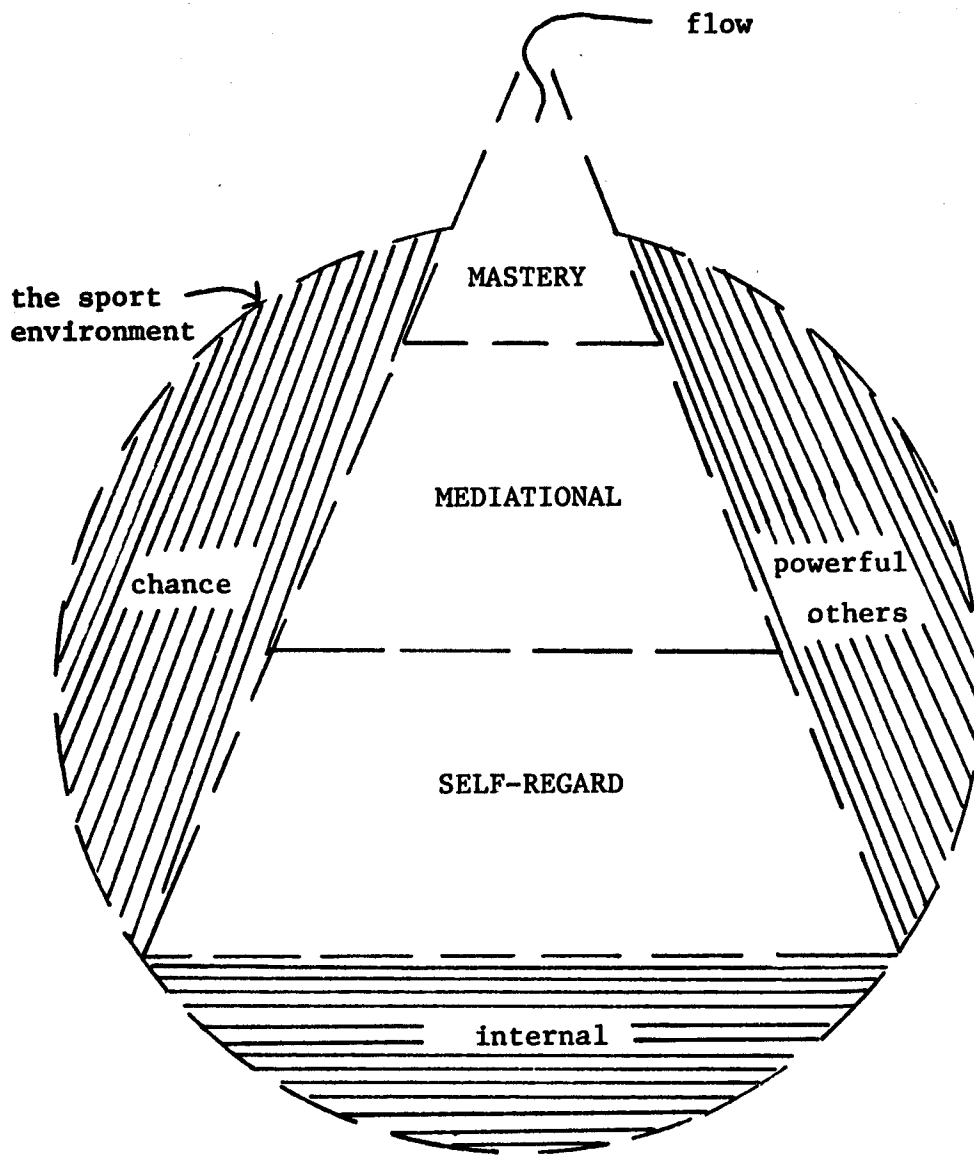


Figure 7. Behavioral Model of Sport Motivation (Berlin, work-in-progress)

sport setting which permit it to be set off from other "life space" environments. These elements, she alleges, are an integral part of the motivational structure.

The fundamental achievement motivation framework was maintained and the structured Q sort encompassing the three motive categories was slightly modified. In place of statements that did not load on any of the three motives, new statements were written and submitted to jurors. Statements that loaded on more than one category were revised to make them more specific to self-regard, mediational or mastery facets of the sort. Five statements were redeveloped to represent Csikszentmihalyi's (1975) idea of "flow". The idea that the flow experience is perceived by competitive athletes was tested and supported by McGirr (1979). This was depicted in the model as extending beyond the immediate sport environment.

Berlin argued that esteem for self, the Self-Regard category, forms the foundation for sport motivation. She juxtaposed internal locus of control along the base of the triangle. The model shows mastery, the skill and task execution elements of sport, at the top of the structure. Berlin points out that the mediational elements, the sport-specific situational elements, are responsible for "uniting" or bringing together the athlete's self-regard and her/his abilities. Therefore the triangular shape with the broad base and the open-ended peak which accommodates the concept of the flow that the athlete experiences is intentional.

In place of the previous internal (personal) and external (situational) source of affect described in Figures 5 and 6, Berlin adopted Levenson's tripartite locus of control explanation. Extensive research supported a sport version of Levenson's internal, powerful others, and chance scales (Berlin, 1978).

As a result of her work with hundreds of athletes over the years, Berlin is strongly committed to the idiosyncratic nature of sport motivation. While she argues about the generalizability of the concept across sport and gender lines, she reserves the opinion that each individual athlete can and does have her/his own unique structure. Her research to date suggests that this is not manifested as much in the multifaceted structure involving the three categories as it is in each athlete's perception of her/his source of affect.

The findings of the present study are considered as adding a considerable amount of important information to the overall examination of sport motivation. After testing the relationship to a generalized measure of achievement motivation, Berlin anticipates concluding the model building.

CHAPTER III

PROCEDURES

The purpose of this research was to examine the relationship of Berlin's Sport Motivation Q Sort with Hall's Q Ach, a generalized measure of achievement motivation, and to analyze the motivational tendencies of high calibre soccer players. A selective literature review, research and other materials directly related to the focus of the present study, was first undertaken. Then, the following procedures were followed in carrying out the inquiry.

Selection of Athletes

The date-generating sample was limited to 120 athletes selected from high calibre soccer teams competing at a juvenile, collegiate and professional level, herein defined. The players' participation was solicited by written or verbal request from the investigator to the team coaches or managers. Three teams for each level of play contributed 40 subjects. Each of the nine teams, at the time of testing, was having a winning season.

Only athletes who had competed for at least one season at the current level were admitted to the study and only those who could read and comprehend the English language were included. Of the total 165 athletes who completed the sort, responses of 27 were eliminated on the basis of the preceding criteria. In order to obtain equal group sizes, a random selection procedure eliminated 18.

The participating teams were: (a) for the professional level, Dallas Tornados, Washington Diplomats, and Houston Hurricanes.

(b) for the Division I collegiate level, the Universities of North Carolina at Chapel Hill and Charlotte, and Duke University; and (c) for the juvenile All-Star level, the Raleigh Rockets, Greensboro Kickers, and Dallas Kicks.

The selection of a biased sample was necessary since the motivational elements represented in the Q sort had to be part of the subjects. The association with "most like me" and "least like me" statements could not be made by nonathletes. It was anticipated that responses about motivation from nine different successful high calibre teams representing three performer levels would be likely to attain homogeneity among groups and representation of the need to achieve construct.

Instrumentation

The selection of a paper-and-pencil test measuring nAch to compare with Berlin's Sport Motivation Q Sort was arbitrary. Valid paper-and-pencil measures of achievement motivation were hard to find since the need for achievement is traditionally assessed in a projective format, that is, by the use of the Thematic Apperception Test (TAT). Lynn (1969) identified disadvantages related to the TAT, the chief of which were imperfect reliability among scorers, special training required of the administrator, and the lengthy process of administration. Since a paper-and-pencil test was desired for the present study, TAT measures were not suitable.

The instrument selected to measure achievement motivation was initially developed by Robinson (1961). The scale consisted of two sets of questions, one reflecting a need for success, and the other, an avoidance or fear of failure. An achievement motivation measure (QACH) was arrived at by summing the need for success and avoidance of failure scores with the scores on the third set of items. This particular instrument was employed for the following reasons: (a) its theoretical framework, like Berlin's, was based on McClelland's theoretical concept of achievement motivation, (b) it was administratively feasible, (c) it had prior research use with respect to physical activity, and (d) it sufficiently generalized the nAch construct.

Robinson's original scale was slightly modified by Hall (1974) from a version used by Argyle and Robinson (1962). Although Hall (1974) and Richardson (1974) found QACH, QACHNS and QACHAF to be valid measures when compared to Lynn's (1969) and Costello's (1967) tests, their findings support the view that paper-and-pencil tests of achievement motivation tend to be specific and should be viewed cautiously.

The Berlin Sport Motivation Q Sort derives from an athletic motivation model devised by Berlin from responses to an original 80-statement Q sort (Berlin, 1971). In a reliability substudy, Berlin (1971) found a significant relationship between statement sorts and resorts in four motive categories. Further delineation of her conceptual model via factor analysis revealed five personal derivatives

that cut across three motivational tendencies--mastery, self-regard, and dynamic interaction (Berlin, 1973). Although Smith (1975) questioned the viability of the personal derivatives, all three basic motivational tendencies were affirmed as pervasive elements in the horizontal structure of Berlin's athletic motivation model (Fodero, 1976). Berlin (1980) has since reviewed and revised the sort to its present form. See Appendix A. To date there has been no attempt to validate this inventory. The research strategy employed in Berlin's measurement utilizes a rank-ordering technique (Stephenson, 1953; Kerlinger, 1973) in which a theory is represented by the statements constituting the sort. The theory, according to Berlin, is consonant with notions of achievement motivation.

There is some controversy over the use of forced versus unforced response procedures in Q sorting technique (Kerlinger, 1973). Generally, the particular technique of sorting is contingent upon the type of measurement under investigation. For the present study, an unforced or open format was used. The subjects were free to assign any number of statements to the seven columns representing a continuum of self-description ranging from "most like me" to "least like me". To encourage sorters to make discriminations among the statements describing their sport participation, respondents were required to place at least one statement in each column. However, since conformity to a predetermined distribution was not necessary, the results did not approximate the analysis; nonetheless, the spread and scatter of responses as obtained were considered fundamental to the purposes of the study.

Preparation and Administration of the Data Collection

The preparation and administration of the testing material was carried out solely by the investigator between April and September, 1979. The following data collection was pursued.

<u>Team</u>		<u>Location</u>	<u>Collection Dates</u>
Raleigh Rockets	(Juv)	Raleigh, N.C.	April 15
Greensboro Kickers	(Juv)	Greensboro, N.C.	April 29
Dallas Kicks	(Juv)	Dallas, Texas	June 9
Dallas Tornados	(Pro)	Dallas, Texas	July 24
Houston Hurricanes	(Pro)	Houston, Texas	August 6 & 8
Washington Diplomats	(Pro)	Washington, D.C.	August 23
UNC-Chapel Hill	(Coll)	Chapel Hill, N.C.	September 18
UNC-Charlotte	(Coll)	Charlotte, N.C.	September 25
Duke University	(Coll)	Durham, N.C.	September 27

Figure 8. Schedule of Data Collection

Each athlete was provided with a deck of 60 cards. On each 3 x 5 card was typed one of the 60 self-reference statements. A complete list of the statements and their assigned representation in Berlin's hypothetical model is included in Appendix A.

Each soccer team was measured in the middle of the competitive season and within 24 hours of a competitive match. The sorting was done by each team as a whole and in a single session. The setting was an isolated area free from external stimuli. On a clip board, along with a pencil, each subject received the materials presented in Appendix A.

The investigator began each session with a short explanation about the study. The nature of the informed consent was explained and forms completed. See Appendix A. Directions were then given by the investigator for the completion of Hall's (1974) Q Ach modification. This instrument was administered first because it required approximately only five minutes to complete. The larger instrument (Berlin's Q Sort), which has a more varied completion time, was administered second.

Next, the sorting instructions were read aloud as the subjects reviewed the written instructions. A sample response sheet for the Q Sort was presented to demonstrate that there was no specific pattern to follow and to encourage sorters to place as few or as many statements as they wished in each column. Any questions raised by the subjects were answered by the investigator before the sorting began. The task of sorting the statements was completed by recording the appropriate statement number indicated on each card in a column on the response sheet. There was no time limit and upon completion of the sorting task, subjects returned their material to the examiner who in turn scanned both inventories for any observable errors.

Organization of the Data for Analysis

Numerical conversion sheets were used to assign values to each athlete's sort. "Most like me" statements were valued as 7, next most as 6, next as 5 according to their representativeness of nAch. Highest need to achieve was quantified by 5. When called for by the manner in which the statement was written, the investigator reversed

the scoring accordingly. Scoring was carried out according to Hall's and Berlin's procedures.

The data were recorded on Fortran coding forms and then transferred by Key punching to cards. Statistical computations were carried out at the University of North Carolina Academic Computing Center using selected programs from the S.A.S. (Statistical Analysis System). The coding scheme is presented in Appendix B.

Rationale for the Analysis of the Data

Given the variety of statistical applications available to researchers today, the decision as to which technique to apply is arbitrary. It was the investigator's choice to analyze with rigor rather than demonstrate how many ratios and coefficients the computer could be programmed to calculate. Two very important considerations guided the specific statistics used: (a) the unforced (open) response format used in Q sorting, and (b) the biased sample.

To assure that the assumptions underlying inferential statistics were not violated, correlational analytic techniques were utilized in order to answer the first research hypothesis tested in this study. The rationale for examining relationships rather than using inferential techniques was based on the characteristics of the present study. By using an unforced Q response format and a biased sample of high calibre athletes, the normality of the obtained distribution of the data was sacrificed. This was however a reasoned research decision made by the investigator. Although the forced response procedure generates a distribution of statement values approximating a normal curve, the

procedure constrains the sorter to conform to a predetermined and prevalued distribution. The unforced (open) format was preferred because it allowed the athletes to make more precise responses. The systematic loss of information, inherent in the forced procedure, did not occur (Kerlinger, 1973). Real differences in elevation and scatter of the distribution were represented in the open response format.

A one-way analysis of variance was computed to assess significance of difference between the three performer levels and need for achievement, Hypothesis II; and the three performer levels and the three motive categories built into Berlin's model, Hypothesis III. Post hoc comparisons of means was performed by hand using the Scheffé test.

Correlation

Correlation means the covarying of two variables. A correlation coefficient reports an index of the magnitude and direction of a relationship between two variables. There are several different kinds of correlation coefficients; they have certain common characteristics.

There are a number of considerations when assessing the value of the coefficient. The first is that the magnitude of the correlation coefficient is a function of the variability of the dependent variable. A correlation coefficient calculated from a group or sample having a wide range of talent will be larger than that from a group which is quite homogeneous (Roscoe, 1975). That is, the correlation between two variables for a group consisting of high need achievers is likely to be low. This suggests that reporting correlations is only meaningful

when the group under study is specified. In order for the Pearson correlation coefficient to reach its extreme values of plus or minus one, it is required that the distributions of the two variables have the same shape. This is the second consideration when assessing the correlation coefficient. The next consideration is that a correlation coefficient is an abstract number, a convenient index of relationship which has been defined in such a way as to lie between the limits minus one to plus one. It is expressed as a decimal fraction. This fraction should not be interpreted in terms of the original score units, since it is independent of the unit and the magnitude of the scores.

One reads that correlation coefficients in the order of .30 to .70 suggest a moderate relationship, while coefficients less than this indicate a low relationship, and those larger represent a high relationship. This is a fallacious argument in statistical inference since the significance of the coefficient is a function of sample size; large correlations achieved with small samples may be completely meaningless. Also, the nature of the group and the variables being studied plus the use to which the coefficient is to be put, will determine whether a particular coefficient is large or small. For example, a coefficient of .70 between scholastic aptitude as measured in the first grade and grade point average in college would be extremely high. On the other hand, a coefficient of .70 between two supposedly equivalent forms of an achievement test would be low. Also, it is relevant to note that the significance of the correlation coefficient is independent of the sign.

Possibly the most valid and useful interpretation of the correlation coefficient is achieved by squaring it. It may be demonstrated that r^2 is the ratio of two variances. The specific association is given by the following equation:

$$r^2 = \frac{\sigma_a^2}{\sigma_y^2}$$

where

σ_a^2 = the variance in Y that is associated with the variance of X

σ_y^2 = the total variance of Y

this ratio is the total variance of one of the variables and the numerator is that part of this variance which can be predicted from or attributed to the other variable. The quantity r^2 is called the coefficient of determination (Hinkel, Wiersma & Jurs, 1979).

Analysis of Variance

A one-way analysis of variance was used for testing the hypothesis that two or more independent samples are drawn from populations having the same means. The samples may be constituted by drawing independent random samples from a single population, subjecting them to experimentation, then comparing them on a single criterion variable. Or, the samples may be drawn from different populations, then compared on a single criterion to determine whether the various populations differ with respect to this criterion. The research design for this question demonstrates the latter example of post hoc research. Responses to statements were taken from different populations and then compared in terms of achievement motivation.

A one-way ANOVA provides a composite test of the significance of difference between means. The total variation in the data is represented by the sum of squares of deviations of all the responses from the grand mean. In ANOVA, however, the sum of squares is partitioned into two additive parts: within groups sum of squares (SS) and between groups sum of squares. Hence the deviation of a particular score from the grand mean is comprised of two parts: a deviation from the mean of the group to which the score belongs and a deviation of the group mean from the grand mean. By squaring and summing overall responses: the total sum of squares (i.e. the sum of squares of all responses from the grand mean) is equal to the sum of squares within groups (i.e. the sum of squares of deviations from the respective group means) plus, the sum of squares between groups (i.e. the sum of squares of deviations of the group mean from the grand mean).

The SS within groups and the SS between groups are two independent parts--the variability within the groups and the variability between the groups. If each SS is divided by its respective number of degrees of freedom, the variance estimates or mean squares are derived. Hence the derived F ratio is:

$$\frac{\text{SS Total}}{N - 1} = \frac{\text{SS within}}{N - k} + \frac{\text{SS between}}{k - 1}$$

$$F = \frac{\text{Between Group Variance}}{\text{Within Group Variance}} \text{ with } \frac{k - 1}{N - k} \text{ degrees of freedom}$$

Scheffé

In order to determine which means were significantly different for the motivational tendencies situation (SM) and mastery (MS), a Scheffé test for all possible comparisons between means was performed. The Scheffé was selected on the basis of its flexibility and utility.

The Scheffé procedure for testing any and all possible comparisons between means has the important property that the probability of a Type 1 error for any comparison does not exceed the level of significance specified in the analysis of variance for the overall hypothesis. Like the analysis of variance, the Scheffe procedure is quite insensitive to departures from normality and homogeneity of the variances.

The test statistic was calculated by the following formula and it is referred to the same region of rejection as that specified for the test of the overall hypothesis of equal means (3.10). Results of the aforementioned analyses are presented in the next chapter.

$$F = \frac{(M_1 - M_2)^2}{MS_w \left(\frac{1}{n_1} + \frac{1}{n_2} \right)^2} \quad \text{with df} - k - 1, N - k$$

CHAPTER IV

ANALYSIS AND INTERPRETATION OF THE DATA

In order to test the hypothesis upon which this study was based, the obtained data were subjected to the analytic procedures described in the previous chapter. In the text that follows, descriptive statistics are reported first. These are organized for the total group of subjects and for each of the three performer levels of soccer players. Thereafter, analysis pertaining to the testing of the first hypothesis, correlation of the Berlin Q Sort and Hall's Q Ach, is reported. Results of the analysis of variance across groups follows. The chapter concludes with the examination of differences among the three levels of soccer players with respect to the motive categories.

Descriptive Statistics

A complete list of statement means and standard deviations is presented in Appendix C. The range of the open response sorts was 6.60 to 2.16. The mean value assigned to statements by all athletes combined was 5.08; the median 4.39.

In Tables 4-7 the ten statements with the highest means and the ten statements with the lowest means for the total sample and for each of the subgroups are presented. The designation of the motive category for each statement calls attention to the complexity of the sport motivation construct and the pervasiveness of the broad motive categories. Berlin's position concerning the multifaceted nature of sport motivation is supported.

TABLE 4

DESCRIPTIVE STATISTICS FOR ALL ATHLETES COMBINED:
TEN "MOST LIKE ME" AND TEN "LEAST LIKE ME" Q-SORT STATEMENTS

<u>Statement</u>	<u>Mean</u>	<u>S.D.</u>	<u>Rank</u>	<u>Motive Category</u>
<u>Most Like Me</u>				
Q 6	6.60	0.76	1	SR
Q 60	6.40	0.98	2	M
Q 7	6.30	1.06	3	S
Q 18	6.26	0.99	4	M
Q 8	6.19	1.04	5	SR
Q 57	6.08	1.21	6	S
Q 35	6.03	1.30	7	S
Q 48	6.02	1.30	8	SR
Q 43	5.99	1.37	9	S
Q 59	5.98	1.14	10	M
<u>Least Like Me</u>				
Q 32	2.16	1.63	60	S
Q 17	2.91	2.04	59	M
Q 1	2.93	1.83	58	SR
Q 41	3.43	1.96	57	S
Q 56	3.54	2.25	56	SR
Q 19	3.76	1.95	55	S
Q 27	3.84	2.29	54	M
Q 26	3.90	2.04	53	S
Q 20	3.99	1.97	52	S
Q 55	4.40	2.04	51	SR

Scale = 1 - 7

N = 120

TABLE 5

DESCRIPTIVE STATISTICS FOR JUVENILE "ALL STAR" ATHLETES:
TEN "MOST LIKE ME" AND TEN "LEAST LIKE ME" Q-SORT STATEMENTS

<u>Statement</u>	<u>Mean</u>	<u>S.D.</u>	<u>Rank</u>	<u>Motive Category</u>
<u>Most Like Me</u>				
Q 6	6.80	0.52	1	SR
Q 35	6.45	1.19	2	S
Q 60	6.50	1.15	3	M
Q 7	6.32	0.94	4	S
Q 8	6.30	0.96	5	SR
Q 43	6.20	1.16	6	S
Q 57	6.20	1.01	6	S
Q 59	6.15	0.97	8	M
Q 48	6.03	1.53	9	SR
Q 18	6.00	1.15	10	M
<u>Least Like Me</u>				
Q 17	2.57	2.05	60	M
Q 32	2.65	1.85	59	S
Q 56	3.35	2.48	58	SR
Q 27	3.50	2.90	57	M
Q 1	3.65	2.14	56	SR
Q 49	3.85	2.07	55	SR
Q 10	4.03	1.84	54	M
Q 13	4.03	2.15	53	SR
Q 50	4.13	2.34	52	SR
Q 19	4.25	1.85	51	S

Scale = 1 - 7

N = 120

TABLE 6

DESCRIPTIVE STATISTICS FOR COLLEGIATE DIVISION I ATHLETES :
TEN "MOST LIKE ME" AND TEN "LEAST LIKE ME" Q-SORT STATEMENTS

<u>Statement</u>	<u>Mean</u>	<u>S.D.</u>	<u>Rank</u>	<u>Motive Category</u>
<u>Most Like Me</u>				
Q 6	6.50	0.72	1	SR
Q 18	6.38	0.81	2	M
Q 7	6.23	1.19	3	S
Q 48	6.17	1.13	4	SR
Q 60	6.17	0.93	4	M
Q 57	5.97	1.36	6	S
Q 8	5.95	1.53	7	SR
Q 3	5.92	1.40	8	SR
Q 59	5.85	1.09	9	M
Q 24	5.77	1.16	10	M
<u>Least Like Me</u>				
Q 32	1.95	1.65	60	S
Q 1	2.37	1.34	59	SR
Q 17	2.55	1.81	58	M
Q 41	3.45	2.06	57	S
Q 19	3.47	1.74	56	S
Q 27	3.55	2.06	55	M
Q 26	3.70	2.01	54	S
Q 53	3.92	1.51	53	S
Q 20	4.00	1.63	52	S
Q 56	4.02	1.98	51	SR

Scale = 1 = 7

N = 120

TABLE 7
 DESCRIPTIVE STATISTICS FOR PROFESSIONAL ATHLETES
 TEN "MOST LIKE ME" AND TEN "LEAST LIKE ME" STATEMENTS

<u>Statement</u>	<u>Mean</u>	<u>S.D.</u>	<u>Rank</u>	<u>Motive Category</u>
<u>Most Like Me</u>				
Q 60	6.62	0.81	1	M
Q 6	6.50	0.96	2	SR
Q 18	6.40	0.95	3	M
Q 7	6.37	1.05	4	S
Q 8	6.32	0.97	5	SR
Q 43	6.25	1.49	6	S
Q 3	6.20	1.30	7	SR
Q 52	6.12	1.07	8	M
Q 30	6.10	1.06	9	M
Q 34	6.07	1.33	9	S
<u>Least Like Me</u>				
Q 32	1.87	1.24	60	S
Q 41	2.23	1.53	59	S
Q 1	2.77	1.73	58	SR
Q 20	2.93	1.83	57	S
Q 26	3.07	1.87	56	S
Q 56	3.25	2.26	55	SR
Q 19	3.55	2.19	54	S
Q 17	3.60	2.13	53	M
Q 39	3.92	1.96	52	SR
Q 49	4.13	2.16	51	SR

Scale = 1 -7

N = 120

Four statements (6, 7, 8, and 60) were common in the ten "most like me" for all groups. Seven more appeared among the highest valued statements for two groups. Only five statements were valued by only one of the groups. The professional athlete listed four of these in their "most like me" list.

Among the "least like me" statements, four (1, 17, 19, and 32) were common to each group; six more were present on the lists of two of the groups. The juveniles had the most unique listing of "least like me" statements, three of which were not evident on the collegiate and professional lists.

A comparison of means for each Q statement obtained in this study with those reported by Smith (1975) yielded interesting results. Of the ten statements assigned by each group of athletes and all athletes combined to "most like me" and "least like me", all statements from Tables 4-7 have corresponding values with the same or modified statements used in Smith's study. This provides some support for the generalizability of Berlin's Q Sort to all athletes. That is, in terms of the statements in the Berlin Q Sort high calibre soccer players from three different performer levels and collegiate women athletes from seven different sports value the Q Sort statements similarly. This contention is supported by Fodero's (1976) investigation which found no significant differences between sex and performance level when comparing responses on Berlin's Q Sort.

As a first step in determining the validity of the Berlin Q Sort, it was necessary to establish the reliability of the instruments used. A sample of 15 varsity soccer players from the University of North Carolina at Greensboro was administered both the Berlin Q Sort and Hall's Q Ach on two separate occasions spaced 21 weeks apart in order to obtain a coefficient of stability over time, reliability, for each instrument. The results of this inquiry are shown in Tables 8 and 9. A nonparametric correlational analysis was used because of the small sample size.

TABLE 8
DESCRIPTIVE STATISTICS FOR PRE- AND POSTTESTS ON
BERLIN'S Q SORT AND HALL'S Q ACH

<u>Instrument</u>	<u>Mean</u>	<u>S.D.</u>	<u>Median</u>	<u>Range</u>
<u>Berlin Q Sort</u>				
Test 1	288.31	27.26	281	246-334
Test 2	288.31	26.82	283	234-329
<u>Hall Q Ach</u>				
Test 1	88.15	7.24	88	78-98
Test 2	88.07	8.82	86	77-104

TABLE 9

KENDALL TAU CORRELATION COEFFICIENTS FOR THE BERLIN Q-SORT
AND THE HALL Q ACH PRE AND POST TEST
FOR TESTING RELIABILITY

	Berlin Q-Sort 2	Hall Q Ach 1	Hall Q Ach 2
Berlin Q-Sort 1	0.684 * 0.001	0.432 0.043	0.400 0.050
Berlin Q-Sort 2		0.263 0.219	0.337 0.111
Hall Q Ach 1			0.712 * 0.0009
Hall Q Ach 2			

N = 15

* Significant at .001 level

On the basis of the significantly (.001) high correlation coefficients, the Berlin Sport Motivation Q Sort and Hall's Q Ach were both accepted as reliable measures of need for achievement (nAch).

Relationship between Sport Motivation
and Need to Achieve

Obtained correlation coefficients which indicate the relationship between the two nAch instruments, Berlin's Q Sort and Hall's Q Ach, are presented in Table 10. Moderate significant positive correlations

of .398 and .444 were revealed for the responses of juvenile and collegiate soccer players to Berlin's Q Sort and Hall's Q Ach. The responses of the professionals correlated at .116, not within the moderate category. For all athletes combined, Q Ach and the Sport Motivation Q Sort correlated .333, a moderate positive, highly significant correlation.

TABLE 10

DESCRIPTIVE STATISTICS AND PEARSON PRODUCT MOMENT CORRELATION
COEFFICIENTS FOR THE BERLIN Q-SORT AND HALL'S Q ACH

<u>Performer Level</u>	<u>Instrument</u>	<u>N</u>	<u>Mean</u>	<u>S.D.</u>	<u>Range</u>	<u>r</u>	<u>Sign</u>
Juvenile	Berlin Q-Sort	40	306.83	24.24	272-366	0.398	0.010
	Hall Q Ach	40	58.38	5.40	47- 70		
Collegiate	Berlin Q-Sort	40	302.68	23.55	273-355	0.444	0.004
	Hall Q Ach	40	57.23	4.99	47- 69		
Professional	Berlin Q-Sort	40	306.25	21.37	273-350	0.116	0.474
	Hall Q Ach	40	57.55	4.95	46- 66		
All Athletes Combined	Berlin Q-Sort	120	305.25	22.97	272-366	0.333	0.0002
	Hall Q Ach	120	57.72	5.09			

The primary psychometric assumption of a nAch measure is that its items or parts are sufficiently homogeneous to consider it as representing a unitary construct. If in fact then, both measures, Berlin's Q Sort

and Hall's Q Ach, do represent the nAch construct, a correlation coefficient of .33 between the two instruments must be considered low. However, Hall's Q Ach reflects generalized achievement motivation while Berlin purports that the Q Sort measures achievement motivation only in the specific context of sport. The items in the Q Sort are intended to represent the theoretical components of the nAch construct--i.e., need for success, fear of failure--as they are reflected in the attitudes, emotions, and behaviors occurring in the statements. In other words, the Berlin Q Sort does not measure the same domain that Hall's Q Ach assesses and the two should not be expected to correlate highly. The relationships between the two measures for juveniles, collegiates, and all athletes combined, supported McClelland's (1953) contention that there should be a significantly positive but moderate correlation between nAch instruments.³

The positive, moderately significant correlations between the Hall Q Ach and the Berlin Sport Motivation Q Sort lend credence to the sport motivation construct as a manifestation of one's need to achieve. The values were interpreted according to the criteria set forth by Hinkle, Wiersma, and Jurs (1979).

²As mentioned earlier (p. 61), a correlation between two nAch measures for a sample consisting of high need achievers is likely to be low.

TABLE II
INTERPRETING THE SIZE OF THE CORRELATION COEFFICIENTS

.70 to 1.00 (-.70 to -1.00)	Very high positive (negative) correlation
.50 to .70 (-.50 to - .70)	High positive (negative) correlation
.30 to .50 (-.30 to - .50)	Moderate positive (negative) correlation
0.00 to .30 (0.00 to - .30)	Low positive (negative) correlation

(Adapted from Hinkle, Wiersma, & Jurs.
1979, p. 85)

Differences in nAch and Sport Motivation Among Juvenile,
Collegiate, and Professional Soccer Players

To determine whether significant differences existed in the measure of nAch and sport motivation among high calibre athletes (soccer players), a one-way analysis of variance was computed on the means shown in Table 12.

TABLE 12
 MEAN TOTAL SCORES FOR JUVENILE, COLLEGIATE, AND
 PROFESSIONAL SOCCER PLAYERS IN nACH
 AND SPORT MOTIVATION

	<u>Berlin Q Sort</u>	<u>Hall Q Ach</u>
Juvenile	306.83	88.77
Collegiate	302.67	90.13
Professional	306.25	90.50

N = 120

The results of the analysis of variance are presented in Tables 13 and 14. Differences between and within groups are far from approaching significance.

TABLE 13

RESULTS OF THE ONE-WAY ANALYSIS OF VARIANCE ON N ACH
MEASURED BY THE BERLIN SPORT MOTIVATION Q-SORT

<u>Source</u>	<u>DF</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>PR > F</u>
Between	2	404.45	202.23	0.38 (n.s.)	.69
Within	117	62356.05	532.96		
Total	119	62760.50			

TABLE 14

RESULTS OF ONE-WAY ANALYSIS OF VARIANCE ON N ACH
MEASURED BY THE HALL Q ACH

<u>Source</u>	<u>DF</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>PR > F</u>
Between	2	65.85	32.93	0.70	.49
Within	117	5479.35	46.83		
Total	119	5545.20			

Critical value of F at .05 = 3.07

These results supported the null and research hypotheses, and strongly indicated that in terms of the constructs under investigation, there is a similarity among high calibre soccer players, whether juveniles, collegiates, or professionals. These findings are consistent with Fodero's results comparing sex and performance level in terms of nAch. He did not find differences using an earlier edition of the Berlin Sort. On the basis of these findings Berlin's theoretical model gains added credence as does the generalizability of the construct of sport motivation as represented in her Q Sort.

Differences Among Juvenile, Collegiate, and Professional Soccer Players in Terms of the Three Major Motive Categories

To determine whether significant differences in motivational tendencies existed among juvenile, collegiate, and professional soccer players, a one-way analysis of variance was computed on the means shown in Table 15.

TABLE 15

MEAN TOTAL SCORES ON MOTIVATIONAL TENDENCIES FOR JUVENILE, COLLEGIATE, AND PROFESSIONAL SOCCER PLAYERS

	<u>Self-Regard</u>	<u>Mediational</u>	<u>Mastery</u>
Juvenile	97.68	106.68	102.47
Collegiate	103.78	96.48	102.43
Professional	99.95	96.62	109.68

N = 120

Observation of the means in the above table indicates the professionals as highest for the motive category, mastery (MS); the juveniles as highest for the motive category, mediational (Med); and the collegiates as highest for the motive category, self-regard (SR).

From the results shown in Table 16 it can be concluded that there is a significant difference between juvenile, collegiate, and professional soccer players in two of the motive categories, mediational (Med) and mastery (MS). And although the difference between juvenile, collegiate, and professional soccer players in terms of self-regard is not significant at the .05 level, it approaches significance (.08).

In order to determine which means were significantly different for the motive categories, mediational (Med) and mastery (MS), a Scheffé test for all possible comparisons between means was performed.

The results led to the interpretation that in terms of the mastery facet of sport motivation, the professional soccer players were significantly different from both collegiate and juvenile players. With regard to elements of the motivational structure referred to as "mediational", the juvenile All-Star soccer player was significantly different from both the collegiate and professional player.

These findings supported the research hypothesis set forth in Chapter 1: professional soccer players score highest on mastery (MS); collegiates score highest on self-regard (SR); and juveniles score highest on mediational (Med).

TABLE 16

RESULTS OF THE ONE-WAY ANALYSIS OF VARIANCE BETWEEN THE
THREE PERFORMER LEVELS AND THE MOTIVE CATEGORIES:

<u>Source</u>	<u>DF</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>PR > F</u>
SELF-REGARD					
Between	2	522.22	261.11	2.56	0.08
Within	117	11941.65	102.07		
Total	119	12463.87			
MEDIATIONAL					
Between	2	2734.20	1367.10	14.19	0.0001
Within	117	11268.13	96.31		
Total	119	14002.33			
MASTERY					
Between	2	1224.07	612.03	4.77	0.01
Within	117	15000.53	128.21		
Total	119	16224.60			

Critical value F at .05 = 3.07

N = 120

TABLE 17

SCHEFFÉ TEST OF DIFFERENCE BETWEEN MEANS
FOR THE MOTIVATIONAL TENDENCY: MASTERY

	Juvenile	Collegiate	Professional
Juvenile	-	0.00	4.05 *
Collegiate	-	-	4.10 *
Professional	-	-	-

* $P \leq .05$

Critical value at .05 level = 3.07

TABLE 18

SCHEFFÉ TEST OF DIFFERENCE BETWEEN MEANS
FOR THE MOTIVATIONAL TENDENCY: MEDIATIONAL

	Juvenile	Collegiate	Professional
Juvenile	-	10.80 *	10.5 *
Collegiate	-	-	0.00
Professional	-	-	-

* P .05

Critical value at .05 level = 3.07

CHAPTER V

DISCUSSION

Additional interpretive comments about the data warrant consideration. The researcher offers the following remarks in the context of his own experiences as a juvenile, collegiate, and professional soccer player and also from the perspective of his role as a beginning researcher.

Generalizability vs. Specificity

A question that remains unanswered is the generalizability of the sport motivation construct across different sport groups. How specific is sport motivation? The answer has implications for future research into the construct.

While the ANOVA of overall sport motivation and generalized nAch measures among high calibre soccer players does not identify differences among the three performer groups, the one-way ANOVA of distinct motive for each performer level and the low correlation coefficient between the two related measures for the professional soccer players suggests there is some evidence for considering the specificity of sport motivation and of sport-oriented instruments which purport to measure such motivation. One might even speculate on the basis of the results, that the higher the level of performer, the more specific is the relationship of sport motivation to the unique experiences of a given sport form.

The findings of this study support the general theoretical context of achievement motivation proposed by McClelland, and represented in Berlin's hypothetical model. The motive for achievement in an individual is considered as a tendency toward competing with standards of excellence where public evaluation and self-evaluation of success or failure are immediate. The theory of achievement motivation provides a framework within which two kinds of variables operate in typical pure achievement settings: (a) the relatively stable achievement motives which a person carries to each situation (nAch) and (b) the variables which are specific to each situation, namely, motive categories.

One must be careful to consider this theory only in situations in which achievement motives or needs are primary over other motives or needs. Atkinson (1964) emphasises the importance of the achievement setting being "pure". It could be argued that athletics does, in fact, provide such a setting, especially when the calibre of athlete investigated is superior. One would expect that superior athletes, or individuals with superior athletic potential, have high needs for achievement. Situations involving competition and achievement, which produce strong emotional involvement, tend to yield individuals high in achievement motivation (Willis and Bethe, 1970). This premise is based on the assumption that emotional arousal is primarily responsible for the development of motives. In achievement motivation terms, this type of individual generally has a high or strong motive to achieve success, a high expectancy to achieve success, and moreover, success has a high positive incentive value.

Yet, while nAch is relatively stable, each situation in which it is manifested has specific characteristics for each individual. An individual extremely oriented toward achievement in sport, may or may not be achievement oriented in other settings. Moreover, from situation to situation, individuals may differ in respect to the motivational tendencies. This may even occur within sports. A team person may relate differently to experiences in an individual or dual sport.

Willis and Bethe (1970) contend that situations involving competition and achievement, which produce strong emotional involvement, tend to yield individuals high in achievement motivation. This idea may further explain why the present study identified no difference in overall sport motivation across performer levels. The contention links high emotional involvement directly to achievement in performance settings. If an athlete derives some meaning from his sport in an emotional context, his level of motivation rises. Such emotional involvement in outstanding athletes is frequently observed and can be discussed in terms of "fantasizing". This was very evident, for example, when the investigator observed the performances of the various teams used in this study. Although one might argue that juveniles could not be as aware of the high level of excitement, pressure, arousal, and so on, as the professional athletes, when the Dallas Kicks (juveniles) played in the finals of the North Texas Invitational Soccer Tournament, the emotional involvement was overtly obvious. The athletes appeared to be "psyched up". For the first time, they were to play on the stadium field, under lights and in front of a crowd, where trophies,

girls, and glory were part of the reward for winning. The "fantasy" of playing for the Cosmos against the Dips at the Meadowlands was, at that moment, a "reality".

The high need achievers stood out that night. Wanting more ball, they were, as a consequence, always in the thick of play demonstrating a confidence that allowed them to play above themselves. Injuries took on a new dimension in that a bit of play-acting brought applause from the crowd. In these and other ways the younger players were, for the most part, projecting the image of their professional heroes. This kind of emotionality has been associated with high calibre competitive sport--in fiction and in reality. One need only read the sport literature and confer with accomplished athletes (Beisser, 1967). The extent to which such highly emotional experiences are sport specific must be further considered. If the Berlin Sort is to be useful for understanding specific athletes or for expanding what is known about sport, a broad generalized meaning of sport motivation will offer limited information.

Differences in Motive Categories Among Performer Groups

The one-way ANOVA for motive categories for each group indicated that there are some differences in the sport motivation of the three performer levels. The professionals, who had the highest mean score for all groups over all motive categories, were significantly higher in terms of "mastery" than both the collegiates and juveniles. The collegiate group scored highest for the motivational tendency "self-regard",

while the juveniles were significantly different from both the colleagues and professionals in terms of "mediational" elements of the construct. These findings lend credence to Berlin's allegation that motivations of athletes are, at one and the same time, idiosyncratic and multi-faceted.

The obtained differences suggested to the writer that developmental psychology theory may offer some insights into the findings. Marx and Tombough (1967), in an attempt to emphasize the multiplicity of motivational factors and encourage a more widespread concern with this problem, discussed varieties of motivations as they relate to various stages of human development. Lenk (1971) suggested that since involvement in sport is a personal matter realized through self-involvement, sport behavior may be considered analagous to the development of personality.

For example, closely related to the development of curiosity and exploratory behavior, is the maturing of what may be called "control" of the environment. That is to say, the 12-13-year-old child begins to recognize the kind of power that he/she has, and can obtain, over the social as well as the physical environment. While the youngster may manipulate people--e.g., parents, siblings, peers--recognition of this power and more active utilization of it emerge on a growing scale. The same thing occurs, and in a more obvious manner, with regard to manipulation of the physical environment as knowledge and skills develop. In a sense this kind of development is an extension of what White (1959) called "effectance" motivation. It does not take long for the

child to recognize the instrumental value of skills, how they can be used, not merely for their own sake, but in ways that will serve other motives and needs.

At some time during this period, the developing youngster discovers how it is also possible to manipulate the world vicariously--particularly through sport. The motivation ensuing from this is obviously valued. In sport, there is opportunity for both direct and indirect control over the environment. Research into this phenomenon has gained recently in popularity. It has been labeled by Rotter (1971) as locus of control.

There is general agreement that success in itself is a potent motivating factor. Its importance as reinforcement is probably greatest at the younger age. Praise and blame are closely related to success and failure. And it is during this period that competition, scholastic as well as athletic, and achievement motivation develop. The latter differs from competition in being a more generalized and long-term factor (Marx & Tombaugh, 1967). Competitive standards are internalized so that the presence of actual competitors is not necessary to motivate performance.

Still another powerful motivating factor that plays an ever increasing role at this age is judgment by one's peers. However, this motive category appears to take on importance at a later stage of development. In the present study, esteem elements (SR) were valued more than other categories in the sort by the collegiate performers.

College athletes have a great variety of motivations. There are some with very strong positive motivations to learn and better one-self and thereby achieve a higher social and economic status. Others may be motivated by a need to "find" themselves. In either case, the "self"

is the central focus of their striving behavior. College is vital to their self-regard, not to mention their future ambitions. This has been obvious to the writer in his role as collegiate coach. Sport, in addition to academics, provides an opportunity to satisfy and develop one's esteem of self through the attainment of varsity status. However, the influence of the environment (Mediational, Med) and mastery (MS) of skills are factors to be reckoned in terms of overall sport motivation. This was demonstrated by the results of this study. Collegiate soccer players, although not significantly different ($p = .08$) from juveniles and professionals in the self-regard category, generated higher "raw scores" in the self-regard category. Clearly, the other tendencies, mastery (MS) and situation (SM), are also important in the overall sport motivation picture.

By the time the athlete has reached the professional level he has developed control of the mediational elements within his sport. Self-regard may no longer be as important as the maintenance of "mastery". He must maintain mastery of his skills in order to continue playing and therefore survive in his employment. His performance is still susceptible to varying influences of "chance" and "powerful others". But he is past the mystique of the contest, teammates, uniforms, and so forth. For the professional athlete, "mastery" is predominant and the experience is marginally influenced by the external environment.

Other considerations relative to obtained differences should be kept in mind. If one accepts the assumption that the prime motivation for a professional athlete is the monetary reward, then it would follow

that having reached the highest level of play, the professional's general need for achievement had been satisfied. This would explain the low correlation coefficient between the two measures for the professional group as being due to the nature of the level at which they perform. His sport motivation is sustained.

Other Concerns

The entire issue of sport motivation is clouded by the idea of individual differences. These need to be considered with respect to the interpretation of sort statements as well as the idiosyncratic nature of sport motivation. Individuality is invariably "lost" when data are grouped for statistical analysis as they were in the present study.

The nature of a sample is still another part of the problem under investigation. Smith (1975) found that in using Berlin's Sort, results could be generalized among various athletes. The present study yielded no significant differences in overall sport motivation among three distinctly different performer groups. When Fodero (1976) studied collegiate gymnasts, he did not find any differences in motive categories for males or females. Admittedly, Fodero's gymnasts were a more homogenous group than the soccer players who participated in the present study.

One wonders if the present study raises more questions than it gives answers. Are there any substantive findings? The investigator would point out that the results of the research do contribute to the body of literature in sport psychology and also support the isomorphism of Berlin's model.

In addition, the development of a reliable measure of achievement motivation in sport that correlates with a generalized measure of nAch is among the first for the field. Other attempts to validate an instrument purported to measure athletic motivation were by Hammer and Tutko (1974) who compared the Athlete's Motivation Inventory (AMI) with Cattell's 16 PF, and found no validity, and by Butt (1979) who achieved construct validity for Five Short Scales for the Measurement of Sport Motivation. Neither of these two investigations employed the rigor nor provided results as convincing as those obtained in the present study.

In sum, the research takes an important step in development of a behavioral model of sport motivation. Moreover, it supports the idea that an athlete's motivation to engage in sport is a part of his/her need to achieve.

CHAPTER VI

SUMMARY, CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Summary

Although motivation theorists have sought to improve the predictability of human behavior by testing notions of achievement motivation, nAch, variability in the notion remains. With the relationship and appropriateness of nAch to sport being obvious, Berlin began in 1971 investigating the theoretical structure of the nAch motives of athletes based on accepted ideas from personality theory and sport literature. Berlin's research was unique in that the strategy was directed toward model building. Stephenson's Q-technique forced-choice procedure was used to generate the data. The Q Sort encompassed a multidimensional theory which acknowledged three major motive categories: self-regard, mediational, and mastery. Successive inquiries and supportive studies carried out by Smith (1975) and Fodero (1976) endeavored to describe, specifically, the motivational tendencies of athletes in terms of a consistent integrated structure.

The purpose of the present study was to validate the 1978 revised Q Sort and to investigate the differences among high calibre athletes in terms of (a) their need for achievement, both generally and specifically as it relates to sport, and (b) of the motive categories encompassed in Berlin's model. A preliminary study using the Berlin Q Sort (1978 edition) and Hall's Q Ach (1974), the validating instrument was first undertaken to establish the reliability for both instruments.

A subsample for the larger group was used in this part of the project. For the major work, a sample of 120 high calibre soccer players representing three levels of performance, i.e., juvenile, collegiate, and professional, was selected to generate the data.

Responses to the Q Sort were collected by the investigator 24 hours prior to participation in a competitive match. An open-ended unforced-choice procedure was utilized in Q sorting since the spread and scatter of responses were considered fundamental to the study. After scoring both the Berlin Q Sort and Hall's Q Ach, the following statistical analyses were performed: (a) a correlational analysis between the Berlin Sport Q Sort and Hall's Q Ach, (b) one-way analysis of variance across groups comparing scores on nAch, and (c) one-way analysis of variance of scores for the three motive categories.

Conclusions

The evidence collected relative to sport motivation and generalized achievement motivation among juvenile, collegiate, and professional soccer players permits the following conclusions. These are specific to the populations investigated:

1. There is a moderate positive correlation between sport motivation as measured by the Berlin Sort and generalized achievement motivation as measured by Hall's Q Ach. Thus, there is support for the idea inherent in the Berlin Sort that sport motivation is a manifestation of achievement motivation actualized by specific experiences to which athletes are exposed in the sport context.

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2. There are no differences in both sport motivation and generalized achievement motivation among three levels of high calibre soccer players, e.g., juveniles, collegiates, and professionals.
3. With respect to specific motivational tendencies, professional athletes are more responsive to mastery elements of sport motivation, collegiates to self-regard aspects of the construct, and juveniles evaluate the mediational elements of the sport context more than do either of the other performer levels.
4. In consideration of 2 and 3, above, it is viable to continue the development of a behavioral model of sport motivation as a multidimensional analogue.

Suggestions for Further Research

To further the research potential of this problem--that is, (a) the measurement of sport motivation, (b) the development of a valid behavioral model of sport motivation, and (c) the achievement of an instrument capable of predication--one could pursue the following strategy. For a selected sample of high calibre performers, an N of 350, in addition to an analysis of variance, the sort responses could be analyzed to provide detail and permit the model to be more isomorphic. Although Smith (1975) identified separate building blocks of the model in her earlier study, subsequent changes in statements and rationale have not been precisely investigated.

Given the recent popularity of Csikszentmihalyi's (1975) ideas about "flow" and the frequently addressed idea of a "peak experience"

in athletics, the idea of flow could be incorporated into Berlin's model. This could be accomplished by adding statements to the Sort. See Appendix D. Questions which might be answered, then, are:

1. Is flow an experience where an individual transcends the environment or gets lost in the activity?
2. How do flow statements compare with the motive categories MS, SR, AND Med?
3. How do the flow statements compare with the different performer levels?

Finally, although the idea of a pencil-and-paper model building exercise has academic appeal, some means of utilizing the results of Q sorting in the practical setting might be tried and evaluated.

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APPENDIX A**DATA-COLLECTING TOOLS AND AIDS**

Sample of Correspondence With
Coaches and Managers

June 11, 1979

Mr. Gordon Bradley
Washington Diplomats
R.F.K. Stadium
Washington, D.C.

Dear Mr. Bradley:

Presently I am in the process of collecting data for a research project leading to a doctoral dissertation in sport psychology. The tests used in collecting data are two paper-and-pencil inventories designed to measure achievement-motivation - one specifically related to soccer.

Subjects involved in the study are all "high calibre" in soccer ability and will need to comprehend the written English language. All subjects may be tested together with a maximum number of twenty at any one time. The test takes between 40-50 minutes to complete.

There is no psychological danger involved and all responses are confidential.

I look forward to talking with you on the telephone to further explain my research interest in the hope that you may agree to allow some of your players to be tested.

Yours sincerely,

Geoffrey Bird

GJB;jf

August 2nd, 1979

Mr. Gordon Bradley
Vice President/Head Coach
Washington Diplomats Soccer Club
R.F.K. Stadium
East Capitol & 22nd Streets N.E.
Washington, D.C. 20003

Dear Mr. Bradley:

In response to your June 21st letter I thought this would be an appropriate time to write to you concerning the "motivational" testing I would like to carry out on the 'Dips'.

The testing takes approximately 40-45 minutes. All subjects complete the two inventories together. The first inventory - Robinson's is a general measure, not specifically related to soccer. The Q-sort is designed specifically to measure motivational tendencies as they relate to soccer.

Testing may be self-administered, or if you would allow me, I will administer the test at your convenience. In either case I would certainly appreciate your cooperation as your data is crucial to this investigation.

Results, conclusions and recommendations will be forwarded to you at the completion of the study.

I would be glad to answer any questions concerning the investigation at (919) 379-5213.

Yours gratefully,

Geoffrey Bird

GB:11

P.S. I have enclosed a test completed by Al Miller to serve as an example.

THE UNIVERSITY OF NORTH CAROLINA AT GREENSBORO
SCHOOL OF HEALTH, PHYSICAL EDUCATION & RECREATION

SCHOOL REVIEW COMMITTEE

INFORMED CONSENT FORM *

I understand that the purpose of this study/project is
to study achievement motivation among high calibre soccer players.

I confirm that my participation is entirely voluntary. No coercion of any kind has been used to obtain my cooperation.

I understand that I may withdraw my consent and terminate my participation at any time during the project.

I have been informed of the procedures that will be used in the project and understand what will be required of me as a subject.

I understand that all of my responses, written/oral/task, will remain completely anonymous.

I understand that a summary of the results of the project will be made available to me at the completion of the study if I so request.

I wish to give my voluntary cooperation as a participant.

Signature

Address

Date

*Adopted from T.F. Locke and W.W. Spirduso. Proposals that work.
New York: Teachers College, Columbia University, 1976, p. 237.

Approved 3/78

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300 N. ZEEB RD., ANN ARBOR, MI 48106 (313) 761-4700

Q SORT DIRECTIONS

You have a set of sixty cards, a diagram of boxes, a completed sample response sheet and a pencil. On each card is a statement describing a feeling state, attitude or belief. Your task is to sort these statements according to the way each one describes you -- as you perceive yourself and your experience in playing soccer. In other words, you are to arrange the sixty statements by placing the number representing those you consider to be most like you at the left end of the diagram and those that are least descriptive of you at the right. The remaining fall somewhere in between.

The sort diagram contains boxes organized in 7 columns. In the extreme left column, A, record the numbers of the statements that are most like you; in Column B, record the numbers of the statements that are, in your opinion, next most like you but not as much like you as those in Column A; in Column C, next like you, etc. In Column G, you will record the numbers of the statements that are least like you; in Column F, next least like you, etc.

There is no limit to the number of statements you may place in each column. You may place as many or as few statements in each column as you consider descriptive of you in your sport. But you must record at least one number in each column. You must record each number one time, one number per box. Do not use the same number twice. Refer to the sample sort sheet.

There is no time limit. You are encouraged to take as much time as you need to give a thoughtful response. There are no "right" or "wrong" answers. When finished, the sort will represent your perceptions based on your own experiences.

There is no special way to go about sorting. One suggested procedure is to read each statement and decide whether it is like you or not. Place "like me" cards on the left; "not like me" cards on the right; undecided cards in the middle. Then locate the card from the left stack that most describes you and set it aside. Continue through the left stack and set aside all the cards that are equally most like you which you will record in Column A. Then change to the least like me cards and find the cards that will be represented in Column G. Go through the undecided cards and place them on the right or left after a "second thought". Locate the cards for Columns B and F. Continue this process from each end until the sorting is completed in the middle. When you are certain about the arrangement, record each statement number in the appropriate box on the diagram.

Do not try to arrange the 60 cards from most to least in exact order. All the numbers in Column D, for example, are interpreted to be the same but less like you than Column C and more like you than Column E.

Make sure your name (real or fictitious code - whichever you elect to use) is on the top right of the diagram. The name must "match" the one you used on the questionnaire.

Please return all cards, directions, diagrams and pencils.

Sample
Q-Sort Response Sheet

Name Peter Bradey

**Most
Like Me**

**Least
Like Me**

A	B	C	D	E	F	G
2	3	4	9	19	16	1
6	13	5	10	20	26	17
7	21	8	14	24	33	18
14	23	11	22	40	49	28
29	25	12	31	51	53	32
30	35	27	34		55	41
42	36	39	37		56	50
43	38	48	54			
44	45	58				
46	47	59				
52						
57						
60						

SAMPLE Q SORT STATEMENT

45. I don't mind the extra workouts in order to gain more precise control of my skills.

APPENDIX B

NUMERICAL CONVERSION SHEET

NUMERICAL CONVERSION SHEET

1 - 3	_____	26 QACH	_____	49 Q 21	_____
4 S.C.	_____	27 QACH	_____	50 Q 22	_____
5 QACH	_____	28 QACH	_____	51 Q 23	_____
6 S.C.	_____	29 Q 1	_____	52 Q 24	_____
7 QACH	_____	30 Q 2	_____	53 Q 25	_____
8 S.C.	_____	31 Q 3	_____	54 Q 26	_____
9 QACH	_____	32 Q 4	_____	55 Q 27	_____
10 S.C.	_____	33 Q 5	_____	56 Q 28	_____
11 QACH	_____	34 Q 6	_____	57 Q 29	_____
12 S.C.	_____	35 Q 7	_____	58 Q 30	_____
13 QACH	_____	36 Q 8	_____	59 Q 31	_____
14 S.C.	_____	37 Q 9	_____	60 Q 32	_____
15 QACH	_____	38 Q 10	_____	61 Q 33	_____
16 S.C.	_____	39 Q 11	_____	62 Q 34	_____
17 QACH	_____	40 Q 12	_____	63 Q 35	_____
18 S.C.	_____	41 Q 13	_____	64 Q 36	_____
19 QACH	_____	42 Q 14	_____	65 Q 37	_____
20 S.C.	_____	43 Q 15	_____	66 Q 38	_____
21 QACH	_____	44 Q 16	_____	67 Q 39	_____
22 S.C.	_____	45 Q 17	_____	68 Q 40	_____
23 QACH	_____	46 Q 18	_____	69 Q 41	_____
24 QACH	_____	47 Q 19	_____	70 Q 42	_____
25 QACH	_____	48 Q 20	_____	71 Q 43	_____

PLEASE NOTE:

**This page not included with
original material. Filmed as
received.**

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- 72 Q 44 _____
73 Q 45 _____
74 Q 46 _____
75 Q 47 _____
76 Q 48 _____
77 Q 49 _____
78 Q 50 _____
79 Q 51 _____
80 Q 52 _____
81 Q 53 _____
82 Q 54 _____
83 Q 55 _____
84 Q 56 _____
85 Q 57 _____
86 Q 58 _____
87 Q 59 _____
88 Q 60 _____

APPENDIX C

RAW DATA FOR Q SORT STATEMENTS FOR ALL GROUPS

MEANS AND STANDARD DEVIATIONS FOR EACH Q SORT STATEMENT FOR ALL GROUPS

Statement #	Juvenile		Collegiate		Professional		All Athletes Combined	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1	3.65	2.14	2.38	1.31	2.78	1.73	2.93	1.83
2	5.88	1.11	5.60	1.39	5.58	1.63	5.68	1.39
3	5.80	1.49	5.93	1.40	6.20	1.30	5.98	1.40
4	6.18	1.17	5.60	1.66	5.43	1.41	5.73	1.45
5	5.20	1.74	5.15	1.59	4.83	1.66	5.06	1.65
6	6.80	0.52	6.50	0.72	6.50	0.96	5.50	0.76
7	6.33	0.94	6.23	1.19	6.39	1.05	5.31	1.06
8	6.30	0.97	5.95	1.15	6.33	0.97	6.19	1.04
9	5.45	1.36	4.25	1.55	5.70	1.22	5.13	1.51
10	4.03	1.89	4.85	1.86	5.48	1.83	4.78	1.94
11	5.05	1.89	5.60	1.57	5.55	1.75	5.40	1.75
12	5.75	1.33	5.75	0.95	5.78	1.23	5.76	1.17
13	4.03	2.15	5.48	1.72	5.50	1.65	5.00	1.97
14	4.90	1.32	5.05	1.41	5.40	1.53	5.23	1.43
15	5.08	1.94	4.88	1.45	4.93	1.58	4.96	1.66

Statement #	Juvenile		Collegiate		Professional		All Athletes Combined	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
16	5.33	1.59	4.50	1.52	4.15	2.09	4.66	1.81
17	2.58	2.05	2.55	1.81	3.60	2.13	2.91	2.05
18	6.00	1.15	6.38	0.81	6.40	0.96	6.26	0.99
19	4.25	1.84	3.48	1.74	3.55	2.20	3.76	1.95
20	5.05	1.88	4.00	1.63	2.93	1.83	3.99	1.97
21	5.55	1.65	5.55	1.58	5.75	1.37	5.62	1.53
22	5.50	1.22	5.43	1.15	5.90	1.03	5.61	1.15
23	4.95	1.74	5.30	1.36	5.70	1.26	5.32	1.49
24	5.33	1.49	5.78	1.17	5.43	1.52	5.51	1.40
25	4.58	1.93	5.48	1.26	5.35	1.59	5.13	1.65
26	4.93	1.83	3.70	2.02	3.08	1.87	3.90	2.04
27	3.50	2.40	3.55	2.06	4.48	2.32	3.84	2.29
28	4.38	2.53	5.48	1.74	4.48	1.78	4.78	2.09
29	5.28	1.60	4.60	1.48	5.23	1.62	5.00	1.58
30	5.83	1.32	5.43	1.62	6.10	1.06	5.78	1.37

Statement #	Juvenile		Collegiate		Professional		All Athletes Combined	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
31	4.75	1.98	4.98	1.75	5.05	1.71	4.93	1.81
32	2.65	1.85	1.95	1.65	1.88	1.28	2.16	1.63
33	5.55	1.77	4.35	1.78	4.95	1.97	4.95	1.89
34	5.60	1.52	5.70	1.30	6.08	1.33	5.79	1.39
35	6.45	1.20	5.73	1.32	5.93	1.31	6.03	1.30
36	5.75	1.45	5.43	1.34	5.45	1.60	5.54	1.46
37	4.83	1.60	5.18	1.45	5.49	1.21	5.16	1.44
38	5.08	1.59	5.30	1.38	5.75	1.30	5.38	1.44
39	4.58	2.15	4.48	1.92	3.93	1.96	4.33	2.02
40	4.88	1.57	5.15	1.73	5.35	1.61	5.13	1.64
41	4.63	1.50	3.45	2.06	2.23	1.53	3.43	1.96
42	5.20	1.59	5.35	1.51	5.50	1.72	5.35	1.57
43	6.20	1.16	5.53	1.34	6.25	1.50	5.99	1.37
44	5.80	1.20	5.68	1.29	5.88	1.57	5.78	1.35
45	5.43	1.53	5.70	1.26	5.70	1.40	5.61	1.40

Statement #	Juvenile		Collegiate		Professional		All Athletes Combined	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
46	5.43	1.58	5.78	1.46	5.70	1.47	5.63	1.50
47	4.68	1.76	5.20	1.47	5.25	1.92	5.04	1.73
48	6.03	1.53	6.18	1.13	5.85	1.33	6.02	1.33
49	3.85	2.07	4.98	1.59	4.13	2.16	4.32	2.00
50	4.13	2.34	5.00	1.88	4.63	2.02	4.58	2.10
51	5.63	1.21	4.80	1.45	4.63	1.85	5.02	1.58
52	4.95	1.71	5.60	1.26	6.13	1.02	5.56	1.43
53	4.88	1.56	3.93	1.51	4.45	2.09	4.42	1.77
54	5.05	1.99	5.15	1.42	5.35	1.55	5.18	1.66
55	4.30	2.10	4.58	1.66	4.33	2.34	4.40	2.04
56	3.35	2.48	4.03	1.98	3.25	2.26	3.54	2.26
57	6.30	1.02	5.98	1.37	6.08	1.23	6.08	1.21
58	5.08	2.96	5.20	1.55	4.35	2.20	4.88	1.98
59	6.15	0.98	5.85	1.10	5.95	1.34	5.98	1.14
60	6.40	1.15	6.18	0.93	6.63	0.81	6.40	0.98

APPENDIX D

FLOW STATEMENTS

The twelve most significant flow statements taken from Progen's (1978) study to be added to Berlin's Q Sort.

1. My sport provides a "getting away from it all" feeling; I am liberated from the ordinary world.

2. There's a pleasant feeling of total involvement, getting lost in the action.

3. The pleasure I experience in my movements is enough to compensate for the time, energy and money invested in my sport.

4. There's a pleasant feeling of total involvement, getting lost in the action.

5. I experience a thrill in my sport when my thoughts and actions merge in a momentary sense of unity.

6. The primary satisfaction of my sport comes from enjoyment of the experience itself rather than from external rewards such as status, glamor, money, etc.

7. Control and self-confidence in my abilities provide a grand expansive feeling in my sport.

8. I derive a tremendous sense of well-being from having complete control of my world in sport.

9. My sport needs no other justification than my pursuing it.

10. Part of the thrill of my sport comes from mastering myself and the environment by minimizing the dangers and uncertainties.

11. The clear continuous feedback provided in my sport gives me a sense of satisfaction.

12. To feel most satisfied, my sport requires a high pitch of concentration.

(Progen, 1978, pp. 121-125)