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Modification of the California Q-Sort for use in athletic contexts

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MODIFICATION OF THE CALIFORNIA Q-SET FOR USE IN ATHLETIC CONTEXTS

A thesis Presented to the Faculty of
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In partial Fulfillment of the
Requirements for the Degree
Master of Science

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by
Robin Sledman
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An Abstract

of a thesis submitted in partial fulfillment

of the requirements for the degree of

Master of Science in the School

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Thesis Advisor: Dr. A. Craig Fisher

ABSTRACT

This study investigated the use of contextual template matching (CTM) and the tool used in CTM to collect personality data, the California Q-set (CQ-set), as a personality assessment tool to be used with athletes. The study involved modification of the CQ-set, construction of 10 ideal models or templates of personality characteristics, investigation of the test-retest reliability of the CQ-set with Ithaca College athletes (N = 35), and the reliability estimates of the constructed templates by sport psychologists/psychologists (N = 28). The CQ-set showed satisfactory test-retest reliability (r = .72) as a self-assessment technique with college athletes. The templates showed acceptable reliability estimates for 5 of the 10 characteristics.

Ithaca College
School of Health, Physical Education, and Recreation
Ithaca, New York

CERTIFICATE OF APPROVAL

MASTER OF SCIENCE THESIS

This is to certify that the Master Of Science Thesis of

Robin Siedman

submitted in partial fulfillment of the requirements for the degree of Master of Science in the School of Health, Physical Education, and Recreation at Ithaca College has been approved.

Thesis Advisor:

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DEDICATION

To my parents for their ever present love and support in whatever I do. Without their guidance, this and many other goals I have achieved would not have been possible.

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Chapter 1

INTRODUCTION

In the past coaches have used their own judgment (perhaps guesswork is a better term) to evaluate the psychological profiles of their athletes. This has been due to the lack of availability of a satisfactory athletic-personality tool. The development of such a personality tool would allow coaches to (a) identify and measure a wide range of personality variables important to athletes and their performance, (b) use the tool in a wide spectrum of athletic situations, and (c) identify a large quantity of athletic behavioral variance. Hoffman and Bem (1982) developed such a tool, contextual template matching (CTM), that appears to meet these requirements.

CTM is the method that best suits the interactional model of behavior. The interactional model of behavior considers situation and person variables as co-determinants of behavior, and research has demonstrated that this methodology typically explains more than twice the behavioral variance explained by one-dimensional methodologies (Endler & Hunt, 1966, 1968). The tool used in CTM to collect personality data is the California Q-set (CQ-set), which was developed by Block (1978).

When the CQ-set was being developed, it was intended to

be used as a comprehensive and widely applicable personality assessment instrument. Originally introduced as an observer-assessment instrument, the CQ-set was first used as a self-assessment tool by Bem (Bem & Funder, 1978). However, for CTM to be used in the athletic environment, a sufficient reliability estimate of the CQ-set as a self-assessment tool must be obtained.

There are three areas of study involved in this investigation: (a) modification of the CQ-set, (b) test-retest reliability of a modified CQ-set, and (c) development of new templates of hypothetical ideal athletes by sport psychologists/psychologists.

Scope of Problem

This study consisted of three parts. The first part was completed with the assistance of graduate sport psychology classes. Class members were asked to eliminate CQ-set statements that were not relevant to the sport context. Eighteen of 100 cards in the CQ-set were eliminated, leaving the modified CQ-set containing 82 cards (Appendix A).[1]

The second part of the study investigated the

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[1] Adapted and reproduced by special permission of the publisher, Consulting Psychologists Press, Inc., Palo Alto, CA. 94306, from California Q-Sort Deck by J. Block; adapted by D. Bem.

test-retest reliability of the modified CQ-set with varsity college athletes. Subjects were Ithaca College varsity athletes (N = 35), randomly selected from varsity athletic rosters during the 1985-1986 academic year. Subjects were read a recruiting statement over the phone for selection purposes. Volunteers were administered the modified CQ-set and asked to describe their own personality, keeping the athletic context in mind as they were sorting. They repeated the sort 7 to 15 days later.

In the third part of this study, modified CQ-set decks were sent to 33 sport psychologists/psychologists who had demonstrated expertise in their area of sport personality characteristics (e.g., over-confidence, self-motivation). They were asked to develop the ideal models or templates of the personality characteristics in their area of expertise using the modified CQ-set.

Statement of Problem

This study is an attempt to modify the CQ-set for use in the athletic context, assess its test-retest reliability, and construct new templates using the modified CQ-set.

Definition of Terms

The following terms have been used in this thesis and will be defined to clarify their exact meaning:

Athletic context: Pertaining to a sport circumstance.

California Q-set (CQ-set): Numerous statements formulated by Block (1978) to describe a wide range of personality variables in a wide range of contexts.

Contextual template matching (CTM): A technique that matches an individual's self-sort of the CQ-set with a contextual template or templates.

Ipsative test: A procedure that allows comparisons of an individual's characteristics but is limited in the degree to which it permits inter-individual comparisons.

Normative test: A procedure that describes personality by taking the behavior of the population as the standard of comparison.

Paradigm: A model used for an explanatory framework.

Q-set: A set of behavioral descriptors printed on cards.

Salient: Important and relevant to the sorter.

Template: The personality description or profile of a hypothetical ideal individual who typically displays a personality characteristic.

Assumptions of Study

The following assumptions were made in this study:

1. The experts were appropriately qualified to develop the template of the personality characteristic in their area.

2. The CQ-set is adequate in range to assess personality variables essential to athletic performance and,

consequently, so is the modified CQ-set. Therefore, the modified CQ-set may also be used in the athletic context.

3. Each athlete was fully and similarily motivated during the test-retest administration of the CQ-set.

Delimitations of Study

For the purpose of this study the following delimitations were made:

1. Experts were those considered to be prominent in research in their area of expertise by Dr. Craig Fisher and the author.

2. Only 35 athletes from Ithaca College were tested.

Limitations of Study

For the intent of this study the following limitations existed:

1. The results of this study pertain only to the use of the modified CQ-set.

2. The results of this study are only valid in the athletic context.

3. The results of this study are only applicable to college athletes.

4. The validity of the expert templates are dependent on the respective frame of reference of the experts.

Chapter 2

REVIEW OF LITERATURE

The review of related literature for this study is divided into six major sections: (a) sport personality research, (b) Q-methodology, (c) the Q-sort, (d) the CQ-set, (e) contextual template matching in the athletic environment, and (f) summary.

Sport Personality Research

The area of sport personality has been of great interest to many researchers in recent years. Although there have been vast amounts of research in the area of sport personality, very little can be concluded from the research. Perhaps Ryan (1976) best summed up the status of sport personality:

> The research in this area has been the "shot gun" variety. By that I mean the investigators grabbed the nearest and most convenient personality test, and the closest sport group, and with little or no theoretical basis for their selection, fired into the air to see what they could bring down. It isn't surprising that firing into the air at different times and different places and using different ammunition should result in different findings. (p. 422)

The bulk of research in sport personality has been geared

towards a specific definition of personality structure through the use of a variety of inventories. Well over 1,000 studies have utilized the trait model of behavior (e.g., Minnesota Multiphasic Personality Inventory, California Psychological Inventory) (Fisher, 1984). Trait theorists advocate that there are pervasive cross-situational consistencies in an individual's behavior. Therefore, according to trait theorists, if an athlete scores low on an anxiety inventory, that athlete will always exhibit a lower anxiety level than an athlete whose score indicates a high level of anxiety. A damaging aspect of the trait model is that personality traits explain no more than 10% of the behavioral variability in any given situation (Endler & Hunt, 1966, 1968). This finding was also confirmed by results collected in sport contexts (Burton, 1977; Czarnecki, 1977; Fisher, Borowicz, & Morris, 1978; Fisher, Horsfall, & Morris, 1977), an aspect that makes the validity of the trait model difficult to accept.

Another model commonly used to predict behavior has been the situational model. The situational model tries to account for behavior in terms of the situation in which behavior occurs. This viewpoint suggests that behavior is expected to change from one situation to another, and individual factors are not thought to be important in explaining personality. The bulk of research suggests that

neither a trait approach nor a situational approach is sufficient to explain behavior.

The importance of developing and using measurement tools for assessment of personality in the athletic context was stressed by Layman (1970). She claimed that it is necessary to alter in form and not merely transfer personality theory to athletic personality research. The conceptual model that is best suited to take person and situation variables into account is the interactional model of behavior.

Interactional Model of Behavior

The interactional paradigm uses many social learning theory precepts that incorporate the influence of both the situation and the person upon overt behavior. The interactionist sees situation and person variables as co-determinants of behavior without specifying either as primary or subsidiary.

The interactionist model is not a new concept; its foundation can be found in earlier personality theory. Kantor (1959) was the first to postulate a person-situation interaction theory. Endler (1966, 1973) and Endler and Hunt (1966, 1968) have done much of the contemporary research in the area of interactionism.

According to Magnusson and Endler (1977), the basic elements of the person by situation interactional model can be summarized in the following manner:

1. Actual behavior is a function of a continuous feedback process between the individual and the environment.

2. The individual is an intentional, active part of this interaction process.

3. On the person side of the interaction, cognitive factors are the essential determinants of behavior, although emotional factors cannot be discounted.

4. On the situation side, the psychological meaning of the situation for the individual is the crucial determining factor.

If one is to better understand, evaluate, and predict an athlete's performance, the reciprocal interaction between the athlete and the specific sport environment must be considered (Bandura, 1978). According to reciprocal interaction, behavior, personality, and environment are interdependent (e.g., personality influences behavior, and behavior affects personality).

Fisher (1984) argued that methodologies that intend to satisfy the interactional model must conform to the basic principles of interactionism. First, the methodology must use in combination person and situation variables that are specific to an athlete to gain the essence of the interaction.

Second, any interactional methodology must ensure that its main intention is to determine response variance within an individual and not across groups. Due to this principle,

the data analysis must be ipsative and not normative. Data must be analyzable so that individual differences are not lost in a group analysis where differences may never be found.

The last principle is to construct a methodology that can encompass a wide range of situation and person variables. It would be inefficient to construct a new testing instrument every time a new research problem was being investigated.

The two methodologies proposed by Fisher (1984) that best suit the interactional model are individual differences scaling analysis (INDSCAL) and contextual template matching (CTM). INDSCAL lets the investigator gain information from data without the subjects being aware that there is a pattern to their responses. The second method, CTM, is the method that perhaps best suits the interactional model.

Contextual Template Matching

Bem and Funder (1978) introduced the template matching technique in a study that investigated the template matching technique for predicting the behavior in particular situations. The behavior of interest is characterized by a template, a personality description of a hypothetical ideal person most likely to display that behavior in the situation under study (Hoffman & Bem, 1982). The type of behavior that will occur is predicted by comparing an individual's

description of his/her own personality with a particular template.

Template matching has been empirically successful and useful as a tool of verification and of exploration. But, according to Hoffman and Bem (1982), it is incomplete in two ways. First, it does not follow any certain way of characterizing situations independently of personality attributes. Secondly, template matching only peripherally uses the idea that both person factors and situation factors have to be considered in predicting behavior. To alleviate these two problems, Hoffman and Bem (1982) devised the contextual template matching technique (CTM).

What makes CTM different from template matching and allows it to succeed on the same data on which template matching fails is the substitution of a situation-specific description of the individual's personality instead of the global Q-sort (personality descriptors).

The tool used by individuals to characterize their own personality is the California Q-set developed by Block (1978). The CQ-set is a form derived from the Q-sort method developed by Stephenson (1953).

Q-methodology

The Q-sort is an instrument that describes personality on the basis of the individual as opposed to the population. The Q-sort method was devised originally by Stephenson to provide, in convenient form, data suitable for his heuristic

studies in Q or obverse factor analysis. The letter Q was generalized from its original meaning of an emphasis on correlating persons to include also a method that scaled data for this correlational approach (Block, 1978).

In the Q-sort method, an individual is presented a set of statements. The individual then must sort those statements into prescribed categories with a designated number of statements that are most characteristic or salient of the individual to items that are most uncharacteristic or most salient in a negative sense of the individual.

The Q-sort

There are three questions which are often asked when discussing the Q-sort method and analysis of Q-data:

1. Should the sorter be allowed a free rather than a forced distribution of items in each category?

2. If forced distribution is the chosen method, then what form should this take?

3. Can the effect of social desirability be minimized, and, if so, how?

In research done by Hartigan (1983), these questions were discussed. The discussion can be summarized as follows:

1. Unforced Q-sorting is more susceptible to the Barnham effect (Meehl, 1956), which is the likelihood to say very general things about oneself.

2. The information that is gained by unforced Q-sorting seems to be readily available through forced Q-sorting.

3. The forced Q-sorting method provides data in a convenient and analyzable form, whereas unforced Q-sorting does not allow this to occur.

4. Even though a rectangular (or uniform) Q-distribution provides a few more discriminations, the Q-distribution should deviate towards a unimodal distribution. This is because items in the middle categories are less important than items in the extreme categories and represent more difficult and time consuming judgments.

5. Personality variables are distributed normally among a population of individuals, therefore the different variables within an individual personality are likewise unimodally distributed.

6. Two methods would allow the influence of social desirability of the Q-sort data to be reduced. First, any variance in social desirability of the Q-items can be reduced by keeping these values relatively constant along all items (i.e., items with high positive or negative social desirability values are excluded). Second, a Q-set may be balanced with respect to the social desirability of Q-items.

7. The issue of social desirability in the athletic context remains an open question. The guidelines offered by

Edwards (1970) for minimizing this undesirable factor were anticipated by Block (1978) and incorporated into the development of the CQ-set.

The CQ-set

The CQ-set was developed by Block (1978) with the intention of developing a comprehensive and widely usable Q-set for psychiatrists and psychologists. When the CQ-set was being developed most of the effort was focused on establishing a good set of personality descriptors. Block was well aware of the limitations in the generalizations selected but argued that these limitations were slight compared to some of the inadequacies in other contemporary research methods.

The principles that were used in writing CQ-items were as follows:

1. Each item was written in a theoretically neutral form. None of the CQ-items uses a concept linked only to one theoretical orientation, consequently the items should be compatible to any viewpoint about personality.

2. Each item was written to suggest a continuum, rather than to have either/or implications. The salience of an item would, therefore, be assessed by its placement rather than directly by its wording.

3. Each item was written to express single psychological "elements" to avoid the ambiguity of "double-barrelled" phrasings.

4. The attempt was made to include only variables that were conceptually independent of each other. In conceptual independence the psychological sense of each item cannot be coordinated to or derived from the psychological sense of any other item or conjunction of items.

5. The attempt was made to exclude the redundancy of items with the recognition that logical or verbal opposites are not necessarily psychological opposites.

6. An effort was undertaken to minimize the degree of value judgment in the judges' descriptions of subjects. Neutral, positive, and negative items exist in the CQ-set in the ratio, approximately, 2:1:1.

Prior to the development of a comprehensive and usable Q-set for psychologists and psychiatrists, Block was involved in other Q-studies. These studies led to the preparation of a Q-set by assessors in a study of Air Force officers (Mackinnon, 1958). It is considered by many that this early deck of Institute of Personality Assessment and Research (IPAR) Q-items encouraged the effort to develop a more generally useful Q-set.

Developing the CQ-set, Form I

The starting point for the CQ-set was 90 items. In many hours of meetings of psychologists and a psychoanalyst, each item was discussed with respect to its clarity, its implications for the quality of the total Q-deck, and its psychological importance. There was no analytical method to

test the sufficiency of the Q-set because there is no systematic and widely accepted conceptualization of personality. Consequently, an empirical effort was made by the group to find any items that had weaknesses. The Q-set was then submitted to a group of clinical psychologists in 1953 at the Langley Porter Clinic. There was again discussion and a further challenge to discover personality-relevant items not already included. The original items were broadened in acceptability and perspective, and in July 1953 the CQ-set, Form I, consisting of 108 items, was used in several research studies.

Developing the CQ-set, Form II

The CQ-set, Form I, was revised in August of 1954. There had been suggestions for improvements from psychologists who had used the CQ-set for research or had teaching experience with the procedure. Form II of the CQ-set consisted of 115 items and was another step towards achieving the capability to permit personality formulations by a wide range of psychodynamically oriented observers. The CQ-set, Form II, was used from August 1954 until March 1957.

Developing the CQ-set, Form III

Using the suggestions gathered from users in the preceding 2 years, a tenative revision of Form II of the CQ-set was prepared in the Fall of 1956. During the meetings held at the Institute of Human Development, the

group discussed each of the Q-items, singly and in conjunction, against the criteria described earlier.

The 108 items from the CQ-set, Form I were intercorrelated, the data coming from a sample of 40 mothers of psychiatrically-disturbed children and, as a separate matrix from a sample of 40 fathers of these same children.

In the CQ-set, Form II, the 115 items were also intercorrelated. Data were collected from Q-descriptions of a random sample of 50 middle-aged Vassar graduates and, as a seperate matrix, from a sample of 70 male applicants to medical school.

These four matrices were scrutinized to identify items too highly correlated with other items in the set. To be considered as redundant, it was necessary for the correlation between two items to exist in more than one of the matrices. This served as a safeguard against a premature conclusion that two items were functionally equivalent. Upon completion of the psychometric analysis and discussion of items, Form III of the CQ-set was finalized in 1961.

Evaluation of the CQ-set Items

There have been many criticisms of the CQ-set items. These criticisms and their replies by Block (1978) are summarized below:

1. A common criticism of the Q-sort method is that results are a function of the particular Q-set used. The

the Q-set is to use a consensual basis for item selection. During the course of the development of the CQ-set, over 50 professionals of diverse orientations contributed their suggestions. If a bias does exist in the CQ-set, then this bias is a belief among professional observers. There also is empirical evidence that the functional relationships rendered by the one Q-set can be expected to be quite similar to the functional relationships appearing via the other set.

2. A second criticism used against the CQ-set is that a sorter is limited in the number of discriminations usable in describing a personality. There are three responses to this criticism, the first being a numerical one. The number of different ways a CQ-set can be sorted into the nine categories is 6.45×10^{85}, an enormous number. Although the modified CQ-set to be used in this study would compute to be a smaller number, it still would be quite large. In calculating this number of sorting arrangements, it should be noted that it is assumed that there is independence in placement of each item, an assumption that we know is incorrect. Even if the resulting figure were reduced by a factor of 100 or a billion, one is still left with an enormous number of item configurations.

Second, the constraints applied by the CQ-set are slight compared to those imposed by other personality research methods. This does not mean that the limitations

imposed by the CQ-set are not important, but they do not attenuate the truth.

Third, situations will arise when a description just in terms of the CQ-items will not be adequate. In these situations a freely written characterization of the subject will be useful in conveying any additional information and perceptions. It is of utmost importance that studies that use this method do so in addition to rather than instead of a CQ-sort.

3. Another common criticism of the CQ-set deals with the meaning and interpretability of the items used. Even though the primary purpose of the Q-approach is to standardize a language so that comparability of description becomes feasible, there is discussion that the standard language may not be used in equivalent ways.

The rejoinders to this are several. Attention must be brought to the extended and attentive evolution of item phrasing. The manifest or genotypical level that an item is intended to reflect is clearly indicated. Where an item is phrased alternatively or expounded upon, it was done so that these extensions are free from discord with each other. However, in actual usage the interpretability problem may still occur due to differences in language backgrounds. A technique used by Block (1978) was to have experts calibrate themselves by describing the same subject. Consequently, differences found are true differences in evaluation rather

than unwanted discrepancies due to differing interpretation of items. Another approach that can be used for universal accord of item interpretation is to consult the CQ-description of an optimally adjusted person in Block's (1978, pp. 144-145) book.

Validity of the California Q-set

The American Psychological Association (1966) considered the validity of a procedure to mean the degree to which it is capable of achieving its aims. It has long been accepted that, because different tests may have different types of aims, an approach that might be appropriate for demonstrating validity in one test may not be appropriate for another. There are three assessments of validity, each geared towards a specific aim of a test: content, predictive, and construct.

Content validity involves showing that the content of the test is representative of the behaviors for which the test is being given. According to Ghiselli (1964), predictive validity is the accuracy with which we can make guesses about one characteristic of an individual from another characteristic. Construct validity is established by relating a postulated measure of a construct or hypothetical quantity with some behavior or representation that it is hypothesized to underlie.

The validity of the Q-technique had for the most part been unquestioned (Frank, 1956). Some investigations, such

as the one done by Sweetland and Frank (1955), which compared the results to some external criterion, attest to its validity.

A major concern when using the CQ-set as a self-sort instrument is whether it will exhibit adequate consistency over time. Results of a study done by Hartigan (1983) showed the effect of the test-retest reliability of athletes' self-descriptions with the CQ-set during a time interval of 1 week to 1 month to be a minimal negative relationship of $\underline{r} = -.19$. This relationship suggests that this time interval is of little importance in measuring consistency over time of the CQ-set with college athletes.

Contextual Template Matching in the Athletic Context

The CQ-set has been used in association with the CTM technique in three studies that have involved athletes. The effect of psychological skills training (measured by CTM) on perceived exertion was investigated by Satterley (1982). An assessment of athletes' self-confidence in a variety of sport-specific situations was conducted by Araniti (1983). Hartigan (1983) investigated the test-retest reliability of the CQ-set with college athletes, and his results showed a mean correlation of .71. He also used the CQ-set to describe the personality characteristics of prototype athletes, and his results showed predicted reliabilities with a range of $.60 < \underline{RC} > .80$.

Summary

A vast amount of sport-personality research has been done in an attempt to measure personality characteristics using the trait model of behavior. However, research by Endler and Hunt (1966, 1968) has shown that the interactional model is a more accurate conceptualization of personality. Fisher (1984) proposed that the best method to suit the interactional model is CTM. CTM uses a situation-specific description of a person's personality rather than global personality descriptors. Data collection in CTM is done with an instrument called the California Q-set, which was developed by Block (1978). Discussion of the Q-set and evaluation of the CQ-set items was also undertaken. The final discussions dealt with the validity and reliability of the CQ-set and the use of CTM in sport contexts.

Chapter 3

METHODS AND PROCEDURES

This chapter explains (a) selection of subjects, (b) modification of the testing instrument, (c) method of data collection, (d) treatment of data, and (e) summary.

Selection of Subjects

Subjects for the development of the Q-set templates were sport psychologists/psychologists (N = 28) judged to be experts in the area in which they were chosen. Subjects for the reliability study (N = 35) were randomly selected from the Ithaca College varsity athletic rosters during the 1985-1986 academic year. Participants in the study were informed of the demands of the study and consented to be voluntary subjects who could withdraw from the study at any time.

Modification of the Testing Instrument

The original CQ-set was devised by Block (1978) and adapted by Bem (Bem & Funder, 1978). It consists of 100 items or descriptive personality statements (e.g., "Is interested in the opposite sex") printed on cards to aid sorting.

The modified CQ-set was made by graduate students in sport psychology classes. The modification was accomplished by removing cards deemed irrelevant to the athletic context. A total of 18 cards were removed, so that 82 items currently

comprise the deck (Appendix A).

Sorting Procedures

In the original CQ-set the items are sorted into three piles: positively salient or characteristic items, neutral or irrelevant items, and negatively salient or uncharacteristic items. The items in the three piles are then sorted into nine categories ranging from least characteristic to most characteristic of the person being described. The most salient or characteristic items are placed in Category 9, and the most salient in a negative sense or uncharacteristic are placed in Category 1. Items that are irrelevant or neutral are placed in middle categories. The numbers of items assigned to Categories 1 to 9 are 5, 8, 12, 16, 18, 16, 12, 8, 5, respectively.

In the modified CQ-set the items to be sorted are put into three piles: positively salient or characteristic items, neutral or irrelevant items, and negatively salient or uncharacteristic items. The items in the three piles are then sorted into seven instead of nine categories, ranging from least to most characteristic of the person being described. As in the original CQ-set the most salient or characteristic items are put in the last category, now Category 7, and the most uncharacteristic items are placed in Category 1. Neutral items are placed in middle categories. The numbers of items assigned to Categories 1 to 7 are 6, 10, 14, 22, 14, 10, and 6, respectively.

After a subject finishes sorting, the numbers on the item cards are recorded by categories for later analysis.

Methods of Data Collection

Subjects for the reliability study were contacted by telephone. If after numerous attempts a potential subject could not be reached, then that person was replaced. The subjects who were contacted were recruited with the telephone message in Appendix B. If the subject agreed to take part in the study, a time was decided upon for the subject to read and sign an informed consent form and to sort the CQ-set (see Appendix C) under the supervision of the investigator. Subjects duplicated the process 7 to 15 days after the first sort. One athlete took over an hour, yet another athlete took only 25 minutes.

Participants in the template construction were recruited through a mailing procedure. Participants chosen were sent a letter explaining the investigation (see Appendix D), a definition of the template they were being asked to construct (see Appendix E), and a modified CQ-set and sorting instructions (see Appendix F). If they agreed to take part in the investigation, they completed the sorting procedure and returned the sorting guide and the CQ-set. If they chose not to take part in the study, they were asked to simply return the CQ-sets unsorted.

Treatment of Data

In the test-retest reliability study with the athletes, the scores for each athlete were analyzed by Pearson product-moment correlation. In the template construction study, templates were formed by averaging arithmetically the scores from each item by the experts. An inter-expert correlation was then calculated for each template constructed.

Summary

Athletes (N = 35) who participated in the reliability study described their own personality in the athletic context by sorting the California Q-set (CQ-set) twice. The scores from the two sorts for each subject were correlated to estimate the test-retest reliability of the CQ-set with Ithaca College athletes.

A second aspect involved experts constructing templates of hypothetical ideal athletes who typically exhibit a certain type of personality.

Chapter 4

ANALYSIS OF DATA

This chapter will involve discussion of the results of (a) the test-retest reliability of the CQ-set as a self-assessment tool with college athletes, (b) the average card placement and reliability estimates for the 10 constructed templates, and (c) summary.

Test-retest Reliability of the CQ-set as a Self-assessment Technique with College Athletes

The test-retest correlations of athletes' CQ-sorts were assessed by Pearson product-moment correlation. The mean correlation for this sample was .72. The range was .47 to .84, with a standard deviation of .09. The distribution of the test-retest reliability coefficients for the 35 subjects is shown in Figure 1. Results reveal that 32 of 35 college athletes or 91% exhibit reliability of .60 or higher in the CQ-set test-retest reliability.

Average Card Placement and Reliability Estimates for the Constructed Templates

An average card placement by the sport psychologists/psychologists was calculated for the modified CQ-set (Table 1), resulting in 10 templates or ideal models of selected personality characteristics.

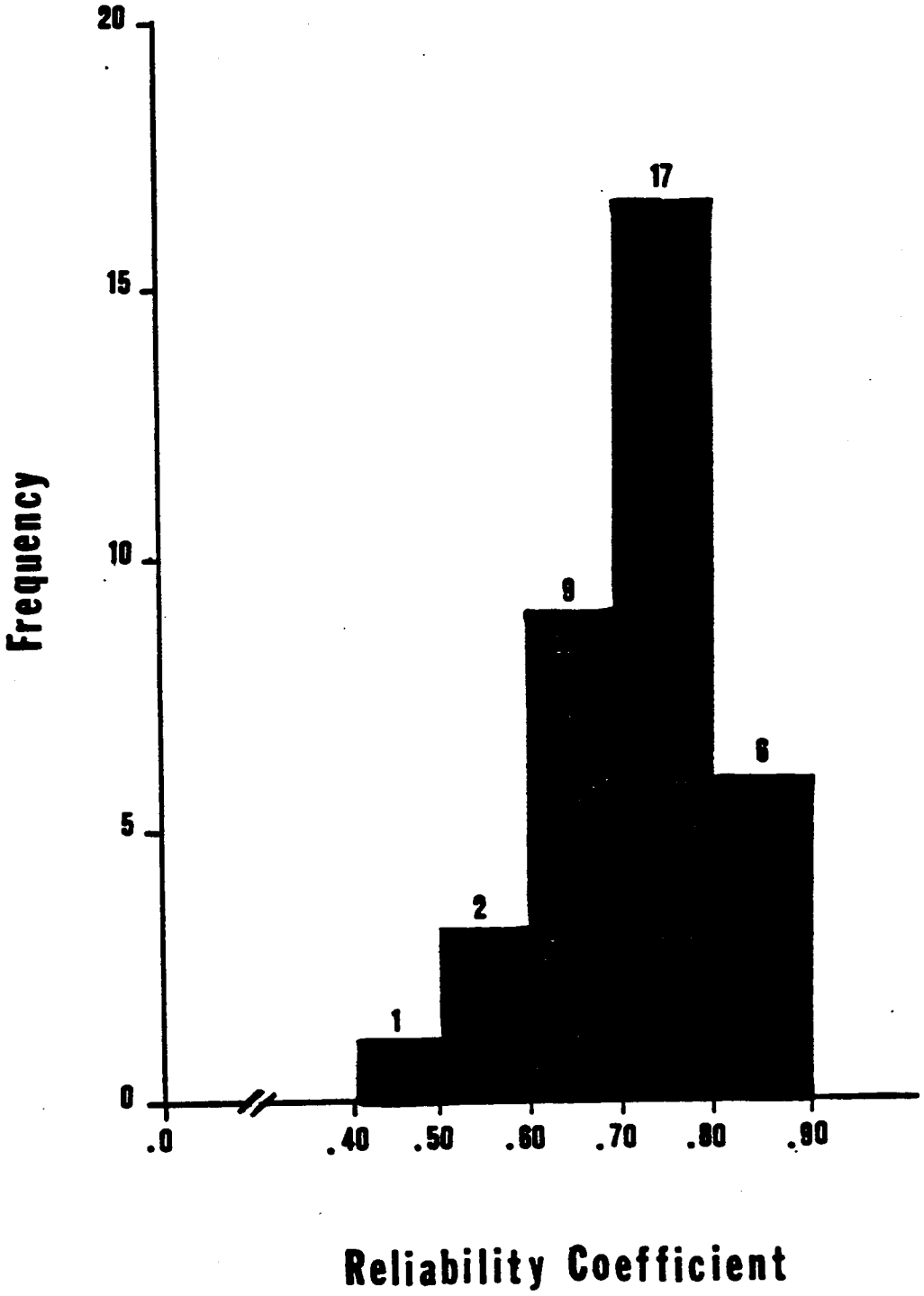


Figure 1. Test-retest reliability of CQ-set.

Table 1

Average Card Placement for the Modified California Q-Set

	Characteristic[a] being sorted				
Card number	PER	ASS	ANX	ACH	EFF
1	3.7	3.7	4.0	5.0	4.0
2	7.0	5.3	3.0	5.3	4.7
5	3.7	2.7	3.7	4.0	4.7
6	5.3	4.7	4.7	6.3	4.3
7	4.7	3.3	4.0	3.0	4.7
9	3.0	4.0	6.0	1.0	4.7
10	3.7	3.7	7.0	3.3	4.7
11	4.0	3.3	4.0	3.3	4.0
12	2.7	4.3	5.3	3.3	3.0
13	2.3	4.0	5.7	2.7	4.0
14	2.7	1.0	3.0	2.0	4.0
16	5.3	3.7	6.0	5.7	4.0
17	4.0	3.0	3.7	3.7	4.7
19	2.3	2.0	5.3	3.0	4.0
20	4.3	5.0	6.0	6.0	3.0
21	3.7	2.7	3.3	2.7	4.3
22	2.3	3.3	4.3	1.3	3.3
23	2.0	4.0	4.7	3.3	2.7
24	5.3	5.0	2.3	4.7	4.3
25	4.3	3.0	5.0	4.3	4.7
26	7.0	6.7	2.3	7.0	5.0
27	3.7	4.7	3.3	4.3	3.3
28	5.0	3.0	2.7	4.0	4.3
29	5.7	5.3	3.0	5.3	3.3
30	1.0	1.7	5.7	1.0	3.7
32	4.7	4.7	4.3	4.7	4.3
33	5.3	4.0	1.0	5.3	3.3
34	2.0	4.3	6.3	3.3	3.7
35	4.0	4.3	2.7	4.0	4.3
36	2.3	3.0	4.3	2.3	3.7
37	3.7	3.7	3.7	3.7	3.0
38	4.0	4.3	4.7	4.0	2.7
39	4.3	3.3	4.0	3.7	3.3
40	2.3	4.0	6.7	2.0	4.3
41	4.3	4.0	4.0	4.0	5.0
42	1.0	1.7	5.7	1.0	3.0
43	4.0	6.0	4.3	4.0	3.3
44	4.3	4.3	4.3	4.0	4.3
45	1.7	3.0	6.7	1.3	4.0
46	3.7	4.0	4.3	5.0	4.0

(table continues)

Card Number	Characteristic[a] being sorted				
	PER	ASS	ANX	ACH	EFF
47	3.7	3.0	5.0	2.7	5.0
48	4.0	4.0	4.3	3.7	3.7
49	3.7	3.0	4.7	3.7	2.7
50	2.0	3.0	4.3	2.3	3.7
52	6.3	7.0	2.0	6.3	3.7
53	2.3	4.0	5.0	2.3	3.3
54	3.7	3.3	3.3	3.7	4.7
55	1.0	2.7	6.0	1.0	3.3
59	6.7	4.3	5.3	6.3	3.0
60	6.7	4.3	2.3	5.7	4.0
61	3.7	4.7	3.3	4.3	4.0
62	3.3	4.3	3.3	3.7	2.0
63	3.3	3.3	4.0	3.7	4.7
64	5.0	3.7	2.7	4.3	4.7
65	5.0	4.0	2.0	6.3	4.0
67	1.7	3.7	2.7	3.0	3.7
68	2.7	3.3	6.7	2.3	5.3
69	5.3	4.0	4.7	4.7	3.3
70	6.3	5.0	4.0	5.3	4.7
71	7.0	6.0	3.3	7.0	4.7
72	3.7	2.7	6.3	4.7	4.3
74	4.7	4.0	1.0	4.7	4.3
75	5.7	5.0	2.0	5.7	4.7
76	3.7	3.7	3.7	4.3	4.7
77	5.3	6.3	3.3	4.7	5.0
78	2.0	3.0	3.3	3.0	3.7
79	3.3	3.0	6.7	2.7	3.3
82	3.0	3.7	5.0	2.7	4.3
83	5.0	4.3	2.3	4.3	4.0
84	4.3	3.7	1.7	4.0	5.0
85	5.0	6.3	3.3	4.7	5.3
86	3.7	3.7	5.3	3.0	2.7
87	3.0	3.3	4.0	5.0	4.0
89	5.3	5.3	4.7	5.3	3.3
91	5.3	6.0	3.0	6.0	2.3
92	4.7	4.7	1.3	4.7	5.3
94	4.3	5.3	3.7	4.0	3.0
95	4.3	5.3	2.7	5.3	4.3
96	6.0	6.0	2.3	6.7	5.7
97	3.7	1.7	1.0	3.3	4.7
99	3.3	4.7	3.7	3.7	4.0
100	5.0	3.3	3.0	3.7	5.0

(table continues)

Card number	Characteristic[a] being sorted				
	AFF	OC	FF	SC	EXT
1	2.7	6.3	3.0	3.3	3.7
2	5.3	3.0	3.0	6.3	2.3
5	6.7	3.0	4.0	5.3	1.7
6	3.0	3.7	2.7	4.7	3.3
7	4.3	4.0	4.0	4.0	5.0
9	3.7	2.7	6.3	2.0	4.3
10	4.0	3.3	5.7	2.7	4.3
11	6.0	4.3	3.7	4.3	4.3
12	2.0	4.7	6.3	2.0	6.0
13	5.3	4.7	6.3	2.0	4.7
14	4.0	1.0	3.3	3.0	1.7
16	5.3	3.3	6.0	3.7	2.0
17	7.0	3.0	3.7	4.3	2.3
19	6.3	2.7	6.0	2.3	6.3
20	3.0	6.0	2.7	5.3	3.7
21	6.0	2.0	4.7	3.7	3.7
22	3.7	3.0	3.7	2.7	5.7
23	3.3	5.7	4.7	2.0	4.3
24	3.7	4.0	4.0	5.3	4.3
25	3.0	3.3	3.0	4.0	3.7
26	1.7	3.7	2.3	6.3	6.0
27	2.7	6.3	3.3	3.7	3.0
28	6.3	2.3	3.0	4.7	3.7
29	6.3	2.7	2.0	6.3	3.3
30	3.0	2.3	6.0	1.3	2.3
32	6.0	5.3	5.0	4.3	4.0
33	4.7	4.7	2.7	6.0	3.0
34	3.0	4.7	3.7	2.7	4.0
35	6.3	3.0	4.0	5.3	2.3
36	2.3	3.7	4.0	3.3	3.7
37	2.7	4.3	3.3	3.3	5.3
38	1.0	4.0	3.7	2.7	4.0
39	3.7	3.7	3.0	4.3	2.0
40	4.0	2.7	6.3	2.0	5.3
41	4.3	4.0	3.0	4.3	4.3
42	5.0	1.7	5.0	2.7	3.3
43	4.7	4.3	3.7	5.0	3.7
44	4.7	4.0	4.0	4.0	6.3
45	3.7	3.3	6.0	2.0	3.7
46	4.7	4.7	5.0	4.0	2.7
47	4.7	2.3	3.7	3.3	4.3
48	1.3	4.0	3.0	3.3	4.3
49	2.3	3.7	4.0	3.7	5.0
50	2.7	3.7	3.0	2.7	3.7
52	2.0	6.7	2.0	6.7	6.0
53	3.7	4.7	2.7	3.0	4.0

(table continues)

Card number	Characteristic[a] being sorted				
	AFF	OC	FF	SC	EXT
54	6.7	3.7	4.0	4.0	4.7
55	5.0	3.3	5.0	1.3	2.7
59	3.3	6.0	4.0	5.0	4.0
60	4.0	2.3	2.3	6.3	2.3
61	3.7	4.7	3.3	3.3	4.7
62	2.0	5.7	2.3	4.3	2.3
63	6.3	4.3	5.7	3.7	5.3
64	5.3	2.0	4.7	4.7	3.3
65	2.3	5.7	3.0	4.3	5.7
67	3.7	4.3	3.7	3.3	5.0
68	4.7	3.0	6.7	2.3	4.3
69	5.0	4.0	5.0	3.7	4.3
70	4.0	3.0	3.7	5.7	2.7
71	3.7	5.7	4.0	7.0	6.3
72	4.3	4.7	6.7	1.3	5.3
74	5.0	4.7	2.3	6.0	3.7
75	4.7	3.7	3.3	6.0	4.7
76	4.7	5.7	3.3	4.0	5.7
77	3.0	3.7	3.3	6.0	3.0
78	2.3	2.3	4.7	2.3	3.7
79	2.7	2.7	5.7	2.3	3.7
82	3.0	4.3	4.3	3.0	3.7
83	3.3	3.7	3.0	4.7	3.0
84	6.0	4.0	3.0	5.3	3.7
85	3.3	5.0	2.7	5.0	4.0
86	4.7	4.3	4.0	2.7	4.0
87	4.0	3.7	4.3	3.7	4.0
89	5.3	5.3	6.3	5.0	6.3
91	2.3	6.3	4.0	4.7	5.7
92	4.7	4.0	4.0	5.7	3.3
94	1.3	4.7	3.3	3.7	4.0
95	4.7	5.3	4.0	5.0	5.3
96	1.7	6.3	3.3	6.3	3.7
97	2.7	2.3	3.0	4.7	3.3
99	3.7	5.7	3.7	3.0	4.3
100	4.0	4.0	3.0	4.7	3.7

---

a The following abbreviations are used in this table:

PER--persistence, ASS--assertiveness, ANX--anxious, ACH--achievement, EFF--high effort, AFF--affiliative, OC--over-confidence, FF--fear of failure, SC--self-confidence, EXT--extrinsically motivated.

Reliability estimates were calculated between experts (Table 2). The highest mean correlation between experts was .69 for the characteristic, high anxious. The lowest mean correlation was -.18 for the characteristic of high effort.

Several points must be noted when evaluating these reliability estimates. Expert A, B, and C are not the same individual for the different characteristics. The characteristics affiliation, high achievement, self-confidence, high anxiety, and persistence had a mean correlation of .60 or higher. The characteristics over-confidence, extrinsic motivation, fear of failure, assertiveness, and high effort had a correlation of .36 or lower. The characteristic high effort had a mean correlation of -.18 among experts. As can be seen in Table 2, there are varying degrees of card placements for different pairs of experts.

Summary

The test-retest reliability of the CQ-set as a self-assessment tool with college athletes was investigated. The rater reliability estimates for the 10 constructed templates were also investigated.

An overall test-retest mean correlation of $\bar{r} = .72$ was obtained. The reliability estimates between experts showed a mean correlation of .60 or higher for five of the characteristics and a mean correlation of .36 or lower for five characteristics.

Table 2

Experts' Reliability Estimates

	Between experts			
Characteristics	A/B	B/C	A/C	M
Over-confidence	.47	.24	.36	.36
Persistence	.72	.51	.75	.66
High Effort	-.39	.32	-.46	-.18
Fear of Failure	.31	.04	.65	.33
High Anxiety	.62	.63	.82	.69
Self-confidence	.55	.62	.66	.61
Assertiveness	.21	.11	.52	.28
Extrinsically Motivated	.37	.15	.24	.26
High Achievement	.74	.70	.61	.68
Affiliative	.67	.63	.69	.67

Note. Expert A, B, and C are not the same individual for the different characteristics.

Chapter 5

DISCUSSION OF RESULTS

This chapter discusses the results presented in chapter 4. Topics include the following: (a) test-retest reliability of the CQ-set as a self-assessment tool with college athletes, (b) average card placement and reliability estimates for the constructed templates, and (c) summary.

Test-retest Reliability of the CQ-set as a Self-assessment Tool with College Athletes

The test-retest reliability of the CQ-set, when used as a self-assessment tool with college athletes (N = 35), was appraised. A mean test-retest correlation of .72 was obtained. The range of values was .47 to .84 with a standard deviation of .09.

In a study done by Hartigan (1983), similar results were found. Hartigan reported a reliability coefficient of .71, with the range of values being .30 to .92 with a standard deviation of .13.

Although statistical results were almost identical, there are several procedural differences that should be noted. The test-retest time interval in Hartigan's study was 1 week to 1 month, whereas in this study the time interval was 1 week to 15 days. Another procedural difference that must be noted is the method of data collection. In Hartigan's study the subjects originally

sorted the CQ-set at home at their convenience. This was later abandoned for supervised sorting. The sorting for this study was entirely supervised. The other difference that must be noted is that the CQ-set used in this study was modified, therefore not the same as the one used in Hartigan's study.

Although there were several procedural differences in the testing, it appears that neither these differences, nor the modification of the CQ-set itself affects its reliability as a self-assessment tool for use with athletes.

Average Card Placement and Reliability Estimates for the Constructed Templates

An average card placement was calculated for the modified CQ-set resulting in 10 templates, or ideal models, of selected personality characteristics. The reliability estimates for the 10 constructed templates were calculated. Of the 10 templates, five had an acceptable reliability of .60 or higher (viz., the templates for affiliation, high achievement, self-confidence, high anxiety, and persistence). Four templates (over-confidence, extrinsically motivated, fear of failure, and assertiveness) had a reliability of .36 or lower. One template, high effort, had a negative correlation of .18.

The study of the personality of athletes is an interesting and difficult area of sport psychology. Part of that difficulty is due to the fact that agreeing on a

definition of personality is not easy. There are so many definitions that it is difficult if not impossible to decide what constitutes personality (Fisher, 1976). If experts cannot agree on a definition of personality, should we expect experts to agree upon the construction of templates or ideal models of personality characteristics? The following reasons are proposed as to why some templates showed less reliability than others across raters.

Unacceptable Reliability Estimates

Assertive Athlete

The characteristic assertiveness is so tied in with the construct aggression that it perhaps is not unexpected that there would be an inconsistency between sorters. The construct of aggression has a twofold meaning: reactive and instrumental. Reactive aggression implies that there is intent to harm; instrumental aggression differs from reactive aggression in that the intent is to attain a goal, not to harm. Assertiveness is characterized by task orientation. Is this really any different than instrumental aggression? If some experts did and others did not differentiate between assertiveness and reactive aggression, this may explain the low reliability (r = .28) of the template, assertive athlete.

High Effort Athlete

With a correlation of -.18, this is perhaps the most disappointing template considering that effort is so much a

part of sport. The implication here is that the experts do not have much consistency concerning how high effort athletes behave. This perhaps is due to the misinterpretation of the relationships between ability and effort and effort and success. If athletes look as though performances are coming easy for them, e.g., smooth, free flowing, gliding, the impression of lack of effort can be perceived. In actuality their ability is so good and their movement is so smooth that it does not appear that they are putting forth the effort. Effort and success can also be confused. Is an athlete who is classified as a "blue-chipper" and successful at whatever is attempted considered to be giving all-out effort, while the "un-natural" athlete who is unsuccessful is thought of as not putting forth the effort? Until experts can better differentiate effort from success, ability, and/or skill, it is unreasonable to expect a greater consistency among raters for this template.

Over-confident Athlete

There are two ways to look at the characteristic, over-confidence. The first is to look at over-confidence as an abundance of self-confidence that exceeds the level apparently required for objective appraisal of task performance. The second way is to view it as false "self-confidence," which is really not self-confidence, but an attempt on the part of the athlete to portray a

self-confident demeanor. Depending upon how the expert decided to interpert the definition might very easily explain the lack of reliability among the experts.

Fear of Failure Athlete

Failure or success is a consequence of most competitive performances whether they be on or off the athletic field. The way in which experts interpreted failure could have influenced their sorts. Some experts could have sorted with an absolute standard in mind. An example of this would have been a sorter "seeing" failure as an athlete losing a race or game. Other experts may have taken into account an athlete's aspirations, goals, expectations, or achievements. An athlete may finish last in a race, and that might be considered a failure on the absolute standard. Yet that athlete may have improved his or her time, which is indicative of success. A better understanding of the antecedents and consequences of failure is needed in order to fully understand failure as it is or is not displayed by athletes.

Extrinsically Motivated Athlete

The importance of motivation to the degree of achievement or to the quality of performance has been recognized by many coaches (Webber, 1970). It is generally accepted that an individual can, to some extent, make up for what s/he lacks in size or skill by desire or motivation to want to do better. There are two types of motivation:

intrinsic and extrinsic. Motivation is intrinsic when the activity itself supplies the reward and is extrinsic when the activity is a means to an end (Alderman, 1976). Many theorists tend to assume that these two different kinds of motivation are independent and additive (Notz, 1975). Recent theorizing challenges this assumption, in effect claiming that an extrinsic motivation may actually decrease intrinsic motivation. If they are not independent, can an expert sort the CQ-set without allowing himself/herself to be biased when sorting a card into the categories? It may be that substantial interaction of the two types of motivation makes a highly reliable sort almost impossible.

Acceptable Reliability Estimates

The templates of self-confidence, high anxiety, persistence, affiliation, and high achievement might have higher inter-rater reliabilty due to several reasons. The first is that these templates seem to have a more generally acceptable definition than those of the templates with a lower reliability. The second reason for the higher reliability might be due to the lack of certain peculiarities or idiosyncracies of the various experts rather than any significant information pertinent to the templates.

Summary

The test-retest reliability of the CQ-set was investigated with 35 college athletes. Ten templates were

constructed by experts to describe ideal models of selected personality characteristics.

Adequate test-retest reliability (r = .72) was obtained. Of the 10 constructed templates, five showed moderate to acceptable reliability of .60 or higher. Five showed unacceptable reliability of .36 or lower.

Personality, according to the most general definition, is a composite of mental abilities, interests, attitudes, and other variables characterizing thoughts, feelings, and behavior. This definition emphasizes the fact that human personality is a unique combination of cognitive and affective characteristics desirable in terms of a typical, fairly consistent pattern of individual behavior (Aiken, 1976). If experts have no consistent idea of what is ideal or what behaviors are ideal, how does one remediate problems or decide if psychological skill training is needed for particular athletes?

Although one of the fascinations of sport is its susceptibility to chance and its unpredictability, it behooves us as teachers, coaches, and physical educators to continue to study the human being in sport in an effort to better understand the athlete. Such an understanding will enable us to target for instruction and motivation the areas which merit the greatest attention by the magnitude of their contribution to the athletic experience.

Chapter 6

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER STUDY

Summary

The test-retest reliability of the CQ-set was investigated with college athletes. In addition templates were constructed of ideal models of selected personality characteristics by sport psychologists/psychologists.

The subjects for the reliability study (N = 35) sorted their own personality twice. The first and second sorts for each subject were correlated to assess the reliability of the self-sorting CQ-set procedure with college athletes. An acceptable correlation of .72 was obtained.

A second study involved the construction of 10 templates of ideal models of selected personality characteristics. Each template was constructed by three sport psychologists/psychologists judged to be an expert in the area for which they were chosen. Of the 10 templates, five showed acceptable reliability of .60 or higher and five showed unacceptable reliability of .36 or lower.

Conclusions

The following conclusions are supported by the results of this investigation:

1. The CQ-set shows moderate to acceptable reliability as a self-assessment tool with college athletes for research

purposes.

2. The templates of affiliation, high achievement, self-confidence, high anxious, and persistence show an acceptable reliability that could be used for further personality research.

3. Experts do not agree on which behaviors are exhibited by over-confident, extrinsically motivated, assertive, high effort, and fear of failure athletes.

4. If the experts cannot agree on behaviors exhibited by certain characterized athletes, then perhaps we should be more careful in prescribing psychological interventions for particular desired behaviors.

Recommendations for Further Study

The following recommendations are made for future research:

1. A study could be conducted using a greater number of experts per template with the five templates that did not show acceptable reliability.

2. The five acceptable templates could be used for research and clinical purposes with athletes, in association with CTM.

Appendix A

CARDS ELIMINATED FROM THE ORIGINAL CQ-SET

Card Number	Statement
3	Has a wide range of interests.
4	Is a talkative individual.
8	Appears to have a high degree of intellectual capacity.
15	Is skilled in social techniques of imaginative play, pretending and humor.
18	Initiates humor.
31	Regards self as physically attractive.
51	Genuinely values intellectual and cognitive matters.
56	Responds to humor.
57	Is an interesting, arresting person.
58	Enjoys sensuous experiences (including touch, taste, smell, physical contact).
66	Enjoys aesthetic impressions; is aesthetically reactive.

Card Nunmber	Statement
73	Tends to perceive different contexts in sexual terms; eroticizes situations.
80	Interested in members of the opposite sex.
81	Is physically attractive; good looking.
88	Is personally charming.
90	Is concerned with philosophical problems; e.g., religions, values, the meaning of life, etc.
93	a. Behaves in a masculine style and manner. b. Behaves in a feminine style and manner.
98	Is verbally fluent; can express ideas well.

Appendix B

RELIABILITY STUDY TELEPHONE MESSAGE

Through random selection you have been selected from Ithaca College athletes to represent your sport in a research study. We are trying to test the reliability of a personality assessment tool in the athletic context. All data collected will be kept confidential. Might I continue to see whether or not you are interested?

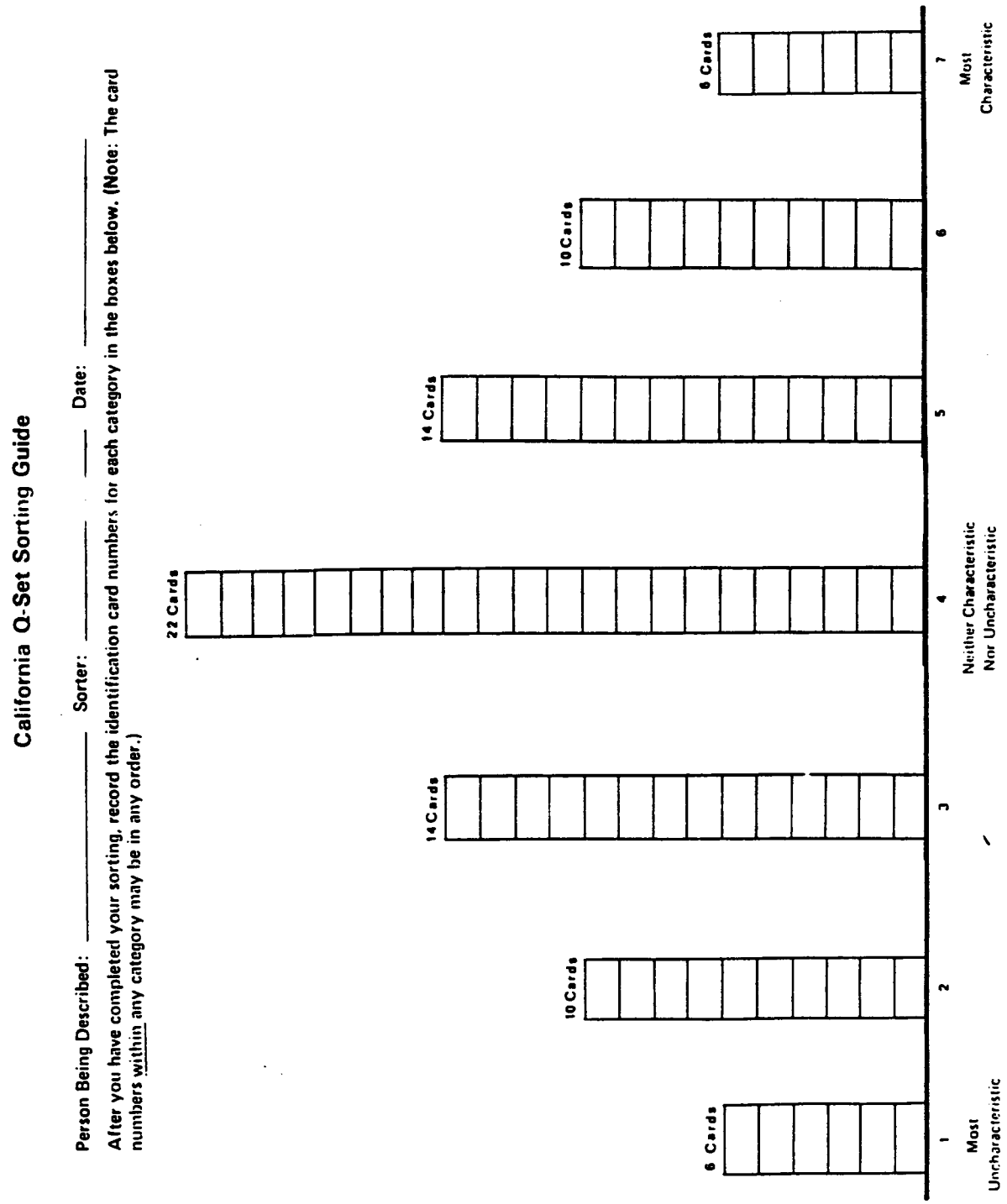
You will be required to sort a pack of 82 statement cards into seven categories ranging from extremely characteristic to extremely uncharacteristic of you. This will take about 1 hour to complete. You will also be required to sort the cards a second time.

Are you willing to participate? Which of the following times fits your schedule best?

The testing will be done in Hill Center.

Appendix C

CALIFORNIA Q-SET SORTING GUIDE



Appendix D

LETTER SENT FOR TEMPLATE CONSTRUCTION

Address:

Dear:

We need your help! You possess the needed expertise to assist us with our research project. We need 45 minutes of your time in the next few days. Here's our plan.

We would like to develop a number of ideal models or templates of various sport personality characteristics (i.e., behavioral characteristics associated with certain personality "types"). It seems to us that the California Q-set is an excellent data collection tool because it has the flexibility to encompass a variety of personality characteristics (e.g., achievement, anxiety, self-confidence) within any particular environment. Sounds interactional to us!

You have demonstrated expertise in the area of (template to be sorted) and it is your judgment about the specifics of that characteristic that's needed! Your task, if you choose to accept it, is to sort the 82 statement cards in the enclosed CQ-set deck according to guidelines specified in the enclosed instructions. What we are looking for is your depiction of the make-up of the ideal (template to be

sorted) athlete. We have operationalized this character type as follows: (definition of template). Perhaps this would be helpful to you.

It is extremely important that you keep the athletic context central in your mind as you sort the statements into characteristic, uncharacteristic, and neither characteristic nor uncharacteristic categories.

In addition to various template constructions, our immediate plans include some reliability and validity endeavors. It may be trite, but none the less true, to indicate that the project loses credibility without your participation. You know the personality characteristic best and we need you. Please give us an affirmative response, complete the sorting procedure and return the cards and sorting guide by (specified date). We thank you in advance for your cooperation.

Very Sincerely,

A. Craig Fisher, Professor.

Robin Siedman, Graduate Student.

Appendix E

DEFINITIONS OF CHARACTERISTICS SENT TO SPORT PSYCHOLOGISTS/PSYCHOLOGISTS

Persistent athletes adhere to their sport tasks. They refuse to give up; quitting is not a word in their vocabulary.

Assertive athletes confront opposition. They are as aggressive as they need to be to do the job. They act with decision.

High anxious athletes may perform "lights out" in practice but "lose it" when it counts. They worry themselves "senseless" so they can't concentrate on what they have to do.

High achievement athletes continually strive to be better. They are goal oriented and get a "kick" out of success. They meet a challenge with energy, and when there is no challenge they make one.

High effort athletes "bust their chops." Whatever the result, in practice or in competition, they are never satisfied unless they give maximum.

Affiliative athletes play the game to be in with the crowd, or because their friends think "it's cool to be a athlete." They would much rather be popular than successful

athletes.

Over-confident athletes express high confidence in ability/skill when performance is below levels of accepted competence. They retain their confidence even when it is not justified.

High fear of failure athletes are scared of failing. By not trying they lose, letting themselves off the hook with excuses like: "If I had ..."; "I could have ...."

Self-confident athletes express high confidence in ability/skill when performance is above levels of accepted competence, or express low confidence in ability/skill when performance is below levels of accepted competence. They are confident that they are also reality oriented.

Extrinsically motivated athletes need to be pushed. They are in the game for the perks and glory. Without these rewards they have no interest in the sport.

Appendix F

INSTRUCTIONS FOR SORTING THE MODIFIED CALIFORNIA Q-SET

Picture yourself in your athletic environment. Think of the sport you play and all the things you have to do as an athlete in that sport. Can you see yourself doing these things? Please experience these vivid memories while you sort the cards.

Step1

Set the Title and Category cards aside. You won't need them until after Step 2.

Step 2

Sort the 82 cards into three piles. Stack the statements uncharacteristic of you on the left; stack the statements characteristic of you on your right; stack the statements neutral and not relevant to you in the center (this stack may be larger than the other two).

Step 3

Place the Category cards in a row with Category 1 "extremely uncharacteristic" on the left and Category 7 "extremely characteristic" on the right. The middle Category 4 represents personality descriptors that are "neither characteristic nor uncharacteristic."

Step 4

Resort your three piles into the seven categories paying attention to the exact number of cards per category (look at the sorting guide). The order of the statements within categories does not matter, but the number of statements in each category is crucial.

Step 5

When the sort is finished, transfer the card numbers in each category onto the sorting guide.

KEEP IN MIND THAT YOU ARE SORTING
WITH THE ATHLETIC CONTEXT IN MIND.

REFERENCES

Aiken, L. R. (1976). Psychological testing and assessment. Boston: Allyn & Bacon.

Alderman, R. B. (1976). Incentive motivation in sport: An interpretive speculation of research opportunities. In A. C. Fisher (Ed.), Psychology of sport: Issues & insights (pp. 205-231). Palo Alto: Mayfield.

American Psychological Association. (1966). Standards for educational and psychological tests and manuals. Washington: Author.

Araniti, D. K. (1983). Assessment of self-confidence in sport-specific situations. Unpublished master's thesis, Ithaca College, Ithaca, NY.

Bandura, A. (1978). The self-system in reciprocal determinism. American Psychologist, 33, 334-348.

Bem, D. J., & Funder, D. C. (1978). Predicting more of the people more of the time: Assessing the personality of situations. Psychological Review, 85, 485-501.

Block, J. (1978). The Q-sort method in personality assessment and psychiatric research. Palo Alto: Consulting Psychologists Press. (Originally published 1961.)

Burton, A. L. (1977). Sources of hostility variance in

sport situations. Unpublished master's thesis, Ithaca College, Ithaca, NY.

Czarnecki, L. R. (1977). Sources of anxiety variance in sport situations. Unpublished master's thesis, Ithaca College, Ithaca, NY.

Edwards, A. L. (1970). The measurement of personality traits by scales and inventories. New York: Holt, Rinehart, & Winston.

Endler, N. S. (1966). Estimating variance components from mean squares for random and mixed effects analysis of variance models. Perceptual and Motor Skills, 22, 559-570.

Endler, N. S. (1973). The person versus the situation: A pseudo issue? A response to Alker. Journal of Personality, 41, 287-303.

Endler, N. S., & Hunt, J. M. (1966). Sources of behavioral variance as measured by the S-R Inventory of Anxiousness. Psychological Bulletin, 65, 338-346.

Endler, N. S., & Hunt, J. M. (1968). Inventories of hostility and comparisons of the proportions of variance from persons, responses, and situations for hostility and anxiousness. Journal of Personality and Social Psychology, 9, 309-315.

Fisher, A. C. (Ed.). (1976). Psychology of sport: Issues & insights. Palo Alto: Mayfield.

Fisher, A. C. (1984). New directions in sport personality

research. In J. M. Silva, III & R. S. Weinberg (Eds.), Psychological foundations of sport (pp. 70-80). Champaign, IL: Human Kinetics.

Fisher, A. C., Borowicz, S. K., & Morris, H. H. (1978). Behavioral rigidity across sport situations. In D. M. Landers & R. W. Christina (Eds.), Psychology of motor behavior and sport (pp. 359-368). Champaign, IL: Human Kinetics.

Fisher, A. C., Horsfall J. S., & Morris, H. H. (1977). Sport personality assessment: A methodological re-examination. International Journal of Sport Psychology, 8, 92-102.

Frank, G. H. (1956). Note on the reliability of Q-sort data. Psychological Reports, 2, 182.

Ghiselli, E. E. (1964). Theory of psychological measurement. New York: McGraw-Hill.

Hartigan, J. (1983). Assessment of personality in sport contexts. Unpublished master's thesis, Ithaca College, Ithaca, NY.

Hoffman, C., & Bem, D. J. (1982). Contextual template matching: A progress report on predicting all the people all of the time. Unpublished manuscript.

Kantor, J. R. (1959). Interbehavioral psychology. Bloomington, IN: Principia Press.

Layman, E. M. (1970). Critique of Kroll's paper. In L. E. Smith (Ed.), Psychology of motor learning (pp. 346-

348). Chicago: Athletic Institute

Mackinnon, D. W. (1958). An assessment study of Air Force officers: Design of the study and description of the variables (Document No. AD 152 040). Dallas, TX: Lackland Air Force Base.

Magnusson, D., & Endler, N. S. (Eds.). (1977). Personality at the crossroads: Current issues in interactional psychology. Hillsdale, NJ: Erlbaum.

Meehl, P. E. (1956). Wanted: A good cookbook. American Psychologist, 11, 263-272.

Notz, W. W. (1975). Work motivation and the negative effects of extrinsic rewards. American Psychologist, 30, 884-891.

Ryan, E. D. (1976). Current status and future direction of personality research related to motor behavior and sport: The questions we ask and the decisions we make. In A. C. Fisher (Ed.), Psychology of sport: Issues and insights (pp. 408-414). Palo Alto: Mayfield.

Satterley, J. (1982). Cognitive control of perceived exertion. Unpublished master's thesis, Ithaca College, Ithaca, NY.

Stephenson, W. (1953). The study of behavior. Chicago: University of Chicago Press.

Sweetland, A., & Frank, G. H. (1955). A study of ideal psychological adjustment. Journal of Clinical Psychology, 11, 391-394.

Webber, J. C. (1970). A comparison of social desirability and achievement motivation as measured by Q-technique. Unpublished master's thesis, University of Massachusetts, Amherst.