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# The Use of Defensiveness as a Covariate of Self-Report in the Assessment of Self-Concept Among Navajo Adolescents

Bruce Leon Arneklev
*Utah State University*

# THE USE OF DEFENSIVENESS AS A COVARIATE OF SELF-REPORT IN THE ASSESSMENT OF SELF-CONCEPT AMONG NAVAJO ADOLESCENTS

by

Bruce Leon Arneklev

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Bruce Leon Arneklev

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# ABSTRACT

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Bruce Leon Arneklev, Doctor of Education
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Major Professor: Dr. David Stone
Department: Psychology

The study investigated the relationship between defensiveness scores and self-report scores as they interrelate in the assessment of self-concept and its change. Data were analyzed to determine if self-report scores adjusted by regression for defensiveness would be more congruent with a criterion measure than unadjusted scores.

A secondary problem was to evaluate the extent to which the self criticism scale on the Tennessee Self Concept Scale (TSCS) and the self-report vs. objective rating discrepancy method would identify the same individuals as defensive.

Samples were drawn from a population of adolescent Navajo boarding school students. A treatment sample participated in an individualized physical education program. A control sample participated in a more traditional, group oriented physical education program. The purpose for having comparison groups was to assess the differential effects which the two settings might provide in the relationship between defensiveness and self-report as they interact in assessment.

The self-criticism scale on the TSCS was used as a measure of defensiveness. The total p scale on the TSCS was used as a measure of self-report. A behavior check list was designed, tested, and used as a criterion measure to rate behavior for inference of self-concept.

Findings were:

1. The correlations between defensiveness scores and self-report were significantly larger than zero in all cases.
2. The correlations between changes of scores (between pretest and posttest) for defensiveness and changes of self-report scores were significantly larger than zero in the treatment and control groups.
3. Self-report scores adjusted for defensiveness were significantly different from unadjusted scores; however, adjusted scores did not correlate higher with a criterion measure (behavior check list scores) than unadjusted scores.
4. Changes of self-report scores (between pretest and posttest) adjusted by covariance with changes in defensive scores were significantly different from unadjusted changes of scores.
5. The extent to which the self-criticism scale and the self-report vs. objective rating discrepancy method identified the same individuals was not significantly greater than zero.

It was concluded in relation to the population studied that:

(a) Defensiveness and self-report scores are interrelated.

(b) Adjustments to self-report scores on the basis of defensiveness scores may be practical for counseling or case studies where an individual within a homogeneous norm group is considered; however, inasmuch as adjusted groups scores did not become more congruent with a criterion measure than unadjusted scores, further study of the nature of self-concept and defensiveness assessment methods is needed.

(c) The self-report vs. behavior rating discrepancy method is an impractical and undependable means by which to assess defensiveness.

(d) Whenever self-concept is assessed by self-report measures, defensiveness should be considered as a factor which can systematically contribute to the magnitude of self-report scores.

(114 pages)

# CHAPTER I

## INTRODUCTION

The identification and assessment of variables is a perpetual challenge as the frontiers of knowledge are advanced through study. One of the most perplexing of these challenges has been in comprehending the nature of the construct of self. William James (1890) is often cited as one of the benchmarks from which much of the study in the realm of self has been launched. He noted that, "In its widest possible sense, . . . a man's self is the sum total of all that he can call his." (Italics his, p. 291) He then elaborated on the nature of the self by delving into its history in terms of three major parts. The first of these parts was called the constituents of self. The constituents are: (a) the material self (personal vanity, modesty, pride of wealth, fear of poverty, etc.); (b) the social self (social and family pride, vainglory, snobbery, humility, shame, etc.); (c) the spiritual self (sense of moral or mental superiority, purity, inferiority, or of guilt); and (d) the pure ego (which has come to be known as the "I," or one's identity). The second part of self is described as the feelings and emotions which the constituents arouse. The third part of self is described as the actions which are promoted by the first two parts (constituents and emotions). The third part is further described as self-seeking and self-preservation. The three part conceptualization of self, which James provided in his The Principles of Psychology (1890), has great scope and parts of it become

apparent in the study of almost any formulation of self which has come after James.[1]

An undetermined number of other formulations of self have been advanced since James. Many of these have been strongly influenced by the ego orientation emphasized by Freud (1923), (e.g., Adler, Ericksen, Horney, and Sullivan). Others have been more closely identified with a phenomenological or "Third Force" position (e.g., Allport, Combs, Fromm, Maslow, and Rogers). The orientation of the latter group appears to have been accepted most readily by the educational practitioner. Evidence for this conclusion is provided in two yearbooks recently published by the Association for Supervision and Curriculum Development (ASCD), Perceiving, Behaving, Becoming in 1962 and To Nurture Humaneness in 1970.

The popularity of the construct of self among the educational profession saw its most rapid period of growth (Gordon and Combs, 1958) in the decade after the publication of Individual Behavior (Snygg and Combs, 1949). The advent of a perceptual theory of personality in conjunction with client-centered therapy (Rogers, 1947, 1951) provided a philosophical environment in which the concept of self became very important. Funds which became available through the National Defense Education Act in 1958 served to implement self theories in the form of counseling services. Many events, such as those noted above, have facilitated the advances made by self-concept theory.

Those individuals who have been the most dedicated to the development and use of self theories find it necessary to assess the impact of programs undertaken to enhance the self-concept. In addition, federal monitoring of spending, and growing concern about "accountability" in

[1]It is also of note that the three parts of self which he selected (constituents, emotions, and actions) are parallel to the taxonomies of educational objectives (cognitive, affective, and psychomotor).

education have dictated that assessment in terms of feelings was not enough. Therefore, reliable and valid means for assessing self-concept have been and are being sought. Numerous methods and instruments have been suggested. (For surveys of some of the means available see Purkey, 1970; Strong and Feder, 1961; and/or Wylie, 1961.) But reviewers (e.g., Combs, 1962b, 1963; Combs and Soper, 1957; Purkey, 1970; Wylie, 1961) have noted that there is often a disparity between what is purportedly measured and what is actually measured. If the construct of self is to be used operationally in research, more of the disparity between what is sought and what is caught in measurement must be accounted for. This is necessary not only for measurement, but also in order to clarify the nature of self-concept.

## The Primary Problem

Assessment is a process by which data obtained from specified phenomena are quantified. Self-concept is a phenomenological event which is by definition directly accessable only to the "self" involved. Therefore, assessment in the domain of self-concept must be accomplished through inference from events which are theoretically a result or a correlate of self-concept. The task at hand in assessing self-concept then becomes one of gathering, and/or qualifying data upon which to make inferences.

Direct observation of behavior is one means by which data can be gathered in order to make inferences about the self concept of another. Data from direct observation are often recorded on a form of behavior check list. Inferences from this data can be made if one assumes that the behavior observed is a result of the self-concept of an individual. Generally self-concept theory supports this assumption (Combs and Snygg, 1959). However, making observations which are reliable and valid often requires a great deal of training and/or experience. Accurate observations

also generally require extensive familiarity with the subject. In addition the observations must be made on a one to one basis which often requires excessive amounts of time. For any or all of the reasons noted above the observational method of inferring self-concept is often impractical.

The self-report method is the most commonly used technique for gathering data upon which to make inference about self-concept. This method requires the subject to expose his perception of himself to the examiner (E). Expressions of self-perceptions are gathered on such instruments as questionnaires, Q sorts, and/or compilations of statements or adjectives in terms of which the subject indicates his self-report--by sorting, checking, true or false, or Likert/semantic differential scales. In using self-report tests of self-concept the examiner must assume that the subject is willing and able to respond with an accurate description of his self-concept. The examiner must assume that self-report is a valid reflection of self-concept. Unfortunately this assumption should often not be made. Wylie (1961, p. 24 concluded from her comprehensive review of research on self-concept that:

> We would like to assume that S's self-report responses are determined by his phenomenal field. However, we know that it would be naive to take this for granted, since it is obvious that such responses may also be influenced by (a) S's intent to select what he wishes to reveal to the E; (b) S's intent to say that he has attitudes or perceptions which he does not have; (c) S's response habits, particularly those involving introspection and use of language; (and) (d) a host of situational and methodological factors which may not only induce variations in (a), (b), and (c), but may exert other more superficial influences on the responses obtained.

In a review of Wylie's book, Combs (1962a, p. 53) stated:

> Our literature is awash with studies, ostensibly on self concept, but which turn out on closer analysis, to be studies of self report. Only a few of the studies reviewed in this volume can properly be described as researches on

> the self concept despite the fact that they are labeled so. Self theorists have defined self concept as what an individual believes he is. The self report on the other hand is what the subject is ready, willing, able or can be tricked to say he is. Clearly these concepts are by no means the same. (Italics mine) Yet, amazingly, after experiment reported in this book is reported as though it were.

Later, Combs (1963, p. 499) clarified his position further when he stated:

> Self report studies are valuable in their own right. We need such information. But when such experiments masquerade as self concept studies the damage they can do is great. Valid theory may be disproven, for example, while false assumptions are given the support of "scientific proof."

Yet, as Combs has noted, reports from studies continue to reflect the construct of self as though it were a phenomena with one dimension and which could adequately be assessed through self reports. The prevalence of this practice may be an indication of inadequate publicity being expended toward keeping educators informed about the nature of self-report--self concept disparities. (The publishers who want to sell "self-concept" measures do not emphasize this disparity.) More importantly, however, it points out (1) the need for clarifying what self-report instruments do measure, and (2) the need for the development of economical and efficient ways to assess the construct of self.

The recognition of one instance where a decrease in self-report scores was obtained in the context of an "enriching" treatment with Navajo adolescents prompted this investigator to examine supplementary data more closely. He found that the total positive (P) score on the Tennessee Self-Concept Scale (TSCS) indicated that the treatment group had experienced an apparent decrease in self-concept (as indicated by self report) between the pretest and posttest. However, further examination revealed that the treatment group had also indicated an increase of score on the

(openness to) self-criticism scale. That is, after treatment, the S's were admitting to the truth of more mildly derogatory statements about themselves, on items which most people admit to being true, and receiving lower scores on that scale. As Fitts (1965a) noted in the TSCS manual, low scores on the self-criticism scale are indicative of defensiveness. Therefore, the lower self-criticism (less critical of themselves) scores obtained on the pretest may have artifically elevated the total p score. The apparent decrease in total p between pretest and posttest may have been a function of less defensiveness on the part of S's while they took the posttest.

Perusual of other data, Herskovitz (1969) and TSCS data on teacher and aide trainees, indicates that the inverse relationships between total p and the self-criticism scales is a relatively consistant phenomenon. This appears to be particularly true for individuals who are less academically sophisticated and/or socially secure.

A brief review of the literature indicated that several authors (e.g., Chodorkoff, 1954b; Coopersmith, 1967; Fitts, 1965a; Foreman, 1968; Wylie, 1957) have discussed the theoretical significance of defensiveness as a variable to be considered in the assessment of self-concept. But little empirical work was available to substantiate that theory.

The purpose of this study is to empircally examine the relationships between self-report and defensiveness as they interrelate in the assessment of self-concept. If a systematic relationship can be identified, it may serve as a practical tool for reducing some of the disparity between what is indicated by self-report and what is sought in self-concept measurement. The possibilities for this will be examined.

## Definitions

Defensiveness: a subject's relative ability to accept into his perceptional field and report aspects of his self which, though derogatory, are commonly accepted as true of most people in any group. Defensiveness is used in this study as an independent variable in assessment for the purpose of adjusting self-report scores by regression.

Self-report: responses by a subject to items on an invetory. The score derived from these responses is called his self-report score. Self-report scores are used in this study, as the dependent variable. They are adjusted through regression to determine if theoretical and circumstantial evidence about defensiveness as a confounding variable will significantly enhance their utility as measures of self-concept.

Self-concept: ". . . a complex and dynamic system of beliefs which an individual holds true about himself, each belief with a corresponding value." (Purkey, 1970, p. 7)

Behavioral check list score: a rating given a subject by an observer according to the rater's perception of that subject on a specified list of criterion. (See Appendix A.) Behavior check list scores are used in this study as the criterion variable in terms of which self-report scores are evaluated.

Self-report minus behavior check list discrepancy method: a theoretical method of detecting defensiveness in subjects. This theory purports that the tendency to be defensive can be detected when self-report ratings of an individual are relatively higher than ratings attributed to him by an observer with a behavior check list.

## A Secondary Problem

Data obtained through the three variables (defensiveness, self report, and behavior check list evidence) assessed in this study lends itself to the examination of a second theoretical question; that is, "Is the self-report minus behavior check list discrepancy method an appropriate technique for assessing defensiveness?" Chodorkoff, 1954a; Coopersmith, 1967; and Wylie, 1957 indicate that it may be. But, Wylie (1957) also provided some evidence that it may not be. This study will examine that relationship further and relate the findings to the primary problem.

## Objectives and Hypotheses

### Objective A

To determine the extent to which defensiveness and self-report are related in the assessment of self-concept.

Hypotheses:

1. The coefficients obtained in correlating scores on the self-criticism scale (a measure of defensiveness) and scores on the total positive (p) scale (a measure of self-report ) from the Tennessee Self Concept Scale (TSCS) will be significantly larger than zero.
2. Changes in self-criticism scores between pretest and posttest will correlate significantly more than zero with changes in total p scores between pretest and posttest.

Objective B

To determine if scores on a measure of defensiveness can be used for the practical adjustment of self-report scores in the assessment of self-concept.

Hypotheses:

1. Total p scores adjusted through regression for self-criticism will be significantly different from unadjusted scores.
2. Total p scores adjusted by regression for self-criticism will correspond more closely to scores on a behavior check list (for inference of self-concept) than unadjusted scores.
3. The change in adjusted total p scores between pretest and post-test will be significantly different for the change in unadjusted scores.

Objective C

To determine the extent to which defensiveness as measured by the self-criticism scale on the TSCS is related to defensiveness as measured by the self-report minus behavior check list discrepancy method.

Hypotheses:

1. Coefficients obtained in correlating scores on the self-criticism scale with the differences between total p scores and behavior check list scores will be significantly greater than zero.
2. Subjects identified as defensive by the difference obtained in subtracting check list scores from total p scores will also be identified as defensive by the self-criticism scale.

# CHAPTER II

## RELATED LITERATURE

The literature cited in the discussion which follows is not necessarily a representative sample of all the literature which now exists for the clarification of the nature of self-concept and its measurement. Rather, an attempt is made to show that a sizable body of literature is available for use in raising questions about the nature of the relationship between defensiveness and self-concept as it is expressed in self-report. This emphasis will strengthen the argument that further study is needed in this area and clarify what the nature of that study should be.

A very brief sketch of self theory from a perceptual point of view will be given as the theoretical foundation from which the study is launched. Then the theme of the first major section will be portrayed in terms of techniques for assessing the construct of self with emphasis on the methods selected for this study. The second major section will be a brief overview of some of the findings, particularly among handicapped groups, which illustrate the need for special consideration in attempting to equate self-report scores from different groups. This section will also consider the complications that are inherent in making pretest and post-test comparisons within and/or between treatment groups. The third major section will consider the nature of defensiveness as it has been conceived from a perceptual point of view, its assessment, and the difficulties which defensiveness and related variables may be causing in the interpretation of self-report scores for inference of self-concept.

## Self Theory and Assessment

The construct of self, as indicated in the introduction, has served as theoretical conception for many authors. However, it was not until the middle of the twentieth century that it blossomed as a practical tool with which educators could organize thought. The advancement at that time of the first rationales for assessing attitudes toward self was instrumental to this end. Raimy (1948), as a student of Carl Rogers in 1943, developed a construct of self which has a perceptual frame of reference. Raimy demonstrated in his dissertation that attitudes toward self can be assessed by analyzing counseling protocols. He selected self-referent statements which were classified in terms of approval, disapproval, and ambivalence toward self. These statements, he found, formed a reliable index for assessing improvement in psychotherapy.

Rogers (1947, 1951) extended from his work with Raimy to formulate a theory of personality in terms of the phenomenological (perceptual) view of self. He stated that:

> The self-concept, or self-structure may be thought of as an organized configuration of perceptions of the self which are admissible to awareness. It is composed of such elements as the perceptions of one's characteristics and abilities; the percepts and concepts of the self in relation to others and to the environment; the value qualities which are perceived as associated with experience and objects; and goals and ideals which are perceived as having positive or negative valence. (Rogers, 1951, p. 136-137)

Purkey (1970, p. 7) draws upon the contributions of Combs and Snygg, Jersild, Lecky, and Rogers to coin a more concise definition of self. He depicts self as ". . . a complex and dynamic system of beliefs which an individual holds true about himself, each belief with a corresponding value." Purkey's definition emphasizes the dynamic nature of self. The importance of recognizing this characteristic, which is not apparent in

the definition cited above from Rogers, will increase as consideration is given to the difficulties of adequately assessing the self-concept.

Self-report versus behavioral observation

Since the turn of the century there has been a growing concern about evaluation in terms of behavior. Introspection has lost legitimacy for scientific investigation in psychological and educational fields. Yet, there has been a persistant reliance on psychometric measures which are founded on an introspective methodology (i.e., most personality measures require the subject to report how he sees himself). Self theorists stress the importance of "how a person sees himself" in the determination of his behavior (Combs and Snygg, 1959; Coopersmith, 1967). However, many of them (Combs and Snygg, 1959; Wylie, 1961; Purkey, 1970) have become increasingly aware of the difficulty of assessing what a person's internal frame of reference is on the basis of observation or self-report instruments. These two avenues of assessment (self-report and behavioral observation) have often yielded disparate results.

Combs, Soper, and Courson (1963) designed a study through which they obtained a self-report score of self-concept from sixth-grade students and an inferred self-concept score from trained observers who rated each student on the basis of behavior. They found a correlation of +.114 between the two measures for inferring self-concept (self-report vs. behavior rating). They concluded:

> . . . that there is no significant relation between the inferred self concept of these children and self reports. . . . The results of this study appear to support the theoretical position that self concept and self report are quite different conceptions. Though they may bear some relationships to each other they can certainly not be used interchangeably as personality measures. (Combs, Soper, and Courson, 1963, p. 498)

Parker (1966) reported a correlation of +.245 between scores on self-reportings of sixth-grade children and paired scores derived from ratings of behavior by observers. This investigator found a correlation of -.01 between an individually administered self-report test (the Piers-Harris Children Self-Concept Scale) to first-graders and the scores given them by teacher ratings of behavior at the end of their year together.

A lack of relationships is not always reported. Amotora (1956) reported "essential agreement" between self and peer ratings of fourth- through eighth-graders. However, reports of correlation coefficients between self and other ratings that reached statistical significance were not found in the literature. This indicates that uncontrolled variables are operating in the determination of self-report scores. The presence of these variables and their operation serve to invalidate self-report instruments as measures of self-concept. This conclusion was supported by Zax and Klien (1960, p. 455) when they stated:

> . . . neither phenomenological measures nor measures of intra-therapy behavior have been related yet to everyday externally observable behavior in the life space of the subjects . . . (therefore) their significance remains unclear.

If perceptual theory is valid in postulating that behavior is a function of how one perceives himself, then there must be something invalid about self-report measures as indicators of self-concept. Combs and Snygg (1959, p. 440-442) have listed some reasons why the self-report cannot be counted upon as a measure of self-concept. The reasons are:

(1) The clarity of the subject's awareness.

(2) The lack of adequate symbols of experience.

(3) The social expectancy.

(4) The cooperation of the subject.

(5) Freedom from threat and degree of personal adequacy.

(6) Change in field organization.

The first five of those listed above were listed by Combs and Soper (1957). The sixth indicates the dynamic nature of self which was noted earlier in this chapter as a contribution of Purkey (1970) in the evolution of definitions of self. Recognition of their dynamic nature is crucial in assessment because it provides an avenue for speculating as to how the first five causes will operate differently to invalidate self report measures in various situations.

## Relationships between different self report instruments

The factors noted above, and possibly many others, contribute to the questionable validity of self report measures when inference of self concept from behavior is used as a criterion. Another reasonable criterion for establishing the validity of self report measures might be the intercorrelation of various self report measures which purportedly measure self concept.[1]

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[1]This method appears to be quite popular in establishing the validity of instruments for assessment of intelligence. (e.g., the Stanford-Binet is commonly used as a criterion for new measures of intelligence.)

Table 1. Correlations between self-report instruments as cited by Bills (undated, p. 66)

| | Phillips N=108 | California N=81 | Washburne N=80 |
|---|---|---|---|
| Bills (acceptance of self) | .24** | .23* | -.04 |

* significantly different from zero at the .05 level.
** significantly different from zero at the .01 level.

Onwake (1954) reported some intercorrelations which were of moderate magnitude between the Berger scale, the Phillips Attitude Toward Self scale, and the Bills Index of Adjustment and Values. The correlations obtained follow.

Table 2. Correlations between self-report instruments as cited by Onwake (1954, p. 446)

| | Berger (acceptance of self) | Phillips (acceptance of self) |
|---|---|---|
| Bills (acceptance of self) | .49** | .55** |

** significantly different from zero at the .01 level.

A third source of data indicative of the relationship between various "self acceptance" measures is provided by Crowne, Stephens, and Kelly (1961). They made an effort to include tests representing the three basic self-acceptance measurement models: self-ideal (SI) discrepancy measures, adjective check lists, and self-rating devices. Intercorrelations of scores were computed for subject responses to (1) a modified version of

the Chicago Q sort; (2) Bills' Index of Adjustment and Values (IAV); (3) the Buss scale; (4) the Gough Adjective Check List (ACL); (5) the Rotter Incomplete Sentences Blank (ISB); and (6) the Edwards Social Desirability Scale (SD). An important note in their procedure was that the college students used were tested in groups of approximately 10. This procedure and the sophistication of the subjects would serve to optimize inter-correlations. Table 3 of that study is reproduced here.

Table 3. Correlations between self-report instruments as cited by Crowne, Stephens, and Kelly (1961, p. 105)

| | (Scores for 41 females) | | | | | | |
|---|---|---|---|---|---|---|---|
| | S-I methods discrepancy | | | Adjective check list | | Self-rating | Adjustment |
| | 1 | 2 | 3 | 1 | 2 | | |
| S-1 Disc. | | | | | | | |
| 1. SA | -- | | | | | | |
| 2. IAV I-III | .65** | -- | | | | | |
| 3. Buss | .56** | .39 | -- | | | | |
| Check list | | | | | | | |
| 1. ACL SA | -.38 | -.53** | -.41** | | -- | | |
| 2. ACL SC | .45** | .51** | .44** | -.90** | -- | | |
| Self-rating | | | | | | | |
| IAV II | -.58* | -.62** | -.18 | -.31 | -.44** | | |
| Adjustment | .42** | .21 | .39* | -.34* | .32* | -.36* | |
| SD | -.57** | -.51** | -.53** | .58** | -.58** | .35 | -.50** |

* significant at the .05 level.
** significant at the .01 level.

The correlations cited by Bills; Onwake; and Crowne, Stephens and Kelly as reproduced above appear to be representative of the degree to

which self-report measures are capable of accounting for common variance. The degree to which various measures correlate can be expected to vary with special terminology and scoring used in different self-report measures (Strong and Feder, 1961). In spite of similarities on some instruments, correlations are usually low to moderate. Correlations between two instruments seldom account for as much as one-third of the variance on one another. In view of the data cited here, intercorrelation of self-report measures unless variables can be identified and controlled.

Factor analytic studies

In attempts to clarify the nature of what self-report instruments do measure, some authors have used factor analysis. Yeatts (1968, p. 23) used factor analysis to more clearly interpret what was measured by Ira Gordon's "How I See Myself" instrument, in a study of Negro and white children from grades three through twelve. He concluded that ". . . the factors emerging support the postulate that self-report is not a unitary concept and that the conceptions one holds in regard to self vary with age and sex." Guertin and Jourard (1962, p. 243) concluded after a factor analytic study of real-self--ideal-self discrepancy scores that ". . . it became clear that a new perspective was needed in the nature of factors obtained from discrepancy scores." In a study that was similar to Guertin's and Jourard's, Schludermann and Schludermann (1969) concluded that the presence of a large number of specific factors makes the assumption questionable that self and ideal ratings are unitary dimensions. Berger (1968, p. 445) reported from another factoral study that ". . . self esteem is not an unidimensional variable."

The number of factors and name given to factors which are derived from

factor analysis appear to be dependent on the instrument and the population tested.

Even when the subjects are comparable and the instrument is the same, the results are sometimes different. Vacchiano and Strauss (1968) factor analyzed self-report scores of college students on the Tennessee Self-Concept Scale (TSCS). They identified twenty factors. The factor with the highest loading accounted for 30 per cent of the common variance, and was labeled as an indicator of family disharmony and strife. The nineteen other factors identified each accounted for 6 per cent of the variance or less. Rentz and White (1967) used the TSCS scale in a similar study and identified two major factors. The factors were not labeled, but the first of these included categories which are often viewed as aspects of self-concept. The second factor included items that could be classified under the label of test taking set, or mode of attack in test taking. These studies indicate the difficulty of reliably interpreting the meaning of even a single self-report measure of self-concept.

Other factor analytic studies have attempted to identify factors that are common to several different self-report scales. Vincent (1968) found two major factors in an analysis of scores from (1) the self-acceptance and self-control scales from the California Psychological Inventory (CPI); (2) emotional stability, self satisfaction and personal self scales from the TSCS; (3) confidence--adequacy scale from the Sixteen Personality Factor Questionnaire (16PF); and (4) a measure of security. He labeled the two factors obtained as "Consurgent Ego" and "Exsurgent Ego," the first being primarily an expression of feelings of confidence and a controlled sense of well being, while the second was defined by a more expressive sense of self-esteem as measured by the CPI. Gibson, Snyder, and Ray (1955) studied the relationships between several criterion measures of

success in therapy. The methods included were interview sampling of emotional tone, Minnesota Multiphasic Personality Inventory (MMPI) items, and Rorschach scoring categories. They identified three factors which were related to Murrey's three layers of personality. They concluded that the level at which the self was assessed was dependent on the instrument used.

The differences which have been cited above as findings from factor analytic studies of self-report are indicators of some of the reasons why low intercorrelations are likely to occur in comparing the results of different instruments. Different self-report instruments and/or the same instruments in various settings are apparently measuring different things. Subjects are reacting to items in different ways because of the dynamic nature of the self-concept as it is reflected on self-report instruments. Likewise the behavioral indications of self-concept as captured by observations are not likely to be highly related to scores on self-report measures until variables which confound self-report scores can be identified and controlled for.

## Self Report Studies Which Rasie Questions

### Demographic studies of the handicapped

Self-concept theory generally supports the notion that those who are not handicapped should have a more positive self-concept than the handicapped (Ausubel and Ausubel, 1963; Combs and Snygg, 1959; Wylie, 1961). A great deal of funding under NDEA Title III, and other programs was expended for the purpose of raising the self-concept of the handicapped. The implicit assumption was that the self-concepts of the handicapped, whether for cultural or individual reasons, were lower than those of middle class individuals. A majority of the studies (e.g., Coleman, 1969; Coopersmith, 1967; Rosenberg, 1965) tend to support the validity of that theory.

However, a sizable body of literature is now available which shows that self report measures often do not indicate inferior scores for the handicapped. If a person is handicapped a rational analysis would conclude that he may very well perceive that handicap, and,if so, that perception should be reflected in lower self report scores. This is only consistent with the theory cited above. The fact that self report evidence is now being published to indicate otherwise is one kind of evidence which prompts us to re-examine theory and/or our self report instruments.

Fitts (1965b, p. 5) concluded:

> . . . the investigator has demonstrated that such demographic variables as age, sex, intelligence and education have little effect on the individuals self concept (at lease as measured by the TSCS). These conclusions are based on data collected by Fitts (1964, 1965a) and upon data shared with him by others such as Runyan (1958, LeFeber (1965) Piety (1958), Duncan (1966) and many others.

The studies which Fitts based his conclusion on do not specifically bear the label of handicapped. However, these studies do indicate that characteristics often associated with the handicapped, (e.g., race, intelligence and education) are not necessarily related to the level of self-report score.

Herskovitz (1969) used the TSCS with a group of 121 disadvantaged Negroes in a study of the effectiveness of a rehabilitation program. She provides data which indicate that her subjects (male or female) did not differ from the more typical group upon which the norms for the TSCS were established. Renbarger (1969) used the TSCS with a group of disadvantaged adults in a study similar to the one by Herskovitz. One major difference in Renbarger's study was that the adults were less homogeneous by age. He found that the". . . disadvantaged did not have lower self esteem than the normal population " (Renbarger, 1969, p. 318-A). Other direct

evidence of an equal level of self-report scores among disadvantaged groups is provided by Piers and Harris (1969). They cite several studies which used the Piers-Harris Children's Self Concept Scale as a means of self-report among classes for special education children, stutterers, the emotionally disturbed, and the emotionally deprived. These studies all indicate that the handicapped groups attained scores which are comparable to the scores of more typical children.

Other studies have demonstrated that disadvantaged subjects may attain self-report scores that are higher than scores attained by more typical populations. McDonald (1968), using the Interpersonal Check-list, found that 218 lower class high school students attained higher self and ideal scores than upper class students. Soares and Soares (1969) found that 229 children in a public elementary school attained higher self-report scores than 285 children from an elementary school in an advantaged area of the same city. Both groups attended neighborhood schools. They were tested on a twenty bi-polar trait Likert-type scale.

These studies are admittedly not representative of all the self-report studies in the literature. But their presence among others which were not as systematic or with smaller numbers of subjects indicates that self-report instruments and/or self-concept theory should be carefully scrutinized. These studies may just be a growing residue that is accumulating with findings that are more consistent with theory; however, it is also possible that other studies with similar findings were not publicized because they did not substantiate theory. A certain amount of courage and confidence in one's methodology is required to express views which are contrary to the popular tide.

Experimental studies designed to enhance self-concept

Self-theory would indicate that success experience and special attention for increasing self-awareness is likely to be conducive to the enhancement of self-concepts. Studies (e.g., Coopersmith, 1967; Frerichs, 1970; Vargas, 1954; Ziller et al., 1969) commonly support the value of success or the possibility for self-reinforcement as contributors to higher self-esteem. However, studies do not always come up with self-report scores that are enhanced after such treatments.

Katz and Benjamin (1960) evaluated the effect of a laboratory group work situation on personnel with a self-report instrument. They found that even after having been given objective evidence of equal mental ability, Negro subjects gave higher competency ratings to their white partners and oriented themselves for compliance towards whites. In another study Weaver (1965) gave negative personality evaluation to several groups of male and female high school students. Both males and females attained higher self-report scores after the negative evaluations than they had before. Kuntz (1966) tested a group of nonconforming junior high students before and after short term counseling. Self-report scores from the TSCS were less positive after the counseling than before. Herskovitz (1969) used the TSCS to evaluate a program for educational-vocational rehabilitation of young men and women. The treatment groups (both male and female) attained significantly lower self-concept scores on a posttest than the control groups in the areas of identity and social self. The total positive scores (overall self-esteem) were also lower, but not quite to a significant degree ($F=3.153$, $P$ .064). Renbarger (1969), in a similar study also found lower scores on posttests than on pretests. This investigator (DINE, 1969) was involved in the evaluation of Navajo recreational/physical

education program for orthopedically handicapped Navajo's. The self-report scores from the Navajo students were lower after treatment than before.

Other confounding results

A final study (Bell, 1968) poses date for further speculation. Bell studied the relationship between commitment to vocational choice (undecided, tentative, or decided), and score on Ericksen's (1956) Ego Identity Scale and Bills' (undated) Index of Adjustment and Values (IAV). Findings were generally consistent with the hypothesis that adolescents who had made a vocational decision would score higher in terms of ego identity, self-concept, self-acceptance, ideal self, and adjustment than those who were undecided. However, tables in his dissertation indicate that mean scores attained by adolescents who had "tentatively" made a vocation choice were consistantly higher in all five of the categories noted above than the scores attained by adolescents who had "decided" on a vocational choice. Inasmuch as the hypotheses where stated in terms of "decided" vs. "undecided," the significance of "tentative" vs. "decided" relationship was overlooked in the discussion. Further investigation into why those who had "tentatively" decided on a vocational choice were also the healthiest in terms of self-report scores seems warranted.

As in the last study cited, the experimental studies cited earlier generally did not emphasize the fact that the data supported hypotheses which were different, if not opposed to the ones used in the study. This investigator cannot help but speculate on the number of studies which are not published because the hypothesized results were not obtained. This would be particularly true in projects which could expect refunding only in terms of an evaluation that indicated efficiency of the program. The point is that although the literature cited here was admittedly

selected on the basis of its atypical nature, the fact that it has been published indicates that there is a great need for theoretical clarification on the nature of self-concept, and/or that a better understanding of what self-report instruments do measure must be gained, particularly in the study of handicapped populations. The next section of this review will attempt to clarify one aspect of personality theory that relates to both self-theory and self-report measures, namely the role of defenses in perception and measurement.

## The Role of Defensiveness in Perception and Self-Report

Defensiveness or a defense mechanism is a means by which the organism maintains equilibrium in his environment. As an investigator of its operation (whether consciously or unconsciously) this author takes the position that it is an event about which there is much to learn. Defensiveness has no goodness or badness, rather defensiveness is an event which may provide another avenue for understanding the nature of self-concept as it is assessed through self-report.

Freud (1923) initiated a rich theoretical foundation when he formulated how defense mechanisms served to maintain a vulnerable ego. Hilgard (1949), in an American Psychological Association presidential address, postulated the further need of understanding psychoanalytic defense mechanisms and called for research on the self. A review of the literature which will follow indicates that the study of the relationships between self and defenses is still in its infancy.

Block and Thomas (1955) conceived of maladjustment as behavior lying on both sides of the continuum. They indicated that too high a degree of self-satisfaction is due to repressive and suppressive mechanisms which cause a person to be rigid, over controlled, restrained and aloof. But

at the other extreme the person who is too little satisfied with self will lack ego defenses and will be able neither to bend tension nor control emotions. From this perspective, defenses serve the individual in adjustment and can be considered largely in a relative sense (i.e., the optimal level of defensiveness is the point for the individual at which he is functional. Excessive or insufficient defenses are equally undesirable in maintaining that functional balance).

Defensiveness in perception

Although the relationship between defensiveness and self-report is not clear, there is virtual consensus in the literature that defensiveness does play a significant role in self-concept as it is expressed through behavior and self-report. As Gordon and Combs (1958) noted: "Both cognitive and self theories of behavior postulate that perceptions will be altered, distorted, narrowed, or avoided as a protection to the person's integrity." (Gordon and Combs, 1958, p. 438) The study of self as a function of perception can be related to the research of Postman, Bruner, and McGinnies (1946). They used the tachistoscope to investigate the role of perceptual defense in the recognition of value loaded word stimuli. They found that:

> Value observation makes for perceptual sensitization to valued stimuli, leads to perceptual defense (e.g., repression) against inimical stimuli and gives rise to a process of value resonance which keeps the person responding in terms of objects valuable to him even when such objects are absent from the immediate environment. (Postman, Bruner, and McGinnies, 1946, p. 154)

They found that selection is one of the three basic adaptive processes that operate in perception, selection being inextricably linked with accentuation and fixation. Perceptual selection therefore depends not only upon the primary determinant of attention but also is a servant of one's interests, values, and needs.

Schlicht (1967) also used the tachiostoscope in a study of the ability of women to recognize their own favorable and unfavorable images. He found a significant relationship in the size of the discrepancies between self-evaluation and adjustment as determined by counselor evaluation (i.e., the better adjusted less defensive women were more able to discriminate variations in their own images as displayed on tachistoscope at subliminal rates). Chodorkoff (1954a, p. 511) in a similar study concluded that:

> . . .the greater the agreement between the individuals self description and an objective description of him, the less perceptual defense he will show (as measured by tachistoscope in recognizing threatening words) . . . and the more adequate his adjustment.

His findings suggest that". . . perceptual defense is not a general phenomena but may be a process which some persons are more likely to manifest than others." (Chodorkoff, 1954b, p. 511)

Diggory (1966) reported that the defenses of repression and denial are of the cognitive type. Certain conditional memory decrements are expressions of repression, and certain conditional recognition or perceptual decrements are an expression of denial. Repression, denial, reaction formation and other defense mechanisms are likely to be impediments to the attainment of self-report scores which are valid indications of self-concept.

Haigh (1949) reported from the standpoint of self-theory that defensiveness is seen as one form of behavior which may follow upon the perception of threat. The individual is threatened when he perceives an expression to be inconsistent with a value or concept which he holds as part of his concept of self or his concept of environment. The individual may react positively to such a perception of threat in such a manner as to adapt effectively to the reality of the situation. Or he may react

defensively in some manner distorting his perception so as to deduce awareness of the perceptual incongruence. Defensive behavior functions to maintain the concept or value which is threatened.

Combs (1962b, p. 56) noted that:

> . . . truely healthy persons seem capable of accepting into awareness any and all aspects of reality. . . . Their perceptual fields are maximally open and receptive to their experience. . . This capacity to confront life openly and without undue defensiveness has sometimes been called acceptance.

At an earlier date Combs and Snygg (1959, p. 245) stated that:

> . . . acceptance has to do with admission of fact, the acknowledgment of existence, and has nothing to do with liking. . . . The adequate self neither overvalues nor undervalues self. He is maximally able to put his "self" on the block for examination and scrutiny like any other datum.

Defensiveness in self report

Havaner and Izard (1962) noted in their work with paranoid schizophrenics that these individuals tended to over-rate themselves. They concluded that ". . . this evidence of unrealistic self-enhancement was a defense against complete loss of genuinely positive self-related affect and of satisfying interpersonal affection ties." (Havaner and Izard, 1962, p. 68) Wayne (1964) reported that inflated self-report scores were not as prevalent among newly admitted psychiatric patients, because they were often hostile and tended to respond in a straightforward manner.

McDonald (1968, p. 21) in an attempt to explain why lower class boys achieved higher self-report scores than upper class boys noted that:

> One explanation for the finding is that the Negro adolescent's description demonstrates, psychodynamically, the use of denial and reaction formation in depicting self-assertion. Results of other studies suggest that over-rating on the part of Negroes permeates various behavioral parameters.

Coleman (1969, p. 62) reported that:

> . . . among boys, the poor students engaged in more self criticism

(were less defensive) and were less favorable in their total self-evaluation than the good students.

These reports illustrate the nature of defensiveness and how it is related to self-report measures of self concept. For these reasons, defensiveness is defined operationally in this study in terms of a person's ability to accept into his perceptual field that which may be unpleasant. The adjusted person is more capable of doing this, whereas the maladjusted person may deny (be defensive about) unpleasant traits which most people admit to as being true.

Taylor and Combs (1952) assessed the adjustment of sixth graders on the basis of personality tests. Then they asked the children to respond to statements describing faults that are common to most children (e.g., "I sometimes disobey my parents," or "I sometimes say bad words or swear"). Youngsters rated as most well adjusted admitted to the awareness of such faults in themselves more often than did less well adjusted children. Perry (1961) replicated the study of Taylor and Combs (cited above). He used teacher and principal judgments in selecting "adjusted" children, and clinical diagnosis and a small battery of tests in selecting the "maladjusted" children. The well adjusted children admitted to a cumulative total of 205 faults and the maladjusted children admitted to 149 faults. These studies support the view that well adjusted persons have less need to distort reality or to defend themselves against what might be regarded as self-incriminating admissions about themselves.

The importance of recognizing this relationship is pointed out in studies like that of Lampl (1968). He found that self-esteem (as measured by an adjective check list) and defensiveness were positively related. Piety (1958) recognized this relationship when he hypothesized that scores on a self-concept questionnaire (the TSCS) would be spuriously elevated by

perceptual defense against threatening percepts of the self. Conclusive evidence was provided to substatiate his hypothesis by examining the discrepancy in scores which the individual received on the self-report measure as compared to scores on a clinically administered House-Tree-Person (H-T-P) projective test. Scores on the TSCS and the H-T-P tests did not correlate, indicating that the two methods were measuring different things. The clinical conclusion was the defensiveness was distorting self-report scores.

Data from scales (defensiveness and self-report of self-concept) have indicated that the better adjusted person has less need for perceptual defense as a means of maintaining his self esteem. Combs and Syngg (1959) noted that defensive behavior can be responsible for distortion in self reports of self concept, and that self report scores". . . will vary . . . in the degree to which they will provide data about personal meaning, depending upon the individuals need to protect himself." (Combs and Snygg, 1959, p. 453) They also noted that ". . . From birth to death the maintenance of the phenomenal self is the most pressing, the most crucial, if not the only task of existence." (Combs and Snygg, 1959, p. 45) This view is not unlike that of White (1959) and his concept of competence as a fundamental motive in life. Rogers (1947, p. 361-362) elaborated on the process of perceptual adjustment for a healthy person in stating:

> The individual has the capacity to reorganize his field of perception, including the way he perceives himself, and that a concomitant or a resultant of this perceptual reorganization is an appropriate alteration of behavior. . . . (This) behavior is not directly influenced or determined by organic or cultural factors but primarily (and perhaps only) by the perception of these elements.

Combs and Snygg (1959, p. 45) related an incident which illustrates the validity of the remarks provided by Rogers. This incident involved a physically handicapped (crippled) woman who denied that she had a handicap

in pursuing graduate work. The denial of a handicap could be classified as a defensive perceptual reorganization by the woman. But in so far as she was concerned, she was acting (pursuing graduate work) as though she had no handicap. In this sense, defensiveness becomes an ascribed trait from an external point of view. It is inferred on the basis of behavior in the same manner that self-concept is inferred on the basis of behavior and/or self-report. Defensiveness and self-concept can therefore be deduced in a similar way.

Real self--ideal self discrepancies

One of the first self-report methods derived for assessing the self-concept was the real self (what I am) ideal self (what I would like to be) discrepancy method. The most popular early way of assessing this discrepancy was in the use of Q sorts to first assess the real self and then the ideal self, the difference being the "discrepancy" and a measure of adjustment. Bunt (1962) emphasized the importance of the discrepancy score by relating it to Ericksen's concept of ego diffusion, the lack of congruence being a relative lack of identity or personality integration. In discussing this method as a measure of success in therapy (i.e., a reduction of discrepancy as a measure of increased adjustment) Rogers and Dymond (1954, p. 58-59) stated:

> It is recognized that in one respect the method used may not always reflect accurately this fundamental change which is hypothesized. It is possible for a client, either prior to or following therapy, to sort cards so as to indicate a small self-ideal discrepancy, when, as judged by other criteria a large discrepancy exists. He may in other words, be sufficiently motivated by defensive needs (Italics mine) that he pictures himself as being very much like the self he values, when at a deeper level, he feels that he does not resemble his ideal self.

Rogers and Dymond (1954) present arguments and data to support the use of real-ideal discrepancies as measures of successful outcomes of

therapy. However the caution which they present in the quote above is a recurring item in the literature. Dymond (1955) attributes the increased real-ideal self congruence without psychotherapy to the strengthening of neurotic defenses. In other words, a high level of congruence between the real and ideal self as assessed through Q sorts cannot be used as an independent measure of adjustment, because an increase of defensiveness may be the reason for enhanced congruence rather than better adjustment. Block and Thomas (1955, p. 258) reported that ". . . it has been shown that individuals describing themselves as very close to their ego-ideals tend to deny and suppress threatening features of themselves and cannot be considered mature and heathly."

In a Reveiw of Educational Research, Gordon and Combs (1958) concluded that the degree to which high congruence (between reports of real self and ideal self) can be relied upon as an indicator of adjustment depends upon the authority to which one turns for an opinion. There is a significant amount of research supporting the validity of that means and an equal amount discrediting it.

Several studies have occurred since Gordon and Combs made the review of literature cited above. Schludermann and Schludermann (1969) did a factor analysis of the composite scores obtained through the discrepancy method. They found the presence of a large number of specific factors in the composite score which is provided by the discrepancy method. Guertin and Jourard (1962, p. 243) noted after a study of discrepancy scores that ". . . it became clear that a new perspective was needed in the nature of factors obtained from discrepancy scores." Kornrich, Straka and Kane (1968) concluded after a study of measures of self-image disparity

(real-ideal) as measured by Q sort that ". . . the self-image disparity score should be abandoned and replaced by measures of mood and types of defenses." (Kornrich, Straka and Kane, 1968, p. 728)

Self-report vs. behavioral inferences of self-concept

Chodorkoff (1954a) suggested an alternate method for assessing defensiveness. He proposed that a score from a self-report measure of self-concept be compared to an objective rating of self-concept by an observer on the basis of a subject's behavior. When self-report scores were higher than the objective ratings, they were thought to be indicative of perceptual defensiveness. This interpretation was varified by tachistoscope.

Coopersmith (1967) used a similar technique. He had a large group of students (1748) respond to a self-esteem inventory (SEI). The S's were then rated by their teachers and principals on a behavior rating form (BRF). If an individual scored in the upper quarter on the SEI while scoring in the lower quarter on the BRF he was classified as defensive. Coopersmith contended that this type of individual maintained positive self-regard in the face of low ratings by teacher, limited acceptance by peers, and relatively poor academic performance by defensive distortion.

Parker (1966) also studied the relationship between self and other ratings. He found that the correlation between self-report and inferred self-concept could be reduced when social expectancy was emphasized (i.e., the discrepancy between self and teacher ratings increased as students attempted to play roles expected of them).

Calvin and Holtzman (1953) pointed out some of the difficulties which are associated with a discrepancy method in which any individual rates another individual by ranking. They used the discrepancy score as a measure of adjustment, but their remarks are pertinent to assessment

of defensiveness as well. They stated:

> At first glance it would appear that a simple discrepancy score could be obtained merely by subtracting the self rank from the group rank. There are two reasons why such a method is unsatisfactory. First, rank scores have a rectangular distribution while the distribution of the underlying trait is more likely to be roughly normal. A discrepancy of, say three ranks between self and group scores at either extreme of the rank order will represent quite a different psychological distance on the underlying trait continuum than the same numerical discrepancy in the middle range. Second, the direction and size of such a discrepancy score is partly a function of the group rank. For example, an individual who is judged by his associates to be the best adjusted person in his group and only receives a self depreciating score (from an objective rating) while the more maladjusted individual can only get a self enhancing score. To the extent that the group rank and the discrepancy are correlated, any conclusion based upon an analysis of such discrepancy scores would be an artifact. (Calvin and Holtzman, 1953, p. 40-42)

The first of these concerns can be handled by converting all scores to standard scores before discrepancy scores are computed. The second problem is partially controllable by regressing all values of the discrepancy score on the basis of its relationship to the value of the group rating. The primary concern which remains is to provide a means by which individuals with lower self-report scores can be identified as defensives (i.e., if an individual receives the lowest self-report score in the group he cannot be rated lower than lowest by an objective rater who infers self-concept from his behavior. Therefore, by definition that subject cannot be identified as defensive by the discrepancy method. Yet self-theory would support a contention that people with lower self-concepts should have a greater need to be defensive. If the self-report score has validity in indicating self-concept, it reduces the possibility for the individuals who are the most likely to be defensive to be identified as such.)

Variables related to defensiveness in self reporting

A few inventories for the self-report assessment of personality variables have included scales to indicate the nature of the test taking set with which the subject approaches the instruments. The most commonly used of these instruments has probably been the Minnesota Multiphasic Personality Inventory (MMPI). As noted earlier, this is the source from which Fitts drew items for the self-criticism scale on the Tennessee Self Concept Scale (TSCS). The K scale on the MMPI was the only scale identified in the literature which has been used to systematically adjust other scale scores for a test taking set.

McKinley, Hathaway and Meehl (1948, p. 20) have reported how the K scale was developed.

> The K scale was derived by studying the item response frequencies of certain diagnosed abnormals who had normal profiles. It was here assumed that the occurrence of a normal profile was suggestive of a defensive attitude in the patients' responses. The response frequencies were contrasted with those from an unselected sample of people in general ("normals"). The differentiating items were scored so that a high K score would be found among abnormals with normal curves, whereas a low score would be found in clinical normals having deviant curves. In this operational sense, it can be said that a high K score is indicative of a defensive attitude, and a low K score suggests frankness or self-criticality ("plus getting") the extremes of defensiveness and plus getting may be called "faking good" and faking bad respectively.

In applying a score obtained with the K scale to another scale the problem is one of determining the best weight for the K factor with respect to any given scale. For practical purposes it was assumed that K operated in a linear fashion with scores on the other scales. In an attempt to determine the optimum portion of K to be added to a particular scale in the identification of individuals to fit the respective category for each scale, McKinely, Hathaway, and Meehl (1948) used the formula $(Y = X + \lambda Z)$.

Where

X = A personality variable represented in deviation score from, where the deviation is from the mean of normals.

Y = The deviation corrected score on a given scale.

Z = The K deviate score.

$\lambda$ = (lambda) An arbitrary weight whose optimal value is to be determined.

They described their procedure as follows:

> We fell back on the straight trial and error method. We assigned arbitrary values of lambda (=.1, .2, .3, .4, etc.) and for each of these values we distributed Y for normals and criterion (Hs, Pc, Sc) cases separately. (McKinely, Hathaway, and Meehl, 1948, p. 22-23)

The weight with the highest power of discrimination was selected. The lambda weights obtained, and now used widely on published answer sheets, were of course most appropriate for only that criterion group. The authors caution the user that " . . . for other clinical . . . (and) counseling . . . purposes other lambda values would be more appropriate." (McKinely, Hathaway, and Meehl, 1948, p. 24) This is a caution which is seldom heeded by users. Yet, the extent to which the MMPI is used and the utility which it affords to many clinicians speaks of its apparent practicality.

Edwards (1953, 1957, 1970) has initiated and aided in the perpetuation of a growing body of literature devoted to describing and assessing the degree to which social desirability (SD) is the predominant variable being assessed in various self-report personality measures. Edwards (1953, p. 92) reported that " . . . the data clearly indicate that the probability of endorsement of an item increases with the judged desirability of the item." He maintains that SD is the most important dimension in terms of which to view responses to personality inventories. He has argued vigorously against interpretation of the MMPI in relation to

psychologically significant behavior. Instead he suggests that the SD variable is a parsimonious and quite sufficient operational explanation of the MMPI. Edwards (1959, p. 115) presupposes that SD should be eliminated from or at least controlled in personality inventories like the MMPI if validity is to be enhanced.

Block (1964) explored the possibility that an acquiescent set might be an important determiner of MMPI response. He concluded that it was not, and proceeded to review the possibility of SD being a predominant factor in MMPI response determination. He concluded that it was very important, but did not share the degree of enthusiasm which has been expressed by Edwards.

Fordyce (1956) found that the SD scale correlated more highly with the F and K scale of the MMPI than they did with each other. This suggested to him that a common factor underlies the three and that SD is the best estimate of this factor. He concluded that " . . . test taking attitudes toward the MMPI can be characterized as readiness or lack of readiness to respond to socially desirable items." (Fordyce, 1956, p. 174)

Barrett (1967) proposed that adolescents were in the process of developing standards of desirability. He found that adults as a group have arrived at a consensus of desirability as reflected in their higher sensitivity to the SD set. Adolescents remained vague as to what expectations about SD items were, and formed less of a consenses on which items were most socially desirable. Only 30 per cent of the variance was accounted for on the Minnesota Counseling Inventory (MCI) by the SD items with ninth-,tenth-,eleventh-and twelfth-graders, whereas 70 per cent of the variance was accounted for on the MCI by SD with an adult group.

The literature cited above indicates that SD is commonly accepted as an important variable in the evaluation of personality measures. This

appeared to be the general case in the literature encountered while undertaking this review. The disposition or what to do with the relationship between SD and other scales was less clear. Kenny (1956, p. 317) reported that:

> Unless the SD variable is controlled, the specific variances in the difference score between real self and ideal self will be negligible because SD will cancel out any reliable differences between the two selves.

Indicating that SD should be controlled to make other scales more meaningful, Alker (1968, p. 985) reported that:

> Coping and defensive behavior assessed by intensive interview, covary, respectively with the presence of socially desirable and socially undesirable inventory responses. Minimizing the influence of the SD values interferes with the strategic capacity of inventory items to index coping and defense. Furthermore, using low SD value items most effectively discriminates between genuine and defensively distorted inventory responses. Neutral items are less efficient in this connection even though they minimize socially desirable responding.

This indicates that the removal of the high and/or low SD items would remove the major facet which is sought in personality assessment. This may also be true with defensiveness in self-report measures of self-concept.

Alker (1968, p. 988) reported that ". . . defensiveness is characterized by inability to inhibit socially undesirable responses." Heilbrun (1965) concurs with Alker in an observation of the way in which SD and defensiveness are related on Goughs Adjective Checklist. Heilburn (1965, p. 748) reports that the males who attain

> . . . high defensiveness scale scores are clearly those males who have endorsed behaviors which are socially desirable whereas low defensiveness scale scores portrayed themselves in a less socially desirable way on the adjective check list.

He also reported that the higher the defensiveness score the more stable the self-report score was in the face of unfavorable information. He proposed that high SD responders provide more valid and reliable test records because they are less susceptible to variations caused by transient

situations. In this context SD can be viewed as a desirable stabilizer rather than a distorting influence.

The extent to which defensiveness and SD are discussed together in various articles indicate that they have much in common. Ford (1964) developed a scale similar to the Marlowe-Crowne Social Desirability Scale (M-C SD). He considered his scale to be a measure of defensiveness. It correlated to a level of .70 with the M-C SD. Crowne and Marlowe (1960) found the high scorers on the M-C SD tended to terminate psychotherapy earlier than low scorers. They found that posttreatment ratings of personality integration correlated -.63 with defensiveness. However, they were hesitant to draw conclusions from this because of questionable validity in posttreatment ratings. (i.e., therapists were noted as being prone to identify anyone who terminated psychotherapy early as defensive.) Strickland and Crowne (1963) interpreted engagement in psychotherapy as a socially undesirable practice, and concluded that early termination may be a result of seeking SD and not a reflection of defensiveness as was reported earlier.

Miklich (1968) gave takers of the M-C SD scale the option of leaving their names off of answer sheets, use of only their initials, or the signing of their names. He used absence of name as an operational measure of defensiveness. The use of initials as an intermediate level of defensiveness and the signing of names as an indicator of least defensiveness. He found that SD scores on the signed answer sheets were statistically equal to the scores on answer sheets which had no identity. He concluded that this type of defensiveness was not related to SD. However, the scores on the answer sheets which had only initials were significantly lower

than either of the other two categories. This indicated that those who used only initials were attaining scores reflective of the least SD seeking in self-report behavior.

## Summary

The literature cited indicates that self-report and self-concept can often be two different things. The fact that self-report measures seldom account for more than one-third of the variance on each other, and that factor analytic studies come up with various conclusions as to what self-report instruments assess, demonstrates that what is measured in their use may differ with changes in the situation and the test(s) used. This fact gains further support from demographic findings with handicapped groups and pretest-posttest results which are inconsistent with theoretical notions about self. The theoretical importance of defensiveness and related variables appears to hold promise for explaining some of the inconsistencies which are arising in the measurement of self-concept by way of self-report. This study is undertaken to clarify the nature of the relationship between defensiveness and self-report in the assessment of self-concept and to explore the possibility of using that relationship to the end of making scores from self-report measures more consistant with perceptual theory.

# CHAPTER III

# METHODOLOGY AND RESULTS

The problem, objectives, and hypotheses posed in the introduction and the related literature outlined in the previous chapter serve as guideposts in selecting an appropriate population and experimental design. The questions which have arisen due to inconsistencies in self-report findings from demographic studies of disadvantaged groups direct attention to a population which can be described as handicapped. The inconsistencies which have arisen in the evaluation of experimental studies that were initiated to enhance self-concept serve as a second source of direction as to how clarification of what self-report instruments do measure might best be attempted.

In selecting an atypical population for study, certain restrictions are imposed, and reservations must be raised as to the appropriateness of various instruments for the assessment of variable interaction. The selection and or development of instruments must be made with full awareness of these limitations, and the analysis of results therefrom must be concluded in terms of influences which have the potential to invalidate findings. An attempt is made to incorporate these considerations into the following presentation.

## The Subjects and the Experimental Setting

The subjects were drawn from a population of male adolescent Navajo students at a boarding school. The samples were drawn in an essentially random fashion through class assignment. All subjects in each class were

tested. All tests were found to be scorable. Only those individuals who were absent from either the pretest or the posttest were excluded in data tabulation. This excluded a small percentage (less than 5 per cent) of the subjects and insured that the same individuals were considered in pretest and posttest score tabulation.

Treatment group

One class (N=26) participated in an individualized physical education program. The class was given an initial orientation to possible activities which each individual might pursue. A broad range of activities was suggested (e.g., roller skating, swimming, tennis, golf, and various handicrafts), and variation within or between activities was encouraged. Once an individual had selected an activity he was allowed to pursue it at his own rate. Two teachers and two aides were available on request to meet the needs of members of this group.

Control group

A second group (N=53) which was made up of two classes of students, similar to those in the treatment group, participated in a more traditional group oriented physical education program. During their physical education periods they participated primarily in team oriented activities (e.g., basketball, volleyball, and touch football). At times they would participate in individual activities such as golf or swimming, but emphasis was not put on attempting to assist individuals. The group was generally assigned to an activity which the teachers felt was most appropriate for the time and place. Team leaders were selected from the group by the teachers to help in team organization, for any one period. Aides were not used in

consideration of individual needs during an activity. The primary distinction between the two groups (treatment and control) was the extent to which meeting individual needs was emphasized.

Format for assessment

The format for assessment was as is presented in Table 4.

Table 4. Format for assessment

| | | Occasion | | |
|---|---|---|---|---|
| | | Pretest of | Intervening factors 4 months | Posttest of |
| Group | Treatment | 1. defensiveness<br>2. self-report | individualized physical education | 1. defensiveness<br>2. self-report<br>3. behavior ratings |
| | Control | 1. defensiveness<br>2. self-report | teamed physical education | 1. defensiveness<br>2. self-report<br>3. behavior ratings |

There is a tendency at this point to think of a purpose of this study as being to evaluate the relative effectiveness of the physical education program in the treatment group as compared to the control group. The investigator would like to emphasize that the purpose of the study is to examine the relationship between defensiveness and self report as they interact in the assessment of self concept. The reason for having a treatment and control group is to draw data from two situations in which there was

potential for different interactive relationships between defensiveness and self-report. Treatment variables are only relevant insofar as they are capable of producing differential effects in the measured variables.

## Instrumentation

There was a need to draw data for the assessment of three different variables. The first of these is defensiveness and it is used as the independent variable because of the theoretical implications which have been cited from related literature in the previous chapter. The second variable is self-report in a form which has commonly been used as an indicator of self-concept. Self-report of self-concept is used as the dependent variable to be adjusted through regression for defensiveness in accord with theoretical implications cited earlier. The third variable is self-concept as assessed through teacher inference on a behavior check list. The latter variable is used as a criterion variable inasmuch as it reflects the outcomes which are commonly sought through the educative process.

The assessment of variables so that the extent of interaction can be determined within a particular personality necessitates that all variables considered be measured within close temporal proximity. If time or events intervene between the assessment of different variables, there is some likelihood that mental sets toward self report items will vary. This is particularly true when similar items are used to measure different variables. The format which was selected for testing meets this requirement.

Due to the fact that this study uses the correlation of one variable (defensiveness scores) with a second (self-report scores) in the adjustment of the latter scores, the items of the two measures must be independent. If independent items were not used, part of the variance accounted for on the

basis of the same items being scored for two different scales would be removed through regression.[1] The instruments selected meet this requirement.

Defensiveness

The Self Criticism scale on the Tennessee Self Concept (TSCS) was selected as an appropriate measure of defensiveness. It is composed of ten items which are integrated with other items on the TSCS but which are scored independently. These ten items are each scored on a five point Likert type scale for a total possible score of from one to fifty. Expanding the range on each item from two in a true-false format to five, in the Likert format, undoubtedly increases the reliability of the measure. Fitts (1965a) reported a coefficient of .75 in a two-week test-retest of 60 college students. The investigator found coefficients in the high sixties in a two-week retest of the target population in a previous year. Long range stability of the characteristics measured by this scale is suggested by coefficients of .52, .57, .57, and .66 obtained from scores in a four-month test-retest of the target population. (The .66 coefficient was obtained from the treatment group in this study.)[2]

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[1] e.g., items used in the assessment of social desirability, or the K factor on the MMPI, are also used in the scoring of other traits. This makes it impossible to use a score from these items to partial out or eliminate through regression the common variance which they assess with other scales.

[2] The testing setting for any assessment with the atypical groups is of paramount importance. This is particularly true when using personality measures. This investigator (DINE, 1969) found that without testing in small groups (less than 12 per group) the coefficients obtained in test-retest checks of reliability were too low to warrent test use as a practical consideration. The TSCS and sub-scales thereon were the only personality measures that appeared to hold promise for use with the Navajo adolescent school student. The moderate to high reliability coefficients obtained were attributed partially to the test format, but more importantly to the small group testing with an interpreter present to clarify items for the students. This investigator is not aware of another way in which reliable scores could be obtained from the target population on personality measures.

Items from the self-criticism scale were selected from the L scale on the MMPI by Fitts (1965a). The content of the L scale is described by Dahlstrom and Welsh (1960) as involving aggressive feelings, bad thoughts, temptations, and lack of control or conformity. These attributes are clear, unambiguous, and generally socially unfavorable (e.g., "I get angry sometimes" or "I gossip a little at times"), yet most well adjusted people endorse the statements of the L scale as true about themselves even though the items deal with disapproved actions and feelings. (Dahlstrom and Welsh, 1960, p. 49)

If a person denies a large number of these L scale items which are published on the TSCS he receives a low score on the self-criticism scale. As Fitts (1965a, p. 2) noted:

> Individuals who deny most of these statements most often are being defensive and making a deliberate effort to present a favorable picture of themselves. . . . If the Self Criticism score is low, high P (Total Positive self concept score) scores become suspect and are probably the result of defensive distortion.

Substantiation for the validity of these items as a measure of defensiveness was referred to in the previous chapter in the studies of Taylor and Combs (1952) and Perry (1961).

A second scale on the TSCS labeled "Defensive Positive" (DP) would have been an alternative measure for defensiveness. It was derived empirically on a norm group which was independently diagnosed as defensive. Over half of the items on the self-criticism scale are included on the DP scale. However, the investigator elected not to use the DP scale for several reasons. First it included many items which were also included on the self-report measure which was to be used as the dependent variable, making regression or partialing of common variance inappropriate in data analysis. Secondly it was a subtle measure of defensiveness for a more

typical norm group. This, as Smith (1959) explained in relation to using the MMPI K scale on population other than which the norms were derived, makes the DP scale of questionable validity for an atypical population. The items on the self-criticism scale are less subtle and generally descriptive of individuals regardless of their cultural background. Therefore, the denial of items on the self-criticism scale is operationally defined as a measure of defensiveness.

Self report

The total positive (p) score on the TSCS was selected as an appropriate self-report measure. This score is obtained from responses on a five-point Likert type scale to each of ninety items. The items were derived from several sources (Fitts, 1965a) including written self description of patients and nonpatients. After these items were edited, seven clinical psychologists were employed to judge each item as to whether it was positive or negative in content. The judges also categorized the items into sub-dimensions of self-concept (e.g., physical self, moral-ethical self, and family self) which are not specifically considered in this study. The p score is the overall self-report score received from all the items on the TSCS except for items on the self-criticism scale.

Fitts (1965a) reported a reliability coefficient of .92 for a two-week test-retest of sixty college students. This investigator (DINE, 1969) obtained a coefficient of .85 in a two-week test-retest check of reliability with a small group of the target population. (Again the importance of close supervision of the target population must be emphasized if usable data are to be obtained.) Some stability of self-report scores among the target population is indicated by a coefficient of .74 obtained from scores in a three-month test-retest of students.

The question of the validity of the TSCS or any other measure of self-report is academic. Any instrument purporting to measure self-report does so by definition (unless someone records answers for the subject in the report). Even if the subject recorded what the examiner told him to mark, he would be making a self report. The factor of note in that case would be acquiescence to instructions whereas in this study the factor of note is a related phenomenon of defensiveness.

The TSCS, as was suggested by numerous studies cited in the previous chapter, has frequently been used in obtaining self-report scores from atypical groups. Whether or not these self-report scores are valid indications of self-concept is another question. The purpose of this study is to identify one way in which self-report could more closely represent what is sometimes construed to be self-concept as measured by a behavior check list.

A behavior check list

A commonly accepted way of inferring self-concept is by way of behavioral evaluations. The underlying assumption is that the subject will manifest the way he feels about himself in his own behavior. This investigator elected to use a behavior check list method as a criterion upon which to evaluate the utility of using defensiveness as an independent variable for the adjustment of self-report scores, hypothesizing that by making that adjustment the two measures will be more congruent. This dictated that a criterion measure be developed. The behavioral check list in Appendix A was developed and checked for reliability by the author.

The need for familiarity with students precluded the use of the behavioral check list as a pretest. Checking at the time of the post-test yielded a coefficient of .89 in check-recheck reliability. A check

on inter-rater reliability yielded a coefficient of .60. The magnitude of the difference between these correlations is indicative of perceptual bias that may come into play in the ratings by different observers. It is also reflective of differences in perspective shared by independent raters. The inter-rater reliability however does compare favorably with correlations which have been obtained between different measures of self-report.

## Statistical Procedures and Results

The various statistical techniques which were employed in data analysis will be considered in relation to the particular objectives and hypotheses for which they were tailored. The technique employed for testing the first two hypotheses is a simple correlational assessment of degree of relationship between the two major variables. The establishment of a significant relationship in these hypotheses indicates that further data analysis is appropriate. Statistical techniques employed thereafter are used in various ways to test different hypotheses. Exploration in the latter area, as indicated by limited amounts of related literature, is ripe for innovation and extention. Formulas are cited within the text of this chapter to clarify what was done in statistical operations.

All scoring of instruments and tabulation of data were accomplished by hand with complete independent rechecks. Data processing and computer analysis were accomplished contractually through the University Computer Center.

The .05 level of significance was used in the acceptance or rejection of each hypothesis.

Objective A

"To determine the extent to which defensiveness and self-report are related in the assessment of self-concept."

Hypothesis one under objective A states that "the coefficients obtained in correlating scores on the self-criticism scale (a measure of defensiveness), and scores on the total p scale (a measure of self-report) from the Tennessee Self Concept Scale (TSCS) will be significantly larger than zero.

Product-moment correlation coefficients were computed in accordance with the following formula between subject scores on the self-criticism and total p scales within each group (treatment and control) and each occasion (pretest and posttest), creating a total of four coefficients.

$$r = \frac{\sum (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum (X_i - \bar{X})^2 \sum (Y_i - \bar{Y})^2}} \qquad (1)$$

where

$r$ = The correlation between self-criticism and total p scores within each occasion and group.

$X_i$ = Individual scores on self-criticism (defensiveness) within each occasion and group.

$Y_i$ = Individual scores on total p (self-report) within each occasion and group.

$\bar{X}$ = Mean of the scores for self-criticism within a particular occasion and group.

$\bar{Y}$ = Mean of the scores for total p within a particular occasion and group.

The significance of these correlations was then determined by entering Table 25 of Garrett and Woodworth (1966, p. 201).

Table 5 contains mean raw scores for pretest and posttest of two groups on the self-criticism and total p scales of the TSCS, and correlations between raw scores obtained by individuals on the two scales.

Table 5. Correlations between self-criticism and total p scores

| Group | Occasion | Mean raw score on self-criticism[a] | Correlations between self-criticism and total p | Mean raw score on total p |
|---|---|---|---|---|
| Treatment (N=26) | pretest | 35.9 | -.44 ($P<.05$) | 293.6 |
| | posttest | 33.3 | -.64 ($P<.01$) | 296.5 |
| Control (N=53) | pretest | 30.7 | -.55 ($P<.01$) | 315.0 |
| | posttest | 31.7 | -.28 ($P<.05$) | 309.2 |

[a]Larger scores on the self-criticism scale reflect more self criticism and less defensiveness.

From Table 5 it may be seen that the correlations between self-criticism and total p are significantly larger than zero in all four testings. On the basis of these data hypothesis $A_1$ is accepted.

Hypothesis two under objective A states that "changes in self-criticism scores between pretest and posttest will correlate significantly more than zero with changes in total p scores between pretest and posttest."

Product-moment correlation coefficients were computed in accordance with the following formula between changes of subject scores (obtained by subtracting pretest scores from posttest scores) for self-criticism and changes of subject scores (posttest-pretest) for total p within each group (treatment and control), creating two coefficients.

$$r = \frac{\sum (X_{\Delta i} - \overline{X}_{\Delta})\ (Y_{\Delta i} - \overline{Y}_{\Delta})}{\sqrt{\sum (X_{\Delta i} - \overline{X}_{\Delta})^2}\ \sqrt{\sum (Y_{\Delta i} - \overline{X}_{\Delta})^2}} \qquad (2)$$

where

$r$ = The correlation between changes in self-criticism and changes in total p scores from pretest to posttest within each group.

$X_{\Delta i}$ = Changes of scores on self-criticism between pretest and posttest for each individual within each group.

$\overline{X}_{\Delta}$ = The mean change of score between pretest and posttest for self-criticism within each group.

$Y_{\Delta i}$ = Changes of score on total p between pretest and posttest for each individual within each group.

$\overline{Y}_{\Delta}$ = The mean change of score between pretest and posttest for total p within each group.

The significance of these correlations was then determined by entering Table 25 in Garrett and Woodworth (1966, p. 201).

Table 6 contains mean raw score changes between pretest and posttest for two groups on the self-criticism and total p scales of the TSCS, and correlations between changes of raw scores on the respective scales for individuals within those groups.

Table 6. Correlations between changes of scores from pretest to posttest

| Group | Mean change of score on the self-criticism scale[a] | Correlation between change of score on the self-criticism and total p scales | Mean change of score on the total p scale |
|---|---|---|---|
| Treatment (N=26) | -2.6 | -.39 ($P<.05$) | +2.9 |
| Control (N=53) | +1.0 | -.35 ($P<.01$) | -5.8 |

[a]A negative change in self-criticism indicates a decrease in self-criticism and greater defensiveness.

From Table 6 it may be seen that the correlations between changes in scores on the self-criticism scale and changes on the total p scale of the TSCS are significantly larger than zero in both groups. On the basis of these data hypothesis $A_2$ is accepted.

Having demonstrated that defensiveness and self-report may be interrelated to a statistically significant degree in the assessment of self-concept and its change, other objectives and related findings are outlined.

Objective B

"To determine if scores on a measure of defensiveness can be used for the practical adjustment of self-report scores in the assessment of self-concept."

Hypothesis one under objective B states that "total p scores adjusted through regression for self-criticism will be significantly different from unadjusted scores."

A within occasion and group analysis of variance was run to obtain regression coefficients and to determine the significance by F test of the

slope of the regression between self-criticism and total p. This was done in accordance to the following formula within each group (treatment and control) and each occasion (pretest and posttest) creating a total of four F values.

$$F = \frac{MS_R}{MS_E} = \frac{\dfrac{SS_R}{DF_R}}{\dfrac{SS_E}{DF_E}} = \frac{\dfrac{b_1 \sum (Xi - \bar{X})\ (Yi - \bar{Y})}{n - 1}}{\dfrac{\sum (Yi - \bar{Y}) - b1 \sum (X - \bar{Y})}{n - 2}} \qquad (3)$$

where

Xi = Individual scores for self-criticism within each occasion and group.

Yi = Individual scores for total p within each occasion and group.

$\bar{X}$ = The mean of self-criticism scores within each occasion and group.

$\bar{Y}$ = The mean of self-report scores within each occasion and group.

$DF_R$ n = The number of variables in each regression = 2.

$DF_E$ n = The number of subjects in each occasion and group.

$b_1$ = A beta weight for each group = $\dfrac{\sum (Xi - \bar{X})\ (Yi - \bar{Y})}{\sum (Xi - \bar{X})^2}$

The significance of the F values was obtained by entering appropriate tables.

Table 7 contains data from analysis of variance run within groups and occasions to indicate the significance of the extent to which self-criticism scores and total p scores are interrelated in assessment.

Table 7. F test of regression effect of self-criticism scores on total p scores

| Group | Occasion | DF | Mean square | F | P |
|---|---|---|---|---|---|
| Treatment (N=26) | pretest | 1/24 | 3379.75 | 5.886 | <.05 |
| | posttest | 1/24 | 7679.39 | 16.283 | <.0001 |
| Control (N=53) | pretest | 1/51 | 8887.36 | 22.462 | <.0001 |
| | posttest | 1/51 | 3179.46 | 4.426 | <.05 |

From Table 7 it may be seen that regression, of total p scores on the basis of self-criticism scores, operates systematically in all four cases. On the basis of these data hypothesis $B_1$ is accepted.

Hypothesis two under objective B states that "total p scores adjusted by regression for self-criticism will correspond more closely to scores on a behavior check list (for inference of self-concept) than unadjusted scores."

Posttest scores were adjusted by regression within each group (treatment and control) in accordance with the following formula.

$$\hat{Y}i = Yi - b_1 (Xi - \overline{X}) \qquad (4)$$

where

$\hat{Y}i$ = Each individual total p score which has been adjusted on the basis of its paired self-criticism score and a beta weight ($b_1$) derived from the relationship between self-criticism and total p within that occasion and group.

$b_1 = \dfrac{(Xi - \overline{X})\ (^{Y}i - \overline{Y})}{(Xi - \overline{X})^2}$ = The beta weight noted immediately above.

Yi = Individual scores on that total p scale within each occasion and group.

Xi = Individual scores on the self-criticism scale within each occasion and group.

$\overline{X}$ = The mean of all self-criticism scores within that occasion and group.

$\overline{Y}$ = The mean of all total p scores within that occasion and group.

The adjusted scores for total p ($\hat{Y}i$) and the unadjusted scores (Yi) were each correlated to the criterion variable (Zi), which was made up of scores obtained by that individual on a behavior check list. The significance of the differences between correlations, adjusted vs. unadjusted total p scores with behavior check list scores, were tested using Hotelling's (1940) method which is:

$$t = (r_{\hat{Y}Z} - r_{YZ}) \sqrt{\frac{(N - 3)(1 + r_{\hat{Y}Y})}{2(1 - r^2_{\hat{Y}Y} - r^2_{\hat{Y}Z} - r^2_{YZ} + {}^2r_{\hat{Y}Y}\, r_{\hat{Y}Z}\, r_{YZ}}} \qquad (5)$$

where

t = Test for significance of difference between correlation coefficients.

r = The correlation between.

$\hat{Y}$ = The adjusted scores.

Y = The unadjusted scores.

Z = The behavior check list scores.

Table 8 contains correlations of adjusted and unadjusted posttest total p scores with behavioral check list scores for each group and the significance of the difference between these correlations.

Table 8. Correlation coefficient differences due to regression adjustments

| Group | Total p scores[a] | Behavior check list scores | Correlation between measures | Difference between Correlations | t | p |
|---|---|---|---|---|---|---|
| Treatment (N=26) | unadjusted scores | check list scores | .393 ($P<.05$) | .166 | 1.29 | n.s. |
| | adjusted scores | check list scores | .227 (n.s.) | | | |
| Control (N=53) | unadjusted scores | check list scores | .075 (n.s.) | .007 | .15 | n.s. |
| | adjusted scores | check list scores | .068 (n.s.) | | | |

[a] Appendix B contains a list of adjusted and unadjusted scores in raw and standard score form for an idiographic examination of regression effects. Inasmuch as the mean adjusted and unadjusted scores will be the same, because all adjustments will algebraically cancel each other out in any one distribution, this hypothesis is tested by a procedure which considers common variance.

From Table 8 it may be seen that adjusted and unadjusted scores from the total p scale do not differ enough to significantly alter the correlation between that scale and the criterion variable (behavior check list scores). On the basis of these data hypothesis $B_2$ is rejected.

Hypothesis three under objective B states that "the change in adjusted total p scores between pretest and posttest will be significantly different from the change in unadjusted total p scores." This hypothesis relates to the second hypothesis under Objective A.

An analysis of covariance was run in accordance with the following formula to determine the significance by F test of the slope of the

regression between changes in Self Criticism scores from pretest to post-test and changes in Total P scores between pretest and posttest.

$$F = \frac{MS_T}{MS_E} = \frac{\frac{SS_T}{DF_T}}{\frac{SS_E}{DF_E}} = \frac{\frac{\sum (\bar{X}_\Delta i\cdot - \bar{X}_\Delta\cdot\cdot)\ (\bar{Y}_\Delta i\cdot - \bar{Y}_\Delta\cdot\cdot)}{n-1}}{\frac{\sum (X_\Delta ij - \bar{X}_\Delta i\ \cdot)\ (Y_\Delta ij - \bar{Y}_\Delta i\cdot)}{n-3}} \qquad (6)$$

where

$\bar{X}_\Delta i\cdot$ = Mean change in self-criticism scores between pretest and post-test by group (treatment and control).

$\bar{Y}_\Delta i\cdot$ = Mean change in total p scores between pretest and posttest by group (treatment and control).

$DF_T$ = Number of treatments = 2.

$DF_E$ = Number of individuals in both groups (treatment and control) equals 79.

$\bar{X}_\Delta\cdot\cdot$ = Overall mean change of self-criticism score between pretest and posttest from both groups combined.

$\bar{Y}_\Delta\cdot\cdot$ = Overall mean change of total p score change between pretest and posttest from both groups combined.

$X_\Delta ij$ = Individual changes of score on the self-criticism scale between pretest and posttest.

$Y_\Delta ij$ = Individual changes of score on the total p scale between pre-test and posttest.

This also afforded an opportunity to assess the magnitude of the regression effect on changes of scores respectively in the treatment and control groups, and the significance of the difference between treatment and control group score changes (between pretest and posttest) after regression.

Table 9 contains mean total p score changes between pretest and posttest, as they stood before and after regression on the basis of their correlations with changes in self-criticism scores between pretest and posttest.

Table 9. Unadjusted vs. adjusted total p score changes between pretest and posttest

| Group | Mean change in unadjusted total p scores (posttest minus pretest) | Mean change in adjusted total p scores (posttest minus pretest) | Regression effect difference between adjusted and unadjusted change scores (unadjusted minus adjusted) |
|---|---|---|---|
| Treatment (N=26) | 2.92 | -1.05 | 3.97 |
| Control (N=53) | -5.74 | -3.79 | -1.95 |
| (treatment minus control) | 8.66 | 2.74 | 5.92 |
| Test and F value | ANOVA F=1.90 | ANOCOVA F=.20 | ANOCOVA F=11.72 |
| Degrees of freedom | 1/77 | 1/76 | 1/76 |
| Level of significance | n.s. | n.s. | $P<.002$ |

From Table 9 it may be seen that regression altered the amount of self-report change from 2.92 points in the positive direction to 1.05 in the negative direction from pretest to posttest within the treatment group. The net effect of regression on self-report scores in the treatment group was then 3.97 points on the negative direction. This is in contrast to

the regression effect in the control group where changes in self-report scores were enhanced by 1.95 points. Therefore, the absolute effect of regressing changes in self-report scores on the basis of their correlation with self-criticism scores was to reduce the change differences between treatment and control groups by 5.92 raw score points.

Table 10 contains data from a between group analysis of covariance of change scores from pretest to posttest, as an indicator of the significance of the extent to which self-criticism score changes and total p score changes were interrelated on this self-report instrument.

Table 10. F test of the regression effect of self-criticism score change on total p score change

| Variable | DF | Mean square | F | P |
|---|---|---|---|---|
| Sum of squares due to regression | 1/76 | 7078.70 | 11.722 | <.002 |

From Table 10 it may be seen that changes in self-criticism scores can have a very significant interrelationship with changes in self-report scores between pretest and posttest and between groups. On the basis of data in Table 10 hypothesis $B_3$ is accepted.

Objective C

"To determine the extent to which defensiveness as measured by the self-criticism scale on the TSCS is related to defensiveness as measured by the self-report minus behavior check list discrepancy method.

Hypothesis one under objective C states that "Coefficients obtained in correlating scores on the self-criticism scale with the difference

between Total P scores and behavior check list scores will be significantly greater than zero."

Scores from the self-criticism scale were correlated with the difference between total p and behavior check list scores within each posttest group by the formula:

$$r = \frac{\sum \left[(X_i - \bar{X})\right] \quad \left[(Y_i - Z_i) - (\bar{X} - \bar{Z})\right]}{\sqrt{(X_i - \bar{X})^2} \quad \sqrt{\sum (Y_i - Z_i) - (\bar{Y} - \bar{Z})}} \qquad (7)$$

where

$r$ = The correlation coefficient.

$X_i$ = Individual scores on self-criticism within each group.

$Y_i$ = Individual scores on total p within each group.

$Z_i$ = Individual scores on a behavior check list within each group.

$\bar{X}$ = The mean of self-criticism scores within each group.

$\bar{Y}$ = The mean of total p scores within each group.

$\bar{Z}$ = The mean of behavior check list scores within each group.

The significance of these correlations was tested by reference to Table 25 in Garrett and Woodworth (1966, p. 201).

Table 11 contains coefficients obtained from the correlation of scores on the self-criticism scale with the differences obtained between scores on the total p scale and behavior check lists for the two groups.

Table 11. Correlations between self-criticism scores and differences obtained in subtracting behavior check list scores from total p scores

| Group | Mean scores on the self-criticism scale[a] | Correlations between scores from two methods of assessing defensiveness | Mean difference obtained from behavior check list scores minus total p[b] |
|---|---|---|---|
| Treatment (N=26) | 33.27 | -.259 (not significant) | 205.58 |
| Control (N=53) | 31.70 | -.226 (not significant) | 216.72 |

[a]The lower the self-criticism score the less self critical and the more defensive.

[b]The greater the difference the more indicative of defensiveness.

From the data in Table 11 it may be seen that self-criticism scale scores are correlated with the difference obtained in subtracting behavior check list scores from total p scores, but not significantly greater than zero in either case. On the basis of these data hypothesis $C_1$ is rejected.

Hypothesis two under objective C states that "Subjects identified as defensive by the difference obtained in subtracting behavior check list scores from total p scores will also be identified as defensive by the self-criticism scale."

Raw scores from the self-criticism scale (X), the total p scale (Y) and the behavior check list (Z) were all converted to standard scores (X', Y', and Z') by the formula: $X' = \frac{\sigma'}{\sigma}(X - \overline{X}) + X'$

where

X' = An individual standard score for the self-criticism.

$\sigma'$ = Standard deviation in standard score form = 10.

$\sigma$ = Standard deviation in raw score form.

$X$ = The value of an individual raw score.

$\overline{X}$ = The mean of the raw scores.

$\overline{X}'$ = The mean of standard scores = 50.

($X'$, $Y'$, and $Z'$ are each derived from this formula)

These standard scores on each variable were combined for the two groups (treatment and control). Standard scores on the behavior check list were subtracted from standard scores on total p for each individual. Only those differences which indicated a discrepancy of two standard deviations or greater were considered as indicative of defensiveness in order to eliminate choices which might have been due to measurement error. (i.e., the standard score which a subject received on the behavior check list had to be two standard deviations below that which he obtained in self-report score before he was identified as defensive.) Those who were identified in this way with the discrepancy method were matched to their respective scores on the self-criticism scale. If they had also scored one standard deviation below the mean on the self-criticism scale, this was considered as a concurrent identification for defensiveness. If the individual was identified as defensive by the discrepancy method as noted above, but scored above the mean on the self-criticism scale, this was considered to be a mis-identification. The resulting concurrent indentifications and mis-identifications were placed in a chi-square contingency table. A replica of that table is presented in Table 12.

Table 12. Format for testing the congruence of two methods of identifying defensiveness

| A | B |
|---|---|
| Number identified by the discrepancy method. | Number identified by the discrepancy method while below the mean but by less than one standard deviation on the self-criticism scale. |
| **C** | **D** |
| Number concurrently identified by the self-criticism scale. | Number mis-identified by the self-criticism scale. |

The significance of any deviation from the expected was examined for significance by Fisher's exact test (Ferguson, 1966, p. 208-209).

$$P = \frac{(A + B)!\ (C + D)!\ (A + C)!\ (B + D)!}{N!\ A!\ B!\ C!\ D!} \qquad (8)$$

where

P = Probability of attaining this degree of association.

A, B, C, D = Quantities in respective cells.

! = Factorial of the number.

N = Total of the instances in all cells.

Table 13 contains data reflective of the extent to which the discrepancy method and the self-criticism scale identify the same individuals as defensive.

Table 13. A comparison of two methods in their identification of defensive subjects

| | Identified | Misidentified | |
|---|---|---|---|
| Total numbers of subjects identified as defensive by the discrepancy method | 5 | 0 | |
| | | | P=.18997 |
| How the self-criticism method discriminated among subjects identified as defensive by the discrepancy method | 3 | 2 | |

According to Fisher's exact test (Ferguson, 1966, p. 208), the probability of attaining this degree of association is .18997.

From the data in Table 13 it may be seen that the degree association between the two methods for identifying defensive individuals could have been attained almost once in every five times by chance. On the basis of these data hypothesis $C_2$ is rejected.

## Summary

The results obtained through this investigation have been related to each of the hypotheses and objectives which guided the study. Interpretation of these results and conjecture therefrom is presented in the discussion which follows in Chapter IV.

# CHAPTER IV

# DISCUSSION

This chapter includes (1) a brief overview of the current study, (2) a discussion of each hypothesis and related results within the context of three more general objectives and (3) some conjecture as to the nature of self-concept and related variables.

## Overview

The current study was initiated to empirically investigate theoretical formulations about defensiveness and self-report as they interrelated in the assessment of self-concept. Theory and a smattering of studies have indicated that defensiveness may serve to systematically bias self-report scores, which are commonly used for the inference of self-concept, particularly in handicapped groups. It was felt that exploring (1) ways for the assessment of defensiveness within the context of self reporting, (2) the nature of the relationship between these two variables, and (3) ways by which defensiveness could be controlled in self-report assessment could enhance the utility of self-concept as a hypothetical construct.

The population selected was a group of Navajo boarding school adolescents. Samples selected were divided into a treatment and a control group to observe the differences in interaction which may occur between defensiveness and self-report in the assessment of self-concept. To achieve these differential effects the treatment group participated in an individualized physical education program, while the control group participated in a more traditional team oriented physical education program.

The Tennessee Self Concept Scale (TSCS) was used to assess defensiveness (on the self-criticism scale) and self-report (on the total p scale), and a behavior check list (See Appendix A) was designed as a criterion measure of self-concept. Data derived through these instruments and the target population were analyzed and evaluated in accordance with the following general objectives and specific hypotheses.

## Objective A

Objective A was "to determine the extent to which defensiveness and self-report are related in the assessment of self-concept.

Hypothesis one states that "coefficients obtained in correlating scores on the self-criticism scale (a measure of defensiveness), and scores on the total positive (P) scale (a measure of self-report) from the Tennessee Self Concept scale (TSCS) will be significantly larger than zero."

Correlations which were significantly larger than zero were found between self-criticism scores and total p scores at each of four testing occasions. The coefficients were -.28, -.39, -.44, and -.64, demonstrating that the degree of relationship was subject to wide variation depending on the situation. The specific reasons for this variance are not known. It is of note that correlations tended to increase in the treatment group concurrently with the level of defensiveness (as measured by less self-criticism). The same relationship appeared to function in the opposite direction within the control group, i.e., in the control group the correlation tended to decrease concurrently with a decrease of defensiveness (as assessed by an increase in self-criticism). One possible hypothesis for testing would be that the magnitude of the correlation is partially a function of extent of change in defensiveness. This must be

stipulated in terms of change, because magnitude of self-criticism score alone is not sufficient as an predictor of correlation magnitudes.

The most important point to be made from hypothesis one is that the correlation between self-criticism and total p is subject to much variation. In this study the relationship between these variables was significantly different from zero on all occasions, but for some individuals or groups there may be little or no relationship.

Hypothesis two under objective A states that "changes in self-criticism scores between pretest and posttest will correlate significantly more than zero with changes in total p scores between pretest and posttest."

Data from this study are evidence for a conclusion that when self-criticism scores go up between pretest and posttest, a concurrent drop in self-report scores may occur. The relationship of change in self-criticism scores between pretest and posttest to change of total p scores between pretest and posttest was indicated by correlations of -.39 and -.35 in the treatment and control groups respectively. The conclusion is not that this relationship will always be present, but rather that an investigator should always be aware of the possibility that gains obtained in self-report scores may be a result of losses encountered in defensiveness, or vice versa. The point is that more than one variable must be watched if an investigator wishes to adequately assess self-concept change.

## Objective B

Objective B was "to determine if scores on a measure of defensiveness can be used for the practical adjustment of self-report scores in the assessment of self-concept."

Hypothesis one under objective B states that "total p scores adjusted through regression for self-criticism will be significantly different from unadjusted scores."

An analysis of variance within each group and testing occasion provided data upon which a conclusion could be drawn about the extent to which the regression coefficient obtained between self-criticism and total p scores was statistically significant. In each of the four testing occasions a significant relationship was found.

Mean score differences are impossible to obtain in a within group and occasion adjustment by regression because all adjustments will algebraically cancel each other out in any one distribution. The F values obtained are indicative of the fact that adjustments to the variance of individual scores were statistically significant in all groups and occasions. The magnitude of individual score changes may be observed in Appendix B. Adjusted scores of this type may be useful in counseling or case studies where one individual from a population is the point of focus.

Hypothesis two under objective B states that "total p scores adjusted by regression for self-criticism will correspond more closely to scores on a behavior check list (for inference of self-concept) than unadjusted scores."

An examination of the data in Appendix B indicates that the average adjustment made by regression to any one score as averaged across all groups and testing occasions was 8.4 raw score points in the plus or minus direction. Adjustments varied significantly within groups and testing occasions. The mean adjustment for variance groups and occasions were 6.4, 9.7, 9.9, and 14.6. These variations are indicative of the differing extents to which self-criticism and total p scores are related within the various groups and testing occasions.

The hypothesis stated that total p scores adjusted by regression would correlate more highly with behavioral check list ratings of subjects than unadjusted total p scores. The difference between correlations obtained with adjusted as compared to unadjusted total p scores was not significant. In one group the trend, though not significant, was to decrease the correlation between total p scores and the criterion variable (behavior check list scores). This indicates that the use of defensiveness as a covariate of self-report did not enhance the concurrence between behavioral and self-report measures of self-concept. The extent to which a regression to the mean effect served to reduce variance, and consequently correlational properties of total p scores, must be weighed into any conclusion about the utility of this means as a practical method for increasing the utility of self-report measures.

As was apparent in the review of related literature, the magnitude of the correlations which have been obtained between self-report measures and behavioral ratings has consistantly been low and statistically non-significant. From this context the fact that the correlation between the self-report measure (total p) and behavior ratings did reach statistical significance in the treatment group is noteworthy. Whether this is indicative of greater validity for either or both of those measures in assessing self-concept is subject to an evaluator's point of view. In this investigator's opinion, congruence between the two measures would be an important criterion in assessing validity. This argument is implicit in the formulation of the hypothesis under consideration.

Data analysis from this study provides information for concluding that using defensiveness as a covariate of self-report in assessing self-concept did not enhance the validity of self-report scores when behavior check list scores are used as a criterion. However, the validity of the check list used in this study is questionable.

Hypothesis three under objective B states "the change in adjusted total p scores between pretest and posttest will be significantly different from the change in unadjusted scores."

An analysis of covariance was run to check the significance of the difference of changes in total p scores in the treatment and control groups both before and after regression for interrelationships with self-criticism score changes. Data from that analysis are presented in Table 14.

From Table 14 it may be seen that a change of 2.6 raw score points occurred in the treatment group between pretest and posttest on the self-criticism scale. A change of +1.0 raw score points occurred in the control group. The combination of these two changes may be interpreted as a relative change in self-criticism (defensiveness) by the treatment group of -3.6 points (i.e., that the treatment group is relatively less self-critical and more defensive due to treatment). This relative change was statistically significant and provides data for speculation. However, that will be delayed until other data are reviewed.

From Table 14 it may be seen that unadjusted total p scores increased 2.9 raw score points in the treatment group and decreased 5.7 points in the control groups. The combination of these two changes may be interpreted as a relative unadjusted change in total p between treatment and control groups of +8.6 points (i.e., that the treatment group is relatively more positive in their total self-report score than the control group on the posttest).

The fact that there was a relative increase in total p scores is indicative of a favorable effect as a result of treatment even though the magnitude of the change did not reach statistical significance. However,

Table 14. Socre changes in treatment and control groups

| Scale | Group | Mean pretest score | Mean posttest score | Mean change (posttest-pretest) | F | DF | P |
|---|---|---|---|---|---|---|---|
| self-criticism | Treatment (N=26) | 35.9 | 33.3 | -2.6 | | | |
| | Control | 30.7 | 31.7 | +1.0 | | | |
| Difference between groups on self-criticism (treatment-control) | | | | -3.6 | 6.65 | 1/77 | <.025 |
| Total p prior to regression | Treatment (N=26) | 293.6 | 296.5 | +2.9 | | | |
| | Control (N=53) | 315.0 | 309.2 | -5.7 | | | |
| Difference between groups on total p prior to regression (treatment-control) | | | | 8.6[a] | 1.90 | 1/77 | n.s. |
| Total p after regression | Treatment (N=26) | c | c | -1.1 | | | |
| | Control (N=53) | c | c | -3.8 | | | |
| Difference between groups on total p after regression (treatment-control) | | | | 2.7[b] | .20 | 1/76 | n.s. |

Significance of regression effects on change of total p scores.

| | Mean total p change | Difference | F | DF | P |
|---|---|---|---|---|---|
| [a]Before regression | 8.6 | 5.9 | 11.72 | 1/76 | <.002 |
| [b]After regression | 2.7 | | | | |

[c]Regressed mean scores are not available for testing because the regression was run on the change of score for each individual in respective groups and not the mean scores for each group.

data from the self-criticism scale can be used to qualify the interpretation which would be made on total p scores alone. The relationship between self-criticism and total p was cited earlier for its inverse nature (i.e., all correlations were negative). It can be seen from the data in Table 14 that the relationships of scores within each group was also inverse (i.e., when scores on one scale go up the scores on the other scale go down). This is consistent with theory.

The data presented in Table 14 in the row labeled "total p after regression" may be interpreted as the total p change of scores which would have been attained by each group (treatment and control) if self-criticism had not varied. It may be seen that the total p score change obtained by the treatment group would have been -1.1 rather than +2.9. The adjusted score may be interpreted as a slight decrease in self-report score rather than an increase, the overall difference being four points less than was indicated by total p score without regression for self-criticism. A similar but inverse pattern can be seen in the scores obtained by the control group.

The combined effect of regression for self-criticism, as can be seen at the bottom of Table 14 is 5.9 points of change in total p scores. The nature of the inverse relationships and they are such that it would have occurred less than two times in one thousand by chance.

On the basis of the results cited on objective A and B, the investigator may conclude that there was definitely a systematic relationship between defensiveness as measured by the self-criticism scale and self-report as measured by the total p scale. The practicality of implementing the current method (regression within groups) to use this relationship was not demonstrated in the current study, but there is little doubt that viewing data from the two scales conjointly does provide an alternative means by which to evaluate self-concept.

The validity of the total p scores adjusted through regression as a measure of self-concept has not been demonstrated. However, interpretation of the discussion thus far indicates that defensiveness and its assessment may be an integral part of any attempt directed at validating self-concept instruments. The following objective and hypotheses are directed to clarify the nature of assessed defensiveness by comparing two theoretical approaches which have been tailored to that end.

## Objective C

Objective C was "to determine the extent to which defensiveness as measured by the self-criticism scale on the TSCS is related to defensiveness as measured by the self-report minus behavior check list discrepancy method.

Hypothesis one under objective C states that "coefficients obtained in correlating scores on the self-criticism scale with difference between total p and behavior check list scores will be significantly greater than zero."

Correlations obtained in the procedure dictated by hypothesis one were low (-.259 and -.226) but relatively consistent in the treatment and control groups. The first correlation would have occurred by chance approximately once in every five cases ($P<.19$). The second would have occurred by chance approximately once in every seven cases ($P<.14$). If the investigator had elected to combine the subjects from the two groups, the coefficients obtained would have approached significance at the .05 level, due to the increase of number of subjects involved in the test.

This low level of correlation may be interpreted as indicating that the two methods of assessing defensiveness are assessing relatively

independent factors. No more than 7 per cent of the variance assessed in one method is assessed by the other.

Hypothesis two under objective C states that "subjects identified as defensive by the difference obtained in subtracting behavior check list scores from total p scores will also be identified as defensive by the self-criticism scale."

The use of an adaptation of Coopersmith's (1967) discrepancy method yielded a total of five individuals identified as defensive. Of these five, three were identified as defensive on the self-criticism scale (were one or more standard deviations below the mean). This left a net error of two who scored in the upper quartile on the self-criticism scale, and could be more aptly described as hypercritical of self by self-criticism criteria. The extent to which the self-criticism scale and the discrepancy method disagreed in selection (2 of 5 were mis-identified when the self-criticism scale was used as a criterion) of defensive individuals may be interpreted as a confirmation of the low correlation attained in hypothesis one under this objective.

The comments of Calvin and Holtzman (1953) warrant further emphasis in the context of the last hypothesis. He appropriately pointed out that only those who are in the lower end of the behavioral check list scoring continuum and those at the upper end of the self-report scoring continuum can possibly be identified in this discrepancy method. This is true because only a self-report score significantly higher than behavioral rating score will yield a discrepancy which is identified as defensive. The method in this way precludes the possibilities of over half of the sample being identified as defensive.

Coopersmith (1967) identified as defensive only those who were in the upper quartile on self-report while in the lower quartile on behavior

ratings. This permitted the identification of defensiveness in subjects where 25 per cent of the sample from each scoring method overlapped. That procedure was amended in the current study to allow inclusion of up to the fiftieth percentile on the behavior ratings and down to the fiftieth percentile on self report forms. Even with this revision (where subjects who score two or more standard deviations higher on the self-report score than they were scored by a rater with a behavior check list) over half of the sample is precluded from classification by the discrepancy method. On the basis of the foregoing data and discussion, the discrepancy method is judged to be an impractical and undependable tool for the identification of defensive individuals.

## The Nature of Self Concept

Self-concept is a hypothetical construct about which must has been conjectured and written. But, as Combs and Soper (1957, p. 136) noted: "the self as a discrete entity does not exist." Therefore, it cannot be measured directly. Assessment of self-concept can only be made through inference.

Inferences are made about self-concept upon the basis of data which can be drawn in a number of ways. The scales for assessing defensiveness and self-report in the current study are one way of drawing data for inference. The behavior check list which was used is another.

Even defensiveness and self-report do not in themselves exist as entities. They are purely categories or labels applied to data. The data which they classify can be called intervening variables or events which according to the findings of this study operate differentially in the assessment of self-concept.

The scores labeled as "defensiveness" and "self-report" in the current study have been used as an independent and a dependent variable respectively. An assumption has been made that the magnitude of self-report scores is dependent on the magnitude of defensiveness scores. This assumption has been partially substantiated; "partially," because the relationship is not unitary, it is not constant, and the relationship was established as correlational and not casual.

Defensiveness was selected as an anchor or point of reference from which to view and adjust self-report scores. The adjustment was found to make individual scores more congruent with theory when viewed idiographically, but it did not serve to make scores more congruent with a criterion of behavior check list ratings. The validity of the adjustment procedure and the validity of the criterion measure can each be questioned.

A question arises as to whether or not defensiveness is an intrinsic part of self-report scores. Findings of this study indicate that the two factors are related. Whether or not defensiveness is a contaminator in self-concept assessment is another question. The nature of self-concept must be explored before that can be answered.

Miller and Swanson (1960) proposed that defenses are learned in the individual's environment, also that this learning process contributes directly or indirectly to the development and maintenance of self-esteem by establishing limits and actions that define and interpret events. If their proposals are accurate, defensiveness may be inseparable from the construct of self-concept.

Mead (1946, p. 255) took a position similar to that above when he stated:

> . . . self-criticism is essentially social criticism, and behavior controlled by self-criticism is essentially behavior controlled socially. Hence, social control, . . . far from

> tending to cr sh out the human individual or to obliterate his sel ion individuality is, on the contrary, actually and inextricably associated with that individuality, he individual is what he is, as a conscious and indiv l personality, just as far as he is a member of societ involved in the social process of experience and act y, and thereby socially controlled in his conduct.

In other words, the individuals self structure and the way he chooses to be self critical is a function of his social system. He views himself and is viewed from that frame of reference.

If defensiveness and self-concept are viewed as socially determined constructs, then the social desirability (SD) factor is not only related but part of the domain which is sampled when self-report measures are used for assessment. Attempts to partial out these dimensions from self-concept may be in vain, because they could be an integral part of self concept and its assessment. As Alker (1968, p. 988) noted ". . . the search for psychometric purity appears incompatible with the search for truth." If the variance accounted for by defensiveness, social desirability, acquiescence, and other test taking "sets" is partialed out from what is sampled by self-report instruments, we may be removing the major facet for which we are looking. The way in which a subject approaches the instrument for assessment may be indicative of the way he views and operates in life. To ignore this data, or to attempt to glean it out may be a regrettable mistake.

In this context an overall contribution of the current study becomes one of clarifying what the nature of self may be. This initially sounds antithetical to the position of Lowe (1961, p. 33) when he stated ". . . "self is an invention not a discover." However, if a clearer conceptualization of the facets of self can be formulated from data, this invention may serve as a guide for exploration and discovery. To comprehend the

nature of a dynamic puzzle the student will need many pieces and perspectives. This investigator proposes that defensiveness is one of those pieces and/or perspectives. To interpret self report measures of self concept without awareness of its potential for confounding results could be an unfortunate oversight.

# CHAPTER V

# SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

## A Summary of Purposes and Procedures

### Need for the study

A significant amount of literature has been published to indicate that self-report tools, advertised as measures of self-concept, often do not assess that for which they were designed. Evidence for this conclusion is provided in the low correlations which are usually found between scores from different self-report tools, inconsistencies in demographic and experimental studies, and disparities in scores derived from self-report measures as compared to behavior measures for the inference of self-concept.

Several authors have formulated theory about factors which serve to hamper self-report instruments in the assessment of self-concept, but little empirical work is available to validate these theoretical explanations. One of the explanations which can be traced to the origins of self theory may be conceptualized in terms of defensiveness (i.e., defensiveness and related phenomena have been considered as confounders of self-report results by some theorists). Yet, users of self-report instruments often overlook the possibility that defensiveness may be serving to systematically distort self-report scores.

### Purpose of the study

This study was undertaken to empirically examine the relationship between defensiveness scores and self-report scores as they interrelate

in the assessment of self concept. It was proposed that if a systematic relationship could be found, it might be used in adjusting self-report scores so that they would more closely approximate a criterion measure of self-concept.

A secondary problem was to compare two methods for the assessment of defensiveness. The lack of a normal tendency to be critical of oneself was the primary method for assessing defensiveness. The second method for assessing defensiveness was implemented by comparing scores of self reported self-concept measures to scores of an objective rating of self-concept. If the individual rated himself significantly higher than he was rated by an objective rater, he is classified as a defensive person. The degree of concurrence between these two methods was evaluated.

## Procedures

Samples were drawn from a population of male Navajo adolescent students. A treatment sample participated in an individualized physical education program. A control sample participated in a more traditional group oriented physical education program. The purpose for having comparison groups was to evaluate the differential effects which the two settings might provide in the relationship between defensiveness and self-report as they interact in assessment.

The Tennessee Self Concept Scale (TSCS) was used in the assessment of defensiveness and self-report. The self-criticism scale on the TSCS was used to obtain defensiveness scores. The total positive (p) scale on the TSCS was used to obtain self-report scores. A behavior check list was devised, evaluated, and used as a criterion measure to rate behavior for inferrence of self-concept.

The subjects were tested before their involvement in the respective types of physical education activities and again four months later.

Scores were tablulated and analyzed within and between the various test occasions and treatment groups.

## A Summary of Findings and Conclusions

In general the various findings (prefaced by numbers below) and related conclusions (prefaced by letters below) which are generalized to the population studied were as follows:

1. Within each testing occasion and group the correlation between defensiveness scores and self-report scores was significantly larger than zero. As scores for defensiveness indicated high defensiveness, scores for self-report were high. As scores for defensiveness indicated low defensiveness, scores for self-report were low.

2. Between pretest and posttest within each group relationship between changes in defensiveness scores and changes in self-report scores was significantly more than zero. As scores for defensiveness changed to indicate an increase of defensiveness, scores for self-report increased. As scores for defensiveness changed to indicate a decrease of defensiveness, self report scores also decreased.

A. The findings noted above can be interpreted as indicating that there was definitely a relationship between defensiveness and self-report in assessment among the population studied. However, even though the correlations were significantly greater than zero in all cases, there was variation in correlation from .28 to .64. The variation obtained is as important, if not more important, than the fact that all correlations would have happened by chance less than five times out of one hundred.

The correlations obtained can be interpreted to indicate that factors which affect defensiveness scores and self-report scores may be related.

Because of this finding it may be concluded that self-report scores should not be used independently in the inferrence of self-concept among the handicapped. Differences of self-report scores may be a function of greater or lesser defensiveness and may not be reflecting actual differences of self-concept.

Having found a systematic relationship between defensiveness scores and self-report scores the author suggested further study as to the possible use of this relationship. It was found that:

3. Individual self-report scores adjusted through regression, on the basis of beta weights (derived from a specific test occasion and group) and that individual's score for defensiveness were significantly different from unadjusted individual scores.

4. Individual self-report scores which were adjusted by regression did not correlate more highly with a behavior check list criterion score for inference of self-concept than did unadjusted scores.

5. Changes in self-report scores (between pretest and posttest) which were regressed, on the basis of beta weights and concurrent changes in defensiveness scores, were significantly different from unadjusted changes of self-report scores.

B. The findings and conclusions noted above may be interpreted as indicating that the relationship between defensiveness scores and self-report scores can be used in assessment to significantly adjust self-report scores and score changes. However, the fact that adjusted self-report scores did not correspond more closely to a criterion measure of self-concept (behavior check list scores) than unadjusted scores can be interpreted as indicating that adjusted scores possess no more validity than unadjusted scores in the assessment of self-concept. This conclusion is based on a questionable assumption that the behavior ratings used were valid measures

for the inference of self-concept.

6. Coefficients obtained in correlating scores of defensiveness from the self-criticism scale of the TSCS did not correlate significantly greater than zero with differences obtained in subtracting behavior check list scores from self-report scores.

7. Subjects identified as defensive by subtracting behavior check list scores from self-report scores where misidentified two times out of five when the self-criticism scale was used as a criterion.

C. From findings 6 and 7 above it may be concluded that the relation between scores on the self-criticism scale and scores derived from the discrepancy method (though each assesses some of the variance accounted for by the other) was not significantly greater than zero in measuring defensiveness.

Practical considerations and related literature discussed in previous chapters may be used to conclude that the discrepancy method provides less utility in the assessment of defensiveness than the self-criticism scale.

D. The findings and conclusions noted above and related literature may be used to raise questions about the nature of self-concept as it relates to scores for defensiveness and other variables. The investigator concludes that defensiveness may be an intrinsic part of self-concept. To remove the variance accounted for by defensiveness scores may remove a portion of what is sought in the measurement of self-concept.

Thus, the overall conclusion to be advanced from the current study is that defensiveness can be a significant correlate of self report scores and that it may also be an intrinsic portion of what is often constructed to be self-concept. If self-concept is to be assessed by self-report measure, defensiveness should be considered as a factor which can systematically contribute to the magnitude of self-report scores.

## Recommendations

The recommendations advanced here will be limited to ways in which the current problem could be clarified. Speculation as to new questions could be advanced, but that would be done more profitably with a clearer resolution of the current findings.

### Appropriate populations

The population for the current study was selected on the basis of inferences from literature that handicapped groups would be more likely to manifest the hypothesized results. Whether or not the relationships found between defensiveness and self-report scores would be comparable in other populations is unknown. Typical populations would lend themselves more directly to traditional psychometric procedures and results therefrom would serve to clarify the generalizability of findings in the current study.

### Defensiveness and social desirability

Clarifying the nature of defensiveness appears to be concomitant with self-concept. The extent to which defensiveness is related to social desirability could profitably be pursued. In this endeavor, the cross-cultural implications are especially important.

If these two labels are indicative of a similar aspect it may be advantageous to use the latter term because of its more positive connotative meaning.

### Criterion measures

There is a tendency in research to attribute error to instrumentation when results are different than expected. This investigator does not depart from that tendency, because of the exploratory nature of this study into

empirical "world" on the basis of relatively consistent theory. The behavior check list developed and used appeared, from a rational point of view, to reflect the kinds of behaviors which would be sought by educational systems which have the promotion of self-concept as one of their primary objectives. Whether this is a valid assumption may well be questioned, particularly in variant types of populations. Further work in the validity of criterion self-concept measures is needed. Ways in which this might be done are:

1. Perceptual theory has postulated what the nature of self-concepts should be in the context of various cultural milieus. It would be well to study more closely the relationship between cultural setting and behavioral results. In this way the validity of behavioral ratings for the assessing of self-concept might be more clearly established.

2. This study was prompted by related literature which indicates the general lack of congruence between self-report scores and behavioral rating scores for the inference of self-concept. Continued exploration in this area for the validation of self-concept measures is needed.

3. The content validity of the behavior check list used in this study could be substantially improved by translating items on the Tennessee Self Concept Scale into a behavior check list. The investigator recommends that this be done in the replication of this study.

4. An alternate criterion, for assessing the utility of using defensiveness as a covariate of self-report, could be obtained by having peers of subjects rate them on items for inference of self

concept. This could serve as a cross reference for behavioral check list ratings. This would also be particularly appropriate in atypical groups where peers may be more empathic with subjects than instructional personnel.

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# APPENDIXES

# Appendix A

## Behavior Checklist

Student Name:_____Date:_____Rater_____

| always | usually | sometimes | seldom | never | |
|---|---|---|---|---|---|
| | | | | | Rate the student on the frequency which he demonstrates the behaviors listed. |
| | | | | | SELF RESPECT |
| — | — | — | — | — | Sets goals for self (without teacher solicitations). |
| — | — | — | — | — | Seeks help when needed (from teacher, aide, or other student). |
| — | — | — | — | — | Assumes responsibilities at school (big friend, motor coordination development coach, student council, director assembly, clean-up committee, etc.). |
| — | — | — | — | — | Fulfills his/her accepted responsibilities on time (picks up after completing a task, goes to nurse for medicine, completes tasks scheduled by students, etc.). |
| — | — | — | — | — | Corrects his/her own work reliably. |
| — | — | — | — | — | Does not waste time. |
| — | — | — | — | — | Keeps self well-groomed. |
| — | — | — | — | — | Is courteous. |
| — | — | — | — | — | Is eager to lead the group in discovery. |
| — | — | — | — | — | Responds to constructive criticism and suggestions. |
| — | — | — | — | — | Student keeps clean and neat on own initiative. |
| — | — | — | — | — | Student's social status is demonstrated by having companions. |
| — | — | — | — | — | Exhibits positive social behavior (leader or participator). |
| | | | | | SELF-DIRECTION |
| — | — | — | — | — | Accomplishes goals set for self. |
| — | — | — | — | — | Chooses a constructive activity after teacher-assigned tasks are completed. |
| — | — | — | — | — | Spends extra time on tasks with which he has difficulty. |
| — | — | — | — | — | Goes on to a new exercise when previous exercise is satisfactorily completed. |

| always | usually | sometimes | seldom | never | |
|---|---|---|---|---|---|
| — | — | — | — | — | Does a reasonable amount of work during each day. |
| — | — | — | — | — | Prepares his own daily schedule. |
| — | — | — | — | — | Follows his own daily schedule. |
| — | — | — | — | — | Attempts to change behavior of self and others (noise in a group, etc.). |
| — | — | — | — | — | Selects and uses resources with good judgment without teacher direction. |
| — | — | — | — | — | Interacts verbally in teacher-led discussions. |
| — | — | — | — | — | Returns to task within reasonable period of time after entering room or after interruption. |
| — | — | — | — | — | Doesn't need to be reminded of rules and regulations (obeys rules). |
| — | — | — | — | — | Organizes committees and starts planning on his own initiative. |
| — | — | — | — | — | Completes tasks within reasonable length of time. |

# Appendix B

## Scores Before and After Adjustments in Raw and Standard Forms

Table 15. Treatment group pretest scores

| Raw Scores | | | Standard Scores (Mean=50, SD=10) | | |
|---|---|---|---|---|---|
| Self crit. | Total P | Adj. P | Self crit. | Total P | Adj. P |
| 32. | 266. | 259. | 44.47 | 39.47 | 35.49 |
| 42. | 280. | 289. | 58.57 | 44.82 | 48.28 |
| 40. | 299. | 305. | 55.75 | 52.07 | 55.10 |
| 30. | 272. | 262. | 41.65 | 41.76 | 36.77 |
| 34. | 294. | 290. | 47.29 | 50.16 | 48.70 |
| 28. | 280. | 267. | 38.83 | 44.82 | 38.90 |
| 38. | 286. | 289. | 52.93 | 47.11 | 48.28 |
| 32. | 260. | 253. | 44.47 | 37.18 | 32.93 |
| 46. | 275. | 291. | 64.21 | 42.91 | 49.13 |
| 34. | 342. | 338. | 47.29 | 68.48 | 69.17 |
| 51. | 270. | 294. | 71.26 | 41.00 | 50.41 |
| 32. | 298. | 291. | 44.47 | 51.69 | 49.13 |
| 48. | 262. | 281. | 67.03 | 37.95 | 44.87 |
| 37. | 313. | 314. | 51.52 | 57.41 | 58.94 |
| 28. | 364. | 351. | 38.83 | 76.88 | 74.71 |
| 30. | 301. | 291. | 41.65 | 52.83 | 49.13 |
| 38. | 281. | 284. | 52.93 | 45.20 | 46.15 |
| 48. | 286. | 305. | 67.03 | 47.11 | 55.10 |
| 33. | 287. | 282. | 45.88 | 47.49 | 45.29 |
| 26. | 331. | 314. | 36.01 | 64.28 | 58.94 |
| 31. | 299. | 290. | 43.06 | 52.07 | 48.70 |
| 33. | 266. | 261. | 45.88 | 39.47 | 36.34 |
| 43. | 296. | 307. | 59.98 | 50.92 | 55.95 |
| 28. | 340. | 327. | 38.83 | 67.72 | 64.48 |
| 30. | 299. | 289. | 41.65 | 52.07 | 48.28 |
| 42. | 286. | 295. | 58.57 | 47.11 | 50.84 |

Table 16. Control group pretest scores

| Raw Scores | | | Standard Scores (Mean=50, SD=10) | | |
|---|---|---|---|---|---|
| Self crit. | Total P | Adj. P | Self crit. | Total P | Adj. P |
| 30. | 290. | 288. | 48.79 | 39.43 | 36.55 |
| 23. | 348. | 331. | 37.33 | 63.98 | 58.38 |
| 36. | 291. | 302. | 58.62 | 39.85 | 43.66 |
| 30. | 307. | 305. | 48.79 | 46.62 | 45.18 |
| 38. | 292. | 307. | 61.90 | 40.27 | 46.20 |
| 25. | 313. | 300. | 40.61 | 49.16 | 42.64 |
| 33. | 333. | 337. | 53.71 | 57.63 | 61.43 |
| 28. | 313. | 307. | 45.52 | 49.16 | 46.20 |
| 36. | 332. | 343. | 58.62 | 57.20 | 64.48 |
| 36. | 289. | 300. | 58.62 | 39.00 | 42.64 |
| 27. | 340. | 332. | 43.88 | 60.59 | 58.89 |
| 28. | 338. | 332. | 45.52 | 59.74 | 58.89 |
| 34. | 358. | 364. | 55.35 | 68.21 | 75.14 |
| 51. | 270. | 313. | 83.19 | 30.96 | 49.24 |
| 29. | 305. | 301. | 47.16 | 45.78 | 43.15 |
| 32. | 312. | 314. | 52.07 | 48.74 | 49.75 |
| 24. | 327. | 312. | 38.97 | 55.09 | 48.74 |
| 28. | 328. | 322. | 45.52 | 55.51 | 53.81 |
| 28. | 314. | 308. | 45.52 | 49.58 | 46.70 |
| 36. | 300. | 311. | 58.62 | 43.66 | 48.23 |
| 36. | 312. | 323. | 58.62 | 48.74 | 54.32 |
| 31. | 303. | 303. | 50.43 | 44.93 | 44.16 |
| 29. | 304. | 300. | 47.16 | 45.35 | 42.64 |
| 36. | 309. | 320. | 58.62 | 47.47 | 52.80 |
| 29. | 342. | 338. | 47.16 | 61.44 | 61.94 |
| 24. | 349. | 334. | 38.97 | 64.40 | 59.91 |
| 32. | 299. | 301. | 52.07 | 43.24 | 43.15 |
| 31. | 359. | 359. | 50.43 | 68.63 | 72.60 |
| 37. | 287. | 300. | 60.26 | 38.16 | 42.64 |
| 22. | 349. | 330. | 35.69 | 64.40 | 57.88 |
| 22. | 341. | 322. | 35.69 | 61.01 | 53.81 |
| 24. | 340. | 325. | 38.97 | 60.59 | 55.34 |
| 30. | 307. | 305. | 48.79 | 46.62 | 45.18 |
| 41. | 275. | 296. | 66.81 | 33.08 | 40.61 |
| 19. | 359. | 333. | 30.78 | 68.63 | 59.40 |
| 26. | 311. | 300. | 42.24 | 48.31 | 42.64 |
| 34. | 283. | 289. | 55.35 | 36.46 | 37.06 |
| 30. | 272. | 270. | 48.79 | 31.81 | 27.41 |
| 34. | 294. | 300. | 55.35 | 41.12 | 42.64 |
| 30. | 320. | 318. | 48.79 | 52.12 | 51.78 |
| 28. | 306. | 300. | 45.52 | 46.20 | 42.64 |
| 25. | 295. | 282. | 40.61 | 41.54 | 33.50 |
| 28. | 323. | 317. | 45.52 | 53.39 | 51.27 |

Table 16. Continued

| Raw Scores | | | Standard Scores (Mean=50, SD=10) | | |
|---|---|---|---|---|---|
| Self crit. | Total P | Adj. P | Self crit. | Total P | Adj. P |
| 27. | 343. | 335. | 43.88 | 61.86 | 60.41 |
| 29. | 336. | 332. | 47.16 | 58.90 | 58.89 |
| 26. | 342. | 331. | 42.24 | 61.44 | 58.38 |
| 32. | 293. | 295. | 52.07 | 40.70 | 40.10 |
| 33. | 307. | 311. | 53.71 | 46.62 | 48.23 |
| 38. | 299. | 314. | 61.90 | 43.24 | 49.75 |
| 22. | 326. | 307. | 35.69 | 54.66 | 46.20 |
| 33. | 292. | 296. | 53.71 | 40.27 | 40.61 |
| 48. | 325. | 361. | 78.28 | 54.24 | 73.62 |
| 31. | 292. | 292. | 50.43 | 40.27 | 38.58 |

Table 17. Treatment group posttest scores

| Raw Scores | | | | Standard Scores (Mean=50, SD=101) | | | |
|---|---|---|---|---|---|---|---|
| Self crit. | Total P | Adj. P | Behavior rating | Self crit. | Total P | Adj. P | Behavior rating |
| 26. | 283. | 280. | 89. | 40.83 | 45.10 | 42.51 | 49.31 |
| 38. | 308. | 306. | 78. | 55.97 | 54.17 | 54.71 | 45.37 |
| 41. | 299. | 313. | 139. | 59.75 | 50.91 | 57.99 | 67.23 |
| 32. | 304. | 293. | 87. | 48.40 | 52.72 | 48.61 | 48.59 |
| 33. | 293. | 295. | 117. | 49.66 | 48.73 | 49.55 | 59.35 |
| 30. | 295. | 289. | 100. | 45.88 | 49.46 | 46.74 | 53.25 |
| 37. | 255. | 304. | 56. | 54.71 | 34.95 | 53.77 | 37.48 |
| 29. | 293. | 287. | 112. | 44.61 | 48.73 | 45.80 | 57.55 |
| 50. | 272. | 333. | 58. | 71.10 | 41.11 | 67.37 | 38.20 |
| 29. | 321. | 287. | 139. | 44.61 | 58.89 | 45.80 | 67.23 |
| 40. | 280. | 311. | 32. | 58.49 | 44.01 | 57.05 | 28.88 |
| 35. | 283. | 300. | 113. | 52.18 | 45.10 | 51.89 | 57.91 |
| 44. | 284. | 320. | 93. | 63.54 | 45.47 | 61.27 | 50.74 |
| 18. | 372. | 262. | 89. | 30.74 | 77.39 | 34.07 | 49.31 |
| 27. | 294. | 282. | 55. | 42.09 | 49.09 | 43.45 | 37.13 |
| 36. | 282. | 302. | 92. | 53.44 | 44.74 | 52.83 | 50.39 |
| 42. | 282. | 315. | 37. | 61.01 | 44.74 | 58.93 | 30.68 |
| 45. | 259. | 322. | 72. | 64.80 | 36.40 | 62.21 | 43.22 |
| 25. | 285. | 278. | 73. | 39.57 | 45.83 | 41.58 | 43.58 |
| 25. | 325. | 278. | 96. | 39.57 | 60.34 | 41.58 | 51.82 |
| 35. | 290. | 300. | 114. | 52.18 | 47.64 | 51.89 | 58.27 |
| 40. | 268. | 311. | 88. | 58.49 | 39.66 | 57.05 | 48.95 |
| 34. | 325. | 298. | 107. | 50.92 | 60.34 | 50.96 | 55.76 |
| 22. | 289. | 271. | 120. | 35.78 | 47.28 | 38.29 | 60.42 |
| 23. | 366. | 273. | 116. | 37.05 | 75.21 | 39.23 | 58.99 |
| 29. | 302. | 287. | 92. | 44.61 | 52.00 | 45.80 | 50.39 |

Table 18. Control group posttest scores

| Raw Scores | | | | Standard Scores (Mean=50, SD=101) | | | |
|---|---|---|---|---|---|---|---|
| Self crit. | Total P | Adj. P | Behavior rating | Self crit. | Total P | Adj. P | Behavior rating |
| 24. | 312. | 298. | 121. | 35.93 | 51.00 | 45.89 | 65.66 |
| 28. | 337. | 303. | 119. | 43.24 | 60.03 | 47.78 | 64.56 |
| 32. | 274. | 309. | 80. | 50.55 | 37.26 | 50.04 | 43.11 |
| 36. | 282. | 315. | 121. | 57.86 | 40.15 | 52.30 | 65.66 |
| 42. | 279. | 323. | 111. | 68.83 | 39.07 | 55.31 | 60.16 |
| 36. | 316. | 315. | 85. | 57.86 | 52.44 | 52.30 | 45.86 |
| 31. | 277. | 308. | 81. | 48.72 | 38.35 | 49.66 | 43.66 |
| 27. | 275. | 302. | 79. | 41.41 | 37.62 | 47.40 | 42.56 |
| 36. | 321. | 315. | 101. | 57.86 | 54.25 | 52.30 | 54.66 |
| 36. | 280. | 315. | 129. | 57.86 | 39.43 | 52.30 | 70.06 |
| 27. | 306. | 302. | 98. | 41.41 | 48.83 | 47.40 | 53.01 |
| 23. | 389. | 296. | 97. | 34.11 | 78.82 | 45.14 | 52.46 |
| 36. | 378. | 315. | 120. | 57.86 | 74.85 | 52.30 | 65.11 |
| 35. | 280. | 313. | 71. | 56.03 | 39.43 | 51.54 | 38.16 |
| 38. | 311. | 318. | 86. | 61.52 | 50.63 | 53.43 | 46.41 |
| 30. | 283. | 306. | 74. | 46.90 | 40.52 | 48.91 | 39.81 |
| 23. | 312. | 296. | 133. | 34.11 | 51.00 | 45.14 | 72.26 |
| 27. | 329. | 302. | 72. | 41.41 | 57.14 | 47.40 | 38.71 |
| 24. | 319. | 298. | 70. | 35.93 | 53.53 | 45.89 | 37.61 |
| 33. | 288. | 311. | 93. | 52.38 | 42.32 | 50.79 | 50.26 |
| 31. | 327. | 308. | 88. | 48.72 | 56.42 | 49.66 | 47.51 |
| 31. | 291. | 308. | 106. | 48.72 | 43.41 | 49.66 | 57.41 |
| 22. | 344. | 295. | 129. | 32.28 | 62.56 | 44.76 | 70.06 |
| 42. | 285. | 323. | 86. | 68.83 | 41.24 | 55.31 | 46.41 |
| 34. | 358. | 312. | 91. | 54.21 | 67.62 | 51.17 | 49.16 |
| 26. | 337. | 301. | 79. | 39.59 | 60.03 | 47.02 | 42.56 |
| 34. | 287. | 312. | 83. | 54.21 | 41.96 | 51.17 | 44.76 |
| 37. | 343. | 316. | 74. | 59.69 | 62.20 | 52.67 | 39.81 |
| 39. | 324. | 319. | 79. | 63.34 | 55.33 | 53.80 | 42.56 |
| 32. | 319. | 309. | 79. | 50.55 | 53.53 | 50.04 | 42.56 |
| 36. | 312. | 315. | 86. | 57.86 | 51.00 | 52.30 | 46.41 |
| 24. | 302. | 298. | 103. | 35.93 | 47.38 | 45.89 | 55.76 |
| 31. | 307. | 308. | 97. | 48.72 | 49.19 | 49.66 | 52.46 |
| 37. | 299. | 316. | 73. | 59.69 | 46.30 | 52.67 | 39.26 |
| 30. | 285. | 306. | 78. | 46.90 | 41.24 | 48.91 | 42.01 |
| 31. | 301. | 308. | 53. | 48.72 | 47.02 | 49.66 | 28.26 |
| 29. | 271. | 305. | 80. | 45.07 | 36.18 | 48.53 | 43.11 |
| 34. | 261. | 312. | 102. | 54.21 | 32.57 | 51.17 | 55.21 |
| 35. | 280. | 313. | 70. | 56.03 | 39.43 | 51.54 | 37.61 |
| 34. | 317. | 312. | 106. | 54.21 | 52.80 | 51.17 | 57.41 |
| 28. | 304. | 303. | 110. | 43.24 | 48.10 | 47.78 | 59.61 |
| 28. | 301. | 303. | 96. | 43.24 | 47.02 | 47.78 | 51.91 |
| 24. | 358. | 298. | 77. | 35.93 | 67.62 | 45.89 | 41.46 |

Table 18. Continued

| Raw Scores | | | | Standard Scores (Mean=50, SD=101) | | | |
|---|---|---|---|---|---|---|---|
| Self crit. | Total P | Adj. P | Behavior rating | Self crit. | Total P | Adj. P | Behavior rating |
| 30. | 324. | 306. | 94. | 46.90 | 55.33 | 48.91 | 50.81 |
| 32. | 326. | 309. | 89. | 50.55 | 56.05 | 50.04 | 48.06 |
| 36. | 331. | 315. | 70. | 57.86 | 57.86 | 52.30 | 37.61 |
| 31. | 335. | 308. | 78. | 48.72 | 59.31 | 49.66 | 42.01 |
| 31. | 277. | 308. | 85. | 48.72 | 38.35 | 49.66 | 45.86 |
| 29. | 300. | 305. | 92. | 45.07 | 46.66 | 48.53 | 49.71 |
| 20. | 333. | 292. | 93. | 28.62 | 58.58 | 43.63 | 50.26 |
| 43. | 289. | 325. | 115. | 70.65 | 42.68 | 56.06 | 62.36 |
| 42. | 309. | 323. | 113. | 68.83 | 49.91 | 55.31 | 61.26 |
| 33. | 305. | 311. | 109. | 52.38 | 48.47 | 50.79 | 59.06 |

# VITA

Bruce Leon Arneklev

Candidate for the Degree of

Doctor of Education

Dissertation: The Use of Defensiveness as a Covariate of Self Report in the Assessment of Self Concept Among Navajo Adolescents

Major Field: Educational Psychology

Biographical Information:

Personal Data: Born at Plentywood, Montana, December 15, 1937.

Education: Graduated from Antelope Public High School (Antelope, Montana) 1955; received the Bachelor of Science degree from the University of Oregon, with a major in psychology in 1959; completed requirements for Master of Science degree with a major in counseling at the University of Oregon in 1966.

Experience: 1969 to present, Research director for an Educational Professions Development Act . . . "Cooperative Instructional services program for improving education personnel to teach special education students in the regular classroom," at Utah State University, Logan, Utah.

1968-1969, Educational Research Specialist, Bureau of Indian Affairs, Intermountain Indian School, Brigham City, Utah.

1966-1968, University Counselor, Utah State University, Logan, Utah.

1960-1965, Officer (Navigator-Bombardier) United States Air Force, Washington, D. C.