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DEVELOPMENT OF A TECHNIQUE FOR THE ASSESSMENT OF INDIVIDUAL DIFFERENCES IN SOCIAL DESIRABILITY AND ACQUIESCENCE RESPONSE STYLES AS RELATED TO PERSONALITY ASSESSMENT

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DEVELOPMENT OF A TECHNIQUE FOR THE ASSESSMENT OF INDIVIDUAL DIFFERENCES IN SOCIAL DESIRABILITY AND ACQUIESCENCE RESPONSE STYLES AS RELATED TO PERSONALITY ASSESSMENT

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAI'I IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN EDUCATIONAL PSYCHOLOGY AUGUST 1979

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ABSTRACT

Subjects were 251 individuals ranging in age from 18-70 of predominantly Caucasian and Oriental ancestry. These individuals were administered a booklet of 498 personality items at university, Civil Service, and retirement home locations.

The booklet of personality items contained 6 scales from the Personality Research Form (PRF) and 6 "matching" scales from the California Psychological Inventory (CPI); an "acquiescence" response style scale, the PRF "desirability" response style scale and 20 eight-item social desirability response style scales composed of items with homogeneous social desirability scale values.

A procedure called the response style assessment technique (RSAT), based on the "Threshold Theory" of Douglas N. Jackson, was used to derive subject social desirability and acquiescence response style parameters from responses to the 20 eight-item social desirability response style scales. These parameters were then used to predict obtained subject scores on the 12 personality trait scales and the "acquiescence" and "desirability" response style scales. This procedure was devised to facilitate evaluation of the convergent and discriminant validity of personality trait scales and to assess the degree to which individual differences in response styles could be directly assessed for information relevant to personality.

The size of the coefficient of determination resulting from regression of obtained trait scale scores on RSAT predicted trait scale
scores was used to evaluate the discriminant validity of trait scales apart from response styles. Discriminant and convergent validity of trait scales relative to other trait scales was evaluated by intercorrelating residual trait scale variances resulting from the partialling of variance predicted via RSAT.

Results indicate that the PRF scales achieve both a higher degree of discriminant validity apart from response style dimensions and a higher degree of discriminant validity apart from other scales in the inventory than do the CPI scales. Of the 6 pairs of trait scales matched for similarity, only the PRF and CPI "dominance" scales achieved a reasonable level of convergent validity.

Factor analysis of the 2 response style scales, the 2 derived subject response style parameters and the 12 trait scales revealed 4 factors accounting for approximately 66 percent of total variance. The first two factors which were related to social desirability and acquiescence response styles, respectively, as indicated by the high loadings obtained by the response style indices on these factors, accounted for approximately 50 percent of total variance.

The 251 subjects were separated into 9 response style groups according to low, moderate and high combinations of the derived subject social desirability and acquiescence response style parameters. These response style groupings were significantly related to obtained trait scale scores as determined by analysis of variance and significantly related to obtained personality profiles as determined via discriminant analysis.
Two main conclusions were drawn: (1) the RSAT procedure is an effective aid in the evaluation of the convergent and discriminant validity of personality trait scales; (2) that individual differences in social desirability and acquiescence response styles are important personality traits in their own right and should be assessed. An approach to personality assessment based on the direct assessment of response style parameters is described and discussed.
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CHAPTER I
INTRODUCTION

Definitions and assumptions of "structured" personality assessment

The term "personality," as used by most psychologists refers to a "unique organization of traits characterizing an individual and influencing his interaction with his environment, social and nonsocial." (Kleinmuntz, 1967) The focus is upon motives and behavior patterns which differentiate individuals, especially in a social context.

Personality "traits" are viewed as "more or less discrete characteristics which involve a particular level or a particular propensity or probability for behaving in a certain way." (Jackson, 1974) They are conceived of as continuous and varying in quantity such that some sort of isomorphic relationship between the individual's behavior in a situation and the presence of a certain degree of the trait can be drawn. (Jackson, 1974)

A basic assumption underlying the use of sets of statements or items for assessment of personality traits is that all of the items in a given scale are related to a single homogeneous attribute such that differences in obtained scores reflect differences in presence of the attribute. A further assumption is that other irrelevant attributes measured by items are uncorrelated from one item to the next. That is, each item response ($X$) is composed of a "true" component ($T$) reflecting the individual's position on the trait continuum and an "error" component ($E$) reflecting irrelevant aspects of behavior unrelated to the trait being investigated: $X = T + E$. 
In a set of item responses comprising a given scale the "true" components are assumed to covary while the "error" components are assumed to be uncorrelated. Thus, theoretically, the proportion of "True" variance in total scale variance will increase as the number of items in the set increases while the proportion of "Error" variance in total scale variance decreases. (Gulliksen, 1950)

This theoretical increase in the "true" component of personality scale score variance is made possible by "one of the most important discoveries of modern science" the taken-for-granted test item. (Jackson, 1974) The breaking down of behavior into discrete units tapped by individual test items allows a sampling of the theoretical universe of all behaviors relevant to the trait being investigated such that a representative sampling of such behaviors can be devised.

Such "structured" assessment also has the advantages of objectivity and convenience of administration which make this approach generally preferable to assessment via clinical interview or observation.

So, although personality assessment via questionnaire does not provide complete information related to an individual's behavior, it is "more amenable to the successive small steps that characterize cumulative science than are many other approaches using grosser and less clearly defined units of analysis." (Jackson, 1974)

**Evolution of structured personality assessment**

Modern structured personality assessment began in approximately 1920 when Woodworth published the Personal Data Sheet in response to the need for some means of screening military personnel for World War I.
This so-called "intuitive-theoretical" phase of structured personality assessment (Jackson, 1974) relied upon the investigator's perceptions of response patterns of particular groups of people (e.g., "neurotics"). Such tests were transparent and generally lacking in validity. (Ellis, 1946) They did, however, demonstrate that it was possible to approach personality assessment in a manner similar to achievement or aptitude testing.

The publication of Meehl's classic account (1945) of the "empirical" item selection process marked the beginning of a second stage in the evolution of structured personality assessment. The Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway and McKinley, 1942) was a manifestation of this approach which evaluates scales by demonstrated ability to predict an empirical criterion (e.g., diagnosis of psychopathology) rather than by ability to measure a latent trait or dimension. Such construction begins with groups of subjects classified by some criteria (e.g., psychiatric ratings). These subjects would then be administered a large pool of items. Those items which effectively discriminated between the two groups ("normals" versus "neurotics") would be retained for the scale.

The content of scales developed in this manner is generally heterogeneous and not related in any obvious way to the criterion being predicted. This fact is noted as an advantage of the empirical approach by its advocates. Purportedly, such "subtlety" prevents individuals from "faking" responses.

According to Jackson and Messick (1958) however, scales constructed via the empirical approach generally differentiate between criterion
groups on the basis of individual differences in response styles rather than on the basis of individual differences in traits theoretically linked to the classification of interest.

This is not necessarily a problem if "Either-Or" classification of individuals is the only goal but the approach yields little information about the trait differences between individuals in different classifications. According to Loevinger (1954) the empirical approach contributes "no more to the science of psychology than rules for boiling an egg contribute to the science of chemistry . . . . The number of genuine egg-boiling decisions which clinicians and psychotechnologists face is small compared to the number of situations where a deeper knowledge of psychological theory would be helpful."

Loevinger's paper and one by Cronbach and Meehl (1955) ushered in a third phase in the development of structured personality assessment. This "rational" approach as described by Jackson (1971) stresses the importance of the definition of a theoretical framework for a postulated personality trait from which specific items representative of behaviors theoretically linked to the trait are generated. Proponents of the rational approach believe that theory, as a basis for understanding and prediction of behavior, will be profited only to the extent that personality assessment measures are validated as reflections of the theoretical constructs they were designed to measure.

The "rational" approach to personality assessment—validity criteria

The rational approach requires an item pool generated from theory and tested for content validity. The approach assumes that every behavior will reflect some set of underlying traits but will not reflect
all traits with equal precision. Adequate definition and explication of the trait of interest will allow identification of items which will most efficiently measure the trait.

The "external" component of validity described by Loevinger (termed "construct" validity by the APA technical recommendations (1954)) is considered essential to the rational approach and refers to evaluation of the degree to which a scale correlates with empirical criteria such as peer-ratings and other scales designed to measure similar constructs.

A crucial requirement for evaluation of the construct validity of some trait measure is the demonstration of "convergent" and "discriminant" validity. A test of some construct should be related to traits theoretically linked to the construct (convergent validity) but generally independent of traits theoretically dissimilar (discriminant validity).

**Evaluation of convergent and discriminant validity**

Evaluation of convergent and discriminant validity is frequently approached via use of a multi-trait multi-method matrix (Campbell and Fiske, 1959). Such a matrix is composed of correlations of several traits measured by several methods allowing systematic evaluation of the sources of the correlations. This technique recognizes and addresses the issue of presence of both trait and method variance in total scale variance. Trait variance is defined as variance elicited by the content of items comprising a scale and thus theoretically attributable to individual differences specific to the trait. Method variance is defined as variance among test scores elicited by aspects of the measurement procedure (e.g., the rating process or "true-false" format
of items) not specific to the content of the scale. Campbell and Fiske, 1969)

For example, two "true-false" questionnaires purportedly measuring "anxiety" could correlate due to shared trait variance, shared method variance or some combination of the two. By comparing correlations between trait scores obtained by the same method relative to correlations between trait scores obtained by different methods some assessment of the proportion of trait to method variance within given scales can be made.

Conceptualization of "content" and "style" variance components

Similar to the distinction between trait and method variance is the distinction between "content" and "style" variance. (Jackson and Messick, 1958)

Jackson and Messick (1958) defined content and style variance as follows:

Variance associated with content is considered to refer to response consistences in certain defined assessment situations which reflect a particular set of broader behavioral tendencies, relatively enduring over time, having as their basis some unitary personality trait, need state, attitudinal or belief disposition or psychopathological syndrome.

Variance associated with response style has reference to expressive consistencies in the behavior of respondents which are relatively enduring over time, with some degree of generality beyond a particular test performance to responses both in other tests and in non-test behavior and usually reflected in assessment situations by consistencies in response to item characteristics other than specific content.

The reliability of a number of response styles on personality and attitude questionnaires has been demonstrated repeatedly. The two most frequently encountered forms of response style are the tendency to

Several decades of research indicate that stylistic components of response account for a significant share of the variance in personality assessment measures. (Jackson and Messick, 1958; Edwards, 1967; Rogers, 1971; Jackson, 1974; Voyce and Jackson, 1977)

This response style component in trait scale variance is generally considered systematic error which should be "eradicated." (Cronbach, 1946) Response style variance is, of course, error in the sense that such variance is not specific to the trait of interest. That is, response style variance is general and pervasive over heterogeneous content dimensions. However, such variance is a valid and reliable reflection of stable characteristic modes of response of individuals (Cronbach, 1950; Jackson and Messick, 1958; Edwards, 1967) and is related to the first two broad factors which emerge from analysis of personality response data.

All items used in the assessment of personality will have an evaluative component (Edwards, 1966; Cruse, 1965) which will interact with response style producing some degree of response style variance. Thus, a more realistic goal than "eradication" of stylistic variance would be minimization of the response style component and assessment of proportions of scale variance attributable to content and stylistic response patterns. Such assessment would facilitate the evaluation of trait scales for convergent and discriminant validity.
Conceptualization of total scale variance components

Thus, rather than conceptualizing a response to an item as:

\[ X = T + E; \]

where \( T \) = reflection of individual's position on the trait or content continuum and \( E \) = response style and other error factors; the response may be conceptualized as:

\[ X = T_1 + T_2 + E; \]

where \( T_1 \) = reflection of individual's position on the specific trait or content continuum, \( T_2 \) = reflection of individual's position on the response style continuum and \( E \) = error factors.

Total scale variance, then, would be conceptualized as a weighted, additive combination of trait, response style, covariance and error components:

\[
\sigma_X^2 = \sigma_{T_1}^2 + \sigma_{T_2}^2 + 2r_{T_1T_2}\sigma_{T_1}\sigma_{T_2} + \sigma_E^2
\]

(variance attributable to individual differences with respect to the trait as elicited by this set of terms which will be affected by the content validity or "substantive" component of the items)

(variance attributable to individual differences with respect to response style as elicited by this set of items which will be affected by the desirability and construction parameters of the scale.

(covariance of trait and response style)

(error variance)
CHAPTER II
THE PROBLEM

**Social desirability response style**

Edwards (1953) demonstrated that a strong linear relationship ($r = .87$) existed between the "social desirability scale values" (SDSV's) of items and group endorsement proportions ($P(T)$) of those items. Items judged to be socially desirable were endorsed more frequently than items judged to be socially undesirable.

The implication of this relationship is frequently thought to be that individuals are "lying" or distorting their responses to effect a desirable impression. This is not my orientation to the behavior which results in the relationship between endorsement and item SDSV's. My position is that in any reasonably healthy society the expectation should be that the majority of individuals will be able to truthfully respond in the desirable direction to the majority of personality items. That is, most individuals will be sensitive to and choose to respond to cultural expectations for behavior.

There will, however, be individual differences in the degree to which individuals are sensitive to and choose to respond to the cultural expectations for behavior. Individual differences in the tendency to respond in the desirable direction to personality items will be referred to as individual differences in social desirability response style.

Edwards used the term "social desirability scale value" to indicate that these values represent a "consensus" based upon group judgments as
to the location of the statement on the social desirability continuum. Edwards believes that individuals can reliably judge statements in terms of the evaluation that society places upon the behavior or characteristic independently of the degree to which the individual has acquired the specific behavior or characteristic. (1967)

The technique described by Edwards for assigning SDSV's to personality statements involves asking judges to rate the statements on a scale of 1 - 9 ("extremely socially undesirable" through "neutral" to "extremely socially desirable") in terms of how socially desirable or undesirable they would consider the behavior or characteristic represented by the statement if it were used to describe another person. For each statement a distribution of ratings is obtained. The mean rating assigned to the statement is called the SDSV of the statement.

An SDSV, then, is a normative judgment and reflects the typical or average judgment of a group of individuals. Considerable evidence indicates that such judgments are highly reliable and highly correlated across diverse groups of judges. (Berg, 1967)

**Acquiescence response style**

The term "acquiescence" was originally used by Cronback (1946) to describe a tendency to agree more than to disagree. It has long been recognized that a subject who agrees with a personality item may not necessarily disagree with its logical opposite but may instead show a fairly general tendency to agree or disagree. (Jackson and Messick, 1958) Reviews by Cronbach (1946, 1950), Berg (1967) and Messick and Jackson (1961) indicate that response acquiescence is widespread and
pervasive over heterogeneous item content. Berg (1967) has suggested that acquiescence is a modal response in our culture when the issue demanding response is "unimportant, ambiguous or irrelevant."

According to Jackson (1962, 1968) and Edwards (1962, 1971) adjectives such as "unimportant" or "ambiguous" could be used to describe personality statements judged to have "neutral" SDSV's contributing to the fact that acquiescence response style is manifested primarily in response to personality items with SDSV's in the "neutral" range of the social desirability continuum.

Jackson reports evidence (1968) which indicates that these two response styles, acquiescence and social desirability, are both related to the social desirability scale value continuum and are manifestations of individual differences with respect to response to items with "neutral" and "extreme" SDSV's respectively. Knowledge of individual differences in these response styles could increase understanding of the relationship between an individual's endorsement of items relative to the full range of item SDSV's.

Control of Social Desirability and Acquiescence Response Style Variance

APA Recommendations

The APA Recommendations for test standards (1954) suggest "use of construction features designed to eliminate the social desirability factor" and correlation of the new scale with measures of social desirability and acquiescence response styles. This suggestion is important in that it acknowledges the pervasiveness of response style variance and the need for scales to demonstrate discriminate validity apart from response style.
However, the notion of "eliminating" response style variance is unrealistic. As Berg (1967) writes, "It is as absurd to think of test responses without style as it would be to think of learning without motivation or perception without organization." Further, the available techniques do not adequately assess response style variance and yield little information relevant to clarification of convergent and discriminant validity across trait scales.

Techniques for control of Social Desirability Response Style

The "forced-choice" technique

The "forced-choice" technique used by Edwards (1959) in construction of the Edwards Personal Preference Schedule (EPPS) requires pairing of statements with respect to SDSV's such that discrepancies between the SDSV's are less than .5. Such pairing holds SDSV's constant "forcing" the respondent to choose on the basis of content rather than desirability characteristics of the items.

This approach, though effective when used properly, is most appropriate for use in inventories in which large numbers of items are available for pairing and more than one trait is being investigated. When used improperly, that is, when discrepancies between paired SDSV's are allowed to exceed .5, the technique may increase rather than decrease response style variance. La Pointe (1961) has reported that pairing of items sensitizes subjects to very small differences in desirability characteristics of items.

Further, the "forced-choice" technique presents rapport problems when it is necessary to pair statements of socially undesirable content.
Few subjects would be satisfied with a choice between (1) "people generally dislike me" and (2) "there is something wrong with my sex organs." Also, when a single trait is being investigated, it is frequently difficult to match statements reflecting opposite ends of the trait continuum for desirability since most traits have an evaluative component. For example, statements reflecting "hostility" and lack of "hostility" will rarely be of equal desirability since "hostility" itself is judged to be socially undesirable.

A final problem is that this technique results in an ipsative format since individual statements in forced-choice form are ranked by subjects. This format creates statistical problems such as built-in negative correlations among the scale scores and interscale dependencies making factor analysis inappropriate. Also, since scale scores must sum to a constant, attempts to compare the score of one subject with another are inappropriate. (Clemens, 1966)

"Balancing" of social desirability within scales

Another method frequently employed to minimize response style variance is "balancing" of trait keyed responses for social desirability. That is, within a given scale approximately half of the trait keyed responses would be keyed socially desirable and approximately half would be keyed socially undesirable. This technique encounters the previously-mentioned problem of identifying both socially desirable and socially undesirable sets of items which adequately reflect the trait continuum.

Use of items with "neutral" SDSV's

Another technique emphasizes the selection of items with SDSV's in the "neutral" range (4 to 6) of the SDSV continuum. This approach
greatly reduces the salience of the desirability dimension but would probably increase elicitation of variance attributable to acquiescence response style which generally manifests in relation to items with neutral SDSV's.

A further problem with this approach is the difficulty of identifying a pool of items which are simultaneously high in content validity and "neutral" in terms of desirability. Studies of large pools of personality statements (Edwards, 1966; Cruse, 1965) show the distribution of SDSV's to be bimodal with the modes falling at approximately 3 and 7 in a range of 1 to 9. Apparently, most personality scale content is judged to be desirable or undesirable with relatively few items judged to be "neutral." Consequently, limiting item selection to only those items in the "neutral" range of SDSV's would generally result in a reduction in the representativeness of the sample limiting content validity and generalizability.

Correlations with "Social Desirability" scales

Most frequently, trait scales are simply correlated with some scale designed to measure individual differences in social desirability response style such as those constructed by Wiggins (1959), Edwards (1957), Marlowe and Crowne (1960), and Jackson (1967). Such correlations between trait scales and social desirability scales are interpreted as an indication of the degree to which individual differences in social desirability response style contribute to the variance in trait scale scores.

This approach has several problems connected with it. First, the three most frequently used social desirability scales—those by Wiggins,
Edwards, and Marlow and Crowne—load on three separate factors (Wiggins, 1964) indicating a lack of consistency in the definition of the social desirability construct making comparison of such correlations impossible. The Edwards and Jackson social desirability scales, however, do load on the same factor (Abbott, 1975) indicating convergent validity and suggesting that one of these scales could be a better choice for such correlations.

Further, social desirability scales are composed of items with generally very high or very low SDSV's so correlations with trait scales will be affected by the degree to which trait scale items also have very high or very low SDSV's. Such correlations will be insensitive to individual differences in response style manifested within the moderate and neutral ranges of SDSV's.

So, correlations between social desirability scales and trait scales will yield reasonably valid estimates of the proportion of scale variance which is attributable to individual differences in social desirability response style only if (1) the social desirability scale conforms to the construct of social desirability response style (e.g., Edwards or Jackson's social desirability scales) and (2) the trait scale is constructed such that the SDSV's of trait scale items are very similar to the SDSV's of items in the social desirability scale. In general, correlations between social desirability scales and trait scales will not yield accurate estimates of the proportion of scale variance which could be attributable to individual differences in response to the SDSV continuum.
Control of acquiescence response style

Balancing of "true"-"false" keying

Constructing trait scales such that equal numbers of items are keyed "true" and "false" is essential to minimization of acquiescence response style. Such a step will not eliminate the impact of individual differences in the tendency to acquiesce but would minimize the amount of variance attributable to individual differences in acquiescence response style.

Attention to item SDSV's

Since acquiescence response style primarily manifests in response to items with "neutral" SDSV's use of items with a range of SDSV's would reduce the impact of acquiescence variance. Such a step, however, would probably increase elicitation of variance related to social desirability response style.

Content saliency

The use of well-written items which have been identified as specifically related to behaviors theoretically linked to the trait of interest and relatively unrelated to the general response styles of acquiescence and social desirability is the most effective means of minimizing the proportion of variance attributable to individual differences in response styles.

Summary

Variables related to elicitation of response style variance

Several variables, then, are related to the elicitation of response style variance: (1) the amount of variance related to social desirability
response style will be affected by the extremeness of item SDSV's.

(2) The amount of variance related to acquiescence response style will be affected by use of items with "neutral" SDSV's and the degree of imbalance in "true"-"false" keying of the items in the scale. (3) The amount of variance related to individual differences in specific personality traits will be related to the degree to which items have been written to reflect behaviors which have been identified as primarily related to the specific personality traits.

The use of items which reflect behaviors which are highly related to both a given personality trait and response style dimensions will obviously result in variance which is related to both the trait and the response style variance.

**Need for a response style assessment technique**

An assessment technique which will address these variables resulting in a valid and reliable estimate of an individual's response style parameters would be invaluable in the clarification of the extent to which a given scale possesses convergent and discriminant validity apart from response style variance.

A model developed by Donald Jackson (1968) called "threshold theory" provides a unified theory of stylistic responding encompassing both "social desirability" response style and "acquiescence" response style. "Threshold theory" lays the foundation for development of a technique I will call the response style assessment technique (RSAT) which will estimate those portions of trait scale variance attributable to individual differences in response style and the covariance of trait and response
styles enabling removal of these components by partial regression techniques. The resulting residual variances will be related to that portion of trait scale variance attributable to individual differences in behavior related to the specific trait. These residual variances can then be intercorrelated and factor analyzed for assessment of convergent and discriminant validity of scales apart from response style variance.
Threshold Theory

Jackson and his colleagues have described a model--Threshold Theory--which focuses on the interaction between individual differences in response style and the SDSV distribution of sets of items. (Jackson, 1968; Rogers, 1971)

The Threshold theory is a unified theory of stylistic responding which recognizes that endorsement of items varies with item desirability. Focusing on individual differences, the Threshold theory posits that each individual possesses a unique curve relating his/her endorsement of items to the SDSVs of the items. This curve, termed the subject operating characteristic is described by two parameters: (1) "Threshold" which is a critical level of desirability that marks the transition from a "false" to a "true" response tendency. That is, "threshold" is the point at which the probability of the individual responding "true" to the item surpasses the .5 level of probability. (2) "Salience" which is an estimate of the degree to which the individual responds to cultural expectations for desirable behavior.

Techniques for estimation of these parameters have evolved over several studies. (Jackson, 1968; Rogers, 1971; Voyce and Jackson, 1977) In Jackson's original conceptualization "threshold" was estimated via a step-by-step process which determined the point on the desirability scale
value continuum at which the individual's endorsement of a large pool of items ranked relative to desirability values reached the .5 level. "Salience" was defined as the biserial correlation between an individual's endorsement of items and the SDSVs of the items.

Recently, Voyce and Jackson (1977) compared a number of statistical indices of the "threshold" and "salience" parameters and determined that regression procedures provided an accurate and simpler estimation approach. Endorsement proportions would be calculated for each individual on blocks of items ranked in terms of desirability. These endorsement proportions would be plotted against the mean SDSVs of the blocks of items and would be expected to describe a monotonically increasing function. A straight line would be fitted to these points via standard regression procedures. This regression equation would describe the "subject operating characteristic" of the individual with the intercept and slope as estimates of the individual's "threshold" and "salience" parameters respectively.

The "salience" parameter is related to social desirability response style and will be most predictive of responses to items with fairly extreme SDSVs (>6 or <4). The "threshold" parameter is related to acquiescence response style. "Acquiescers" would manifest a low "threshold" while "Non-acquiescers" would manifest a high "threshold." The "threshold" parameter will be most predictive of responses to items with "neutral" SDSVs (4.5 to 5.5). Together, these parameters provide predictive power across the full range of SDSVs.

The general form of the subject operating characteristic will be that of a monotonically increasing function. This form will be
consistent across individuals but its shape will vary with individual differences in the "salience" and "threshold" parameters of subjects.

Four possible subject operating characteristics are described below:

\[ \text{SALIENCE} \]

\[ \begin{array}{c|c|c}
\text{low} & \text{high} \\
\hline
\text{low} & \text{P(T)} & \text{P(T)} \\
\text{high} & \text{P(T)} & \text{P(T)} \\
\end{array} \]

Rogers (1971) and Voyce and Jackson (1977) estimated the "threshold" and "salience" parameters for individuals by grouping MMPI and Differential Personality Inventory items according to their SDSVs into blocks ranging from least desirable to most desirable and plotting subject endorsement frequencies of these blocks against the mean SDSVs of the blocks resulting in functions in which endorsement increased with SDSV. The mean SDSV corresponding to the block at which endorsement exceeded .5 was termed the individual's "threshold."

The biserial correlation between endorsement frequency and SDSV was termed the individual's "salience" parameter. The subject
operating characteristics defined by these empirically derived parameters corresponded well to the theoretically postulated model. (Rogers, 1971)

As a test of the adequacy of the "threshold" theory, Rogers (1971) attempted to generate the MMPI factor structure via "monte carlo" methods and a simplified version of the "threshold" theory in which only the "threshold" parameter was used. The factor structure of the simulated data was extremely similar to that obtained by Jackson and Messick (1961) with actual subjects responding to the MMPI. For factors I and II, identified as related to acquiescence and social desirability respectively, the real and simulated factor loadings correlated .93 and .83 respectively indicating that the model has the ability to predict the factor structure of the MMPI. The fact that such results were obtained with only one parameter of the "threshold" theory lends strong support to the theory and indicates that a technique using both the "threshold" and "salience" parameters would be a powerful predictor of responses to personality items.

Development of the Response Style Assessment Technique

Since social desirability and acquiescence response styles are considered a stable characteristic of individuals (Edwards, 1967; Jackson and Messick, 1958) reflecting consistent modes of response, the "threshold" and "salience" parameters of individuals would be expected to be stable over item samples heterogeneous with respect to content.

The regression equation relating an individual's endorsement of items to the SDSVs of the items could be determined on one sample of
items and then used to estimate an individual's endorsement of other sets of items with known SDSVs: \( \bar{P(T)}_{ij} = a_i + b_i \bar{SDSV}_j \).

where: \( \bar{P(T)}_{ij} \) = predicted mean endorsement probability of set of items \( J \) by subject \( i \).

\( a_i \) = intercept of regression equation relating endorsement of items by subject \( i \) to item SDSVs. Estimate of "threshold" parameter of subject \( i \).

\( b_i \) = slope of regression equation of subject \( i \) which is an estimate of the "salience" parameter of subject \( i \).

\( \bar{SDSV}_j \) = mean SDSV of items in set of items \( J \).

The number of "true" responses subject \( i \) would be predicted to give to set of items \( J \) would be estimated by multiplying the predicted mean endorsement probability by the number of items in the set:

\[ \hat{X}_{ij} = N_j \bar{P(T)}_{ij} \]

where: \( \hat{X}_{ij} \) = number of "true" responses subject \( i \) is predicted to give to set of items \( J \) based on subject and scale desirability parameters.

\( N_j \) = number of items in set of items \( J \).

\( \bar{P(T)}_{ij} \) = predicted mean endorsement probability of set of items \( J \) by subject \( i \) based on subject and scale desirability parameters.

For example, if set of items \( J \) has 5 items with the following SDSVs: 7,6,5,4,3 and the regression equation of subject \( i \) has an intercept of -.40 and a slope of .20, then \( \hat{X}_{ij} \) would be computed as follows: \( N_j = 5; \bar{SDSV}_j = 25/5 = 5 \).

\[ \hat{X}_{ij} = 5(\bar{P(T)}_{ij}) = 5(-.40 + .20(5)) = N_j \bar{P(T)}_{ij} \]

\[ \hat{X}_{ij} = 5(.60) = 3. \]

Thus, subject \( i \) would be predicted to endorse 3 of the 5 items of set of items \( J \) based on subject and scale desirability parameters.
This formula can be further developed to predict the actual trait scale score subject\(_i\) would be expected to obtain based on the interaction between his desirability parameters ("threshold" and "salience") and on the desirability parameters of the trait scale (item SDSVs).

Generally trait scales will be constructed such that some trait responses are keyed "true" and some keyed "false." For example, in the MMPI "achievement" scale, the trait response to the statement "I wake up fresh and rested most mornings" is "true" while the trait response to the statement "I don't care what happens to me" is "false."

To estimate the number of trait responses (some keyed "true" and some keyed "false") that subject\(_i\) will make to the items in a given scale, the items of scale J must be divided into "true" and "false" subscales:

A) subscale 1 - those items of scale J keyed "true"

B) subscale 2 - those items of scale J keyed "false."

Since \(\overline{P(T)}\)\(_{iJ}\) is the predicted mean probability of subject\(_i\) responding "true" to the items in set (J), the predicted mean probability of subject\(_i\) responding "false" to the items in set (J) can be defined as \((1 - \overline{P(T)}\)\(_{iJ}\)).

So the trait scale score of subject \(i\) on scale \(J\) would be estimated as follows:

\[
\hat{X}_{iJ} = N_{JT}(\overline{P(T)}\)\(_{iJT}\) + N_{JF}(1 - \overline{P(T)}\)\(_{iJF}\)
\]

where: \(\hat{X}_{iJ}\) = predicted scale score based on subject and scale desirability parameters.

\(N_{JT}\) = number of items in scale \(J\) keyed "true."

\(N_{JF}\) = number of items in scale \(J\) keyed "false."
\[ P(T)'_{iJT} = \text{predicted mean endorsement probability of "true" keyed items of scale J by subject i.} \]

\[ P(T)'_{iJF} = \text{predicted mean endorsement probability of "false" keyed items of scale J by subject i.} \]

This technique for prediction of individual trait scale scores will be referred to as the response style assessment technique (RSAT) throughout the remainder of this paper.

**Utility of RSAT for assessment of convergent and discriminant validity of trait scales**

Certain scale parameters can greatly affect the elicitation of stylistic responding (Edwards, Diers and Walker, 1962; Edwards and Walsh, 1963; Jackson and Messick, 1958) and consequently the ability of the scale to elicit information specifically relevant to individual differences in traits as opposed to individual differences in response styles.

The scale parameters which merit attention are (1) the proportions of items with "neutral" and "extreme" SDSVs in the scale; (2) the degree of balance of "true"-"false" keying of trait responses; (3) the relevancy of item content to individual differences in trait behavior. These first two parameters, as discussed, will interact with the "threshold" and "salience" parameters of subjects responding to items in the scale.

Given the conceptualization of total scale variance as a weighted combination of variance components:

\[ \sigma^2_X = \sigma^2_{T_1} + \sigma^2_{T_2} + 2r_{T_1T_2} \sigma_{T_1} \sigma_{T_2} + \sigma^2_E \]
and considering the variables affecting the individual components previously discussed we see that the RSAT formula developed above will estimate both \( \sigma^2_{T_2} \) and the covariance component. That is, \( \hat{X}_{iJ} \) as defined by RSAT will reflect (1) individual differences with respect to response style and (2) individual differences with respect to the covariance of trait and response style.

So, the variance of scale X could be defined as:

\[
\sigma^2_X = \sigma^2_{T_1} + \sigma^2_{\hat{X}_{iJ}} + \sigma^2_E
\]

If scores predicted by RSAT (\( \hat{X}_{iJ} \)) and obtained scale scores (\( X_{iJ} \)) are paired, a regression equation predicting \( X_{iJ} \) from \( \hat{X}_{iJ} \) can be defined:

\[
X'_{iJ} = a + b\hat{X}_{iJ}
\]

The regression equation is simply a "coding operation" on the \( \hat{X}_{iJ} \) scores: that is, the \( \hat{X}_{iJ} \) scores are multiplied by a constant and another constant is added. (Kerlinger, and Pedhazur 1973) So, the residuals or deviations of \( X_{iJ} \) from \( X'_{iJ} \) will be the portion of the score \( X_{iJ} \) not accounted for by \( \hat{X}_{iJ} \) or response style. That is,

\[
X_{iJ} - X'_{iJ} = X_{iJ} - \hat{X}_{iJ} = T_1 + E
\]

The portion of \( X_{iJ} \) not accounted for by \( X'_{iJ} \) will thus be an estimate of that portion of an individual's scale score specifically related to individual differences with respect to the trait as distinct from responses predictable by individual differences in response style.

This, of course, is not to suggest that scales be constructed without attention to response style parameters with the assumption that a procedure for statistical control of response style will salvage the operation. Rather, the suggestion is that items be selected such
that content variance relative to response style variance is maximized as described by Jackson (1970) and that scales be balanced for "true" - "false" keying. Then, the described statistical procedure, RSAT, could be applied to further clarify the respective contributions of content and response style components to total scale variance and to assess the extent to which the scale achieves discriminant validity apart from response style.

Also, given the reality that many personality inventories and scales already in general use were developed with little or no attention paid to control of response style variance, this procedure could allow evaluation of such instruments. If evaluation reveals a reasonable amount of valid and reliable content variance remaining after removal of response style variance, continued use of such scales with score interpretation clarified by knowledge of response style variance could be encouraged.

Further, this procedure would enable intercorrelation of scale residual variances resulting in correlations that can be confidently interpreted as reflections of the relationships between content dimensions of given scales. Without such a procedure for estimation of the relative contributions of content and response style to total scale variance, correlations between scales can be inflated or attenuated by similarities or differences in the extent to which response style variance contributes to total scale variance. Correlations between trait scales are generally interpreted as substantive correlations. In fact, the traits may not correlate with each other but with the more general dimension of response style.
Such distortions of "true" correlations between trait scales makes progress in the understanding of interrelationships among traits and in the prediction of behavior based on inferences drawn from personality assessment measures very difficult.

However, aided by the RSAT which enables separation of specific content and response style components, the inter-correlations of residual variances attributable to content dimensions can be obtained allowing a clearer picture of the convergent and discriminant validity of the scales apart from response style to emerge.

Utility of RSAT for assessment of personality

The previously discussed conceptualization of total scale variance as a weighted combination of variance components assumes the existence of three main components: (1) a component related to individual differences in response style (2) a component related to individual differences specifically related to the trait and (3) a component related to individual differences in behavior which covaries with the trait and response style.

Both the response style and covariance component will interact with subject desirability parameters. The proportions of variance attributable to these components will be a function of certain scale parameters previously discussed. These components will, nevertheless, be elicited to some degree by all assessment measures due to the evaluative dimension underlying the bulk of content related to human behavior. Knowledge of subject and scale desirability parameters will enable prediction of behavior related to this evaluative dimension via the RSAT.
Elicitation of variance relevant to individual differences specifically related to the trait is difficult and requires attention to (1) those scale parameters which affect the size of the response style component and (2) identification of trait behaviors related to unique trait variance as opposed to trait behaviors which are highly correlated with the response style component.

Given the fact that the first two factors which consistently emerge from analysis of personality response data are related to social desirability and acquiescence response styles respectively and account for as much as half of total scale variance (Jackson, 1974) and given the difficulty of eliciting content variance related to other factors, it would make considerable sense to develop methods for assessment and prediction of individual differences relevant to these first two factors.
CHAPTER IV

SUMMARY AND HYPOTHESES

The assumption, again, is that response style variance is valid and reliable, and that differentiation of individuals according to differences in response style yields important information relevant to prediction and understanding of behavior. However, such differentiation can be accomplished more parsimoniously by directly assessing individual differences in response style. A battery of scales highly correlated with response style will yield redundant information with respect to response style and unknown proportions of information relevant to specific content dimensions.

It is important to ascertain the extent to which content scales achieve discriminant and convergent validity above and beyond that produced by response style variance. Scales may successfully predict behavior but if such differentiation and prediction is achieved via elicitation of individual differences in response style, interpretation of score differences as reflections of differences in "achievement" motivation or "self-esteem" will be inaccurate. Such inaccurate interpretations contribute to confusion rather than to the understanding of human behavior. Further the distortion of inter-scale correlations resulting from differential elicitation of response style variance mitigates against the accurate assessment of substantive trait intercorrelations.

This procedure for removal of response style variance is in keeping with recommendations for APA test standards regarding the
demonstration of discriminant validity apart from variance attributable to social desirability and acquiescence response styles. The RSAT as based on Jackson's "threshold" theory assesses individual differences in response style encompassing both social desirability and acquiescence response style tendencies.

Removal of response style variance via RSAT allows evaluation of discriminant validity of trait scales apart from response style. The residual variances can be intercorrelated and evaluated for convergent and discriminant validity relative to other traits via factor analysis. Due to the pervasiveness of response style variance across content dimensions, factor analysis prior to removal of response style variance is expected to identify broad factors attributable to response style obscuring interrelations between traits as measured by the set of scales.

Further, the RSAT procedure will have predictive power for that portion of trait behavior which covaries with response style and will enable prediction of behavior related to the two factors which are related to social desirability and acquiescence response styles. Use of the RSAT in this manner could replace present use of numbers of trait scales highly correlated with these two factors and would be consistent with objectives of parsimony and understanding of the interrelatedness of behavioral dimensions.

Outline of RSAT strategy

Briefly, the RSAT strategy involves the following steps: (1) determination of subject regression equations and "threshold" and "salience" parameters; (2) determination of the social desirability
scale values of items of trait scales; (3) computation of trait scale scores predicted on the basis of subject and scale desirability parameters via the RSAT formula; (4) comparison of obtained and predicted trait scale scores. (5) For assessment of convergent and discriminant validity of trait scales, variance predicted by RSAT would be removed via partial regression procedures. Residual variances would then be intercorrelated and evaluated. (6) Assessment of the utility of the RSAT for prediction of personality traits will be accomplished by evaluation of the magnitude of the correlations between obtained and RSAT predicted scale scores and evaluation of the relationship between response style parameters and subject personality profiles.

This strategy will be demonstrated on selected scales from Jackson's Personality Research Form (PRF) (1967) and Gough's California Psychological Inventory (CPI) (1975). The SDSVs of scale items for the PRF and CPI were determined by Holmes, Reid and Jackson (1977) and Mees, Gocka and Holloway (1964) respectively. These inventories were selected for several reasons. The PRF is a "rational" inventory constructed with elaborate attention to the maximization of content variance and the minimization of response style variance. (Jackson, 1970) Evidence of convergent and discriminant validity for the PRF is substantial. (Abbott, 1975; Jackson and Guthrie, 1968; Kusysyzn and Jackson, 1967) The CPI is a widely used "empirical" inventory constructed with criterion groups determined by ratings on traits such as "leadership potential," etc. Gough writes in the CPI manual that the combination of content variance with the "proper" amount of response style variance facilitates differentiation of individuals and prediction
of behavior. According to Jackson (1960), stylistic variance accounts for a considerable amount of variance in individual scores on CPI scales. It appears likely that differentiation of individuals via CPI scale scores is accomplished to some degree by elicitation of individual differences in response style.

If the construction of the PRF has resulted in scales which elicit minimal response style variance while construction of the CPI resulted in scales which elicit considerable response style variance, inter-correlations of scales of the two personality inventories for assessment of convergent and discriminant validity of elicitation of individual differences in trait dimensions will be distorted by differential tendencies of the scales to elicit response style variance.

Evaluation of selected scales from the PRF and CPI via RSAT will (1) allow assessment of the degree to which PRF and CPI scales differentiate between individuals on the basis of content rather than response style, (2) allow assessment of patterns of intra- and inter-battery scale correlations unaffected by differential elicitation of response style variance.

Further, the RSAT will be evaluated for utility as a predictor of personality traits by (1) comparing correlations between RSAT predicted trait scale scores and obtained trait scale scores with validity coefficients previously obtained between CPI and PRF trait scales and content related criteria, and (2) assessing the relationship between response style groupings of individuals and patterns of obtained CPI and PRF trait scale scores.
Hypotheses

The following hypotheses will be investigated:

1) RSAT parameters "threshold" and "salience" validly assess individual differences in acquiescence and social desirability response styles respectively. These parameters will be shown to independently contribute to response style assessment with "threshold" achieving predictive power primarily relative to responses to items with SDSVs in the "neutral" range and "salience" achieving predictive power primarily relative to items with SDSVs in the "extreme" ranges of the desirability continuum.

2) The RSAT procedure with predictive power across the full range of item SDSVs, will demonstrate greater power for prediction of trait scale variance than is possible through use of a standard "social desirability" scale.

3) The RSAT will predict a greater proportion of variance of the CPI scales constructed via the empirical approach than of PRF scales constructed via the rational approach.

4) Two large factors will emerge from analysis of CPI and PRF scale intercorrelations. These factors will be related to social desirability and acquiescence response styles as indicated by obtained loadings of response style marker variables.

5) Removal of variance predicted by the RSAT will enable a clearer evaluation of trait scale intercorrelations for evidence of convergent and discriminant validity.

6) Response style groupings based on combinations of "threshold" and "salience" parameters will be related to subject personality profiles as manifested by CPI and PRF trait scale scores.
7) Correlations between RSAT predicted scale scores and obtained scale scores will be of a magnitude which would indicate potential utility of the RSAT approach for prediction of personality traits.
CHAPTER V

METHOD

Subjects

The subjects were 251 individuals drawn from the following locations: (1) 42 individuals from three introductory level classes at Leeward Community College, (2) 38 individuals from an introductory religion class at the University of Hawaii, (3) 49 individuals from two upper division Educational Psychology classes at the University of Hawaii, (4) 36 individuals from three graduate level Education courses at the University of Hawaii, (5) 53 individuals employed by the Civil Service, State of Hawaii and City and County of Honolulu, (6) 33 individuals from the State Senior Center.

Demographic data on the total sample of 251 individuals is as follows:

<table>
<thead>
<tr>
<th>SEX</th>
<th>ETHNICITY</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td></td>
<td>87</td>
<td>164</td>
</tr>
</tbody>
</table>

Materials

The "Booklet" included (1) six trait scales from the PRF and six trait scales from the CPI to be assessed for convergent and discriminant validity; (2) twenty social desirability scales constructed for this study which were used as the basis for assessment of individual
desirability parameters "salience" and "threshold"; (3) two response style indices: the "Desirability" scale from PRF and an acquiescence scale constructed for this study. These response style indices were included as validity checks for the RSAT. The 498 items from the above sources were ordered randomly for arrangement in the booklet. Three demographic items: Age, Sex, and Ethnicity were printed on the answer sheet.

Selection of Trait Scales included in the Booklet

Scales from the CPI and PRF were selected such that convergent and discriminant validity could be expected. The selection process involved several steps: (1) scales from the CPI and PRF were first "matched" by similarities between the trait descriptions and adjectives used to describe "high" and "low" scorers in the CPI and PRF manuals. (2) Intercorrelations of pairs of scales which appeared to be attempting measurement of similar traits were checked. (PRF Manual, 1967) If intercorrelations of .20 or greater were reported the PRF-CPI pairs were retained for further consideration. Thirteen pairs met this criterion. (3) Members of remaining pairs were grouped within inventory according to expected "factors" for PRF scales (PRF Manual) or "classes" for CPI scales (CPI Manual). Members of the final six pairs were selected across factors and "classes" to insure representation of a range of traits. Information pertaining to the above steps for the six pairs of scales used in this study is given in Tables 1-3. Thus, both convergent validity between scales purportedly measuring similar traits and discriminant validity between scales purportedly measuring dissimilar traits could be expected.
<table>
<thead>
<tr>
<th>Scale</th>
<th>Inventory</th>
<th>Adjectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;impulsivity&quot;</td>
<td>PRF</td>
<td>&quot;uninhibited, spontaneous, reckless, irrepessible, quick-thinking, impatient, incautious, foolhardy, impetuous&quot;</td>
</tr>
<tr>
<td>(PIN)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;flexibility&quot;</td>
<td>CPI</td>
<td>&quot;insightful, informal, adventurous, rebellious, egoistic, incautious, sarcastic&quot;</td>
</tr>
<tr>
<td>(CFX)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;dominance&quot;</td>
<td>PRF</td>
<td>&quot;controlling, commanding, influential, persuasive, ascendant, leading, dominant, assertive, powerful&quot;</td>
</tr>
<tr>
<td>(PDO)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;dominance&quot;</td>
<td>CPI</td>
<td>&quot;aggressive, planful, persuasive, independent, leadership potential, dominant, possessing social initiative&quot;</td>
</tr>
<tr>
<td>(DCO)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;social recognition&quot;</td>
<td>PRF</td>
<td>&quot;seeks recognition, makes good impression, seeks admiration, socially sensitive, desiros of credit, behaves appropriately&quot;</td>
</tr>
<tr>
<td>(PSR)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;capacity for status&quot;</td>
<td>CPI</td>
<td>&quot;ambitious, insightful, resourceful, ascendant, and self-seeking, effective in communication&quot;</td>
</tr>
<tr>
<td>(CCS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;abasement&quot;</td>
<td>PRF</td>
<td>&quot;surrendering, humble, subservient&quot;</td>
</tr>
<tr>
<td>(PAB)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;femininity&quot;</td>
<td>CPI</td>
<td>&quot;helpful, gentle, respectful, perservering&quot;</td>
</tr>
<tr>
<td>(CFE)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;achievement&quot;</td>
<td>PRF</td>
<td>&quot;capable, purposeful, industrious, achieving, productive, driving&quot;</td>
</tr>
<tr>
<td>(PAC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;achievement&quot;</td>
<td>CPI</td>
<td>&quot;capable, efficient, organized, persistent, industrious, achieving&quot;</td>
</tr>
<tr>
<td>(CAC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;defendence&quot;</td>
<td>PRF</td>
<td>&quot;self-protective, defensive, suspicious, secretive, has a 'chip on the shoulder', wary, guarded&quot;</td>
</tr>
<tr>
<td>(PDE)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;tolerance&quot;</td>
<td>CPI</td>
<td>DEFINING ADJECTIVES OF LOW SCORER &quot;suspicious, aloof, wary, distrustful.&quot;</td>
</tr>
<tr>
<td>(CTO)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2
Intercorrelations of CPI/PRF Scales Used in this Study
(Jackson, 1967)

<table>
<thead>
<tr>
<th>PIM</th>
<th>CFX</th>
<th>PDO</th>
<th>CDO</th>
<th>PSR</th>
<th>CCS</th>
<th>PAB</th>
<th>CFE</th>
<th>PAC</th>
<th>CAC</th>
<th>PDE</th>
<th>CTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>46*</td>
<td>---</td>
<td>---</td>
<td>78*</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>55</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

*correlations of matched scales
NOTE: decimals have been omitted

Table 3
Factor and "Class" Structure of Selected PRF and CPI Scales

<table>
<thead>
<tr>
<th>PRF Scale / Factor (Jackson, 1967)</th>
<th>CPI Scale / &quot;Class&quot; (Gough, 1975)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;impulsivity&quot;</td>
<td>&quot;flexibility&quot;</td>
</tr>
<tr>
<td>&quot;dominance&quot;</td>
<td>&quot;dominance&quot;</td>
</tr>
<tr>
<td>&quot;social recognition&quot;</td>
<td>&quot;capacity for status&quot;</td>
</tr>
<tr>
<td>&quot;abasement&quot;</td>
<td>&quot;femininity&quot;</td>
</tr>
<tr>
<td>&quot;achievement&quot;</td>
<td>&quot;achievement&quot;</td>
</tr>
<tr>
<td>&quot;defendence&quot;</td>
<td>&quot;tolerance&quot;</td>
</tr>
<tr>
<td>(8 possible factors)</td>
<td>(4 possible &quot;classes&quot;)</td>
</tr>
</tbody>
</table>
Construction of Social Desirability Scales Included in the Booklet

Twenty social desirability scales to be used for assessment of subject desirability parameters were constructed according to the general procedure used by Jackson (1968), which calls for a "large" number of personality items ranked (low to high) according to social desirability scale values. Previously, this procedure was applied to the MMPI with 566 items (Rogers, 1971) and the Differential Personality Inventory with 432 items (Voyce and Jackson, 1977). Both of these inventories assess behavior related to psychopathology. The use of a smaller number of items with content related to personality traits rather than to psychopathology was considered optimal for this study for two reasons: (1) successful demonstration of the assessment of subject desirability parameters "salience" and "threshold" on a relatively small number of personality items of "normal" content would provide further support for the "Threshold Theory." (2) Demonstration of the predictive power of the "salience" and "threshold" parameters assessed on a relatively small number of items and generalized to other sets of items of "normal" content would provide evidence for the practical significance of this technique for assessment of personality and prediction of behavior. The social desirability scale value (SDSV) continuum as described by Edwards (1957) ranges from 1 to 9. However, since SDSVs are normative judgments the effective range of values is narrower. The vast majority of item SDSVs falls within the range of 2.5 to 7.5. This 5 point range was divided into twenty .25 intervals. Eight items with SDSVs falling within each .25 interval were selected. Each set of eight items was called a social desirability scale and was
numbered from 1 to 20 according to their mean SDSVs (lowest to highest). This resulted in twenty social desirability scales of 8 items each for a total of 160 items.

Of these 160 items, 104 were drawn from a serial sample of 2,874 heterogeneous personality items received from Allen Edwards (personal correspondence). This sample had relatively few items with neutral (4.5 - 5.5) SDSVs so the remaining 46 items for the 160 item pool were drawn from the Edwards Personality Inventory (EPI). These items were selected from the range of scales in the EPI to insure heterogeneity of content. SDSVs for items from the serial sample and SDSVs for the EPI items were obtained from Edwards (personal correspondence) and Edwards (1971), respectively.

The mean SDSVs of the 20 social desirability scales were as follows:

(1) 2.65  (2) 2.90  (3) 3.18  (4) 3.41  (5) 3.62  (6) 3.86
(7) 4.11  (8) 4.35  (9) 4.60  (10) 4.87  (11) 5.13  (12) 5.37
(13) 5.61  (14) 5.88  (15) 6.16  (16) 6.37  (17) 6.61  (18) 6.85
(19) 7.15  (20) 7.40.

Selection and Construction of Response Style Indices Included in the Booklet

The "Desirability" scale (PDY) of the PRF was chosen for use as a validity check for the RSAT since it had demonstrated convergent validity with other social desirability scales (Wiggins, 1964) and was constructed for use with nonpathological populations. (Jackson, 1974) This scale has 16 items: 8 keyed "true" and 8 keyed "false." The mean SDSV of the "true" subscale is 7.19; the mean SDSV of the "false"
subscale is 3.63. These are fairly extreme mean SDSVs so this scale would be expected to correlate with social desirability response style which is usually manifested in response to items with fairly extreme SDSVs. I could find no "acquiescence" scale constructed in line with my orientation which expects manifestation of acquiescence response style primarily in response to items which have SDSVs within the neutral range of the SDSV continuum and moderate endorsement proportions.

So, I constructed an acquiescence scale for this study in the following manner: (1) SDSVs of 4.5 to 5.5 were defined as "neutral." (2) Items from the EPI were identified which had SDSVs within this range and endorsement frequencies between .40 and .60. (3) 30 items from this pool were chosen from the range of EPI scales to insure heterogeneity of content. SDSVs of these items were checked to insure an equal distribution across the neutral range. There was no overlap between these items and those selected for the previously described twenty social desirability scales. The mean SDSV of these 30 items was 4.96.

Testing Procedure

The booklet and answer sheet were administered to all individuals in the various classes and locations with the following instructions: "I am doing research on the measurement characteristics of personality assessment inventories. Your responses are completely anonymous. Please respond as accurately as possible. If for any reason you would prefer not to do this please let me know as responding randomly or inattentively to the questions will make my research more difficult. I appreciate your time and cooperation."
Individuals were allowed as much time as necessary to complete the booklet. The amount of time needed varied considerably from a low of about 40 minutes to a high of about 90 minutes.

**Procedures for Assessment of Subject Desirability Parameters**

and Application of RSAT

Endorsement proportions for the twenty social desirability scales were calculated for each subject by dividing the number of items to which the individual responded "true" by the number of items in the scales (8).

This yielded twenty endorsement proportions per subject. These endorsement proportions were plotted against the mean SDSVs of the twenty scales and a regression equation obtained. The resulting coefficients of determination (RSQ) reflected the degree to which endorsement of sets of items by the individual could be predicted with knowledge of the mean SDSVs of the items. The size of these coefficients varied considerably. Their distribution is shown in Figure 1.

As expected, this distribution is markedly skewed. Knowledge of item SDSVs enables a high degree of prediction of item endorsement by individuals. This result should not be interpreted as evidence of widespread distortion in responses to personality items but, rather, as a reflection of the general tendency of individuals to respond to cultural expectations for desirable behavior.

Next, trait scale items were separated into "true" and "false" keyed subscales. Predicted endorsement proportions of these subscales for each individual were obtained by entering the mean SDSV of the trait
scale "true" and "false" subscales into the individual's regression equation. That is, the regression equation relating the subject's endorsement of sets of items to mean item SDSVs assessed on the 20 social desirability scales was used with knowledge of trait scale mean item SDSVs to predict the subject's endorsement of the sets of items in the trait scales. In this step predicted endorsement proportions for all trait scale "true" and "false" subscales for all subjects were determined.

Predicted trait scale scores were then computed for each subject via the RSAT formula: 

$$ \hat{X}_{iJ} = N_{JT} \frac{(P(T))'}{JT} + N_{JF} \frac{(1-P(T))'}{JT} $$
Where: $\hat{X}_{iJ} =$ predicted trait scale score of subject i on Scale J.

$N_{JT} =$ number of items in scale J keyed "true"

$N_{JF} =$ number of items in scale J keyed "false"

$P(T)'_{iJT} =$ predicted endorsement of "true" items based on desirability parameters of subject and mean SDSVs of "true" items of scale J.

$P(T)'_{iJF} =$ predicted endorsement of "false" items based on desirability parameters of subject i and mean SDSV of "false" items of scale J.

For example, the regression equation for subject 1 was:

$P(T)' = -.07 + .129 \text{ (SDSV)}$.

The mean SDSVs for the "true" and "false" subscales of the PRF "impulsivity" scale were 3.75 and 6.33 respectively. The "true" and "false" subscales each contained 8 items. Thus, for subject 1 on the PRF "impulsivity" scale:

$P(T)'_T = -.07 + .129(3.75) = .414$

$P(T)'_F = -.07 + .129(6.33) = .75$.

The predicted PRF "impulsivity" score for subject 1 was:

$\hat{X}_{PRF"im"} = 8(.414) + 8(1-.75) = 3.312 + 2 = 5.313$.

Although each individual's regression equation reflects the desirability parameters "threshold" and "salience" as manifested by the intercept and slope, I found that prediction could be improved by inclusion of a separate index of each subject's "threshold." For each subject I computed the number of items to which the subject responded "true" for the 32 items of the 4 most "neutral" of the 20 social desirability scales. This score will be referred to as subject "neutral" scale score. A high neutral scale score would indicate a low "threshold" while a low neutral scale score would indicate a high "threshold."
For example, subject 1 endorsed or responded "true" to 19 of the 32 items in the four most neutral social desirability scales. The neutral scale score of subject 1 was thus 19. The distribution of neutral scale scores is shown in Figure 2.

Figure 2. Distribution of neutral scale scores
CHAPTER VI
RESULTS

Derivation of predicted scores

RSAT predicted trait scale scores and neutral scale scores were used as predictors of obtained PRF and CPI trait scale scores and obtained response style scale scores via multiple regression analysis. The resulting coefficients of determination are interpreted as that share of trait scale variance predictable with knowledge of subject desirability parameters and mean SDSVs of scale items.

Validity of RSAT

The validity of the RSAT was checked by determining its ability to predict scores obtained on the two response style indices: the PRF "Desirability" (PDY) scale and the "acquiescence" (ACQ) scale constructed for this study. Predicted scores for all individuals for these response style indices were obtained in the previously described manner. These predicted scores were correlated with obtained scores and subject desirability parameters: neutral scale scores (reflection of "threshold") and RSQs (estimate of "salience") yielding the correlation matrix presented in Table 4.

The obtained validity coefficients between predicted and obtained scores are .73 for the PRF "Desirability" scale and .54 for the acquiescence scale. Correlations between the predicted response style scores and subject response style parameters shows prediction of acquiescence response style primarily related to the neutral scale.
Table 4
Intercorrelations of Predicted and Obtained Response Style Scale Scores and Subject Desirability Parameters

<table>
<thead>
<tr>
<th></th>
<th>PDY</th>
<th>ACQ</th>
<th>PDY'</th>
<th>ACQ'</th>
<th>Neutral Score</th>
<th>RSQ</th>
</tr>
</thead>
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<td>PDY</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACQ</td>
<td>-22*</td>
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<td></td>
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<td></td>
<td></td>
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<td>PDY'</td>
<td>73*</td>
<td>-30</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACQ'</td>
<td>-17*</td>
<td>54*</td>
<td>-22*</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td>-18*</td>
<td>47*</td>
<td>-25*</td>
<td>87*</td>
<td></td>
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<tr>
<td>RSQ</td>
<td>68*</td>
<td>-26*</td>
<td>90*</td>
<td>-22*</td>
<td>-19*</td>
<td>--</td>
</tr>
</tbody>
</table>

*significant p < .05

validity coefficients

score (r=.87) and prediction of the "Desirability" scale primarily related to subject RSQ. (r=.90).

The RSAT parameters "threshold" (neutral scale score) and "salience" (RSQ) have demonstrated convergent validity with independent response style criteria and discriminant validity as manifested by their predictive power over separate aspects of response style.

Comparison of predictive power of RSAT to predictive power of the PRF "Desirability" Scale

To provide a basis for comparison of the effectiveness of the RSAT approach, obtained trait scale scores were regressed on the PRF "Desirability" scale scores. The coefficients of determination resulting from prediction via the RSAT and prediction via the PRF
"Desirability" scale are presented in Table 5. Note that the PRF "Desirability" scale has essentially no predictive power for the acquiescence scale.

<table>
<thead>
<tr>
<th>Scale</th>
<th>R² via RSAT</th>
<th>R² via PRF &quot;Desirability&quot;</th>
<th>R²(RSAT) - R²(PRF &quot;Desirability&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIM</td>
<td>.114</td>
<td>.110</td>
<td>.004</td>
</tr>
<tr>
<td>PDO</td>
<td>.239</td>
<td>.100</td>
<td>.139</td>
</tr>
<tr>
<td>PSR</td>
<td>.250</td>
<td>.002*</td>
<td>.248</td>
</tr>
<tr>
<td>PAB</td>
<td>.006*</td>
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<td>.002</td>
</tr>
<tr>
<td>PAC</td>
<td>.243</td>
<td>.163</td>
<td>.080</td>
</tr>
<tr>
<td>PDE</td>
<td>.173</td>
<td>.050</td>
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</tr>
<tr>
<td>CFX</td>
<td>.217</td>
<td>.000*</td>
<td>.217</td>
</tr>
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<td>CDO</td>
<td>.402</td>
<td>.344</td>
<td>.058</td>
</tr>
<tr>
<td>CCS</td>
<td>.340</td>
<td>.241</td>
<td>.089</td>
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<td>.018</td>
<td>.059</td>
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<td>.444</td>
<td>.001</td>
</tr>
<tr>
<td>CTO</td>
<td>.494</td>
<td>.386</td>
<td>.108</td>
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</tbody>
</table>

"acquiescence" .289 .050* .239

```
CPI \( \bar{R}^2 = .33 \) \( \bar{R}^2 = .24 \) \( \bar{R}^2 = .09 \)
PRF \( \bar{R}^2 = .17 \) \( \bar{R}^2 = .07 \) \( \bar{R}^2 = .10 \)
over-
all \( \bar{R}^2 = .25 \) \( \bar{R}^2 = .155 \) \( \bar{R}^2 = .095 \)
```

all coefficients of determination are significant at \( p < .05 \) except those noted.

*coefficient of determination non-significant.
Comparison of prediction of trait scale scores via RSAT versus prediction via the PRF "Desirability" scale shows the RSAT predicts an average of 10 percent more trait scale variance. This is an increase in predictive power of approximately 60 percent.

Assessment of Convergent and Discriminant Validity of Trait Scales

The mean coefficient of determination of CPI and PRF trait scales as predicted by RSAT and neutral scale scores were .33 and .17 respectively. That is, knowledge of subject and scale desirability parameters enables prediction of approximately twice the amount of variance of these CPI scales constructed via the empirical approach as of these PRF scales constructed via the rational approach. The PRF scales have achieved a greater degree of discriminant validity apart from response style than have the CPI scales.

The intercorrelation matrix of the 6 PRF trait scales; the 6 CPI trait scales, the 2 response style indices and subject desirability parameters were factor analyzed by the principal components method. An examination of the relative sizes of the 16 latent roots led to the retention of 4 factors which together accounted for approximately 66 percent of total variance. A varimax rotation was performed but the resulting loadings were substantially the same as the principal axis loadings. This result along with the interpretability of the principal axis loadings and the present orientation toward response styles as general pervasive factors related to cultural expectations for behavior led to a decision to retain the principal axis loadings. The first two factors accounting for 34 percent and 16 percent of total variance respectively, are identified as social desirability and acquiescence
response style factors by the high loadings obtained on these factors
by the response style indices and subject desirability parameters.
The acquiescence scale and neutral scale loaded highly on Factor II
while the PRF "Desirability" scale and subject RSQs loaded highly on
Factor I. Only 4 of the 12 trait scales: the PRF "impulsivity,"
"abasement" and "defendence" scales and the CPI "femininity" scale
obtained their highest loadings on factors other than the first two.
Factor loadings for the 16 variables are presented in Table 6.

Table 6
Principal Axis Factor Loadings of Obtained Trait Scale Scores,
Response Style Indices and Subject Desirability Parameters

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor I</th>
<th>Factor II</th>
<th>Factor III</th>
<th>Factor IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIM</td>
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<td>-.25</td>
<td>.55</td>
<td>.40</td>
</tr>
<tr>
<td>PDO</td>
<td>.51</td>
<td>.48</td>
<td>.53</td>
<td>.10</td>
</tr>
<tr>
<td>PSR</td>
<td>-.24</td>
<td>.59</td>
<td>-.04</td>
<td>.06</td>
</tr>
<tr>
<td>PAB</td>
<td>.08</td>
<td>-.16</td>
<td>-.32</td>
<td>.79</td>
</tr>
<tr>
<td>PAC</td>
<td>.53</td>
<td>.40</td>
<td>.06</td>
<td>.18</td>
</tr>
<tr>
<td>PDE</td>
<td>-.39</td>
<td>.46</td>
<td>.28</td>
<td>-.53</td>
</tr>
<tr>
<td>CFX</td>
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<td>-.73</td>
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<td>.05</td>
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<tr>
<td>CDO</td>
<td>.75</td>
<td>.33</td>
<td>.36</td>
<td>.10</td>
</tr>
<tr>
<td>CCS</td>
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<td>-.12</td>
<td>.32</td>
<td>.01</td>
</tr>
<tr>
<td>CFE</td>
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<td>.03</td>
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<td>-.05</td>
</tr>
<tr>
<td>CAC</td>
<td>.79</td>
<td>.17</td>
<td>-.29</td>
<td>-.11</td>
</tr>
<tr>
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<td>.76</td>
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<td>-.05</td>
<td>-.14</td>
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<tr>
<td>&quot;acquiescence&quot;</td>
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<td>-.23</td>
<td>.21</td>
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<tr>
<td>&quot;Desirability&quot;</td>
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<td>.17</td>
<td>-.21</td>
<td>-.05</td>
</tr>
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<td>.27</td>
</tr>
<tr>
<td>RSQ</td>
<td>.81</td>
<td>.11</td>
<td>-.19</td>
<td>.00</td>
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</tbody>
</table>

| Eigenvalue    | .34      | .16       | .09        | .08       |
The presence of such large response style factors across these trait scales makes interpretation of trait scale intercorrelations and evaluation of trait scale convergent and discriminant validity very difficult. To aid in clarifying these intercorrelations, variance predicted via RSAT and neutral scale scores was removed from trait scale variance via partial regression procedures. These residual variances were then intercorrelated (see Table 7). The resulting changes in scale intercorrelations pre- and post-partialling are summarized in Table 8.

**Table 7**

**Intercorrelations of Obtained and Residual Trait Scale Scores**

<table>
<thead>
<tr>
<th></th>
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<th>PDO</th>
<th>PSR</th>
<th>PAB</th>
<th>PAC</th>
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<th>CFE</th>
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<td>17*</td>
<td>-02</td>
<td>-11</td>
<td>23*</td>
<td>23*</td>
<td>06</td>
</tr>
<tr>
<td><strong>CTO</strong></td>
<td>-18*</td>
<td>18*</td>
<td>-19*</td>
<td>03</td>
<td>27*</td>
<td>-31*</td>
<td>33*</td>
<td>44*</td>
<td>60*</td>
<td>-19*</td>
<td>61*</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>02</td>
<td>10</td>
<td>14*</td>
<td>06</td>
<td>14*</td>
<td>-06</td>
<td>22*</td>
<td>29*</td>
<td>39*</td>
<td>-03</td>
</tr>
</tbody>
</table>
| * p < .05

Note: obtained correlations on first line
residual correlations on second line.
Table 8

Changes in Trait Scale Intercorrelations
Pre- and Post-Partialling of Response Style Variance

<table>
<thead>
<tr>
<th>Increase in Correlations to Significance p &lt; .05</th>
<th>Decrease in Correlations No Longer Significant</th>
<th>Decrease in Correlation &gt; .10 p &lt; .05 (correlation is still significant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIM-PSR</td>
<td>PAC-PIM</td>
<td>CAC-PIM</td>
</tr>
<tr>
<td>CDO-PIM</td>
<td>CTO-PIM</td>
<td>PSR-PDE</td>
</tr>
<tr>
<td>CCS-PIM</td>
<td>CFX-PDO</td>
<td>CTO-PSR</td>
</tr>
<tr>
<td>PAB-PDO</td>
<td>CAC-PDO</td>
<td>CDO-PAC</td>
</tr>
<tr>
<td>PDE-PDO</td>
<td>CTO-PDO</td>
<td>PAC-CAC</td>
</tr>
<tr>
<td>CAC-PSR</td>
<td>CFX-PSR</td>
<td>CTO-PAC</td>
</tr>
<tr>
<td>CDO-CFX</td>
<td>PSR-CCS</td>
<td>CTO-CFX</td>
</tr>
<tr>
<td></td>
<td>PDE-PAC</td>
<td>CCS-CDO</td>
</tr>
<tr>
<td></td>
<td>CCS-PAC</td>
<td>CAC-CDO</td>
</tr>
<tr>
<td></td>
<td>CFE-PAC</td>
<td>CTO-CDO</td>
</tr>
<tr>
<td></td>
<td>CCS-PDE</td>
<td>CFE-CCS</td>
</tr>
<tr>
<td></td>
<td>CAC-PDE</td>
<td>CAC-CCS</td>
</tr>
<tr>
<td></td>
<td>CTO-PDE</td>
<td>CTO-CCS</td>
</tr>
<tr>
<td></td>
<td>CTO-CFE</td>
<td>CTO-CAC</td>
</tr>
</tbody>
</table>

The intercorrelation matrix of the trait scale residual variances was factor analyzed by the principal components method. Five factors accounting for approximately 64 percent of the total remaining variance were extracted. All CPI scales obtained their highest loadings on one of these first two factors. PRF trait scales obtained their highest loadings across the range of factors showing a higher degree of discriminant validity from other trait scales.

Convergent validity of the scales matched for similarity of trait description and other criteria was assessed by evaluating the similarity of factor loadings of residual variances. The PRF "dominance"-CPI "dominance" pair shows a high degree of convergent validity. Residual variances of these two scales load similarly on all factors with the
highest loadings on factor I. The PRF "impulsivity"-CPI "flexibility" pair shows a moderate degree of convergent validity with both scales obtaining their highest loadings on Factor II. It should be noted that the convergent validity of the PRF "impulsivity"-CPI "flexibility" scales was obscured by differences in elicitation of response style variance. Prior to removal of response style variance these scales obtained their highest loadings on different factors.

The remaining four pairs of matched trait scales: PRF "social recognition"-CPI "capacity for status," PRF "abasement"-CPI "femininity," PRF "achievement"-CPI "achievement via conformance," and PRF "defendence"-CPI "tolerance" are apparently not measuring similar traits and do not meet the criteria of convergent validity. The PRF and CPI "achievement" scales appear very similar prior to removal of response style variance. However, the correlation between these scales drops from .40 to .17 after partia1ling indicating that the greater part of their relationship is a result of similarities in elicitation of response style variance. Factor loadings for the residual variances are presented in Table 9.

Assessment of Personality via RSAT

Trait scale scores predicted via RSAT and "agreement" scores and obtained trait scale scores were intercorrelated to gauge the potential of an RSAT approach to personality assessment. These intercorrelations or validity coefficients are compared with validity coefficients of the CPI and PRF scales with content linked criteria in Table 10. These validity and reliability coefficients were obtained from the PRF and CPI manuals. (Jackson, 1967; Gough, 1975)
Table 9
Principal Axis Factor Loadings of Residual Trait Scale Scores

<table>
<thead>
<tr>
<th>Scale</th>
<th>Factor I</th>
<th>Factor II</th>
<th>Factor III</th>
<th>Factor IV</th>
<th>Factor V</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIM</td>
<td>.12</td>
<td>-.61</td>
<td>-.15</td>
<td>.12</td>
<td>.62</td>
</tr>
<tr>
<td>PDO</td>
<td>.65</td>
<td>.03</td>
<td>-.53</td>
<td>.23</td>
<td>.00</td>
</tr>
<tr>
<td>PSR</td>
<td>.07</td>
<td>.54</td>
<td>.15</td>
<td>-.02</td>
<td>.50</td>
</tr>
<tr>
<td>PAB</td>
<td>-.02</td>
<td>-.25</td>
<td>.57</td>
<td>.52</td>
<td>.02</td>
</tr>
<tr>
<td>PAC</td>
<td>.38</td>
<td>.21</td>
<td>-.18</td>
<td>.56</td>
<td>.02</td>
</tr>
<tr>
<td>PDE</td>
<td>.00</td>
<td>.44</td>
<td>-.58</td>
<td>-.44</td>
<td>.10</td>
</tr>
<tr>
<td>CFX</td>
<td>.31</td>
<td>-.63</td>
<td>.27</td>
<td>-.33</td>
<td>.20</td>
</tr>
<tr>
<td>CDO</td>
<td>.79</td>
<td>.01</td>
<td>-.29</td>
<td>.10</td>
<td>.07</td>
</tr>
<tr>
<td>CCS</td>
<td>.74</td>
<td>-.24</td>
<td>.05</td>
<td>-.13</td>
<td>-.09</td>
</tr>
<tr>
<td>CFE</td>
<td>-.29</td>
<td>.22</td>
<td>.26</td>
<td>-.18</td>
<td>.20</td>
</tr>
<tr>
<td>CAC</td>
<td>.46</td>
<td>.56</td>
<td>.40</td>
<td>.00</td>
<td>-.22</td>
</tr>
<tr>
<td>CTO</td>
<td>.61</td>
<td>.13</td>
<td>.43</td>
<td>-.17</td>
<td>.18</td>
</tr>
</tbody>
</table>

Eigenvalue .21 .15 .12 .09 .07

Table 10
Comparison of Validity Coefficients of Trait Scale Scores/Trait-Content Related Criteria vs. RSAT Predicted Trait Scale Scores/Obtained Trait Scale Scores

<table>
<thead>
<tr>
<th>Scale</th>
<th>Staff Ratings</th>
<th>Peer Ratings</th>
<th>Self-Ratings</th>
<th>Other Scales</th>
<th>RSAT</th>
<th>RXX**</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIM</td>
<td>.30, .35</td>
<td>.39</td>
<td>.39</td>
<td>.34</td>
<td>.85</td>
<td></td>
</tr>
<tr>
<td>PDO</td>
<td>.62</td>
<td>.63</td>
<td>.63</td>
<td>.49</td>
<td>.67</td>
<td></td>
</tr>
<tr>
<td>PSR</td>
<td>.45, .56</td>
<td>.33</td>
<td>.33</td>
<td>.50</td>
<td>.73</td>
<td></td>
</tr>
<tr>
<td>PAB</td>
<td>.19, .21</td>
<td>.47</td>
<td>.47</td>
<td>.07*</td>
<td>.70</td>
<td></td>
</tr>
<tr>
<td>PAC</td>
<td>.53, .46</td>
<td>.42</td>
<td>.42</td>
<td>.47</td>
<td>.49</td>
<td></td>
</tr>
<tr>
<td>PDE</td>
<td>.25, .49</td>
<td>.63</td>
<td>.63</td>
<td>.47</td>
<td>.80</td>
<td></td>
</tr>
<tr>
<td>CFX</td>
<td>-.48, -.36</td>
<td>.41, .48</td>
<td>.41, .48</td>
<td>.58</td>
<td>.80</td>
<td></td>
</tr>
<tr>
<td>CDO</td>
<td>.48, .40</td>
<td>.38, -.48</td>
<td>.38, -.48</td>
<td>.28</td>
<td>.73</td>
<td></td>
</tr>
<tr>
<td>CCS</td>
<td>.38, .43</td>
<td>.41</td>
<td>.41</td>
<td>.67</td>
<td>.79</td>
<td></td>
</tr>
<tr>
<td>CFE</td>
<td>.38, -.48</td>
<td>-.41, .43</td>
<td>-.41, .43</td>
<td>.70</td>
<td>.87</td>
<td></td>
</tr>
<tr>
<td>CAC</td>
<td>.33</td>
<td>.41</td>
<td>.41</td>
<td>.67</td>
<td>.79</td>
<td></td>
</tr>
<tr>
<td>CTO</td>
<td>-.46, .34</td>
<td>-.46, .34</td>
<td>-.46, .34</td>
<td>.70</td>
<td>.87</td>
<td></td>
</tr>
</tbody>
</table>

Note: Validity and Reliability Coefficients are from PRF and CPI Manuals.
*p > .05; all other coefficients: p < .05
**RXX = reliability coefficient (test - retest, one-week)
All RSAT validity coefficients except that for the PRF "abasement" scale are statistically significant ($p < .05$) and are of a magnitude which compares favorably with the validity coefficients presented in the manuals.

The predictive power of a scale or method is related to its ability to differentiate among individuals who differ along some continuum of interest. That is, an "achievement" scale should be able to separate the individuals who behave in an "achievement" oriented manner from those who do not behave in an "achievement" oriented manner. To further gauge the utility of the RSAT for purposes of personality assessment, its ability to differentiate individuals with different personality profiles (as manifested by scores obtained on the sample of PRF and CPI trait scales) was determined.

First, distribution of subject neutral scale scores and coefficients of determination (RSQ) of individual regression equations were divided into Low, Moderate, and High ranges (see Figures 1 and 2). The neutral scale scores and RSQs are estimates of individual "threshold" and "salience" parameters, respectively. Individuals were arranged in "Response Style" groups according to combinations of response style parameters with cell frequencies shown in Table 11.

An analysis of variance of scores by these Response Style groups was performed for each of the PRF and CPI trait scales and for the PRF "desirability" scale and the "acquiescence" scale. Results of these analyses are given in Table 12. F values were significant for all scales except the PRF "abasement" and CPI "femininity" scales. Apparently, response style parameters are related to significant differences in trait scale scores.
Table 11
Cell Frequencies of Neutral Score ("Threshold") and Coefficient of Determination--RSQ--of Subject Regression Equation ("Salience") Combinations

<table>
<thead>
<tr>
<th>&quot;threshold&quot; (neutral scale)</th>
<th>&quot;salience&quot; (RSQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LOW</td>
</tr>
<tr>
<td>LOW</td>
<td>17</td>
</tr>
<tr>
<td>MODERATE</td>
<td>39</td>
</tr>
<tr>
<td>HIGH</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>86</td>
</tr>
</tbody>
</table>

Table 12
Results of Analysis of Variance: Trait Scale Scores By Response Style Groups

<table>
<thead>
<tr>
<th>Scale</th>
<th>F value</th>
<th>df = 1,8</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIM</td>
<td>3.24</td>
<td></td>
<td>.002</td>
</tr>
<tr>
<td>PDO</td>
<td>3.85</td>
<td></td>
<td>.001</td>
</tr>
<tr>
<td>PSR</td>
<td>8.95</td>
<td></td>
<td>.0001</td>
</tr>
<tr>
<td>PAB</td>
<td>1.25</td>
<td></td>
<td>.27*</td>
</tr>
<tr>
<td>PAC</td>
<td>5.49</td>
<td></td>
<td>.0001</td>
</tr>
<tr>
<td>PDE</td>
<td>5.91</td>
<td></td>
<td>.0001</td>
</tr>
<tr>
<td>CFX</td>
<td>4.95</td>
<td></td>
<td>.0001</td>
</tr>
<tr>
<td>CDO</td>
<td>9.79</td>
<td></td>
<td>.0001</td>
</tr>
<tr>
<td>CCS</td>
<td>7.85</td>
<td></td>
<td>.0001</td>
</tr>
<tr>
<td>CFE</td>
<td>1.36</td>
<td></td>
<td>.21*</td>
</tr>
<tr>
<td>CAC</td>
<td>13.18</td>
<td></td>
<td>.0001</td>
</tr>
<tr>
<td>CTO</td>
<td>20.17</td>
<td></td>
<td>.0001</td>
</tr>
<tr>
<td>PDY</td>
<td>21.80</td>
<td></td>
<td>.0001</td>
</tr>
<tr>
<td>ACQ</td>
<td>8.67</td>
<td></td>
<td>.0001</td>
</tr>
</tbody>
</table>

*not significant
To determine whether or not knowledge of response style group membership enables differentiation of patterns of obtained trait scale scores, a discriminant analysis was performed relating CPI and PRF obtained scores to the nine response style groups. A test of homogeneity of within (response style group) covariance matrices was significant. (chi-square = 696.35. df = 624. p < .05) The discriminant analysis correctly classified 189 of the 251 individuals into their identified response style group for a "hit" rate of 75 percent. Another 36 individuals were classified one group away from their previously identified response style group. Thus, 90 percent of the sample was correctly or "nearly" correctly classified into their previously identified response style groups on the basis of their personality profiles. Response style parameters are clearly related to personality profiles as manifested on this sample of trait scales. The trait scale profiles obtained by the response style groups and adjective summaries of these profiles are presented in Figures 3, 5, and 7. Response style groups with Low, Moderate, and High "saliences" are presented together.

To further illustrate behavioral differences between response style groups, the endorsement behavior of these groups relative to the social desirability scale value continuum is shown in Figures 4, 6, and 8. Low, Moderate, and High "salience" groups are presented together. The mean item endorsement proportions of individuals in each group are plotted against the mean SDSVs of the twenty social desirability scales constructed for this study. Differences in the slope or "salience" parameters and the "threshold" parameter (point at which endorsement surpasses .50) are apparent.
Relationship of demographic variables to response style group membership

Chi-square analyses between response style groups and age, sex and ethnicity were performed. The analyses between response style groups and sex and ethnicity were nonsignificant. However, the chi-square analysis of response style groups and age was significant: \( \chi^2 (24) = 50.584, p < .002 \). This relationship between response style group membership and age is a result of the correlation between individual RSQ and age \( (r = .24, p < .0001) \). There is no relationship between neutral scale scores and age \( (r = .06, p < .32) \).

This relationship is consistent with the theoretical definition of the "salience" parameter as an estimate of the individual's sensitivity to the desirability continuum. It would be expected that this sensitivity to cultural expectations for behavior would increase with age.

ADJECTIVE DESCRIPTIONS OF PERSONALITY PROFILES OF RESPONSE STYLE GROUPS

Low "salience" response style groups

Figures 3 and 4 refer to Low "salience" response style groups (see page 60).

High "threshold"/Low neutral scale score—"flexible, unassuming (low dominance), does not have capacity for status, does not seek social recognition, low in achievement motivation."

Moderate "threshold"/Moderate neutral scale score—"impulsive, flexible, intolerant, not interested in achieving, unassuming (low dominance), not humble, suspicious, does not have capacity for status."
1 (o) = High "threshold"/Low neutral scale score, 2 (Δ) = Moderate "threshold"/Moderate neutral scale score, 3 (◦) = Low "threshold"/High neutral scale score.

Figure 3. Personality profiles as manifested on 6 PRF and 6 CPI trait scales. (Low "salience" response style groups)

Figure 4. Relationship between endorsement of blocks of personality items and the mean SDSVs of the blocks of items. (Low "salience" response style groups)
Low "threshold"/High neutral scale score--"desires social recognition, fairly impulsive, not interested in achievement, defensive, not dominant, intolerant, not flexible, humble."

Moderate "salience" response style groups

Figures 5 and 6 refer to Moderate "salience" response style groups (see page 62).

High "threshold"/Low neutral scale score--"tolerant, flexible, has capacity for status, low interest in achievement, unassuming (low dominance)"
Moderate "threshold"/Moderate neutral scale score--"tolerant, moderately dominant, has capacity for status, generally moderate in personality."
Low "threshold"/High neutral scale score--"fairly dominant, somewhat impulsive, not flexible, very intolerant, not humble, defensive, seeks social recognition, does not have capacity for status.

High "salience" response style groups

Figures 7 and 8 refer to High "salience" response style groups (see page 63).

High "threshold"/Low neutral scale score--"tolerant, high achievement motivation, has capacity for status, not impulsive, not seeking social recognition, not defensive."
Moderate "threshold"/Moderate neutral scale score--"high achievement motivation, dominant, not impulsive, has capacity for status, not defensive, tolerant."
1 (o) = High "threshold"/Low neutral scale score, 2 (A) = Moderate "threshold"/Moderate neutral scale score, 3 (•) = Low "threshold"/High neutral scale score.

Figure 5. Personality profiles as manifested on 6 PRF and 6 CPI trait scales (Moderate "salience" response style groups)

Figure 6. Relationship between endorsement of blocks of personality items and the mean SDSVs of the blocks of items (Moderate "salience" response style groups)
1 (o) = High "threshold"/Low neutral scale score, 2 (Δ) = Moderate "threshold"/Moderate neutral scale score, 3 (•) = Low "threshold"/High neutral scale score.

Figure 7. Personality profiles as manifested on 6 PRF and 6 CPI trait scales. (High "salience" response style groups)

Figure 8. Relationship between endorsement of blocks of personality items and the mean SDSVs of the blocks of items (High "salience" response style groups)
Low "threshold"/High neutral scale score--"moderately interested in achievement, not flexible, not impulsive, seeks social recognition, has capacity for status, dominant."
CHAPTER VII
DISCUSSION AND CONCLUSIONS

All hypotheses were supported:

1) The subject desirability parameters "threshold" and "salience" based on the "Threshold" theory of Donald Jackson achieved convergent validity as manifestations of individual differences in acquiescence and social desirability response styles, respectively. Further, these two parameters achieved discriminant validity from each other as assessed by their independent contributions to predictive power via assessment of these separate aspects of response style.

2) The predictive power of the RSAT surpasses that of the PRF "desirability" scale.

3) The RSAT predicts approximately twice as much variance of scales constructed via the empirical approach (as represented by a sample of 6 CPI scales) as for scales constructed via the rational approach (as represented by a sample of 6 PRF scales).

4) Factor analysis of the PRF and CPI scales with the response style indices and subject desirability parameters yielded two large factors accounting for approximately 49 percent of total variance. These factors are clearly identifiable as related to social desirability and acquiescence response styles, respectively.

5) Removal of variance predicted via the RSAT and neutral scale scores enabled evaluation of the extent to which trait scales achieved convergent and discriminant validity apart from response style variance.
The matched pairs PRF "dominance"-CPI "dominance" and PRF "impulsivity"-CPI "flexibility" were judged to have achieved convergent validity. All other matched pairs failed to meet this criterion. The residual variances of the 6 PRF trait scales loaded across 5 factors and were judged to have achieved a reasonable level of discriminant validity. That is, each scale contributed to the predictive power of the assessment battery by assessing unique aspects of personality not assessed by response style or other trait scales. The residual variances of the 6 CPI scales loaded primarily on two factors and were judged to have failed to achieve a reasonable level of discriminant validity. The use of 6 scales for achievement of predictive power on two factors is unparsimonious.

6) Individuals grouped according to Low, Moderate, and High combinations of "threshold" (neutral scale scores) and "salience" (RSQs) parameters differed significantly in mean trait scale scores and in obtained personality profiles as manifested on the sample of PRF and CPI trait scales used in this study.

7) Validity coefficients between scores predicted via RSAT and obtained trait scale scores are of a magnitude comparable to those validity coefficients obtained between trait scales and criteria related to trait content, indicating the potential usefulness of this approach for prediction of personality trait related behavior.

The primary function of structured personality assessment is to measure differences between individuals along some group of trait dimensions deemed of theoretical and practical interest. The objective of such measurement is the understanding and prediction of individual
differences in behavior theoretically related to these traits. This objective will be furthered by use of inventories composed of scales which are (1) reliable, (2) achieve convergent validity—that is, measure what they purport to measure, (3) achieve discriminant validity—that is, contribute to the predictive power of the inventory by assessing aspects of personality not assessed by other scales.

Differences in the construction methods of scales with similar sounding trait descriptions makes achievement of convergent validity by these scales difficult and attempts to generalize information obtained from one trait scale to another hazardous. This problem is made evident by the failure of four out of six "matched" pairs of scales to achieve convergent validity in this study. Such a proliferation of scales ostensibly measuring similar constructs which are actually measuring dissimilar dimensions mitigates against the development of a body of personality theory due to the confusion and fragmentation of knowledge which results from the production of data lacking in generalizability.

The development of trait scales which achieve discriminant validity thereby incrementing the predictive power of a group of measures is difficult due to the pervasiveness of the social desirability and acquiescence response style dimensions. Many scales which are purportedly measuring distinct traits load highly on factors related to response style dimensions. The construction and use of a number of scales all loading highly on one or two factors is unparsimonious. A more efficient approach would be direct measurement of the underlying response style dimensions used in combination with scales which
contribute information relatively unrelated to response style dimensions.

Further research is needed to clarify the theoretical underpinnings of the response style parameters "salience" and "threshold." However, present understanding would suggest these behavioral definitions: (1) "salience" refers to the degree to which an individual's responses to personality items can be predicted with knowledge of the social desirability scale values of the items and is considered a manifestation of the degree to which the individual has absorbed cultural expectations for behavior and is sensitive to cues relevant to the reinforcement or approval of behavior; (2) "threshold" refers to the point on the social desirability continuum at which the probability of an individual's endorsement of blocks of personality items ranked with respect to desirability passes the .50 mark and is considered an indicator of a tendency to generally respond "true" or generally respond "false" to personality items which are relatively neutral with respect to their social desirability. That is, individuals with low "thresholds" will respond "true" to a higher proportion of items across the moderate and neutral ranges of the social desirability continuum than will individuals with high "thresholds."

Several conclusions relevant to the relationship between response styles and structured personality assessment can be drawn from the present research.

**Empirical vs. Rational scale construction methods**

A researcher choosing among presently available personality inventories will probably obtain more trait-related information through
the use of an assessment battery constructed via the rational approach than through use of an assessment battery constructed via the empirical approach. The empirical approach as represented by 6 CPI trait scales yields largely redundant scales highly correlated with social desirability and acquiescence response styles and with each other. These scales are reliable and achieve a reasonable level of convergent validity as indicated by data presented in the CPI manual. (Gough, 1975) However, these scales composed of empirically selected items of heterogeneous content, are apparently eliciting variance primarily related to individual differences in response styles and the covariance between response styles and personality traits resulting in a notable lack of discriminant validity. Such redundancy is inefficient and unnecessary.

The rational approach as represented by 6 PRF scales yields scales less highly correlated with response styles and with each other. These scales are reliable and achieve a reasonable level of convergent validity as indicated by data presented in the PRF manual. (Jackson, 1967) Further, these scales elicit varying degrees of unique variance beyond response style variance which contributes to the overall predictive power of the assessment battery. Thus, the user will obtain information related to a variety of personality dimensions.

However, given that the PRF scales were developed with considerable attention paid to the minimization of response style variance, the fact that the RSAT was able to predict approximately 25 percent of the variance of three of the six PRF trait scales ("achievement," "dominance," "social recognition") included in this study testifies to the pervasiveness of the social desirability and acquiescence response style dimensions.
The RSAT model of personality assessment

Given the results of this study and previous studies (Messick and Jackson, 1961; Jackson, 1968; Edwards, 1970; Rogers, 1971; Jackson, 1974; Voyce and Jackson, 1977) the following points can be stated:

1) Individual differences in social desirability and acquiescence response styles are pervasive personality dimensions related to a large portion of the variance of many scales which purport to measure person-ality traits. These response styles are clearly related to the first two large factors which consistently emerge from analyses of personality trait scale response data.

2) Subject desirability parameters based on the "Threshold" theory of Donald Jackson assess individual differences in social desirability and acquiescence response styles and thus assess individual differences related to these first two large factors.

3) Subject desirability parameters assessed on one sample of items can be generalized to other sets of items allowing prediction via the RSAT of that portion of trait scale variance related to response style and the covariance of response style and trait behaviors.

4) Judgments of the social desirability scale values of personality items are reliable and highly correlated across diverse populations allowing use of these values as stable item parameters.

5) Response style groups (defined by Low, Moderate, and High combinations of subject desirability parameters) obtain significantly different trait scale scores and personality profiles.

Given the above points, the RSAT model is suggested as the basis for a response style approach to personality assessment. Two general
classes of personality assessment situations will be described and the utility of the RSAT model for the situations will be discussed.

Class I assessment

This class includes all long-range research efforts in the field of personality assessment. The ultimate purpose of these efforts is development of a comprehensive theory of personality to enable the understanding and prediction of individual differences in behavior. Considerations of time and money are relatively insignificant given the commitment to this goal by the international psychological community.

Class II assessment

This class includes all situations in which the results of research in personality assessment are applied to decision-making situations in clinical, personnel, educational and other settings. The aim is to achieve a level of predictive power which will increase the number of "correct" decisions related to options for treatment, personnel selection, instructional method, etc. A desire for highest levels of predictive power must be weighed against considerations of the availability of staff time and project/department monies. Professionals in such settings must work with available knowledge but will, of course, benefit from advances in understanding resulting from Class I research efforts.

Application of the RSAT model to Class I assessment situations

Application of the model would involve several steps. First, subject and scale desirability parameters would be assessed. Knowledge
of subject and scale desirability parameters would enable prediction via RSAT of that portion of trait scale variance related to individual differences in response styles and the covariance between response styles and personality traits.

These predicted scores would be related to the first two large factors accounting for variance in response to personality items and would provide a baseline of behavior predictable via desirability parameters. The magnitude of correlations between predicted and obtained trait scale scores would indicate the degree to which the trait scale contributes information beyond that provided by knowledge of response style parameters. High correlations of obtained scale scores with predicted scores would indicate a lack of discriminant validity apart from response style variance for that scale.

Next, variance predictable via desirability parameters would be removed from obtained trait scale scores via partial regression procedures. The residual variances would theoretically be related to individual differences in behavior specifically related to the trait. Assessment of content variance for convergent and discriminant validity with other trait scales would then be possible. These residual variances should correlate with those of scales ostensibly measuring similar traits but should have low to zero correlations with scales measuring dissimilar traits. This step enables identification of those scales which are apparently not measuring what they purport to measure and those scales which do not contribute predictive power to the assessment battery beyond that achievable with other traits. In the situation where a number of supposedly distinct traits intercorrelate
highly, that trait which is conceptually simplest and/or loads most
closely on the common factor would be retained. Alternatively, develop-
ment of an index which taps the dimension underlying the interrelated
traits could be developed.

Use of the RSAT model in this manner will facilitate personality
assessment by (1) providing a means for parsimonious assessment of
individual differences in behavior related to the first two large factors
emerging from personality response data; (2) enabling systematic
evaluation of trait scales for ability to validly measure specified
traits in a manner which contributes to predictive power beyond that
achievable via response style parameters and other conceptually simpler
traits. This approach is consistent with the goal of parsimoniously
accounting for individual differences in behavior with constructs which
are as conceptually and theoretically simple as possible.

Application of the RSAT model to Class II assessment situations

The pervasiveness of desirability cues across categories of
personality content suggests that prediction of behavior in "applied"
settings may be more successful with a response style approach than
with an approach utilizing knowledge of specific personality traits.
A specific behavior in a specific setting may be theoretically linked
to a number of traits. The predictive power of a given trait for
behavior in a given setting would be expected to vary across individuals.
That is, "sociability" could be the relevant trait for one individual
while "dominance" is relevant for another. Successful prediction of
behavior in a complex setting via knowledge of some subset of these
theoretically linked traits is difficult. However, the response style parameters which are linked to personality profiles would yield predictions related to constellations of traits rather than single traits.

Applications of the RSAT model in such settings would involve: (1) determination of the social desirability scale values of specific behaviors in specific settings; (2) determination of subject desirability parameters; and (3) prediction of behavior based on subject and situational desirability parameters.

The predictive power of the RSAT strategy for scales and situations other than the sample of PRF and CPI scales used in this study is, of course, an empirical question. But, the generalizability of subject desirability parameters assessed on one pool of items to other sets of items has been demonstrated in this study. Correlations between obtained and RSAT predicted scores were of a magnitude exceeding or comparable to correlations between obtained scores and content-related criteria.

The simplicity and predictive power of these response style constructs and their relationship to personality profiles suggests a variety of uses in applied settings. For example, the "salience" levels of students may be related to the effectiveness of particular classroom management strategies. Conceivably, students with high "salience" levels, who are apparently sensitive to cues for acceptable behavior, require little monitoring by the teacher. Students with low "salience" levels who are apparently not sensitive to cues for acceptable behavior may benefit from highly explicit instructions as to behavioral expectations. Similarly, the employee who seems oblivious to subtle
suggestions for changes in work behaviors may have a low "salience" level and may require more direct supervision.

An understanding of these two response styles, social desirability and acquiescence, may provide a means of predicting the behavior of individuals in a manner which due to its conceptual simplicity facilitates understanding of differences in behavior and provides clues relevant to successful treatments and solutions.

Summary statement

Two general orientations toward response style variance exist in the field of personality assessment. Practitioners using the empirical approach to scale construction generally view response style variance as nonexistent or unimportant and choose to ignore its impact on trait scale variance. Practitioners using the rational approach to scale construction generally view response style variance as "error" variance, "lying," "inattention," etc. and seek to eliminate response style variance. Both orientations are unproductive.

Objectives of parsimony and efficiency demand that the social desirability and acquiescence response style dimensions related to the first two large factors emerging from personality response data be acknowledged as personality dimensions in their own right and that direct measurement of these dimensions be attempted. The RSAT model, utilizing subject desirability parameters of Jackson's "threshold" theory provides a means by which individual differences in behavior related to these response styles can be assessed and used to facilitate the development of a body of personality theory and application of this theory to complex behavioral settings.
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