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An Investigation of Hypothesized Item Content of the Group Personality Projective Test: a Validity Study.

Ronald Felix Boudreaux
Louisiana State University and Agricultural & Mechanical College

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Submitted to the Graduate Faculty of the
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in partial fulfillment of the
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in
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by
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ABSTRACT

The purpose of this study was to investigate the hypothesized item content of the Group Personality Projective Test, one of very few attempts at an objectively administered, objectively scored, and standardized projective technique.

Initially, two separate but comparable groups of 52 college students were given two versions of the GPPT. One group was given the original, published version; the other, a version with response choice positions randomized. The two groups were then compared on GPPT need dimensions by simple t test. This comparison was performed to see whether a position response set is affecting test results.

Second, a sample of 248 subjects, representing both normal and psychiatric populations, was given the randomized version of the GPPT. Other data gathered on subjects, to be used as validity criteria for the GPPT variables, were two different sets of MMPI scale scores and clinical and demographic information. Each response choice of the GPPT was treated as a variable. The 90 x 5 GPPT variables, along with the criterion data, were submitted to factor analysis, to arrive at a factor structure based on item intercorrelations, and to generate meanings of factors on this basis, as well as on the basis of external criteria. An obverse analysis was called for to accommodate a problem with more variables than subjects.

Results indicated that a position response set could well be
affecting GPPT Neuroticism scores, normal subjects scoring significantly lower on this dimension with the randomized version of the test than with the original version.

All but one of the factors extracted in this study's analysis contained a nearly random distribution of items from the original GPPT dimensions, indicating that the original item groupings, arrived at a priori by the test authors, were not the same as those obtained on the basis of item intercorrelations. The one exception was a factor including a slight majority of GPPT Succorance items, but including items from a few of the other scales as well.

Only a small portion (17%) of the total number of GPPT items loaded significantly on the factors obtained, and the factor structure accounted for only 26% of the variance in the matrix. Investigation of the data seemed to indicate that the vast majority of items were either too generally endorsed, too specific, or too unreliable to be considered meaningful in terms of personality variables. Attempting to infer the meaning of the factors, either from GPPT items themselves, or from criterion variables loading on those factors, would have been extremely speculative.

It was concluded that the GPPT, primarily because of apparent failure to meet basic reliability and validity standards in its construction, holds very little usefulness, at least in terms of what it proposes to do.
We must aim toward knowing what a new technique represents, what its theoretical underpinnings are, what support, even if only in 'construct validation,' there is of this theoretical framework, and how we can check and test the complex links that are automatically assumed when a new, custom-made projective technique emerges (Goldstein, 1961).
INTRODUCTION

The purpose of this study is to examine a rather unique and little known psychological instrument, the Group Personality Projective Test. It is one of very few attempts to construct an objectively administered, objectively scored, and standardized projective technique. Before going into the characteristics of this test in fine, a brief look at the burgeoning research literature on projective techniques in general seems necessary in order to establish a context in this area.

The body of recent literature may be roughly broken down into what may be called theoretical camps, according to the apparent biases researchers take in doing a study. Perhaps the largest portion of the literature is composed of studies relating one or more variables of a projective test, such as Rorschach M or TAT nAch, to some personality construct or behavioral criterion, such as motor inhibition or grade point average. Though as Murphy and Harris (in Rickers-Ovsiankina, 1960) point out in relation to the Rorschach, it was necessary to separate out the various functions in a Rorschach protocol, it seems fair to say that such studies do some violence to the original conception of the projective test as a holistic view of personality, especially in the Rorschach tradition in which no single response category can be properly evaluated apart from the totality. This type of study also serves, in Schneidman's words (Wolman, 1965) "to placate the other
tribe's totem," by attending to the isolated variable as opposed to the total personality. Though admittedly an oversimplification, a description of the remainder of the literature may be made in terms of a continuum from total endorsement of projective techniques as basically different from, and therefore not comparable to more psychometrically oriented instruments (Klopfer, 1968), to absolute rejection of projectives in view of the absence, relatively speaking, of proven validity or utility (Jensen, 1964).

Perhaps the main bone of contention for those eschewing projectives is that of subjectivism in obtaining and interpreting projective material. Examining some of the issues on this point will serve to set off the GPPT as a projective which attempts to eliminate certain sources of subjectivism. One way to view these issues is in the context of the typical projective testing situation: the examiner as stimulus and interpreter; the projective stimulus; and what that stimulus gets at in the subject as responder in a particular time-place-state setting.

The Examiner as Stimulus and Interpreter

In his Analysis of Fantasy (1954), Henry proposed a framework for interpretation of projective material, but did not deal with the examiner as a variable, either as directly influencing the subject and his responding, or as subjectively interacting with the data to determine partially its interpretation. On the other hand, Schafer (1954) dealt with these considerations extensively. This writer has seldom, if ever, witnessed a psychodiagnostician's reporting his part in determining the subject's responses. Raines and Rohrer (1960)
hypothesized that a clinical interviewer's own life experiences make him more sensitive to certain aspects of a subject's dynamics than others, and that the interviewer distorts accordingly. In spite of the apparent implications of such a hypothesis for psychological testing, it appears that in practicality, the clinician views himself as a tabula rasa. Some of the recent literature has taken a hard look at this type of consideration. In viewing the examiner as stimulus, Harris and Masling (1970) found that total number of responses on the Rorschach was higher when S and E were of different sexes, than when S and E were of the same sex. Hamilton and Robertson (1966) found that instructing E's to be warm, neutral, or cold influenced Ss' productivity on seven of the ten scoring categories of the Holtzman Inkblots. More than twenty years ago, Lord (1950) found the same effects on the Rorschach. Masling (1965) told one group of graduate students that experienced E's got more H than A content on the Rorschach, and a second group the opposite. Results indicated that students got what they had been told experienced E's got. Influential factors were not the obvious one of verbal conditioning, but rather facial, postural, and gestural cues.

The factor of the examiner's influence on interpretation brings up some interesting questions concerning the basic assumptions of projective tests. Frank (1939) proposed that 'individuation' (as opposed to socialization) of a personality generated a universe of idiosyncratic feelings and meanings that were 'more real and compelling' than the consensual, uniform elements measured by the normative approaches. That these aspects of 'individuation' are in fact more real
and compelling may be true. However, whether these aspects are knowable, especially in an intuitive, idiographic approach, presents a difficult epistemological problem. If this individuated aggregate is private, as Frank insists, then the examiner's attempt to fathom it stands the chance of being determined by the examiner's private world. An apt analogy may be the Kantian dilemma of color perception: because a perceptual experience is labeled 'red' does not insure that two people calling 'red' have the same subjective experience of saturated light. In terms of objectivity, "It is not the significance or meaning of the stimulus for the responder which is at stake, for this can be inferred only from the response. It is rather the interpretation of the response by the examiner which is the core issue" (Zubin, et al., 1965).

As Holtzman (1959) has indicated, "In most instances the projectivist has tried to preserve the qualitative, idiographic essence of the projective method while searching for ways in which to categorize, quantify, and standardize the response variable underlying the test behavior. When he classifies and enumerates any of S's responses to a projective technique, he is adopting, if crudely, a psychometric frame of reference. When he counts such responses, he is implying a crude ordinal scale. . . ." Goldstein (1961) has perhaps come closer to describing the many clinicians who do not score projectives, but simply make inferences from reading the protocols; "None of these single clues (clinical signs, stylistics, content, etc.) is itself of a high probability, but by an inner additive kind of weighting based on
frequency and intensity of cues observed the clinical judgment is reached."

The point made here is not that the experienced clinician does not do admirably well with traditional projectives. However it seems difficult to deny that the typical clinician is indeed engaging in a form of actuarial prediction, with actuarials limited to his own clinical experience. As Dana (1968) points out, however, one of the most prominent features in the history of projectives is that 'research has had absolutely no impact on clinical practice.' This fact severely limits the validity of clinical judgment in light of what actually is known about projective tests and their capabilities. A further consideration is Jensen's (1964) point that if one recognizes how little of the negative research on projectives has been discredited, and then weighs time and training required to produce a clinician expert at projective testing, these techniques have scant validity indeed.

The fact that the typical clinician remains a closed system in his interpretation of projectives leaves serious interdependent problems in both validity and reliability of clinical judgment: the assumption that his inferences are valid results in untested, and, in fact, untestable 'truth'; reliability is left at a speculative level. It is argued that reliability and validity, in the traditional sense, do not apply to the projective test, as an idiographic method. Nonetheless, it is these very considerations which have led to the myriad of attempts to objectify administration and scoring of projective techniques. Piotrowski (1964) has called for a digital computer interpretation of the Rorschach to decrease subjectivism and as a means of
more thorough validation. Smith (1968) has explored the same possibility with the TAT.

The GPPT has eliminated the effects of the examiner as stimulus in that the subject takes the test alone and indicates his single response choice from five pre-stated descriptions of each stimulus. The problem of interpretation with this test is different from that in a free response situation. With the GPPT, qualitative and quantitative aspects of a response are predetermined in construction of the test. These predeterminations leave the GPPT vulnerable to the subjectivism not so much of its users, but of its authors. It is on this point that the test bears examination.

The Projective Stimulus

Turning to the projective stimulus, the literature soundly questions and refutes some critical assumptions in traditional theory on projective techniques. Though formerly, as Rabin (1961) points out, it was thought that the more unstructured the stimulus, the better, he quotes Sigel (in Rabin and Haworth, 1960): "A more fruitful approach . . . is the use of stimuli depicting particular situations relevant to the variable under study. . . . unless the content of the projective and the variable measured have some specific relationship, accurate predictions are difficult." Vernier (1955) in her study trying to predict the behavior of tuberculosis patients, pointed out:

. . . the major implication for projective methods would appear to be a confirmation of the importance of analysis of interaction between person and situation for accurate behavioral
prediction . . . it is essential that the tests, while ambiguous, present stimuli which tap the specific situation or area in which the behavior to be predicted occurs.

Integrally related to the question of structure is that of levels of personality being explored. Coleman (1969), in spite of an article title implying novelty, gave a traditional treatment of the levels hypothesis: as stimulus structure decreases, the subject is more distant from the stimulus, and, to that extent, less aware of the personal relevance of his response. Murstein (1970) however, found that for normals, there was an inverse relationship between stimulus structure and pathology. The upshot was that the more one projects, the more his responses tend to be classified as pathological, regardless of diagnostic status. Murstein recognized as operative here the negative bias of projectives and that something like 'regression in the service of the ego' is more likely to be judged pathological than healthily creative. This is perhaps only mildly alarming until one looks at some of the blind analysis studies where large proportions of normal subjects' records are judged pathological.

What the Stimulus Evokes in the Subject

In terms of what is being evoked in the subject, some crucial issues are being questioned. Harris (in Rickers-Ovsiankina, 1960) and Wagoner (1964) point out that the usual index of hypothetical, perceptual events is words or groups of words arranged according to syntax. This index is inappropriate for, and impairs even the possibility of assessing accurately the perceptual event hypothesized. "As soon as
we ask the subject to state what he sees or why he sees what he reports, we are inviting him to contaminate the information on percepts which we plan to use in our primary interpretation of data" (Harris, in Rickers-Ovsiankina, 1960).

In a series of review articles on Rorschach content, Draguns, et al. (1967, 1968) comment that no single content category means anything in particular, and that stylistic, defensive, and other factors come between the presence of a motivational or personality characteristic and its expression on the Rorschach.

The meaning of Rorschach's human movement determinant, M, continues to be questioned, Wagner (1965), Ward (1966), and Herdt (1967), among others, arguing that M is a reflection of overt social behavior, as opposed to its traditional meaning of motor or response inhibition (Darby, 1967), Megaree, (1966), (Teltscher, 1965).

Though not a new issue, the influence of temporary states and non-motivational factors is being frequently examined. Hunger and stress (Rabin, 1961), cognitive factors (Sheehan, 1968), cultural habits and intelligence (Hunt and Smith, 1966) have been studied in this connection. Veroff (in Kagan and Lesser, 1961), in talking about experience background in relation to projective test (TAT) responses, makes the point that "... if people do not agree, to begin with (on what the picture is about), then individual differences in motive scores can not only be attributable to dispositional differences, but also to possible differential experience and interpretation of the kind of situation portrayed."
Summing up as to what projectives have been proven to accomplish, Suinn and Oskamp (1969), in a fifteen year evaluative review in book form, conclude:

... the Rorschach may prove useful to some clinicians for making certain highly specific predictions. However its all-too-common use as an all-purpose trait predictor, diagnostic indicator, and global personality descriptor is not justifiable by any scientific evidence presently available.

Similarly for the TAT:

Contrary to its original rationale, the TAT stories seem to reflect overt personality trends, rather than covert or unconscious dynamics. The greatest success of the TAT seems to be in predicting interpersonal behaviors, particularly aggressive, hostile, or acting-out traits. However the same warning given previously concerning the Rorschach also applies to the TAT: the test has not been validated as a whole but only for certain selective tasks and situations; and even these procedures need to be rechecked from time to time to insure that changing conditions have not led to a validity gap.

Finally:

There are few outcomes or behaviors which [the practicing clinician] can safely predict on the basis of present scientific evidence [from projectives]. Therefore, in making his daily predictions about the behavior of his clients, he is forced to avoid the use of tests, or else to use them rashly without sufficient evidence.
Because of its administration, format, and attempts of its authors to standardize it, the GPPT held the possibility of escaping the general judgments on projectives. For this reason the experimenter chose to examine the soundness of its construction and the validity of its claims.

Furthermore, the authors of the GPPT called upon multivariate statistics in arriving at the dimensions measured by their instrument. The rationale for a bias toward this approach can be seen from some of the points Cattell has made (in spite of the dogmatic tone): "... though the clinical method is formally the multivariate method, it lacks scientific rigor, proceeding by intuition and fallible human memory. ... The salvation of the clinical method lies in filling out its cloudy procedures by structural statistics, decidedly more complex, incidentally, than those known to univariate methodology" (Bass and Berg, 1959).

The Group Personality Projective Test

This test, most simply defined, is an objectively scored projective test. The stimuli are ninety stick-figure drawings. Adjacent to each drawing are five multiple-choice type answers to a question about what is going on in the picture. Based on a priori reasoning, the test was originally designed to cover fifteen personality needs divided into three sets of five: personal needs, social needs, and emotional needs.
What is taking place in the picture?

a) A lonely person (A) is just standing on a street corner.
b) A man (A) is checking his watch to be sure he isn't late.
c) A person (A) just passing time.
d) A man (A) is watching a pretty girl (B) walk down the street.
e) B is afraid A is thinking of stealing his package.

Fig. 1. A stimulus of the type contained in the GPPT, with response choices composed according to the author's understanding of the hypothesized meaning of the original GPPT scales.
The authors' theoretical orientation states that personality is defined by "cognitive (thinking) and emotional (feeling) activities which are distributed in three separate and distinct layers. . . ." The outer layer is "the mask one wears in relation to others", largely the result of various areas of social learning. The middle layer is "... the mask one wears in relation to one's self. It is a state of unorganized differentiation, where the cognitive structure begins to move into the foreground, and objects are recognized but are acceptable or unacceptable." The deeper layer consists of "... symbolic responses based on emotional experiences and emotional scars, which responses may be continuously reinforced through some form of reintegration or other psychological process . . . affective associations in the form of an undifferentiated global unity."

The GPPT is designed to assess the middle layer. This construct seems to resemble Murray's (1938) conception of those levels of consciousness including "... inhibited, once verbalized tendencies, many of which are infantile," as well as those "processes that 'pass,' as it were, in and out of consciousness." In terms of degree of structure, the GPPT stick-figures appear considerably less structured than the TAT stimuli. In view of Murstein's (1970) characterization of TAT stimuli as 'intermediate' in structure (relative to the Draw-A-Person, Rorschach, Sentence Completion Test, and Bender-Gestalt Test), the GPPT would probably fall between the Rorschach and TAT. If one accepts the levels hypothesis, the GPPT would be sampling needs at a level of personality intermediate between that tapped by the Rorschach
and that tapped by the TAT. The authors caution that needs and tensions change continuously. Consequently, the fact that need scores change over time should not be taken as a deficit in the assessment capability of the test.

The pre-publication version of the test had thirty items for each of the three categories (personal, social, emotional), each category including five need dimensions. This version was administered to four hundred normal subjects, and since the five response choices represented categorical (non-scale) data, it was scored for each need by presence or absence (1 or 0) of a choice representing that need. These fifteen scores were intercorrelated and a Thurstone centroid factor analysis carried out. Five significant factors were extracted from the fifteen need part scores. The first factor was bipolar, all positive loadings defining one pole and being interpreted as a factor; all negative loadings defining the other pole, also interpreted as a factor. The positive pole was identified as withdrawal or escape (need to avoid personal responsibility either for himself or others), the negative, affiliation or psycho-variables (need for group membership and psychosexual contacts). Factor two, also bipolar, had at its positive end reward or motivation type items (happiness), and at the negative end, dejection or distrust type items. Factors three, four, and five, all pure factors, were identified respectively as neuroticism or tension (inability to make sound and timely decisions; the need to remain indecisive), succorance and distrust (need to seek aid, to play an infant role), and nurturance (need to play father role, to give aid
to others and provide initiative in leadership or guidance). Factor two was incorporated as the Tension Reduction Quotient, the ratio of dejection answers to the total number of answers on both poles, and computed as a percentage. Finally, a Total Score, composed of the raw scores multiplied by empirically determined weights and summed, was employed to discriminate between normals and psychiatric patients. The weights were b coefficients derived from the correlation matrix of scores from a sample of normal adult males and neuropsychiatric patients.

In terms of reliability, though the authors do not offer lapsed time between administrations, test-retest reliabilities for factor scores vary between .567 and .678 across various groups. Odd-even reliabilities tend to be in the .400's. Face validity as a personality test appears to have been established by the authors. In this connection, Cassel and Braucle (1959) found that the GPPT could be faked 'bad,' but not the converse. Braun (1967) found that his subjects could fake 'good.' However this study used extremely small samples (N's of 14 and 23); furthermore, though Ss were able to lower scores significantly, on no dimension were the means outside the average range.

One quality of the test in particular calls attention to the question of response set. Each choice position represents the same factor throughout the test, choice 'a' representing Factor Two; 'b,' Factor One; 'c,' Factor Three; etc. This situation would conceivably leave something like response style or position response set and item content totally confounded. Such a possibility should be scrutinized if item content is to be established.
A rather glaring weak point in the data on the test to this point is that predictive validity and construct validity have been attempted only for TRQ and Total Score, and even here rather sparsely. Furthermore, as stated earlier, the factor analysis was done on part scores, the meanings of which were determined a priori. Consequently though the validity of the factor structure seems to be established (by a repeated analysis with the same results) the composition and interpretation of the structure is relegated to the same a priori meaning of items and scales. Neither items nor scales have been submitted to validating procedures of any kind.

The purpose of this study was to investigate the hypothesized item content of the GPPT, and, by implication, the homogeneity and meaning of the factors to which those items contributed. In practicality, this amounted to a proposed comparison of the authors' intuitive grouping and naming of items ultimately constituting the test factors, with a factor structure based on item intercorrelation and including a wide range of test, demographic, and clinical criterion variables. Also, because of the GPPT's choice position format, one purpose was to test whether GPPT content was in fact being confounded with position response set.

In view of the nature of this study, i.e., a validation, specific hypotheses of the type made in a strictly experimental study did not seem appropriate. However some broad hypotheses are in order.

1) Factor scores will differ between the original test format and a revised one in which pattern of response choices was randomized.
2) The factor structure found in this study will differ from that found by the authors, in view of different procedures (i.e., item intercorrelation versus part score intercorrelation). This is essentially a test of the homogeneity and independence of the original item groupings which ultimately constitute the test factors.

3) The meaning of the new factors, in terms of personality constructs, will not coincide with those of the former factors. This is simply a test of the authors' intuitive approach to defining the meanings of the original test factors.

4) The new set of factors will be significantly related to several of the demographic, clinical, and test variables used as criteria. Specific hypotheses relating GPPT factors to particular criterion variables (e.g., GPPT Dejection to MMPI Depression) are not appropriate here in view of hypotheses 2 and 3. Criterion variables were chosen to cover as many facets of personality as possible for the purpose of ascertaining GPPT item content. Consequently this hypothesis states that criteria were inclusive enough to indicate what the GPPT is measuring.
METHOD

A brief summary of method will be presented here to maintain continuity and clarity as one reads the various procedural steps. Initially, two separate but comparable groups of 52 college students were given two versions of the GPPT. One group was given the original, published version; the other, a version with response choice positions randomized. The two groups were then compared on GPPT need dimensions by simple t test. This comparison was performed to see whether a position response set is affecting test results.

Second, a sample of 248 subjects, representing both normal and psychiatric populations, was given the randomized version of the GPPT. Other data gathered on subjects, to be used as validity criteria for the GPPT variables, were two different sets of MMPI scale scores and clinical and demographic information. Each response choice of the GPPT was treated as a variable. The 90 x 5 GPPT variables, along with the criterion data, were submitted to factor analysis, to arrive at a factor structure based on item intercorrelations, and to generate meanings of factors on this basis, as well as on the basis of external criteria. An obverse analysis was called for to accommodate a problem with more variables than subjects.

Subjects

A total sample of 248 (46% male) subjects was used, approximately 12.5% taken from psychiatric hospital in-patient groups, and
24.5% from clinic out-patient populations. The remainder was taken from normal populations (the vast majority were high school and college students).

The only age criterion utilized was a lower limit of 16 years (because of minimum age for taking one of the tests used in addition to the GPPT). Mean age for the sample was 23.7 years, with a range of 16 to 54. Literacy was also checked to insure that subjects could read sufficiently well to take the tests. The criterion set for normality was that of no history of having consulted a mental health professional about oneself. Criteria for the psychiatric groups were current residence in a psychiatric hospital for in-patients, and regular visits to a mental health professional for out-patients. (It was felt that using only state clinic or training facility subjects as opposed to private practice clients would increase diagnostic reliability in view of generally more staff collaboration on diagnostic work in the former situation). A further criterion set for the psychiatric sample was that there be no diagnostic overlap for a patient between "functional" and "organic" categories. Only subjects in the former categories were included.

Personal and demographic information to be utilized was: race, sex, age, marital status, educational level, and occupation of main wage earner in the family. The last item was used to determine socio-economic status, according to the North-Hatt Occupational Scale (Reiss, 1961).

Though the psychiatric Diagnostic and Statistical Manual II labels were available, the more reliable breakdown into more general
categories was used. Of the total sample, 18.7% were psychotic, 7% neurotic, and 12% character or personality disorders. Hospitalization versus non-hospitalization was also included as a variable.

With the exception of age, educational level, and socioeconomic status, demographic and clinical data were scored as present or absent (1 or 0).

**Instruments and Procedure**

An initial problem to be dealt with in studying the GPPT is the fact that each choice position represents the same factor throughout the test, choice 'a' representing Factor Two; 'b,' Factor One; 'c,' Factor Three, etc. This situation would appear to leave something like response style or position response set and item content totally confounded. Consequently, the first step here was to randomize the positions of the choices for experimental purposes.* The original version of the test had been given to a sample of 52 college students in undergraduate psychology courses with roughly even sex distribution. This group was given the test by the author's major professor, since the former was away from the university on internship. A year later the altered version was given to a sample closely comparable to the first to check for differences. Both groups were given experimental credit for their participation. In the first group to take the test, all students in the class participated. In the second group, very nearly all did so. These considerations seem to eliminate the possible confounding of an exclusively volunteer sample.

*Permission granted by Psychological Test Specialists, Missoula, Montana.
The MMPI was chosen as a test measure validity criterion for the GPPT because a widely known and well researched test, as well as one covering a wide range of personality variables, was needed for optimum communicability and generalizeability of results. A factor analyzed version of this instrument would have been optimal in order to insure scale independence and eliminate the problem of between-scale item overlap (index correlation). However the factor analyzed versions available were either restricted to male samples, or contained other complications prohibitive to their use in this study. Consequently factor analyses were done with and without MMPI scale scores, the factors then to be compared between analyses to see which scales loaded on the various GPPT dimensions extracted in both cases. One analysis included the original validity and clinical scales of the MMPI. Another utilized Lushene's (unpublished computer program) Experimental Scale Analysis, an aggregate of nine scales selected on the basis of factor analytic studies which indicated that they represented a wide range of variance not directly tapped by the clinical scales. However this author's work did not correct for item overlap or assure relative scale independence. Subjects were eliminated if the MMPI validity measure, the F scale, exceeded the acceptable limit (F > 23). MMPI's were scored by Lushene's MMPI Scoring and Interpretation Program (unpublished).

Subjects were given both the MMPI and the randomized version of the GPPT within at most one week's time to minimize the possibility of state changes affecting test results differentially.
Psychiatric subjects in treatment were requested by their therapists to participate in a research project which would perhaps be of help to the subject as well as to the therapist's understanding of him. Persons being admitted for possible treatment were given both tests as part of initial clinic procedure. Normals (students) were given experimental credit for participating in this research project, in order to eliminate sample bias of volunteer subjects.

A final step, after the analysis had been completed and factors extracted, was designed to overcome the difficulty of esoteric and uncommunicative factor naming and defining. A small group (10) of post-graduate students in areas other than psychology or related fields were to examine the factor items in the test context, and on a consensus basis, indicate what such choices would indicate about a person making them. Though very probably slanted toward face validity, it was felt that this procedure, coupled with test, clinical, and demographic criteria, would provide a more objective method of arriving at item and factor meaning than the usual intuitive procedure.

Statistical Analysis

The first statistical operation to be performed was the comparison of the scores on the original published version of the GPPT with those on the version with response choice positions randomized to eliminate possible confounding of content and position response set. Tests for both samples were scored and the raw scores converted to T-scores according to the norms set up by the authors. (New scoring templates were made to register the same factor choices now in
different positions in the choice field.) Distributions were obtained for each of the samples on all test dimensions utilized with the exception of Total Score (a composite of all other dimensions weighted and summed). Thus distributions were obtained for Tension Reduction Quotient, Nurturance, Withdrawal, Neuroticism, Affiliation, and Succorance. T-score distributions on each dimension and for each sample were compared by a simple t test. The significance level adopted was .01, in order to make the test for difference between forms a stringent one.

The bulk of statistical work in the study was the factor analysis of the GPPT responses and validity criteria. Though there are only ninety items on the GPPT, each item includes five choices which represent categorical data. It was thus impossible to scale the choices for each item. Consequently for the analysis, the GPPT constituted 90 x 5 or 450 choices or variables. Depending on whether the 13 MMPI validity and clinical scales, or 9 Experimental Scales were included along with the GPPT variables, clinical data, and demographic information, the total number of variables was 474, 470, or 461 respectively. This number of variables with 248 subjects required an analysis which would accommodate a problem with many more variables than subjects, and necessitated a mechanized execution. Both requisites were fulfilled by a computer program for a large, obverse factor analysis (LAROB). This program yields principal axis factors since communalities of one are assumed; it was designed for problems with more variables than subjects. The varimax procedure is employed in rotating factors. The problem of criterion level for picking
significant factor loadings is one without firm solutions. The procedure utilized here was the frequent one of arbitrarily choosing a minimum level (.35) and then working with the meanings of individual variables to retain or throw out on the basis of contribution to import and purity of factors.

A note is appropriate here on how the GPPT was broken down into variables for this factor analysis. As stated previously, the five choices per item represented categorical data. The optimal procedure would have been to scale the choices for a particular stimulus. However this would have placed an unfounded assumption on the relation between intra-item choices. The lesser evil of using 1 or 0 to indicate presence or absence of a choice was decided upon, even though it assured a negative relation between the chosen response and the other four variables. The model thus assumed was that, along with criterion variables, there were ninety methods, each with five possible responses. This bears some kinship to Jackson's (1969) multi-trait, multi-method matrix. Though this type of analysis tends to yield some "method" factors, on which loadings are constituted by different types of observation (interview, true-false tests, free response tests), methods (items) for the GPPT were assumed to be homogeneous. If method factors did arise, they would be assumed to be some type of response set, and thus a portion of variance not accounted for by GPPT content dimensions.
RESULTS

In the comparison of factor T-scores on the original test format with those on the randomized position format, only the Neuroticism dimension showed a significant difference (p < .01). The chance probability of finding statistical significance at this level of confidence, for one of six statistical tests, is .0585 (Wilkinson, 1951). The T-score distribution for Neuroticism was lower on the randomized version than on the published version. Thus for this one test dimension, the first hypothesis was substantiated, indicating that a position response set may well be affecting usage of the published form of the GPPT.

Before relating results to the second hypothesis, the factor analyses performed should be described. As mentioned previously, three analyses were done: one with only the GPPT variables (items), clinical, and demographic data; one with these plus the MMPI validity and clinical scales; and one with the GPPT, clinical and demographic data, and Lushene's Experimental Scales. An initial problem was the determination of when to stop factoring. Using Cattell's 'scree' test (Cattell, 1966), it appeared that the stopping point was at either 8 or 14 factors. Consequently each of the above analyses was done twice, once with eight factors extracted, once with fifteen.

In regard to the second hypothesis, nine factors were extracted which appeared both on the analyses with and on those without one or
the other set of MMPI scales. With one exception, GPPT variable loadings within a factor comprised a conglomeration of items representing nearly randomly the original GPPT dimensions. The one exception was a factor arising quite consistently across analyses, which contained a slight majority of GPPT Succorance items. Even on this factor, however, were included Affiliation, Withdrawal, and Neuroticism items.

In terms of numbers, for the 8 factor analysis, 17% of the 470 possible responses had significant loadings, for the fifteen factor analysis, 24%. The hypothesis of different factor structure on the basis of analysis of item-intercorrelations was therefore substantiated.

Relating results to the third hypothesis (meaning of the new factors as different from those of the original ones) calls attention to the impact of these results for the validity of the GPPT. At best, the factor structure obtained accounted for 26% of the variance in the matrix. Though probability tables are not available for this sort of problem, it is possible that this proportion of variance accounted for is less than that expected in a factor analysis of random numbers. A perusal of items within factors, with the one exception previously mentioned, yielded little if any theoretical coherence, curtailing attempts to name factors by the experimenter, and precluding the planned procedure of having a psychologically unsophisticated group interpret them. On the whole, MMPI scales tended to group together on a single factor, with few, if any, GPPT items loading significantly on that factor. The same was generally true of the clinical and demographic variables. It would appear that to a large extent MMPI scales
and demographic and clinical variables constituted method factors of the type referred to in the section on statistical analysis. Where criterion variables did load significantly with GPPT variables on a factor, the inference from criterion to test variables as a group would have been extremely speculative. The factor including as the majority of its significant loadings GPPT Succorance items also included moderately high loadings on hospitalization and psychosis, indicating some association of this factor with moderate to severe psychological impairment.

Though these results do not allow a conclusion on the meaning of factors extracted here, it can be said that the meanings of the original GPPT test dimensions did not hold up in the analyses performed in this study.
DISCUSSION

Scanning the results of this study, one would perhaps conclude that the experimenter was biased negatively toward validity considerations of the GPPT. The bias in this study however was toward an objective approach to evaluating projective material, and toward employment of structural, multivariate statistics in clinical procedures, in particular, projective test methods. It is patent that multivariate statistics notwithstanding, a test constructor must recognize and abide by basic considerations such as response bias, response probability, and at least minimal reliability and validity standards. It would appear that failure to serve these considerations has resulted, in the case of the GPPT, in a test with severely restricted clinical utility, at least in terms of its original definition.

The first consideration, that of position response set affecting test results, was substantiated for the Neuroticism dimension. In the original test format, it will be recalled, Neuroticism items were at the 'c' or middle position among the five possible choices. These Neuroticism items, defined as indicating inability to make sound and timely decisions and need to remain indecisive, could frequently be construed as the most innocuous, or least extreme in context of the other choices, as opposed to least committed to a decisive course of action. For example, an illustration of an asexual stick figure
underwater with fish was accompanied by the following explanatory choices: a) a person who is drowned or dead; b) a captain of a swimming team; c) a person trying to catch some fish; d) a girl in a Bikini or short bathing suit; e) a person who is drowning and is crying for help. Aside from absence of cues suggesting b or d, c would appear to constitute the most socially desirable response (as well as the best justified choice, in this case, in terms of stimulus features); b and d of course have respectively dominance and sexual connotations as well. With this alternate interpretation, Neuroticism choices would constitute relatively high probability responses in a normal population. Berg's deviation hypothesis (Bass and Berg, 1959) would also suggest the C position as the most probable response for normal subjects, disregarding content. This last rationale would also appear to be a justified partial explanation for the first result. On the original version of the test then, social desirability, cue justification (or lack of it in terms of alternate responses), and position response set in the context of the deviation hypothesis would all combine to increase the probability of many Neuroticism items as chosen responses in a normal population. Randomization of choice position would eliminate the deviation hypothesis as a source of response likelihood, so that a decrease in Neuroticism score would be predicted for normals.

A note about the use of obverse factor analysis is in order here. This method essentially factors persons rather than tests. Thus considerable computational economy is achieved if there are fewer
people than tests, since the order of the matrix to be factored is the number of persons rather than the number of tests. Practically speaking, the difference between obverse and direct procedures is that the former works through the steps of the latter in reverse; in the obverse method, from the data matrix is obtained the factor score matrix; and from the factor score matrix, the factor loading matrix.

The obverse procedure has been criticized by psychologists claiming that it emphasizes tests rather than people. First of all, Lushene (1967) states that if two conditions are met, that of a principal axes solution and use of communalities of one, the results of an obverse analysis are identical to those of factoring tests by the principal axes method. Both conditions were met in the present study. Second, as indicated in Dreger's (1970) work with the Behavior Classification Project, using more variables than subjects does not necessarily lead to different results. In his work, analyses were performed on two sets of data, one with more subjects than variables, and one with fewer. In both cases, factor structure was the same. Third, on the issue of the obverse procedure's emphasizing tests rather than people, Horst (1968) has said, "This distinction may be interesting psychologically, but it is not relevant for computational purposes. Whether or not the obverse method is used depends mainly on considerations of computational economy." A final point here is a practical one: in clinical work one is bound to have a situation in which there are more variables involved than people on which to measure them. The results of this study may be suspect because of the use of
obverse factor analysis. However it should be noted that the type of problem which occasioned use of this procedure is the rule rather than the exception in a clinical setting.

As a preamble to discussing the factor structure obtained in this study as compared to that indicated by the authors of the GPPT, some basic considerations concerning factor analysis seem appropriate. At the core of the factor analytic procedure is the assumption that if one chooses correctly and exhaustively the variables influencing an event, and measures not only the individual fluctuation of each variable, but also the covariation among all variables, he will be able to predict the event perfectly. The first condition, that of correct choice of variables, is absolute if one is to predict the event even partially. If one chooses color as a variable in predicting how high differently colored balls bounce, color will indicate a random or chance relationship to height of bounce. If one fails to include weight, or elasticity, or density, he will account only partially for the event. On the other hand, one might choose a variable, such as surface texture, which would be so specific to a particular ball that it would represent little more than a peculiarity, and would not significantly contribute to predictive capability. Finally, perfect prediction would very probably be hampered by random fluctuations in environmental conditions and human error in measurement.

Carrying this analogy to the GPPT, the authors appropriately named the variables they chose to observe (at least in terms of well-established personality theory) but what they measured under their
nomenclature had very little to do with the bounce of the ball. The use of a relatively exhaustive list of Murray-type needs as a starting point would appear to be a relatively sound procedure in view of the durability of Murray's personality theory. However the arm chair tactic utilized in devising methods (items) for measuring those needs, coupled with the failure to justify those methods singly or as a group, in terms of theory or reality, left the test as a whole with virtually no practical use in terms of what it proposed to measure.

A closer look at the 470 choices as responded to by the experimental sample will give an idea of the appropriateness of the total items for getting meaningful responses from subjects. Initially it was observed that five choices in the test found no respondents in the entire sample. Two of these were embedded in the same item. These potential responses then have a probability of zero. The four highest loadings on all factors had a single respondent, indicating that the variance accounted for by these four responses is so specific that they are, practically speaking, of no use as general predictors. Conversely, for just less than one third of the total number of items, only one of the five possible choices drew between 61% and 95% of the respondents. For many of these items, it seems fair to say that they are too generally endorsed to be sufficiently discriminative.

These considerations shed light on information gained casually by the experimenter. Informally requested to comment on their own subjective experiences of taking the GPPT, many subjects indicated that the potential responses had little or no meaning for them (i.e.,
they were unable to reconcile their subjective response to the stimulus with the available interpretive choices) and that a random choice seemed as satisfactory as a considered one. Other subjects stated that, for the same reason, they deliberately restricted reality to conform to limitations set by the choice field. This would appear to be the optimal approach for meaningful test results, provided the restricted response field still contains significant implications for personality.

Over all, then, it would appear that elements affecting the variance accounted for or not accounted for by this study's analysis of the GPPT may be manifold. The factor extracted as roughly parallel to GPPT Succorance would seem to indicate a valid predictor of severe psychological impairment and an explained source of variance. There are very probably other choices having some predictive and/or construct validity, but their significance or interpretation is lost in context. Also contributing to accounted for variance are those responses which are highly predictive, but for only one subject in the total sample, and consequently have little utility for an objective, nomothetic approach. On the other hand, the great majority of variables are so unreliable as to represent, in effect, random variation. Various forms of response set, almost certainly affecting test behavior here, were not included in the scope of this study.

Perhaps this study's strongest implication for construction of projective tests with pre-fabricated responses is a caution against the unqualified arm chair approach. This is not to say an a priori approach cannot produce an effective instrument in terms of one or
more forms of validity, but only that by itself it is risky business.

Considering the projective stimulus, the point made in the introduction bears repeating: the stimuli should depict a situation that has proven relevance to the variable being observed. If this is not the case, then one cannot discriminate between environmental exposure and personality construct or trait. However to have the stimulus relevant to, for example, five possible choices, and still retain the categorically discriminating function of each choice would require a one-to-one, exclusive relation between the response choice and the personality characteristic being measured. In other words, one response would be likely only if the subject possessed the characteristic that response measured. Though there are test responses with very high reliability in predicting presence of a personality characteristic (e.g., four 'eye' responses on the Rorschach, or some of the MMPI critical items), such a degree of precision is rare in our science, especially in the early stages of a test's research and development. The GPPT would appear to be an attempt at such precision. An alternative would be that, given stimulus-choice-variable relatedness, one response choice would measure the variable to be evoked by the stimulus, and the alternate choices would be retained as dummy items. This would allow only the one choice to become a scored response. Though necessitating a longer test, this approach would seem to promise greater response reliability.

Implicit in the preceding paragraph is the issue of relation of response choice to variable being observed. One can intuitively
generate responses he considers as indicative of a variable, and then
go to the real world to justify his suppositions. However a seemingly
more efficient approach would be to go to the real world initially to
generate responses. If a group of people are known, either through
their behavior or by previous measurement, to embody certain charac-
teristics, then a response or class of responses consistently arising
from that group can be tentatively judged to be associated with the
group, or at least has some likelihood of being endorsed by them.
Breadth of sampling would determine the relevance of the responses to
different groups and where certain responses would be likely.

Stopping once these responses were found to be predictive of a
certain type group would leave one at a univariate approach. As
early work with the MMPI attests, however, people are not univariate.
One would find that individuals from different groups have not one
score, but a pattern of scores, combined dynamically rather than
statically (i.e., covarying). Here then, the case for a multivariate
approach is pleaded, and the conditions stated previously in connec-
tion with the ball-bounce problem reiterated. To the extent that one
had both horizontally and longitudinally sampled and validated sub-
jects, stimuli and responses, and recognized the covariation among
observed dimensions, he would be able to predict performance with a
fair degree of accuracy in terms of a construct and/or in terms of
actual behavior.
SUMMARY

The purpose of this study was to investigate the hypothesized item content of the Group Personality Projective Test, one of very few attempts at an objectively administered, objectively scored, and standardized projective technique.

Initially, two separate but comparable groups of 52 college students were given two versions of the GPPT. One group was given the original, published version; the other, a version with response choice positions randomized. The two groups were then compared on GPPT need dimensions by simple t test. This comparison was performed to see whether a position response set is affecting test results.

Second, a sample of 248 subjects, representing both normal and psychiatric populations, was given the randomized version of the GPPT. Other data gathered on subjects, to be used as validity criteria for the GPPT variables, were two different sets of MMPI scale scores and clinical and demographic information. Each response choice of the GPPT was treated as a variable. The 90 x 5 GPPT variables, along with the criterion data, were submitted to factor analysis, to arrive at a factor structure based on item intercorrelations, and to generate meanings of factors on this basis, as well as on the basis of external criteria. An obverse analysis was called for to accommodate a problem with more variables than subjects.

Results indicated that a position response set could well be
affecting GPPT Neuroticism scores, normal subjects scoring significantly lower on this dimension with the randomized version of the test than with the original version.

All but one of the factors extracted in this study's analysis contained a nearly random distribution of items from the original GPPT dimensions, indicating that the original item groupings, arrived at a priori by the test authors, were not the same as those obtained on the basis of item intercorrelations. The one exception was a factor including a slight majority of GPPT Succorance items, but including items from a few of the other scales as well.

Only a small portion (17%) of the total number of GPPT items loaded significantly on the factors obtained, and the factor structure accounted for only 26% of the variance in the matrix. Investigation of the data seemed to indicate that the vast majority of items were either too generally endorsed, too specific, or too unreliable to be considered meaningful in terms of personality variables. Attempting to infer the meaning of the factors, either from GPPT items themselves, or from criterion variables loading on those factors, would have been extremely speculative.

It was concluded that the GPPT, primarily because of apparent failure to meet basic reliability and validity standards in its construction, holds very little usefulness, at least in terms of what it proposes to do.
REFERENCES


Lord, E. Experimentally induced variations in Rorschach performance, *Psychol. Mon.*, 1950, 64 (10), (No. 316).


APPENDICES
APPENDIX I

PRINCIPAL COMPONENTS (UNROTATED) FACTOR MATRIX*

(Significant loadings)

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* This 8 factor matrix accounted for the largest portion of variance of all analyses (26%). MMPI scales were excluded to prevent distortion.
## APPENDIX II

### ROTATED FACTOR MATRIX

(Significant Loadings)

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APPENDIX II (Continued)

Significant loadings in the Rotated 8 factor matrix. On the Analysis with Lushene's Experimental Scales included, the positive pole of Factor I was associated with Status (.559), Dominance (.504), Role Playing (.492), and Ego Resiliency-Obvious (.478); Factor III was associated with psychosis (-.381) and Hospitalization (-.405); Factor VII was associated with Ego Control-5 (-.369). None of the MMPI Validity or Clinical scales loaded on these factors.

★Males were scored 1, females, 0.
VITA

Ronald F. Boudreaux was born in Lafayette, Louisiana on September 30, 1943. He attended Immaculata Seminary and graduated from that institution in 1961. After two years of junior college at the same institution, he entered Catholic University of America in Washington, D. C., where he received the degree of Bachelor of Arts in 1965 with a major in philosophy. In September, 1966, he enrolled in the Graduate School at Louisiana State University in the Department of Psychology. He held a Louisiana State Hospital Department stipend for the years 1967 and 1968. In the Spring of 1969 he completed requirements for the Master of Arts degree, waiving conferral of diploma. He served his clinical internship at Indiana University Medical Center in Indianapolis during the academic year of 1969-70.
EXAMINATION AND THESIS REPORT

Candidate: Ronald F. Buiereaux

Major Field: Clinical Psychology

Title of Thesis: An Investigation of Hypothesized Item Content of the Group Personality Projective Test: A Validity Study

Approved:

[Signature]
Major Professor and Chairman

[Signature]
Dean of the Graduate School

EXAMINING COMMITTEE:

[Signature] [Signature] [Signature] [Signature] [Signature]

Date of Examination:

June 30, 1971