

THE VALIDITY OF THE GROUP
PERSONALITY PROJECTIVE TEST
AND ITS USE IN SOUTH AFRICAN
CLINICAL PSYCHOLOGY

BY

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CAPE TOWN
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A B S T R A C T

Following a discussion of the relationship between abnormal personality and psychopathology, and the concept of validity in psychometrics, the development and present form of the GPPT are described. Several important criticisms of the test are then detailed together with a review of all published research relating to it.

Considering the HSRC's* interest in standardising this instrument for use in South Africa, and since it is being extensively used for individual assessments within Stikland Hospital, four studies have been undertaken to clarify its validity:

Study 1 concerns normative data and shows, from the test-results of 100 Afrikaans working adults of Bellville, that S.African norms can be expected to differ radically from those obtained in the USA.

Study 2 concerns the construct validity of the GPPT scales. Based on data from 168 Stikland patients, correlations between GPPT scores and a large number of other personality measures indicate that some of the interpretations offered by the test-developers are invalid for this population.

Study 3 concerns the validity of the test as a measure of "mental health", and shows that, where significant, score deviations are related to neurotic rather than to sociopathic or psychotic maladjustment. Age and sex were not systematically related to score variance except for the "Withdrawal" scale, where a slight tendency was found for females to score higher. No single GPPT scale, including the composite "total score", was effective for reliable individual assessment of mental health.

Study 4 concerns the test's validity as a measure of adjustment by investigating the scores before and after treatment of certain patients who improved dramatically. Results indicate that the TRQ and Total scores are effective in this respect.

It is concluded that the GPPT embodies an effective and novel approach to the problem of assessing neurotic maladjustment, but that the composite "total score" is unsuitable for this culture. Considering the doubtful factorial validity of all the GPPT scales, a criterion group method based on individual items is suggested as the best way to develop a more effective "total score" (indicating neurotic maladjustment) for S.African conditions.

* Human Sciences Research Council, Pretoria.

I N T R O D U C T I O N

The main concern of this investigation is that of the validity of the Group Personality Projective Test (GPPT). Is the GPPT a valid measure of certain personality dimensions, and what exactly do the various scores mean? In particular are the scores helpful to the clinical psychologist who is involved with the assessment of individuals rather than groups?

These questions demand the clarification of two rather thorny issues before they can be answered. The issues involve, first, the relationship between "psychopathological" behaviour and deviations of personality, and second, the concept of validity.

ABNORMAL PERSONALITY AND PSYCHOPATHOLOGY

Since the GPPT is concerned with the measurement of adjustment or "degree of mental health" (Cassel and Kahn, 1961), and in so far as it is termed a personality test, the concepts of both mental health and personality require preliminary discussion. To begin, let us examine some of the better-known definitions of personality as presented by Sanford (1970).

Defining Personality

Allport (1937) wrote: "Personality is the dynamic organisation within the individual of those psychophysical systems that determine his unique adjustment to his environment."

Krech and Crutchfield (1948): "Personality may be described as the pattern of relative importance of various (learned) modes of adjustment to tension which uniquely characterise the individual."

Newcomb (1950): "Personality is known only as we observe individual behaviour. (I am using the term 'personality' in the inclusive sense of referring to the individual's organisation of predispositions to behaviour.) I suggest that the kind of behaviour from which we can learn most about personality is role-behaviour."

Cattell (1950): "Personality is that which permits a prediction of what a person will do in a given situation (and) /..... is

..... is concerned with all the behaviour of the individual, both overt and under the skin."

McClelland (1951): Personality is "the most adequate conceptualisation of a person's behaviour in all its detail that a scientist can give at a moment in time."

Eysenck (1953): "Personality is the more or less stable and enduring organization of a person's character, temperament, intellect, and physique, which determines his unique adjustment to his environment."

Hilgard (1953): Personality is "the sum total of individual characteristics and ways of behaving which, in their organization or patterning, describe an individual's unique adjustment to his environment."

Sullivan (1953) stresses "the relatively enduring pattern of recurrent interpersonal situations which characterise a human life."

The above 8 definitions are probably representative of the way personality is most often defined, though more unique conceptualisations such as that inherent to Lewin's field theory, or Von Bertalanffy's general systems theory, have been omitted. Examination of the components of the above definitions reveals that certain ideas are mentioned more often than others. In order of decreasing frequency, mention is made of the following: "Organization" or "pattern"; "unique"; "adjustment to the environment"; "behaviour"; "interpersonal" or "social"; and "enduring". The idea of "adjustment to the environment" can immediately be dismissed as superfluous in a definition of personality, as all behaviour can be accounted for as adjustment of one sort or other.

In order to bring the various definitions more in line with an operational definition, it is necessary to give some idea of how the "unique and enduring organisation/pattern of (social) behaviour" is determined. It is suggested that when we speak of any particular individual's personality, we are referring to the way that individual is identified by others. For even when he gives an account of his own behaviour pattern, it is the way others interpret this account that determines his uniqueness. Self-description is as much a pattern of behaviour as any other pattern, and may form

/part

part of the system employed by others to identify him. Hathaway (1965) makes a similar point by noting "A first and most troublesome point is that people do not by themselves have personalities. They must be in contact with others to appear to possess the meaningful interests, dispositions, and attributes that are ususally part of what is perceived as personality."

The word "identify" is used above to emphasise the continuity and unity of an individual's behaviour patterns. In so far as any person's behaviour is unpredictable from one day to the next, we would find it difficult to identify him other than from his physical characteristics.

Personality, then, could be defined as: "Those aspects and organisation of an individual's behaviour (as distinct from physical characteristics) that permit his identification as an unique person."

Whether "personality" refers to past or future behaviour is purposefully left undefined. The extent to which patterns of behaviour can change over time is a direct function of the extent to which identificatory characteristics are permanent and unchanging. This would depend on the individual as well as on the type of behaviour studied. It is assumed that no aspect of behaviour is immutable in a developing, living organism. Only at the moment of death does it become theoretically possible for others to give a complete account, or description, of an individual's characteristic ways of behaving.

Any source of variation of human behaviour, whether this be palmer sweat index, intelligence, interests, or manner of social interaction, is theoretically admissable in a description of personality. Anything that varies from person to person is of aid in identifying any one person. Deviant, or abnormal behaviour, then, can mean two things: Either that this person is very different from others and stands out from them; or that he is behaving in way (s) very different from his own usual norm. This distinction touches on the difference between what psychiatry labels as "personality disorder" (different from others) and "neurosis" (different from own pattern; out of character.)

Defining abnormality

The terms "abnormality" and "abnormal personality", as used

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that personality traits, being characteristic of ^{the} individual, cannot also be symptoms of illness, is untrue. The predictably odd and withdrawn behaviour of the chronic schizophrenic could be termed both symptom and personality trait, although this is contrary to psychiatric convention. Patterns of behaviour that started out as uncharacteristic, and termed ^m symptoms, can become enduring and relatively stable.

The symptom-trait distinction is taken a step further by Walton et al. (1970) where an attempt is made to differentiate between psychiatric illness and abnormal personality. The former is regarded as "essentially a change in the person resulting from a supervening process" while the latter represents "dispositions which deviate from average and appear as extreme variations of human nature". But, in practice, as the authors point out, psychiatric illnesses often present in association with personality deviations of more or less severity.

Regarding the study of abnormal personalities, that is, the study of individuals who characteristically behave in a deviant and upsetting manner, it is important to bear Foulds' distinction in mind. It is absolutely essential to differentiate between that behaviour which has always been characteristic of the individual, and that which is novel, unusual, and uncharacteristic. The former, being characteristic, warrants inclusion in a description of personality, but there is no logical reason why such behaviour should not at times be simultaneously regarded as a symptom of disease or illness. (eg. Aggressive outbursts associated with epilepsy). The latter, being uncharacteristic, may be regarded as a symptom of illness, or merely as evidence of development and change. But uncharacteristic behaviour, by definition, cannot be meaningful in a description of personality.*

How do the above considerations affect the validation of the GPPT? Firstly, they affect the way test scores are interpreted. An interest in the enduring aspects of personality would necessitate regarding test-retest fluctuations of any single individual as due

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* Except, of course, that a personality trait termed "changability", or "unpredictability" could include such uncharacteristic behaviour if change is the principle issue.

to test-unreliability. Only to the extent that scores do not fluctuate from day to day could they be regarded as indicative of basic underlying personality traits, and become the subject of a validation study in this respect. But if "symptoms of illness" are also of concern, as they always are in the clinical situation, then time fluctuations become meaningful, and, possibly, add rather than subtract from the test's reliability and validity.

Secondly, the above considerations affect the timing of testing. Studies intended to focus on the enduring aspects of personality could utilise patients' scores whether they were obtained early or late in treatment, and would be primarily representative of group status (i.e. psychiatric patient). Scores would not be intended to reflect more transient variations of anxiety and depression such as occur in patients during their first few weeks in a psychiatric hospital.

Third, the choice of criterion groups is affected. If we are interested in whether the GPPT scores are a valid measure of the degree of mental-illhealth, or maladjustment, at the time of testing, then both neurotic and personality disordered patients could be used as criterion groups. Both types of patient are similar in that they are eventually seen by mental-health workers because they cannot cope with the stresses of everyday life. But if we are interested in the premorbid personality, that is, in the enduring and characteristic ways in which the patient behaves, then individuals diagnosed as manifesting neurotic reactions, but of basically sound personality, should be separated from those who characteristically behave in a deviant or distressful manner. We would expect a valid and reliable test of personality to differentiate between neurotics and personality disorders.

In practice, however, the problem of differentiating between these two groups is not easy. Just about every patient diagnosed as neurotic reveals, on closer examination, a long history of difficulties and problems of one kind or another. Those with particularly difficult pasts fade imperceptibly into those with a history not much different from any other human being. So called "symptoms" appear and disappear in irregular fashion, and there is no rigid dividing line between symptoms of illness and learned maladaptive responses.

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The concept of validity

Four principle types of validity are outlined by the APA Technical Recommendations (1954). These are best illustrated by the type of question that each form of validity attempts to answer:

1. Content validity: Does the selection of items in the test adequately represent the field or topic in which measurement is being made?
A political survey, or arithmetic test, for example, could be regarded as completely acceptable, or valid, by inspection of the content. No comparison with other criteria is even attempted, the results being meaningful and of interest in their own right.
2. Concurrent validity: How well do test scores check with certain other evidence available at the time of testing? This is an example of criterion validity, and test scores, if valid, permit an estimate of some other variable which is of principle interest.
3. Predictive validity: How well do test scores predict certain future behaviour, performance, or events? Again we are concerned with criterion validity. Test results are of interest only in so far as they are able to predict the criterion, and it is the criterion rather than test-scores which are of principle interest.
4. Construct validity: How well do test scores reflect some trait, quality, or construct presumed to underlie certain observable events or behaviour? Alternatively, how can test scores be explained by psychological theory? The concept of construct validity is not simple, and is probably best elaborated in a paper by Cronbach and Meehl (1955). This paper has been termed "one of the most important papers for the differential psychologist appearing during the span of this review" (Jenkins and Lykken, 1957).

Briefly, construct validation of a test is involved when:

- (a) No criterion or universe of content is acceptable as adequate to define the quality being measured.
- (b) The trait or quality underlying the test is of principle importance rather than the test behaviour or the scores

on the criteria.

- (c) Score variance, being interpreted as reflecting variations in some underlying trait or quality, is integrated into theoretical considerations allowing deduction and the elaboration of further hypotheses. According to Cronbach and Meehl (1955), "The investigation of a test's construct validity is not essentially different from the general scientific procedures for developing and confirming theories" (p. 301). Identification of the quality or construct is achieved by setting forth all the laws in which it occurs. It is this interlocking system of laws which is termed the "nomological network" by Cronbach and Meehl.

The concept of construct validity has not been received without criticism. Bechtoldt (1959) objects to its lack of logical precision and charges that it is an attempt to introduce vaguely defined variables instead of operationally defined concepts. He feels it is too difficult to define qualities and the nomological net empirically. Supposedly unitary^{ca} concepts that seem to be desirable (e.g. anxiety; aggressive need) shatter, on enquiry, into many different meanings.

Little (1959) regards construct validity as alright for theoretical psychologists, but says clinics and hospitals need answers to questions like: "Is the patient likely to attempt suicide?" or "Will psychotherapy help enough to warrant the time and expense involved?" He emphasises the importance of "effective validity"; the making of predictive statements for practical use.

Why this move away from rigid empiricism and why attempt to study variables which cannot be operationally defined? In short, why has the idea of construct validity been as widely accepted as it has been? Many writers define validity of a test as the extent to which it measures what it is supposed to measure (e.g. Cronbach, 1965, p. 103). The problem in psychology is that there are no rules about what should be measured. Test validation, then, becomes primarily a matter of delineating what is supposed to be measured (what is x?) rather than immediately accepting some criterion and pitting one's test against it.

Examination of the question "Is this test a valid measure of x?" reveals that a certain assumption has been made; namely,

/that

that there are other ways of measuring x. For no account can be given as to the validity of our measure unless it can be compared with some criterion measure. Obviously then, any single validation study can tell us no more than we already know about x. Often all that we know about x is that it varies, and that people differ in their judgements as to the extent of this variation. The experimentally-minded psychologist might choose to label x (e.g. anxiety) and then proceed to list certain signs, or other events, which he feels are usually associated with x. He might then give this list to various judges who use it as an aid in rating x (e.g. levels of anxiety). Judges' ratings are therefore the criterion with which the test is matched. Agreement between ratings and test-scores tell us no more than that there are two ways of measuring this x, and that one measure can be used to estimate the other. They do not tell us much more about what x is than we knew to start with, except, of course, that the more perspectives we have of x, the more confident we are that we know what it is. The point I am trying to make is that construct validity (what is x?) is basic to, and precedes, all other types of validity. (I) believe Loevinger (1957, p. 636) means essentially the same thing by stating: "Since predictive and content validities are all essentially ad hoc, construct validity is the whole of validity from a scientific point of view". R ?

The comparison of test scores with criteria tells us something about both. Examination of the test content along with the meaning of scores as judged from relations with other variables gives information about the criterion, and examination of the criterion tells us more about the test. It is this relativity between related variables which, I believe, makes the concept of construct validity a necessary one for psychological measures.

I cannot, therefore, agree with Bechtoldt's (1959) recommendation "that the formulation of construct validity be eliminated from further consideration as a way of speaking about psychological concepts, laws, and theories".

Regarding this investigation into the validity of the GPPT, ^{the person} the concept of construct validity will be given full consideration whenever possible. Where a network of relationships between test scores and various criteria emerges, an attempt will be made to integrate such relationships into an acceptable theoretical system. However the importance and usefulness of being able to make effective

/predictions

predictions will not be forgotten. It is quite conceivable that a test gives results that abound with theoretical importance, but which are of very little immediate practical use for the hospital or clinic.

The GPPT - Description and Development

The GPPT is an instrument designed to assess certain personality needs of individuals. It is termed a "group" test since it can be administered in groups, and "projective" since it utilizes a series of ambiguous stick-figure drawings and gives the testee a choice of alternative interpretations. The examinee's choice in response to each drawing is assumed to be dependent on the particular needs or preoccupations which he projects into the ambiguous drawings.

According to Cassel and Kahn (1961) who developed the test, it is concerned with the middle layer of personality as defined in the theory of H.A. Murray. This is "the mask one wears in relation to one's self a state of unorganised differentiation, where the cognitive structure begins to move into the foreground, and objects are recognised but are acceptable or unacceptable" (Cassel and Kahn, 1961, p. 23).

The earliest versions of the GPPT were developed and used largely by Dr. T.C. Kahn of the U.S. Air Force. ^{H.S} This work was in progress subsequent to world war II and during the Korean war. These early versions of the "Kahn Stick Figure Personality Test", as it was then called, contained three separate parts. Each part consisted of 30 drawings with their corresponding sets of 5 multiple-choice answers, examples of which can be seen in the present form of the test (see appendix, page 89).

Based on a priori reasoning, the three parts were designed to assess 1 Personal needs (aggression, dominance, achievement, passivity, withdrawal) 2 Social needs (affiliation nurturance, psychosocial or romance, succorance, distrust) and 3 Emotional needs (anger, happiness, conciliation, perplexity, dejection).

The second of the two earlier editions of this test was administered to 400 subjects, and the present form of the GPPT results from a Thurstone-type centroid factor analysis based on this data. It appears that the factor analysis proceeded from intercorrelations between the 15 part scores rather than from item-intercorrelations.

The five factors that were extracted were rotated orthogonally to

/obtain

obtain simple structure.

Regarding the 400 subjects mentioned above, there appears to be some disagreement between the two main publications concerning the development and standardisation of the GPPT. (Cassel and Kahn, 1958; ibid, 1961). The 1958 publication presents centroid factor loadings (Table 1, p. 268) based on data obtained from 200 U.S. Air Force Cadets and 200 prisoners. While the 1961 publication presents the identical centroid loadings (Table 2, p. 28), it attributes them to quite different data, namely the results of 200 "unselected" adults and 200 neuro-psychiatric patients. Tech note ?

Regarding rotation of the extracted factors, there is also some difference between the 1958 and 1961 publications. This difference does not seem to represent disagreement, however, but is probably a consequence of the large number of possible solutions available in any rotation of factors. Factor identification, as presented by the two publications, is as follows:

FACTOR

Cassel and Kahn, 1958

Bipolar, consisting of reward or motivational-type items on one end of the axis, and negative or discomfort-type items on the other (TRQ scale).

Bipolar, in which two separate areas of the negative pole are utilized. One area contains items indicating a need to give aid (NURT scale), while the other contains items indicative of withdrawal or passive-type responses (WITH scale).

Cassel and Kahn, 1961

1 Bipolar, having both positive and negative pure factors. The positive factor was identified as withdrawal or escape (WITH scale), the negative as representing both affiliation and psychosexual variables (AFF scale).

2 Bipolar with the positive end defined by reward or motivation-type items, and the negative end containing dejection and distrust-type items (TRQ scale).

/Positively

Positively weighted attribute containing items described by worry, anxiety, perplexity and indecision (NEU scale).	3	A pure factor identified as neuroticism and tension (NEU scale).
Consists of items dealing with maintaining group membership, and certain psychosexual and romantic responses (AFF scale)	4	A pure factor, identified as succorance and distrust (SUCC scale).
Contains items involving the seeking of aid, and with some of the items expressing a distrust of others (SUCC scale).	5	A pure factor, identified as the giving of aid, or nurturance (NURT scale).

The present form of the GPPT uses 7 scoring keys, namely HAPpiness, DEJection, NURTurance, WITHdrawal, NEUroticism, AFFiliation, and SUCCorance. All 90 questions are similar in form, providing 5 possible choices marked (a) to (e). An (a) response scores one for either HAP or DEJ; a (b) response scores one for either NURT or WITH; and (c), (d), and (e) responses always indicate NEU, AFF, and SUCC respectively. HAP and DEJ are not represented directly on the GPPT profile, but are combined in ratio form to give the Tension Reduction Quotient: $TRQ = \frac{100 \times DEJ}{HAP \times DEJ}$

The TRQ therefore represents the percentage of negative or discomfort-type items chosen among all (a) responses.

In addition to the abovementioned scores, a Total score is also computed. The Total score is a composite of the six scale scores, derived by summing these after each has been multiplied by its β weight. These β -weights are those values which, when multiplied by the various scale scores, yield a Total score that discriminates optimally between normal and neuro-psychiatric subjects. It serves, therefore, as an index of general level of emotional disturbance.

Reasons for undertaking this investigation

The original reasons for investigating the validity of the GPPT were as follows:

/1. There

1. There have been only five reported studies concerning the test since its publication in 1958, and four of these are concerned with faking or social desirability effects. Apart from the data gathered by the test-developers there has been no work whatsoever to ascertain its construct validity. Validity in this case can be divided into two broad areas: Validity of the test as a measure of "mental health", and validity of the various subscales as meaningful measures of certain personality traits.
2. Despite the lack of evidence that the labels attributed to the various subscales are justified, the test is being extensively used at Stikland Hospital, Bellville. The test is assumed to measure exactly those personality needs described by Cassel and Kahn. Such an assumption should be based on more evidence than the examination of item-content within the extracted factors.
3. Preliminary inspections of the scores obtained ^{for} both by Stikland patients and some of the staff suggested that South African norms differ markedly from American norms. But Stikland patients' scores continue to be compared with American norms as South African norms are unavailable. The Human Sciences Research Council (HSRC) did begin work in this respect, but were forced to abandon this task due to a shortage of personnel. Whether or not the HSRC complete the development and standardisation of a South African version of the GPPT will probably depend, to a large extent, on the outcome of this study. In a recent letter to me they expressed extreme interest in this investigation. provisional
com. m. ca. 1962
4. Even if the HSRC were to go ahead with a full-scale standardisation of the test, it would be some time before results were available. Meanwhile doubtful assumptions continue to be made about Stikland patients. The availability of the means of as few as 100 carefully selected South African individuals would be of tremendous help in the interpretation of patients' scores during this interim period.
5. There remains a great demand in the clinical field for an instrument which combines the depth of a projective technique with the objectivity of a standardised personality questionnaire. Inventories presently in use, such as the MMPI,

16PF, and CPI, have so many disadvantages that many clinicians have tended to lose all faith in paper and pencil methods of personality assessment. The Rorschach and TAT are both of doubtful validity according to "hardnosed" researchers, and in any case involve too much labour for use as routine screening devices.

It is also advantageous to include tests which differ radically from one another in any test battery. This practice helps both to keep the procedure interesting, and provides multiple perspectives of whatever one is attempting to measure. Now the GPPT is radically different from most personality inventories, is easy to administer, and appears to be relatively stimulating to the patient. It would therefore be a pity to reject this test as a valid measure of personality before sufficient research has been done in the area.

Preliminary criticisms of the GPPT

In detailing the reasons for undertaking this investigation, some mention was made of the more promising aspects of the GPPT, but nothing was said regarding its shortfalls. My preliminary criticisms of the present form of the test are as follows:

1. Arrangement of the order in which possible answers are provided is bad. All three of (c), (d), and (e) responses always measure NEU, AFF, and SUCC in that order. It is quite likely that many individuals immediately notice a similarity of, say, (e) responses, and, depending on their interpretation of what such responses mean personality-wise, systematically endorse, or avoid, as many of them as possible. More seriously, the very factorial validity of the test is possibly an artifact arising from certain response sets. Some individuals could tend to pick out the middle response of the sets, while others tend to choose the last, or first, that they read. Such choices would appear to "go together", that is, correlate highest with the underlying factor, for no reason other than that they represent particular response tendencies.
2. It appears that, in the development of the test, the initial 90 questions with their corresponding answer sets remained absolutely fixed. There does not seem to have been an item pool, and none of the original questions were discarded.

3. The response alternatives for any given question are not matched for social desirability (SD). Edwards (1959) shows that the probability of endorsement of personality test items typically correlates very highly with their social desirability scale values. He provides r 's ranging from 0,84 to 0,92. These correlations are so large that one could almost state that frequency of endorsement of personality test response categories are the same thing as their social desirability indexes for that group tested. Cassel and Kahn, however, made no attempt to equate response categories as to frequency of endorsement, and provide no figures relating to this matter. Thus the most important advantage of forced-multiple-choice format has not been utilised.

4. With the exception of the TRQ score, which derives from a ratio of one category of (a) responses (DEJ) over all (a) responses selected (HAP and DEJ), the GPPT scores are interdependent. A high score on one scale can be obtained only at the expense of a low score on another. This property, where scores are not absolute but an expression of the ordering and balance of whatever is being measured, was called "ipsativity" by Cattell. Hicks (1970) analysed the many peculiar consequences and limitations of ipsative measures. These limitations could be summarised as follows:

First, since intercorrelations of attribute scores on an ipsative test tend to be artifactually negative, it is not strictly legitimate to base a factor analysis on such a correlation matrix. According to Clemans (Hicks, 1970): "performing such an analysis would serve no purpose other than determining the rank of the matrix. For this reason, if such a set of data is factor analysed, it is recommended that no attempt be made to rotate the resulting vectors to simple structure form".

Second, since ipsative scores are not absolute, it is not strictly legitimate to make inter-individual comparisons. But such comparisons are often made, as in the establishment of norms by Cassel and Kahn. It should be kept in mind that if an individual receives a raised score on any one attribute (relative to the norm), still nothing can be said

/regarding

regarding his absolute score on that variable. A raised score on a given variable means something like the following: "this individual scored higher on this variable relative to the other variables than did other individuals on this variable relative to the other variables". To give a concrete example, consider a forced choice format where one of two responses must be chosen. One response always indicates a need for affiliation and the other a need for succorance. Individual A could have very high but equally balanced needs in both areas, while individual B has very low needs for both affiliation and succorance. Both individuals would select approximately equal numbers of the two response categories and would receive equal scores. The conclusion that individuals A and B are equal in their needs for either succorance or affiliation is obviously incorrect. The correct conclusion is that the two individuals have equally balanced need-levels in the areas concerned.

The above example can also be used to illustrate how negative interscale correlations arise from ipsative measures. The more affiliation responses chosen, the fewer succorance responses will be chosen, and the total (affiliation and succorance) always remains constant. Correlating affiliation with succorance will yield an $r = -1$.

5. GPPT test-retest reliabilities, which ranged from .40 to .78 for the scale scores and from .65 to .85 for the Total score indicate that, in many instances, less than half the score variance (r^2) could have been due to stable, enduring personality traits. The information provided by Cassel and Kahn in this respect (1961, Table 1, page 26) is reproduced for examination.

These reliabilities are regarded as very low and should certainly have received further investigation and comment by the GPPT authors. It is possible that extended time-intervals between test-sessions, or slight variations in the instructions on the two occasions, could to some extent have contributed to the large "error" variance. It is also possible that the GPPT is extremely sensitive to short-term fluctuations of mood, and that the test-retest method of establishing reliability is not appropriate for this sort of instrument.

TABLE 1
RELIABILITY OF GPPT

Groups	N	Scales					Total Score	
		Ten- sion	Nurtur- ance	With- drawal	Neurot- icism	Affili- ation		Succor- ance
Unselected Normal High School Students (both sexes)								
Odd-even Items*	300	.658	.250	.532	.602	.623	.721	.813
Test-retest**	300	.782	.659	.558	.553	.592	.752	.850
USAF Pre-flight Cadets (Males)								
Odd-even Items	200	.579	.314	.425	.632	.594	.704	.634
Test-retest	200	.735	.711	.517	.645	.600	.714	.799
USAF Women Basics (WAF)								
Odd-even Items	100	.810	.433	.450	.543	.361	.411	.835
Test-retest	100	.673	.400	.610	.598	.577	.780	.753
Neuro-psychiatric Patients (both sexes)								
Odd-even Items	200	.471	.319	.489	.539	.489	.639	.588
Test-retest	200	.511	.444	.592	.712	.613	.600	.665
Correctional Institution Youth (both sexes)								
Odd-even Items	300	.513	.399	.610	.582	.399	.732	.618
Test-retest	300	.489	.411	.645	.666	.413	.665	.659

*Pearson r_s with Spearman-Brown correction. **Pearson r_s .

To quote Hathaway (1965): "When we cannot decide how stable we expect personality to be, we have difficulty making a clear distinction between the part of the inventory test score variance that can be ascribed to errors of measurement and the part due to valid changes occurring in the personality between tests". ρ .

One of the chief problems regarding the interpretation of GPPT scores is to decide whether they reflect enduring personality characteristics, or fleeting situational effects.

Review of GPPT-related research

The initial research relating to the validity of the GPPT was, of course, undertaken by the developers of the test, usually R.N. Cassel in association with various others. These investigations will be reviewed first, and later independent studies, which concern mainly fakability, will be described second.

1. (a) Correlational studies (GPPT scores vs. other data)

These studies involve 300 high school American students of both sexes, and are only very briefly reported by Cassel and Kahn (1961). Both TRQ and Total scores were significantly related to three different measures of "social insight" (PRA Test of Insight in Human Relations; PAA Test of Social Insight; Peer status ratings). Persons with high TRQ and Total scores (i.e. indicating "poor mental health") tended to have inadequate social insight,

/r's ranging

r's ranging from ,169 ($p < ,01$) to ,312 ($p < ,001$).

Regarding leadership ability, the PRA Test of Leadership Insight, the Leadership Ability Test, and a Q-sort test were utilised. It seems from the available data that the higher the TRQ and the poorer the personality adjustment scores, the better the scores in terms of leadership values. Cassel and Kahn offer no explanation for this unexpected finding. Instead, they divert the readers attention by saying that sophisticated professionals with low TRQ and good adjustment scores obtain the best leadership value scores.

The Ego Strength Q-sort Test, designed to determine the degree of "ego-ideal" development, the relative importance of certain factors pertinent to this ideal, and the present state of ego-strength, correlated fairly highly with GPPT measures. Low ego strength was related to high TRQ ($r = -,456$); low AFF ($r = ,363$); high SUCC ($r = -,251$) and high Total ($r = -,442$), with $p < ,001$ for all of these relationships.

Comparing GPPT scores with those scores obtained on a "Life Experience Inventory" yielded a positive relationship between both TRQ and Total, and impoverished home and family backgrounds ($r = ,367$ and $,356$ respectively $p < ,001$).

Regarding scholastic achievement, those students with highest grade point averages tended to have low TRQ, NEU, and Total ($r = -,431$; $-,383$; $-,225$ respectively. $p < ,001$), and high AFF ($r = ,248$. $p < ,001$). Overall class standing, however, was negatively related to AFF ($r = -,213$; $p < ,01$).

The above studies can perhaps best be summarised by noting that, in general, high TRQ and Total scores can be interpreted as an indication of poor adjustment. Scores on the remaining scales do not vary in such a clearcut manner, with low AFF indicating poor adjustment in only two cases (Ego weakness and poor scholastic achievement), and both NEU and SUCC giving mixed results. The WITH and NURT measures appear to be unrelated to any of the above variables. Actual correlation coefficients tend to be low, but this is understandable when it is recalled that test-retest reliabilities of the GPPT seldom exceed 0,7 Δ .

/(b) Criterion

(b) Criterion group studies and standardisation

As described under the section "Development of the GPPT", the present "Total score" computation is based on the degree to which each individual scale could discriminate between normal adults and neuro-psychiatric patients. In order to cross-validate these "Total" scores, Cassel and Kahn calculated an entirely new set of β -weights according to the test's ability to discriminate between high school students and youths in a correctional institution (N = 400; 200 normals and 200 delinquents). The second set of β -weights was then used to compute Total scores for the first two groups (400 normal adults and patients). These new Totals correlated .94 with those originally obtained.

The two sets of β -weights obtained were as follows:

	200 U.S.A.F. Cadets and 200 patients	200 Normal youths and 200 Delinquents
TRQ	8	11
NURT	3	1
WITH	8	17
NEU	4	15
AFF	1	0
SUCC	8	9

Cassel and Kahn conclude that the two sets of β -weights are probably equally valid, since each set yields quite acceptable Total scores when used as multipliers for cross-validation data. They chose to retain the first set of weights in the standardised test "since the GPPT is primarily concerned with personality rather than social attributes". (1961, p. 32). It is not clear to me, however, why being classified as a neuro-psychiatric patient is less of a social attribute than being regarded as a delinquent. Furthermore, it does not appear logical to distinguish between patterns of social attributes and "personality".

The next step in Cassel and Kahn's investigation was to use the GPPT "Total" scores to estimate how accurately
/they

they could "predict" whether individuals were "normal" or disturbed. But they do not make it clear whether these individuals comprise an entirely new group, or whether they are the same individuals used to establish the factorial structure and β -weights initially. Predictive efficiency of the "Total" score is summarised in table 2.

Table 2 - Predictive efficiency of the GPPT "Total-score".

"Total" score	Unselected Normals	Psychiatric Patients	In-Prison S's
60+	74	216	148
59-	484	14	124
N in groups	558	230	272

By using a cutting point of 59,5, therefore, Cassel and Kahn show that the "Total" score can discriminate between patients and normals with 89% accuracy:

$$\begin{aligned} \% \text{ Accuracy} &= \frac{\text{No. correct predictions} \times 100}{\text{Total attempted predictions}} \\ &= \frac{216 + 484}{558 + 230} \times 100 = 89\% \end{aligned}$$

A cutting point of 69,5 yields even better prediction accuracy, namely 93%. These figures only hold, of course, where the ratio of patients to normals is approximately 1 to 2. (See Meehl and Rosen, 1955, for the efficiency of psychometric cutting scores for various base-rates). 93% Accuracy in the discrimination between well-adjusted and maladjusted individuals is quite exceptional for psychometric tests of any kind, and especially outstanding for an instrument such as the GPPT. It should be recalled that this test was not originally designed for the purpose of measuring "poor mental health", and, secondly, possesses all of the serious limitations of an ipsative measure.

Several questions arise regarding the groups utilised to obtain the above figures. If the 558 "unselected normals" were in fact a completely new group of individuals,

/then

then how did the test-developers go about selecting them? They could not, literally, have been "unselected". Secondly, the psychiatric patients initially chosen for calculation of β -weights were mostly "diagnosed as having schizophrenia" (1961, p. 25). Were the psychiatric patients used to calculate prediction accuracy also diagnosed as schizophrenics? And, if so, would the GPPT be of any use in identifying individuals suffering significant neurotic complaints?

The above questions are important ones, and strengthen the case for an independent investigation into GPPT-validity. The only such study so far reported is that by Buckham (1969) who administered the GPPT to 31 "delinquent" Australian army soldiers, and compared these results to Cassel and Kahn's American-based norms. Buckham reported that his sample scored significantly higher on TRQ, and significantly lower on NEU and AFF scales, the remaining scales giving scores not much different from American delinquents. The high TRQ score of the Australian sample is suggested to be "a consequence of testing the day after court-martial". This study is clearly not of much help in answering the questions posed in the preceding paragraphs.

2. Assessments of Fakability

The claim that the GPPT "cannot be faked to give a more favourable personality pattern than is really present" (Cassel and Kahn, 1961, p. 24) is based on an investigation by Cassel and Brauchle (1959). They administered the test 3 times to 50 high school seniors, the first administration employing regular instructions, the second requiring S's to fake a poor and highly disturbed personality pattern, and the third requiring them to fake a good personality pattern with minimum disturbance. "Fake-poor" scores were significantly different from regular scores in showing raised TRQ, WITH, SUCC, and TOTAL, and lowered NURT and AFF. But, according to the authors, S's were unable to fake "good" patterns. Cassel and Brauchle found this "surprising", and did not suggest an obvious possibility; namely, that S's couldn't "fake-good"

/because

because they had already done precisely that during the regular administration of the test.

Braun (1967) re-examined GPPT-fakability, using 2 groups of college students and asking them to give a good impression on the second administration. Results: "of fourteen differences between regular and faked administration means, twelve were in a direction consistent with successful faking". The contradiction with Cassel and Brauchle's findings was attributed to the greater intelligence and general sophistication of the college students used on this occasion. Incidentally, of the twelve differences mentioned above, only 5 were statistically significant - both groups managed to obtain significantly lower TRQ and Total scores, and one faked lower NEU.

Brozovich (1970) examined GPPT-fakability in much the same way as Cassel and Brauchle. The test was administered to 38 graduate education students under 3 conditions: Routine administration, faked emotionally disturbed, and faked well-adjusted. Results indicated that these students were able to fake both poor and good personality patterns, most scores changing in directions that agreed with predictions based on the underlying test theory.

Very recently, Ogston and Thompson (1971) correlated the probability of endorsing each multiple-choice alternative of the GPPT with the probability of endorsing that alternative as most socially desirable. Results with 88 university and nursing students indicate that about 53% of the measured test-variance can be attributed to the influence of social desirability, the average r between probability of endorsement and S.D index for all 90 questions being 0,726. Social desirability, therefore, has less influence in the selection of GPPT answers than is the case with personality inventories, though its effect is still extremely high.

It is possible that the effects of other variables, such as "cognitive acceptability" for example, are being mistakenly identified as social desirability effects. When Ogston and Thompson asked subjects to indicate the

/ responses

responses "which they believed most people would select as the nicest, most pleasant, or socially acceptable", there is no guarantee that selection was not now altogether more rational and analytical. Examination of the GPPT responses reveals that some are logical and rational while others do not follow the question-picture combination in any logical manner. A critical subject who is asked to select the most socially desirable response would become much more aware of illogical and irrational choices.

This represents the sum-total of reported research relating to the validity of the GPPT. Fakability studies appear to support the hypothesised relationships between GPPT sub-scale variation and general adjustment. High scores on NURT and AFF, and low scores on all the remaining scales, would, according to all the studies reviewed under this section, be associated with good adjustment in the area of personality assessed by the GPPT.

Aims and plan of research

The chief aims of this study ^{were} are threefold:

1. To provide preliminary normative data for South African conditions and to give some idea of the extent to which such norms differ from those obtained in the U.S.A.
2. To check whether the claims made for the GPPT by its developers are justified when it is administered in translated form in a South African setting. To recapitulate, the GPPT is claimed;
 - (a) to measure certain basic psychological needs that are active but unsatisfied at the time of testing; and
 - (b) to discriminate effectively between well-adjusted and maladjusted individuals.
3. The third aim ^{is} is to elaborate on the specific meanings presently attributed to each of the GPPT scales.

Four independent studies were undertaken, each being concerned with one or more of the above aims.

Study 1 concerns normative data;

Study 2 concerns the validity of the separate GPPT scales and
/investigates

investigates the extent to which they correlate with other personality questionnaire data;

Study 3 concerns the validity of the GPPT as a measure of general psychological adjustment, and investigates the test's ability to discriminate normals from various diagnostic groups of patients;

Study 4 also concerns the validity of the test as a measure of adjustment, but investigates the GPPT score-changes of some patients who showed dramatic improvement in their mental states. This study is therefore of a longitudinal design as compared with the cross-sectional approach utilised in study 3.

Each of these four studies will^s be separately presented giving a brief introduction, preliminary hypotheses, method, results, and a short discussion.

S T U D Y 1

S T U D Y 1 - PRELIMINARY NORMATIVE DATA

As mentioned in my reasons for undertaking this investigation, the GPPT scores of both Stikland Hospital patients and staff suggested that S.A. norms differ markedly from those obtained in the U.S.A. Some idea of S.A. norms is therefore essential for the proper interpretation of Stikland patients' scores.

The HSRC,* according to a recent letter to me, has completed the testing of 800 matriculation scholars. This data would certainly provide suitable norms for school-testing programs, but cannot be used for the interpretation of adults' scores. There is no reason to believe that age-differences or situational effects, such as being a school-going adolescent rather than a working adult, have no influence on GPPT results.

The intention of this study was not to standardise the test for general South African use, but to gain some idea of the scores normally obtained by a certain section of the population; namely, that population served by Stikland Hospital. Emphasis ^{was} therefore kept on the careful selection of a small, but representative, norm group (N = 100) rather than on large-scale administration of the test to non-representative groups such as students or scholars.

The population served by Stikland Hospital

Stikland Hospital is a state (i.e. national, or federal in U.S. terms) mental hospital which serves all of the Cape Province north of Cape Town and east of Port Elizabeth. This investigation concerns the European adult section of this population, mostly Afrikaans-speaking persons originated from rural or farming backgrounds.

Regarding the socio-economic status of Stikland patients, there is no indication that only those individuals of lower status are served by this state hospital. It should be kept in mind that Stikland was built very recently, and was designed to provide treatment facilities with minimum stigma for all sections of the European community. Wards for chronic patients are well separated from the main admission ward (the "Neuro-Clinic"), the latter having an atmosphere more like that of a guest-farm than a mental institution. As a result one finds that the well-off individual who would, in other cities, seek out private treatment, is referred to

/Stikland

* Human Sciences Research Council, Pretoria.

Stikland rather than to a private clinic.

The norm group

The task of selection was to find a group of individuals who would closely match the type of patient seen at Stikland, but who were relatively well-adjusted psychologically. Adjustment in the work-sphere has always been regarded as an important aspect of good over-all mental health. Arrangements were therefore made with Sanlam, a large insurance company in Bellville, to test some of their employees. Both the Sanlam employees and Stikland patients ^{were} are:

- a. Adults ranging in age from 17 to 65 years.
- b. Resident in the Western Cape Province of South Africa.
- c. Predominantly Afrikaans speaking.
- d. Originated mainly from rural or farming families.
- e. Conservative rather than radical in their political affiliations.
- f. Of comparable socio-economic status.
- g. Originated from families intimately associated with the Dutch Reformed Churches of South Africa.

It was not a primary intention to select individuals independently so that each was matched on all of the above variables. The cultural similarities of the Sanlam-norm and Stikland patient group is, actually, a reflection of the cultural unity of the Afrikaans people.

Procedure

Selection of the norm group was made from lists of personnel held by the personnel department of Sanlam. Approximately equal numbers of employees were randomly chosen from three broad categories. Administrative or senior personnel, clerical staff, and typists or secretaries. These categories of staff include the complete range of incomes within the organisation, which are considered to be typical of middle class European office workers in South Africa as a whole.

A letter was sent to each of 102 employees selected, a copy of which is included in the appendix (page 108). Briefly,

/this

this letter invited them to complete a personality test as part of a research project, and stressed that this research had nothing to do with Sanlam, but was being undertaken by independent agencies. Confidentiality of results was also stressed.

Of 102 individuals invited to testing sessions during working hours, 72 eventually showed up and were tested in four groups. Attempts to ascertain why 30 individuals failed to arrive revealed that about 15 of them were on leave at the time, and that the remainder could not spare the time. Those that couldn't or didn't arrive for testing due to pressure of work were mostly of the senior personnel category. Thus, if the issue of voluntarism is considered to have been operative in the final selection of this norm group, it is extremely unlikely that it affected any but the senior personnel involved.

The GPPT was administered in a comfortable lecture room within the Sanlam office-building, and no group consisted of more than 22 individuals. Once seated, each group was instructed to write their names, ages, sexes, home languages, and educational levels on the answer sheets. The standardised GPPT instructions were then read out while testees followed these in their copies of the test-booklet. This was the HSRC version of the GPPT, a complete copy of which appears in the appendix (page 89). This version of the test is identical to the American edition as regards the stick-figure drawings, but includes some minor changes in the wording of some of the response choices where these were judged unsuitable or unclear for English speaking South Africans. Afrikaans translations of the questions and response choices are supplied alongside the English wording. It was this version of the test that was utilised throughout this investigation.

Before being instructed to begin, testees were asked if they had any questions, and the confidential nature of results was again stressed. A few individuals expressed concern as to why they were chosen in the first place, whereupon it was explained that selection had been made on a purely random basis from lists of names held by the company.

Results

GPPT answer sheets were hand-scored using the keys supplied with the test. Preliminary inspection of this data showed only

/minor

minor differences between the mean scores of typist/secretaries, clerical, and senior personnel (see table 3). No formal statistical analysis was carried out to ascertain equality of means at this stage, as a later analysis (Study 3) divides the norm group into sex and age categories. Since typists and secretaries were all females under 25 years, and senior personnel were predominantly males over 25 years, it was felt that an analysis according to occupational status would be meaningless before the effects of sex and age differences on GPPT scores are known.

Table 3 - GPPT means and ^{standard} deviations of norm-groups

GPPT Scale	SANLAM Staff (N = 72)			Stikland staff (N = 28)	SANLAM + Stikland staff (N = 100)	5th year medical students (N = 42)
	Typists, secretaries (N = 25)	Clerical staff (N = 27)	Senior staff (N = 20)			
TRQ	37,2 10,3	38,9 11,5	35,0 13,5	31,0 12,3	35,54 11,87	29,7 14,8
NURT	10,6 2,86	10,7 3,12	11,1 2,27	9,6 1,99	10,45 2,61	9,62 2,90
WITH	12,9 3,58	12,1 3,38	12,8 3,41	12,1 2,38	12,45 3,19	11,88 2,23
NEU	17,2 4,37	18,7 2,59	17,6 4,40	20,3 4,17	18,56 3,91	19,71 4,55
AFF	15,9 3,08	15,4 4,48	17,3 4,54	16,6 3,85	16,27 4,01	18,74 4,79
SUCC	13,4 4,46	12,8 4,80	11,9 4,92	10,4 3,80	12,10 4,52	8,21 2,54
TOTAL	63,4 8,48	62,1 11,37	59,5 13,10	55,3 12,36	60,15 11,39	52,14 12,8
Mean: age	21,4 yrs	25,1	37,1	31,0	28,2	+ 23yrs
Education	12,3 yrs	12,9	12,4	-	-	17 yrs*

* 12 years education represents the completion of high-school

In addition to the above data, the results of previous pilot studies within Stikland Hospital are also available. The first of these studies tested 28 Stikland Hospital Personnel, mainly nursing staff. The GPPT means of this group (see Table 3) differed slightly from those of the Sanlam groups on TRQ, NEU, and Total score, but these differences appear to be a consequence of age variations. Examination of Table 3 reveals that the Stikland Staff obtained lower TRQ and Total scores than Sanlam Typists (the youngest group), as did Senior personnel.

As this Stikland staff group was also predominantly Afrikaans, thus having in common with the Sanlam employees all the cultural characteristics listed on page 31, it was decided to combine their scores with those of the three Sanlam groups. This combination provides the means and standard deviations for a total norm group of 100 individuals. This group is considered to provide the most adequate norms presently available for the purpose of interpreting the scores of Stikland patients. Means and standard deviations are included in Table 3.

Strictly speaking, these norms are for Afrikaans working adults of the Western Cape who have received standard 10 education. The norm group was distributed over age and sex variables as shown in Table 4. Raw scores are included in the appendix (page 116) and are listed in blocks (cells) according to the age and sex of these individuals.

Table 4 - Distribution of norm group (N = 100) over age and sex categories.

	17 - 25 yrs	26 - 39yrs	40 - 65yrs	
Males	14	18	13	45
Females	27	21	7	55
Total N	41	39	20	100

The second pilot study conducted within Stikland Hospital tested 42 5th year medical students. Their GPPT mean scores are also included in table 3 for examination. As can be seen these means differ markedly from those of the norm group described above, and cannot be combined with them to form a larger normative group. These students were also predominantly Afrikaans speaking and were undergoing training at Karl Bremer Hospital, Bellville. But being 5th year students their general intelligence and level of sophistication make them an unsuitable normative group for the majority of patients seen at Stikland.

Discussion

The extent to which the normative data obtained in this study differs from that of the U.S.A. can be seen by referring to figure 1. This shows the mean profiles of the Bellville working-adult group (N = 100) and the medical student group (N = 42) as compared with the standard scores of "Unselected American Adults" (from Cassel and Kahn, 1961).

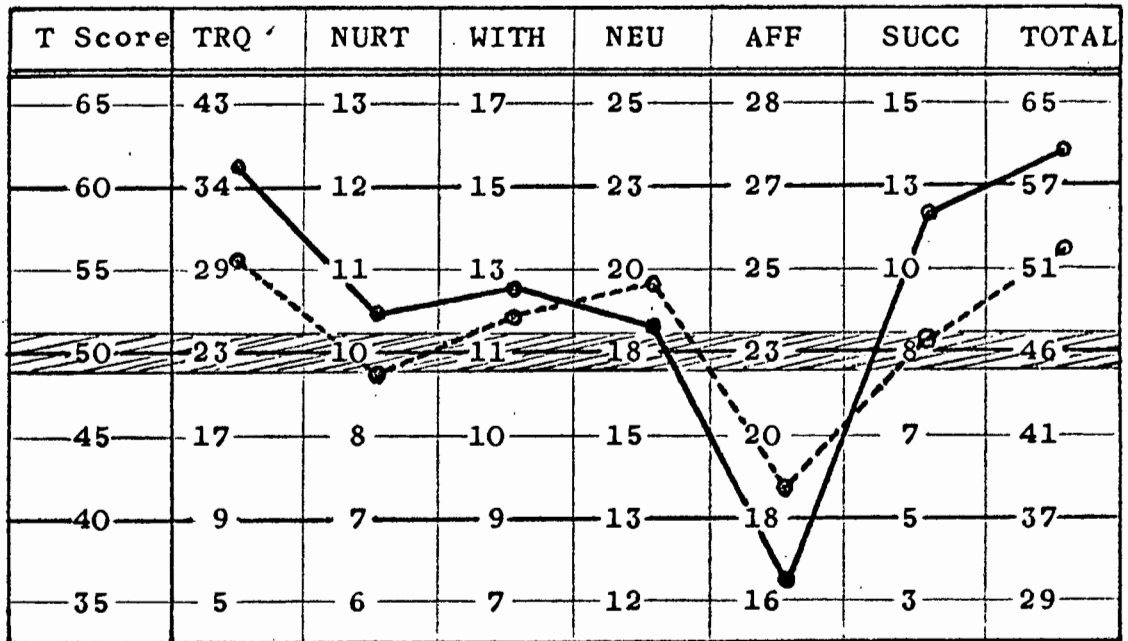
Since both the U.S.A. and main S.A. groups are large samples, N's being 710 and 100 respectively, a normal distribution model suffices to indicate the larger differences between their means. For the American sample the standard error ($S_{\bar{x}}$) for all scales equals ,376 in T-score units (from: $S_{\bar{x}} = \frac{S}{\sqrt{N}} = \frac{S}{\sqrt{10}}$ in T score units). Multiplying ,376 by 2,58 (z score at 1% confidence level) gives T = 0.97 (or 1.0) as the 99% confidence limits for the American sampling distribution.


Where the S.A. group (N = 100) means fell near to, or within, this 99% band, a conventional student's t value was calculated which pooled the variance of the two samples. These values and their associated probabilities are also included in figure 1. Inspection of this figure shows that the S.A. and U.S.A. groups differ ^{significantly} enormously in their scores on TRQ, AFF, SUCC, and Total Score. Differences between means for these scales range from 7 to 14 T-score units, or approximately 19 to 37 std. errors, and are obviously significant well beyond the ,001 level of confidence. Regarding differences between the U.S.A. and S.A. means for NURT and WITH scales, t value calculations indicate that these were also highly significant ($p < .001$). Only the NEU scale mean did not differ more than

/could

could be expected as a result of sampling error (5% level).

Figure 1 - Mean GPPT profiles of S.A. norm-groups as compared with T score levels based on American "Unselected" Adults.(N =710)



- SANLAM + Stikland Staff (N = 100), S.A. Group.
 ●- - -● 5th yr. medical students (N = 42), Med. Group.
 99% confidence limits for American sampling distribution; ie. $\pm 2,58 S_{\bar{X}}$

t values & p level for American vs. S.A. Group	3,81 p<,001	4,67 <,001	0,96 n.s.
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What these differences mean in psychological terms is a more difficult problem. Their interpretation obviously rests on the validity and meaning of the GPPT scales, which is the topic of the remainder of this investigation. Taking Cassel and Kahn's interpretations of scale meanings uncritically, it could be stated that, as compared with Americans:

- a. The S.A. individuals experienced more anxiety-producing tension at the time of testing, this being an indication of poor mental health (TRQ score).
- b. S.A. individuals (excluding the medical students) showed

/a greater

- a greater need to play the father role, including volunteering and giving aid to others (NURT score)
- c. S.A. individuals needed to avoid activity in the group, and to avoid personal and social responsibility (WITH score)
 - d. S.A. individuals showed much less need for group membership and belongingness, and for activities involving intimacy with others, suggesting general psychosexual immaturity (AFF score)
 - e. S.A. individuals (excluding the medical students) showed a greater need to seek aid and play an infant role, and also showed a general distrust of others (SUCC scale)
 - f. S.A. individuals were generally experiencing greater "need-activeness" at the time of testing, suggestive of general emotional disturbance. (Total score)

The above statements, which assume that score differences between the U.S.A. and S.A. groups arise as a result of psychological or personality differences, should be interpreted with considerable caution.

Apart from the question as to the validity of the GPPT scales, it should be kept in mind that a translated form of the test was used. In order to identify the score differences arising from translation it would be necessary to administer the GPPT to a group of fully bilingual persons. Such a group could be randomly divided, one half completing the English form of the test and the other the Afrikaans form. Then the whole group could be retested at some later stage, such that each individual is administered the test in the language other than that in which he initially completed it.

A second possibility behind the large score differences between the U.S.A. and S.A. groups is that South Africans were less able to fake a "good" personality profile. It may be that Americans are far more experienced than South Africans in the completion of personality tests of all kinds, and therefore are more able to distinguish the socially desirable from the socially undesirable responses. Investigation of the fakability of the GPPT by Afrikaans speaking South Africans should help to clarify this possibility.

The Validity of the GPPT as a test of personality:
Correlations with other tests

Introduction

In order to investigate the nature of the "basic psychological needs" claimed to be measured by the GPPT, it was decided to compare patients' GPPT results with those scores obtained on other standardised personality tests.

A system of rating directly from the information contained in patients' clinical folders was also attempted, but had to be abandoned due to the state of these folders. Many contained very incomplete information, and the style of presentation varied considerably from folder to folder. Furthermore, should ratings of any one particular variable (e.g. need to aid others) be found to correlate poorly with the GPPT scale claimed to measure this trait, it would still be necessary to examine a network of other relationships. The GPPT-NURT scale could, conceivably, be misnamed and be invalid as a measure of "need to aid others", but still provide a valid measure of some related aspect such as need to be judged positively by others.

The task then, was to gather information regarding as many personality variables as possible, and for as many patients as possible, and to compare variations on all these measures with the way GPPT scales fluctuate from patient to patient.

Four independent personality measures were utilised in this program:

1. The IPAT Sixteen Personality Factor Questionnaire - Form A; HSRC version, S. African standardisation (16PF).
2. The IPAT Anxiety Scale; HSRC version, S. African standardisation (Ipat Anxiety Scale).
3. The Personal, Home, Social, and Formal Relations Questionnaire; HSRC version, S. African standardisation (PHSF).
4. The Minnesota Multiphasic Personality Inventory, Form R; original American form (MMPI).

A brief description of each of these tests is included in the appendix (page 109) together with indications of their reliability and validity, and the system of scale interpretation utilised.

The above selection was partially dictated by the need to utilise S.A. standardised inventories that have been translated into Afrikaans, since roughly 80% of the patients seen at Stikland Hospital are Afrikaans-speaking. Only the MMPI was not translated, its use being restricted to those patients who were fully competent in English. It was included because of the valuable information contained in its subscales pertaining to those dimensions of personality traditionally associated with maladjustment of many types.

Together, the above battery of tests provide 48 variables, or 43 if allowance is made for the duplication of 16PF scales in the Ipat Anxiety Scale. The networks of relationships between these 43 variables and each of the GPPT scales were hoped to provide a basis for clarifying the construct-validity of the GPPT. For example, the TRQ score is claimed to be a measure of the degree of anxiety-producing tension present in the individual at the time of testing. The extent to which TRQ correlates with other measures of anxiety will, therefore, be indicative of the construct validity of this scale. Other scales of the GPPT, such as NURT - the "need to be of aid to others", cannot be expected to correlate very highly with any one measure of the set of personality tests chosen as criteria, as no corresponding scales are included in these other tests. Groups of relatively low correlations, however, provide that each is statistically significant, and that the group as a whole contains more than 5% of all correlations computed for that particular variable, will provide evidence as to the particular meaning of this variable. Should only 5% or less of a column of correlations be significant at the 95% level of confidence, then these correlations will be regarded as only suggestive of significant relationships. This precaution arises since one can expect 5% of relationships between theoretically unrelated variables to be significant at a 95% level of confidence by chance alone.

Only a broad null-hypothesis will be formulated at this

/stage:

stage: All correlations between GPPT variables and the scores on other personality tests will not be significantly different from zero in the population under study.

Method

Subjects. All Stikland Hospital patients who, during the period July 1971 to July 1972, completed both the GPPT and another of the four inventory-type personality instruments mentioned above (page 38) were included in this section.

Regarding the composition of this sample of patients, it is the policy of Stikland Hospital to attempt an objective personality evaluation of every patient seen for the first time, regardless of diagnosis. This includes both residential and out-patients. Personality testing is, therefore, a fairly routine procedure for new cases, and is not confined only to those individuals with doubtful diagnosis or special difficulties. Needless to say not every new patient was tested, the routine having failed where patients were particularly disturbed, unco-operative, or merely unable to spare the time. Other patients remained untested for no reason other than that there was no psychologist free to administer tests. These patients were at the end of the queue as it were.

About one half of all new patients seen at Stikland during the period concerned were subjected to some form of personality evaluation by the psychology department. These evaluations involved over 400 persons, and it seems reasonable to assume that this group represented a random sample from all new cases seen who were not so disturbed as to be untestable.

Almost every patient seen for personality evaluation completed the GPPT, but not every patient also completed one of the four criterion measures. Some individuals completed the GPPT only, while others were administered a variety of other instruments such as the TAT, Rorschach, or some interests questionnaire. The selection of tests used in each individual case lay with the psychologist responsible for the personality evaluation. It is possible that a certain type of patient was being systematically excluded from this study. By being administered the more rarely used instruments, such as the Rorschach, in preference to one of

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the standardised instruments selected as criteria, certain patients with complex personality problems were possibly being excluded. This possibility, however, is considered unlikely as the intern psychologists were forced to become acquainted with as many instruments as were available. The selection of tests in each particular case probably reflects more on the needs and preferences of the psychologist than on the type of patient referred to him.

Of the total group of over 400 patients subjected to personality evaluations during the period under study, 168 were found to have completed both the GPPT and one or more of the four criterion instruments. 155 Of these 168 patients had completed only one other test along with the GPPT, but 13 had completed two others, thus contributing two comparisons each between the GPPT and another test. These 13 patients completed tests in the following combinations:

GPPT + Ipat Anxiety Scale + PHSF	6 patients
GPPT + Ipat Anxiety Scale + MMPI	5 patients
GPPT + Ipat Anxiety Scale + 16PF	1 patient
GPPT + PHSF + 16PF	1 patient

The above patients made possible 26 comparisons between the GPPT and another test, which, with the 155 individuals who completed the GPPT plus one other measure, resulted in 181 comparisons altogether:

These were as follows:

Analysis I : GPPT vs Ipat Anxiety Scale (8 scores)	N = 83
Analysis II : GPPT vs 16PF, Form A (16 scores)	N = 38
Analysis III : GPPT vs PHSF Questionnaire (11 scores)	N = 30
Analysis IV : GPPT vs MMPI, Form R (13 scores)	N = 30
	<hr/>
	Total N = 181

Testing procedure

Testing procedure was always in strict accordance with the standardised instructions associated with each particular instrument. The order of administration of the various instruments depended on the patient and on the situation. Sometimes the GPPT was administered first, sometimes some other instrument, so that it is considered extremely unlikely that systematic sequential

/effects

effects influenced the relationship between test-scores. Patients were usually tested individually, but a small proportion had tests administered in groups, usually of 2 or 3 individuals.

No patient was ever told anything more about the instruments other than that they were personality tests, and that their administration was a routine procedure.

RESULTS

Pearson product-moment correlation coefficients between each GPPT scale and the scales of the other personality measures were calculated, and are shown in table 5. These coefficients were calculated by a Univac system of the University of Cape Town Computer Center, utilising a program designed specifically for this study. The accuracy of results was checked by use of a Hewlett Packard computer which required completely independent data input (via teletypewriter instead of punched cards), and which utilised a different language (Basic instead of Fortran) and consequently a different program from that used with the Univac system.

The raw data used for these computations is included in the appendix (page 117), together with all calculated means and standard deviations.

In order to facilitate interpretation of the mass of Pearson r 's in table 5, certain variables have been reflected. For example, scale C of the 16PF is written as C(-), and every r in the row has been given an opposite sign to that originally obtained. A pictorial aid to interpretation is provided by underlining r 's according to their level of significance. Those r -values significant at the .001 level are underlined 3 times, those at the .01 level are underlined twice, and those at the .05 level once.

Table 5 provides 48 Pearson r 's under each scale of the GPPT, each r representing the correlation between this scale and one scale of another personality measure. The number of r 's which would be expected to reach significance (5% level) by chance alone is 2 or 3 for each column of 48 figures. Inspection of this table reveals that only the NURT scale, with 3 significant correlations, fails to be related to other personality measures to an

/extent

Table 5 - Pearson r's between GPPT scales and other personality tests

Test	Scale	TRQ	Nurt	With	Neu	Aff	Succ	Total
IPAT Anxiety Scale (N = 83) df = 81 r p ,217 ,05 ,283 ,01 ,357 ,001	C(-)	<u>485</u>	-013	<u>-236</u>	<u>237</u>	<u>-251</u>	156	<u>451</u>
	L	<u>372</u>	024	<u>-253</u>	-049	-009	165	<u>315</u>
	O	<u>424</u>	-132	<u>-251</u>	171	-079	030	<u>354</u>
	Q ₃ (-)	<u>431</u>	-014	<u>-245</u>	039	-136	123	<u>366</u>
	Q ₄	<u>380</u>	-223	-169	<u>230</u>	-178	080	<u>339</u>
	A Total	<u>396</u>	-125	<u>-241</u>	087	-200	135	<u>331</u>
	B Total	<u>509</u>	-103	<u>-238</u>	<u>218</u>	-104	062	<u>450</u>
	A + B	<u>483</u>	-122	<u>-279</u>	191	-156	116	<u>416</u>
Cattell 16 P F Test (N = 40) df = 38 r p ,264 ,10 ,312 ,05 ,403 ,01 ,501 ,001	A(-)	072	072	029	131	-218	-060	068
	B(-)	072	047	138	-095	<u>-338</u>	205	115
	C(-)	<u>498</u>	-215	<u>-353</u>	<u>287</u>	-181	<u>385</u>	<u>490</u>
	E(-)	140	175	<u>280</u>	118	<u>-449</u>	-189	127
	F(-)	<u>371</u>	-141	<u>390</u>	085	<u>-376</u>	034	<u>375</u>
	G(-)	117	-219	-071	212	153	044	127
	H(-)	<u>291</u>	-032	211	145	<u>-308</u>	-044	<u>266</u>
	I	144	<u>-334</u>	016	164	011	233	179
	L	154	-162	<u>-333</u>	192	136	<u>272</u>	155
	M(-)	105	<u>310</u>	<u>244</u>	097	065	-215	112
	N(-)	047	<u>-268</u>	106	<u>356</u>	-095	184	027
	O	<u>472</u>	-166	-038	<u>420</u>	<u>-324</u>	<u>440</u>	<u>528</u>
	Q ₁ (-)	197	021	034	-145	-076	<u>264</u>	<u>208</u>
	Q ₂ (-)	001	025	-130	056	182	031	000
Q ₃ (-)	212	011	-190	<u>390</u>	-127	011	198	
Q ₄	<u>435</u>	<u>-301</u>	-191	<u>291</u>	-238	<u>377</u>	<u>453</u>	
PHSF relations question- naire (N = 30) df = 28 r p ,306 ,10 ,361 ,05 ,463 ,01	All(-)	225	-191	<u>-279</u>	-018	-100	<u>441</u>	222
	Self-conf	232	-214	<u>-364</u>	200	-083	<u>423</u>	250
	Self-est.	<u>449</u>	-203	-203	129	126	<u>336</u>	<u>487</u>
	Self-cont	034	-046	-023	-052	-170	<u>395</u>	140
	Nervousns	-001	-200	-018	-119	-055	<u>319</u>	114
	Health	109	<u>-374</u>	-089	014	107	<u>331</u>	216
	Family-in	093	-243	-103	-011	-020	<u>387</u>	153
	P-freedom	<u>456</u>	-229	<u>-364</u>	248	-057	185	<u>425</u>
	Sociabl-G	010	177	-219	120	-113	269	008
	Sociabl-S	<u>439</u>	036	021	-156	224	016	<u>446</u>
Moral-sen	300	-064	-218	032	178	154	302	
Formal-r.								

Table 5 - continued

Test	Scale	TRQ	Nurt	With	Neu	Aff	Succ	Total
M M P I Form R (N = 30) df = 28 r p - - ,306 ,10 ,361 ,05 ,463 ,01	L	099	<u>329</u>	202	-151	114	-125	148
	F	285	-205	029	-001	-291	073	284
	K(-)	<u>411</u>	-124	009	005	-131	181	<u>429</u>
	Hs	<u>318</u>	-080	-159	-032	-142	<u>309</u>	291
	D	<u>356</u>	083	-015	-059	-175	254	<u>374</u>
	Hy	192	076	-114	-039	-087	<u>315</u>	160
	Pd	<u>442</u>	-098	-116	083	-113	052	<u>415</u>
	Mf	121	-080	-076	-064	-216	-020	117
	Pa	<u>332</u>	002	014	034	<u>-314</u>	265	<u>374</u>
	Pt	<u>483</u>	056	-140	-097	-150	287	<u>475</u>
	Sc	<u>430</u>	-135	-088	-018	-209	252	<u>422</u>
Ma	149	-296	-063	123	-222	021	092	
Si	<u>362</u>	098	-040	013	-093	285	<u>441</u>	

extent which definitely exceeds chance expectations. The NEU, AFF, and SUCC scales correlate significantly with other measures more often than chance variation would predict (6, 5, and 7 times respectively) but still relatively infrequently.

The TRQ, Total Score, and WITH scale of the GPPT, however, show a large number of significant correlations (5% level) with other personality scores, namely 20, 22 and 12 respectively.

DISCUSSION

The following analyses are based on Table 5. Each GPPT scale will be considered separately, and a description given of those personality traits found to be significantly correlated with it ($p < .05$). Correlations significant at the 10% level will be taken into account only in so far as they support, or fail to support, the patterns arising from the examinations of those's significant at the 5% level. The aim of each analysis is to arrive at the nuclear trait, or construct, involved in the GPPT scale under consideration.

/(1) TRQ

(1) TRQ

A high TRQ is associated with elevated scores on every one of the Ipat Anxiety sub-scores ($p < .001$) as follows:

- C(-): Inability to control and express frustrative tensions in a suitably realistic way; emotionality, instability, ego-weakness.
- L(+): Suspiciousness and paranoid-type insecurity.
- O(+): Guilt-proneness with feelings of apprehension, unworthiness and depression.
- Q₃(-): Failure to integrate behaviour about a clear self-concept or socially-approved standards.
- Q₄(+): Proneness to emotionality, tension, irritability, and "jitteriness"; high ergic tension.
- A Subtotal (+): Covert, indirect expression of anxiety.
- B Subtotal (+): Overt, direct, and symptomatic expressions of anxiety; an indication of how conscious the testee is of his anxiety.
- A + B (+): Overall high anxiety level.

Regarding relationships with the 16 PF, a high TRQ is associated with elevated scores on:

- C(-), O, Q₄: confirming the anxiety dimension of the TRQ as ^{described} layed out above.
- F(-): Desurgency; i.e. a sober, taciturn, serious individual who tends to be reflective, incommunicative, cautious, and sticks to his inner values.

Regarding the PHSF, high TRQ is related to:

- Scale 3(-): Lack of self-control; inability to control and channel emotions and needs in accordance with inner principles and judgement (cf. Q₃(-))
- Scale 8(-): low general sociability; aversion to social group interaction; introversion.
- Scale 10(-): low moral sense; person feels that his behaviour does not correspond to the accepted norms of society.

Finally, regarding the MMPI, high TRQ is related to

/K(-):

- K(-): Possibility of a poor self concept. Tendency to emphasise problems in social and emotional adjustment.
- Pd(+): Nonconformism and tendency to rebellion. Possible dissatisfaction with family or social relationships. Tendency to shallow feelings and loyalties.
- Pt(+): Rigidity and meticulousness. Tendency to obsessions, compulsions, or phobias. May have religious preoccupations and guilt, and be dissatisfied with social relationships.
- So(+): Tendency to be eccentric, seclusive, and withdrawn with many internal conflicts.
- Si(+): Introverted, retiring, and shy in social situations.

Summary:

A raised TRQ is definitely related to poor general adjustment. There is little doubt that it is closely related to a high level of anxiety, but the dimension of introversion is also included. In general it could be stated that the high TRQ scorer is likely to be anxious, dissatisfied with himself and his social life, finds it difficult to relate adequately to others, and tends to be rigid and meticulous.

Cassel and Kahn's interpretation of the TRQ as a measure of anxiety-producing tension and poor mental health appears to be justified.

Regarding the question of whether TRQ scores reflect relatively unstable, and transient aspects of anxiety (symptoms), or more permanent and enduring personality traits, it appears from the above analysis that both are involved. The high correlations with the Ipat Anxiety subscales, and in particular with the B subtotal ($r = .509$) suggest that overt and symptomatic expressions of anxiety contribute most to TRQ variance. It can be expected, therefore, that the TRQ score will vary considerably from testing session to testing session, and that high reliabilities are not possible for this measure if test-retest coefficients are taken as indicators of reliability.

(2) Nurturance

A low nurt score is associated with:

- Q₄(+): Proneness to emotionality, tension, irritability, and "jitteriness"; (High ergic tension).

/I(+)

I(+): The tendency to be tender-minded, sensitive dependent, and attention-seeking or clinging.

PHSF, scale 6(-): Dependency on family influences and relationships.

Summary

The meaning of the Nurt score is perhaps better expressed by considering high rather than low scores. High Nurt appears to indicate that the individual is free from ergic tension, is independent of family influences, and is tough-minded, self-reliant, and realistic.

Since only 3 out of 48 correlations reached significance at the 5% level, this interpretation should be regarded as suggestive only. Cassel and Kahn's interpretation of high Nurt as "the need to be of aid to others" is consistent with the above indications, but contraindicated by the low correlation with the 16PF dimension of submissiveness-dominance (E). One would expect an individual with a raised need to play the "father-role", and to be of aid to others, to also show signs of dominance and assertiveness (E+).

(3) Withdrawal

A low With score is associated with: Ipat Anxiety scales: high scores on all but one (i.e. Q₄) of subscales indicating the various components of anxiety, and high levels of total anxiety.

16PF, C(-): Emotionality, instability, and ego-weakness.

16PF, F(+): Surgency; i.e. the tendency to be enthusiastic, heedless, and happy-go-lucky; extraversion.

16PF, L(+): Suspiciousness and paranoid-type insecurity.

PHSF, scale 2(-): Lack of self-esteem.

PHSF, scale 8(-): low general sociability and aversion to group interaction; introversion.

Summary

The individual who obtains a low With score appears to suffer anxiety, especially in so far as this is related to ego-weakness and suspiciousness. He also tends to be enthusiastic and happy-go-lucky, but is aversive to group interaction and lacks self-esteem.

/Alternatively,

Alternatively, the individual who obtains a high With score can be said to be relatively free of anxiety, be emotionally stable and mature (ego-strength), tends to be trusting and accepting (L), but, at the same time is sober, taciturn, and serious (desurgent). He appears to welcome group interaction and does not lack self-esteem.

The above description bears little resemblance to Cassel and Kahn's interpretation of high With. To them it served as an index of the need to avoid or escape activity in the group, and to avoid personal and social responsibility. Their interpretation of a low With score as indicative of emotional immaturity, however, accords well with the anxiety-prone, yet happy-go-lucky individual who lacks self-esteem as described initially.

(4) Neuroticism

A high Neu score is associated with:

Ipat Anx. C(-): Emotionality, instability, and ego-weakness.

Ipat Anx. Q₄(+): Proneness to emotionality, tension, and irritability (high ergic tension)

Ipat Anx. B(+): Overt, symptomatic expression of anxiety.

16PF, N(-): Naivete; the tendency to be forthright, unpretentious, and spontaneous, but socially clumsy.

16PF, O(+): Guilt proneness with feelings of apprehension, self-reproach, and insecurity.

16PF, Q₃(-): Undisciplined self-conflict, lack of control, and failure to integrate self-image or behave according to socially-approved standards.

Summary

Anxiety appears to be the main variable contributing toward raised Neu scores, especially in so far as this is overt and directly expressed by way of symptoms. The individual who obtains a high Neu score, apart from displaying symptoms of anxiety, worry, and tension, also tends more often to be simple and naive rather than shrewd and polished in his social interactions.

The above description is quite consistent with Cassel and Kahn's interpretation that high Neu represents an inability of the

/individual

individual to make decisions, an indication of a general state of diffusion or vagueness in planning.

As discussed in the case of the TRQ, therefore, one would expect the Neu score to be as much a measure of transient symptomatic states as it is a measure of some enduring personality trait.

(5) Affiliation

A low Aff score is associated with:

Ipat Anx. C(-): Emotionally, instability, and ego weakness.

16PF, B(-): Lowered intelligence, the person being unable or disinclined to solve abstract problems.

16PF, E(-): Submissiveness; the tendency to be obedient, mild, easily led, and accommodating.

16PF, F(-): Desurgency; the tendency to be sober, taciturn, introspective, and serious.

16PF, O(+): Guilt-proneness with feelings of apprehension, self-reproach and insecurity.

Summary

The low Aff scorer seems best described as a "bit of a cabbage" - ineffective, submissive, and introspective. His energy and drive appear to be directed towards self-reproach and worry rather than productive growth of the personality and effective interactions with others.

Cassel and Kahn's interpretation that low scores indicate general psychosexual immaturity appears quite acceptable so long as "sexual" is taken in its broadest sense, i.e. the general drive or life-force of the person.

High Aff scores appear to indicate ego-strength, raised intellectual functioning, dominance, enthusiasm, and an untroubled self-assuredness. Although this description is consistent with the need for group-membership and belongingness (Cassel and Kahn's interpretation of a raised Aff score) the correlations of table 5 do not lend much support to this interpretation. One would expect individuals with raised needs for group-membership and intimate relations with others (high Aff) to show some sign of

/extraversion,

extraversion, or to have high scores on the PHSF dimensions of general and specific sociability. The Aff score appears more related to general effectiveness and the way in which the individual utilises his energy than to his specific psychosexual needs.

(6) Succorance

A high Succ score is associated with:

16PF, C(-): Emotionality, instability, and ego-weakness.

16PF, O(+): Guilt proneness with feelings of apprehension, self-reproach, and insecurity.

16PF, Q₄(+): High ergic tension, i.e. the tendency to be tense, frustrated, driven, and overwrought.

PHSF, scale 1(-): lack of self-confidence concerning one's ability to be successful.

PHSF, scale 2(-): lack of self-esteem.

PHSF, scale 4(-): Symptoms of nervousness as expressed by anxious, repetitive behaviour.

PHSF, scale 7(-): The persons feels restricted by parental or family ties.

The significant relationships between Succ and the 16PF traits (C, O, and Q₄) associated with anxiety fail to be confirmed by correlations with the Ipat Anxiety Scale. This suggests that those individuals who obtain high Succ scores resemble persons suffering high anxiety as regards certain basic personality traits, but that their maladjustment shows itself in some form other than by anxiety symptoms. The significant Succ - PHSF correlations indicate that maladjustment is involved in personal and home relations. Apart from the four correlations significant at the 5% level (discussed above), there is also some tendency for high Succ scores to lack self-control, to be preoccupied with their health, and to dependent on family influences (Scale 3, 5, and 6 significant at the 10% level).

Summary

The individual who obtains a high Succ score appears to be emotionally unstable (ego weakness), guilt-prone, tense and frustrated; lacking in self-confidence, self-esteem, and self-

/control;

control; and dependent on family (especially parental) ties. The general flavour of this description is one of general immaturity and inadequacy rather than of anxiety and tension. The high Succ scorer appears to be an immature, childish, and dependent person.

Cassel and Kahn's interpretation of high Succ as indicative of the need to seek aid and play an infant role is quite compatible with the above analysis, although the aspect of distrust for others is not confirmed.

(7) Total Score

A high total score is associated with elevated scores on every one of those scales found to be significantly related to high TRQ. In fact examination of table 5 reveals that the correlation of Total score with any particular variable can be predicted with great accuracy from the correlation between TRQ and that variable. Correlations between the GPPT scales themselves (see table 6) indicate that TRQ and Total score have an $r = .967$. This correlation is so high that these two scores can be regarded as measuring the same dimension.

Apart from the list of significant relationships under the section dealing with TRQ, high Total score was found also to be associated with:

MMPI, D(+): The tendency to depression, worry, and pessimism.

MMPI, Pa(+): The tendency to be touchy, overly responsive to opinions of others, and to blame others for ones own difficulties.

Summary

In so far as it is concluded the TRQ and Total score measure the same thing, the discussion and summary concerned with the meaning of a high TRQ applies here also. Actual correlations between Total score and measures of anxiety, although still highly significant ($P < .001$ in most cases) tend to be slightly lower than those between TRQ and anxiety measures. A high Total score, therefore, is related to poor general adjustment, but appears less specifically related to manifest anxiety at the time of testing than is TRQ.

/Cassel

Cassel and Kahn's interpretation of a high Total score as indicating the general level of emotional disturbance and poor mental health appears justified by this study.

General summary

Cassel and Kahn's interpretations as to the meaning of raised TRQ, Neu, Succ, and Total score appear generally justified, except that there was no support for their hypothesis that raised Succ scores sometimes indicate distrust for others. The above analysis suggest that high scores on all of these four scales are associated with maladjustment, or poor mental health, a conclusion which is quite compatible with the interpretations offered by Cassel and Kahn.

Regarding the Nurt, With, and Aff scales, however, the above analysis do not always confirm Cassel and Kahn's interpretations. At times they merely fail to confirm these interpretations, and at times are completely inconsistent with them. High Nurt scores appear to indicate a tough-minded, self-reliant independence, and freedom from tension or anxiety. But not the trait of dominance which would be expected to exist in the individual with needs to play a "father role". High With scores seem to be associated with a mature, sober-minded, relaxed acceptance of others, an interpretation which bears little resemblance to that of Cassel and Kahn. High Aff scores appear to indicate ego-strength, effective intellectual functioning, dominance, enthusiasm, and calm self-assuredness. But not the need for intimate contact with others as postulated by Cassel and Kahn.

Raised scores on any of the Nurt, With, and Aff scales are, according to the analysis in this study, associated with maturity and good adjustment. Lowered scores, on the other hand, appear indicative of immaturity, an interpretation which accords with that of the test-developers.

Correlations between GPPT Scales

A by-product of the correlational computations under this section was that, each time the GPPT was correlated with another personality test, the GPPT scales themselves were intercorrelated. Table 6 gives these values as well as the mean r 's that are obtained when their Fischer z -transformations are weighted and averaged.

/The

Table 6 - Correlations between GPPT scales (Pearson r)

	TRQ	Nurt	With	Neu	Aff	Succ	Total
TRQ	+++	-032 (-170)	-335 (-208)	229 (196)	-196 (-253)	389 (520)	967
Nurt	-055 021 -195 -178 285	++++	-031 (142)	-222 (-055)	008 (-212)	-148 (-304)	-033
With	-310 -430 -091 -308 -481	009 -083 -055 -000 -067	++++	-212 (-015)	-355 (-354)	-408 (-356)	-230
Neu	177 329 433 214 -071	-190 -255 -066 -140 -530	-207 -314 009 -351 -071	++++	-299 (-320)	-082 (-171)	238
Aff	-230 -169 -336 -099 -013	-048 091 -118 071 137	-397 -223 -383 -335 -494	-251 -268 -560 -290 -226	++++	-037 (-092)	-263
Succ	474 323 341 250 356	-164 -098 -167 -177 164	-442 -421 -343 -364 -336	-145 -027 171 -177 -192	032 -116 -119 -100 041	++++	504
Total	967 966 973 947 971	-068 019 -180 -170 321	-224 -333 -019 -130 -356	181 329 492 149 -077	-288 -238 -412 -180 -065	578 459 485 349 435	++++

Notes: (a) r 's below diagonal are derived from 5 separate analyses having $N = 132, 83, 40, 30, \& 30$ respectively. Above-diagonal r 's are means obtained through Fisher's z -transformation ($N = 315$)

(b) The above-diagonal r 's in parenthesis come from Cassel & Kahn, 1961 (p30), being the inter-correlations based on American normals and psychiatric patients.

The first r-value in each set of 5 (Table 6) is derived from an analysis which compared the GPPT scores of 132 patients with their 16PF-Form C scores. These results, i.e. the 16PF-Form C vs. GPPT r's, have not been included in this investigation as it was consequently discovered that the Form C translation used was not standardised and was extremely unreliable. These 132 patients did not complete any of the other personality measures used as criteria in this study. The remaining 4 r's in each set of 5 are by-products of the analysis detailed in table 5 where the GPPT was correlated with the four criterion personality measures.

The first fact to emerge from Table 6 has already been mentioned, namely, that the TRQ and Total scores are so very highly correlated ($r = .967$; $n = 315$) that they can be regarded as measuring the same thing.

The second fact to emerge from Table 6 is that correlations between GPPT scales, excluding the Total score, are predominantly negative. This is what would be expected considering the ipsative nature of the GPPT and the remarks made in this respect in the introduction of this thesis (see page 20). The values of these r's between scales agree well with those supplied by Cassel and Kahn (1961) when the factorial validity of the test was checked by administering it to 200 American normal adults and 200 psychiatric patients.

This agreement might be a reflection of the underlying factorial validity of the GPPT, but it cannot be assumed that the underlying factors are necessarily primary dimensions of personality. As mentioned in the introduction, the factorial separation between scales could be an artifact arising from the way the test is laid out. It will be remembered that (a) responses are always keyed to the TRQ scale, (b) responses to the Nurt, and With scales, and (c), (d), and (e) responses are always keyed to Neu, Aff, and Succ respectively. Thus (c) responses could "go together", or correlate, for no other reason than that they are all the middle responses in the series (a) to (e).

The final decision as to the validity of the various GPPT scales must depend upon their relationships with external criteria rather than on certain considerations as to internal consistency provided by factor analysis. This issue will be discussed further in the final chapter of this thesis.

Validity of the GPPT as a measure of adjustment: Comparison of normals with various patient groups

Introduction

Several pilot studies designed to investigate the use of the GPPT as a measure of adjustment showed that, although differences between the means of patients and non-patients were generally statistically significant, there was so much overlap in the scores of these groups that individual prediction was not possible (see figure 4, page 62).

Using the scores of the 100 normals described under study 1 of this investigation, and 218 Stikland patients of all diagnoses, the TRQ scale was found to discriminate best between these groups. This was the case despite the manner in which the Total score was developed by Cassel and Kahn. Assuming that discrimination would have to be made between normals and patients where these two types occur with equal frequency, a TRQ cutting score of 45 would achieve only 61% correct classifications. This is only 11% better than would be achieved by pure guesswork, a very poor performance considering the ideal case of 50% base rates on which it was calculated. (See Meehl and Rosen, 1955, for a discussion of the efficiency of psychometric cutting scores and base rates).

The problem, then, was to decide whether the GPPT could not discriminate effectively between individuals of good and poor mental health because of the diversity of the patient group utilised in this pilot study, or because of the test itself. It was decided, therefore, to divide up the patient group into relevant diagnostic categories, and to control for both sex and age in the comparisons between the various patient groups and normal group.

Deciding how best to divide up the diagnostic groups was a major problem. As discussed under "Abnormal personality and psychopathology" a distinction should be made between those patients displaying behaviour (or symptoms) uncharacteristic of their usual pattern, and those who have always behaved in a manner distressful to themselves or society. Such a distinction would accord with the separation of neuroses, and personality disorders made by the American Psychiatric Association (APA, 1968). But, as already mentioned, this distinction is not easy to make in practice, and

it proved impossible to adhere to it. The patients' clinical folders contained, in many cases, far too little information, and many patients were diagnosed as "neurotic with underlying personality disorder". Subclassifications within the diagnosis of neurosis and personality disorder were not even attempted, as these are notoriously unreliable.

An approximate division of patients within the neurosis-personality disorder categories was, however, attempted. Examination of the clinical folders revealed that certain patients denied that anything was the matter with them, displayed negligible signs of anxiety or tension, and coped quite satisfactorily with social intercourse. These patients were invariably diagnosed as alcoholics, addicts, or antisocial personalities. They are termed "Behaviour problems" * in this investigation, as they behaved in a way which was sufficiently distressful to others to warrant psychiatric intervention, yet failed to see anything wrong in their own behaviour. No distinction was possible between in-patients and out-patients for this group due to insufficient numbers of patients.

An attempt was also made to investigate the GPPT's ability to indicate the severity of maladjustment. In-patients were separated from those out-patients who had never been admitted to the hospital. These groups consisted of all those patients diagnosed as neurotic or personality disorder who failed to be included in the category "behaviour problems". Individuals in these "neurotic" groups are homogeneous in that they all required psychiatric aid as they had failed to cope with the stresses of daily living, they felt they had failed, and experienced considerable subjective distress as a result.

Along with the three patient groups so far discussed, namely neurotic out-patients, neurotic in-patients, and behaviour problems, all patients diagnosed as psychotic were included as a fourth group.

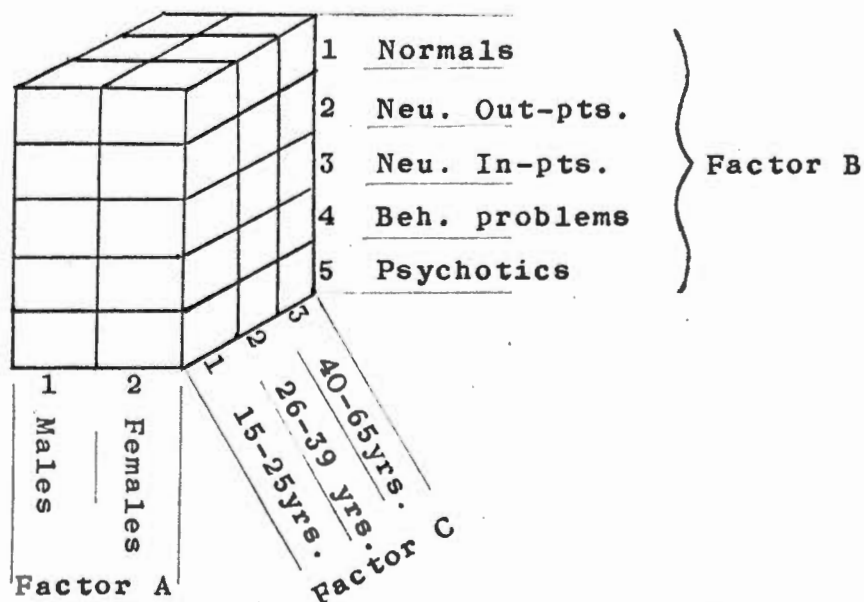
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* This diagnostic division is supported by Cattell, Eber, and Tatsuoka (1970). They found, at the adolescent level, a broad division between "personality disorders", roughly akin to adult neurosis, and "behaviour problems" (acting out, delinquency, conduct disorder) readily recognisable by a personality profile difference on factors such as A, E, G, Q₃ (16PF).

The reliability of diagnosis requires some discussion. Regarding in-patients, the practice of Stikland Hospital is to present each new patient at an admission conference. This takes place within one week after the patient's admission, and all psychiatric details including the initial diagnosis are discussed. Diagnosis of in-patients can therefore be regarded as the combined decision of approximately 15 psychiatrists, registrars, and psychologists, this representing the usual attendance at one of these conferences. Diagnosis of out-patients are formed individually, and are therefore much less reliable. This is another reason for the separation of out- and in-patients proposed above.

The statistical design appropriate for the analysis of GPPT scores under this section is a series of 3-factor analyses of variance ("anovas"), where patients' scores are assigned to the various cells according to sex, diagnostic group, and age. Figure 2 illustrates the model associated with this design. According to the null-hypothesis we would expect all the means of the various cells to be equal within the limits of sampling error. This would apply for each of the dependent variables, in this case being the different GPPT scale-scores.

Figure 2- Model of 3-factor analysis of variance.



The proposed analysis of variance design should indicate whether GPPT scores are significantly related to sex or to age, and whether interactional effects between the sex, age, and diagnostic group variables are perhaps obscuring the GPPT's ability to discriminate effectively between well- and maladjusted individuals.

Each GPPT scale-score, the dependent variable in the 3-factor anova, will be included in a separate analysis. This is essential as the anova technique assumes independence of the samples in the various cells. An analysis having GPPT scales as one of the independent variables would proceed with sets of scores from the same group of individuals in the various cells of the analysis, thus violating the assumption of sample-independence.

Method

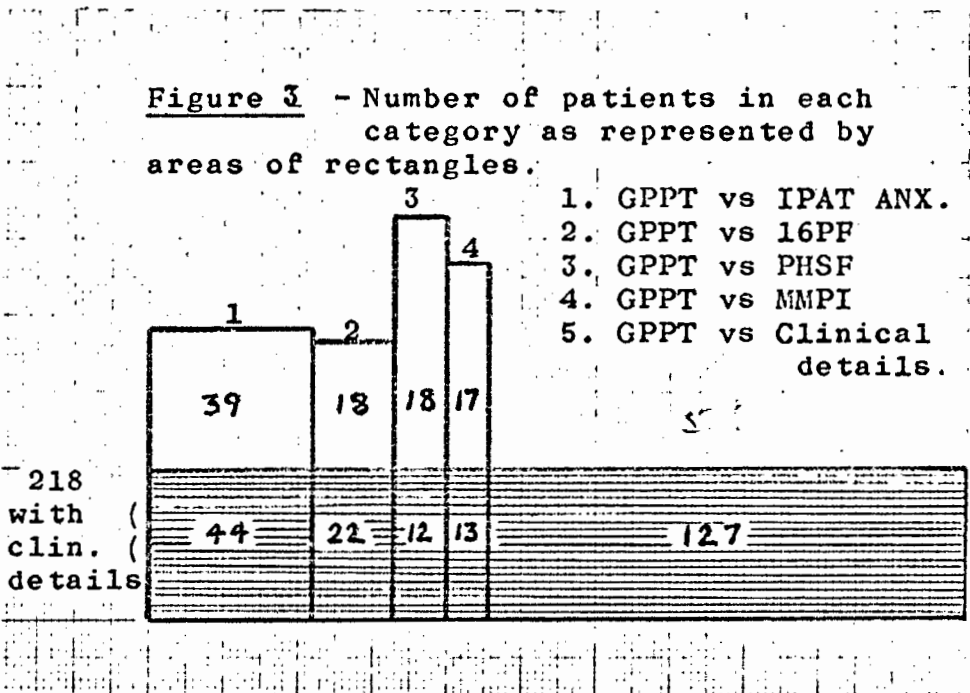
Subjects: Selection of patients, as in study 2, was made from the 400 plus Stikland patients who completed the GPPT during the period July 1971 to July 1972. Selection was made according to the availability of clinical folders. Whenever these folders were difficult to trace, or where details in the psychology department's test-results-record were insufficient to identify the patients easily, these cases were dropped from the study.

Detailed studies of 255 folders were eventually completed, and it is considered that these cases represent a random selection from all those individuals first seen at Stikland Hospital during the period under study. As mentioned in the preceding study, it is the policy of the hospital to obtain an objective personality evaluation for every patient seen for the first time.

Procedure: Testing procedure, as before, was always in accordance with the standardised method associated with GPPT. The extraction of clinical information from those 255 folders examined was systematised by use of the following categories: Age; marital status; education; occupation; source of referral; dates of all admissions and discharges; symptoms; diagnosis; medication prescribed; other treatment; and outcome of treatment. Of the 255 patients selected, 37 were found to have inadequate details in their folders, or to be diagnosed as suffering from some organic impairment which could account for their mental states, or to have
/been

been discharged without a definite diagnosis. This group was dropped from the study leaving 218 cases for further analysis.

About 40% of these 218 patients happened to be the same ones as those who completed the GPPT plus another personality test, and whose results are therefore included in Study 2. Exact overlaps are indicated in figure 3 where the number of patients in each category is represented by the area of a rectangle. Where rectangles overlap this indicates the number of patients who were included both in study 2 (GPPT vs. Other personality measure) and this study (GPPT vs. Clinical details). For example, 44 patients completed both the GPPT and Ipat Anxiety Scale, and are included in this section which concerns clinical data.



The next step, after acquiring all GPPT results alongside the clinical and life-data of these 218 patients, was to assign them to the various categories of sex, age, and diagnostic group required for the planned 3-factor analysis of variance. Sex and age classifications were automatic, but, as anticipated, diagnostic classifications presented some problems. In certain cases it was very difficult to decide whether a patient should be classified as "Neurosis" or "behaviour problem". These patients presented with a mixed picture of alcoholism and anti-social acts existing along-

/side

side feelings of distress and failure. Diagnosis in the clinical folders were dual, and did not state whether the alcoholism or neurotic pattern was considered primary.

Decisions in these difficult cases were made by using 5 registrars as judges, the folders of each patient were examined by each judge in turn to make a classification of either "neurotic" or "behaviour problem". The criterion for a classification of "behaviour problem", as discussed in the introduction (p. 56) was that the patient behaved in a way which was particularly distressful to others, yet failed to acknowledge anything wrong with his behaviour, and showed no signs or symptoms of psychosis. Agreement between judges for the 15 most difficult cases turned out to be just over 70%, which is only 20% better than if decisions had been made by random guessing. This slight improvement, however, was considered worth the effort involved.

In order to check the reliability of diagnosis made for the remainder of this sample (203 cases), 20 patients were selected at random and their folders were examined by the five judges. There was complete agreement amongst the judges as to whether these patients should be labelled neurotic, behaviour problem, or psychotic for 11 of the 20 cases, and 80% agreement for the remaining 9. In all cases the diagnostic decisions originally made and entered in the folders remained unaltered.

The final distribution of patients over the cells of the 3-factor anova categories is shown along with the normal group in table 7.

Results

The 3-factor anova technique is based on several assumptions, namely, that the data included in each cell of the analysis comes from independent random samples of normally distributed and equally variable populations, and that cell frequencies from column to column and from row to row are proportional.

(Roscoe, 1969)

/Normal

Table 7 - Numbers of patients and normals in each of age, sex, and diagnostic categories

	Normals	Neurotic Out-pts.	Neurotic In-pts.	Behavior problems	Psychotic	
17-25yrs	14	8	8	5	5	152 Males
26-39 yr	18 } 45	13 } 27	17 } 37	11 } 27	8 } 16	
40-65 yr	13	6	12	11	3	
17-25yrs	27	9	12	9	2	166 Females
26-39yrs	21 } 55	12 } 31	25 } 49	3 } 17	6 } 14	
40-65yrs	7	10	12	5	6	
Total N	100	58	86	44	30	

Note: Both "Behaviour problem" and "Psychotic" groups include residential as well as Out-patients.

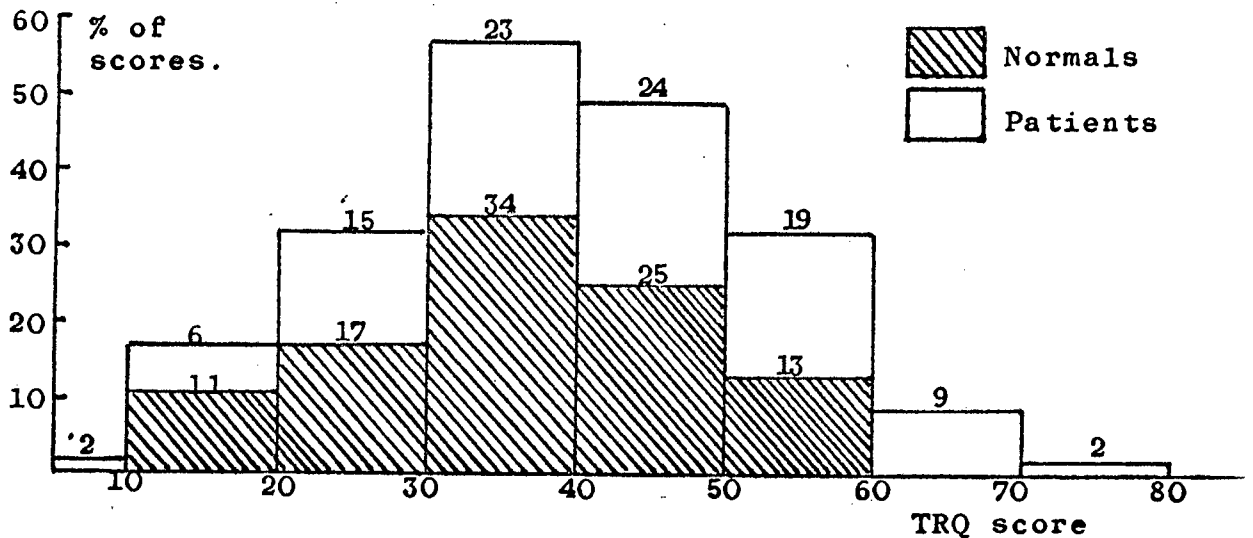
Normal distribution of the GPPT scores was checked by the construction of the series of simple histograms, none of which were found to differ radically from the expected normal curve. The TRQ distribution, shown in Figure 4, is typical of these histograms.

Homogeneity of cell-variance was checked by Bartlett's equation which yields a chi-square. This equation, together with the values of chi-square obtained for each analysis, is included in the appendix (page 120). Results show that the hypothesis of homogeneity of cell variance should be retained for every one of the seven analysis corresponding to the seven different GPPT scale-scores as dependent variable.

Proportionality of cell-frequencies can be checked by referring back to table 7 (page 61). The ratio of males to females is roughly 50:50 for every diagnostic category, but the proportionality of the three age groups in each sex-diagnosis category will be seen to vary widely. It was not possible to rectify this lack of

/proportionality

Figure 4 - Distribution of TRQ scores for 100 Normals and 218 patients.



proportionality regarding the age-groups without excluding data from many of the cells. It was decided, therefore, to proceed with the analysis despite the age-group disproportionality, and to regard any significant effects arising from the age variable as suggestive rather than as conclusive evidence. It was also decided to drop diagnostic group 5 (psychotics) from the 3-factor anova analysis, as the cell-frequencies here were very small. There are only two individuals in one of the cells.

Results of the 2 x 4 x 3 factor anovas are summarised in table 8, where factor A (2 categories) refers to sex; factor B (4 categories) refers to diagnostic group; and factor C (3 categories) refers to age. These were calculated by a Hewlett Packard computer of the University of Cape Town psychology department. The raw data (see appendix, page 16) was entered via the teletypewriter. Computed means and standard deviations for all cells of the analysis are detailed in table 9.

The results in table 8 indicate that the null hypothesis should be retained for those analyses having Nurt and Succ scores as dependent variables. There are no significant differences between the means of different sex groups, diagnostic groups, or age groups on these scores. But the remaining analyses all result in F -ratios significant at the ,05 level or better.

/Regarding

Table 8

SUMMARY TABLE FOR 3-FACTOR ANOVA

2 x 4 x 3 Factors *

GPPT scale	Source of variation	Sum of Squares	Mean Square	df	F ratio
TRQ	Factor A	176.62	176.62	1	0.887
	B	3894.6	1298.2	3	<u>6.523</u> p<.001
	C	650.04	325.02	2	1.633
	AB	335.61	111.87	3	0.562
	AC	6.432	3.216	2	0.016
	BC	260.45	43.408	6	0.218
	ABC	1483.0	247.17	6	1.242
	Error	52538.	199.01	264	
NURT	Factor A	1.406	1.406	1	0.195
	B	49.872	16.624	3	2.310
	C	25.245	12.622	2	1.754
	AB	55.090	18.363	3	2.552
	AC	32.922	16.461	2	2.287
	BC	22.704	3.784	6	0.526
	ABC	67.241	11.207	6	1.557
	Error	1892.5	7.196	264	
WITH	Factor A	45.723	45.723	1	<u>3.996</u> p<.05
	B	28.789	9.596	3	0.839
	C	45.226	22.613	2	1.976
	AB	61.558	20.519	3	1.793
	AC	26.238	13.119	2	1.147
	BC	59.968	9.995	6	0.874
	ABC	28.970	4.828	6	0.422
	Error	3020.7	11.442	264	
NEU	Factor A	0.777	0.777	1	0.040
	B	214.85	71.617	3	<u>3.684</u> p<.05
	C	1.138	0.569	2	0.029
	AB	31.635	10.545	3	0.542
	AC	4.679	2.340	2	0.120
	BC	196.37	32.728	6	1.683
	ABC	60.524	10.087	6	0.519
	Error	5132.6	19.442	264	
AFF	Factor A	32.457	32.457	1	2.562
	B	380.98	126.99	3	<u>10.024</u> p<.001
	C	34.724	17.362	2	1.370
	AB	20.587	6.862	3	0.542
	AC	0.361	0.181	2	0.014
	BC	145.03	24.172	6	1.908
	ABC	65.257	10.876	6	0.858
	Error	3344.5	12.669	264	
SUCC	Factor A	11.897	11.897	1	0.563
	B	23.622	7.874	3	0.373
	C	75.018	37.509	2	1.776
	AB	5.144	1.715	3	0.081
	AC	7.150	3.575	2	0.169
	BC	183.95	30.659	6	1.451
	ABC	152.93	25.489	6	1.207
	Error	5576.6	21.123	264	
TOTAL	Factor A	264.35	264.35	1	1.697
	B	3793.9	1264.6	3	<u>8.119</u> p<.001
	C	547.64	273.82	2	1.758
	AB	103.20	34.399	3	0.221
	AC	11.274	5.637	2	0.036
	BC	383.45	63.908	6	0.410
	ABC	1247.8	207.96	6	1.335
	Error	41121.	155.76	264	

* Group-B5 (psychotics) excluded from analysis. v. Nitro

Table 9

3 FACTOR ANOVA - CELL FREQUENCY, MEAN, AND STD. DEVIATIONS (ALL GPPT VARIABLES)

	NORMALS	NEUROTIC OUT-PTS	NEUROTIC IN-PTS	BEHAVIOR PROBLEMS	PSYCHOTIC		NORMALS	NEUROTIC OUT-PTS	NEUROTIC IN-PTS	BEHAVIOR PROBLEMS	PSYCHOTIC
Cell frequency (N)							<u>NEU - \bar{X} & S</u>				
17-25yrs	14	8	8	5	16 Males	M A L E S	18.43 3.61	20.87 3.87	20.75 4.98	16.60 4.28	
26-39yrs	18	13	17	11			18.33 4.21	21.08 5.92	20.35 5.00	18.09 4.57	
40-65yrs	13	6	12	11			19.15 4.41	20.33 2.50	19.17 3.38	19.27 3.61	
17-25yrs	27	9	12	9	14 Female	F E M A L E S	19.56 4.21	19.89 4.99	21.67 3.34	16.56 4.00	
26-39yrs	21	12	25	3			18.00 3.56	19.67 5.09	20.36 4.56	18.00 5.29	
40-65yrs	7	10	12	5			16.14 2.12	19.80 5.86	19.58 5.65	21.80 4.09	
COMBINED	100	58	86	44	30	A L L	18.56 3.91	20.28 4.86	20.30 4.47	18.32 4.20	19.30 2.99
TRQ - Means & Std. Deviations (\bar{X} & S)							<u>AFF - \bar{X} & S</u>				
17-25yrs	34.21 12.46	41.37 9.26	43.87 12.24	42.20 18.20	16 Males	M A L E S	16.43 3.92	14.62 2.07	14.62 4.03	17.20 4.49	
26-39yrs	31.67 13.50	42.69 12.52	37.94 11.66	32.09 12.22			18.56 3.90	12.69 4.11	12.41 2.81	16.82 3.03	
40-65yrs	36.15 12.39	48.50 12.53	42.50 12.45	30.64 12.06			15.92 4.77	13.17 2.93	14.33 2.64	15.27 3.07	
17-25yrs	38.00 11.51	46.11 16.04	49.58 23.60	33.22 18.55	14 Female	F E M A L E S	14.96 3.86	15.00 3.71	11.75 2.86	17.67 5.07	
26-39yrs	35.52 11.16	39.75 14.18	46.92 16.84	30.67 14.98			16.29 3.72	12.83 3.30	13.56 3.16	15.00 1.00	
40-65yrs	37.57 10.88	42.50 15.88	43.00 15.47	42.40 16.89			15.71 3.35	13.40 3.17	13.50 3.18	13.20 3.70	
Combined	35.54 11.87	43.00 13.28	44.07 15.90	34.02 14.70	38.03 14.61	A L L	16.27 4.01	13.52 3.32	13.28 3.11	16.11 3.74	14.97 4.83
<u>NURT - \bar{X} & S</u>							<u>SUCC - \bar{X} & S</u>				
17-25yrs	10.93 3.22	9.50 1.93	9.75 2.66	9.00 1.87	16 Males	M A L E S	12.29 3.75	9.87 3.56	11.62 3.25	12.20 4.32	
26-39yrs	10.00 2.17	11.50 3.26	9.59 2.92	9.82 2.96			9.83 4.54	10.92 4.89	11.94 4.68	10.00 4.12	
40-65yrs	8.38 2.06	9.50 3.45	10.58 3.48	10.27 2.37			12.46 6.09	13.67 5.61	11.92 6.57	10.45 3.75	
17-25yrs	9.96 1.65	9.11 2.85	9.08 2.87	8.78 2.33	14 Female	F E M A L E S	13.33 4.27	12.22 5.56	12.00 5.88	12.22 5.21	
26-39yrs	11.38 2.65	10.17 2.52	9.60 2.92	9.00 2.65			12.24 4.65	10.83 3.66	13.36 3.36	7.67 6.11	
40-65yrs	13.57 2.76	10.10 2.92	10.58 2.50	9.40 3.78			11.71 1.80	12.70 5.64	10.25 3.74	14.20 4.32	
Combined	10.45 2.61	10.11 2.81	9.81 2.86	9.53 2.55	9.87 2.60	A L L	12.10 4.52	11.55 4.72	12.09 4.56	11.13 4.39	13.23 5.55
<u>WITH - \bar{X} & S</u>							<u>TOTAL - \bar{X} & S</u>				
17-25yrs	11.43 2.85	9.50 1.93	12.12 3.31	11.40 3.58	16 Males	M A L E S	58.64 11.98	63.50 7.69	67.62 11.5	63.40 17.50	
26-39yrs	12.78 3.51	11.31 3.20	14.06 4.28	12.91 2.34			55.61 13.48	65.92 10.83	63.53 10.06	55.91 9.07	
40-65yrs	12.31 2.39	13.00 2.83	13.83 2.66	12.09 3.39			60.31 12.78	71.50 13.46	67.08 9.87	55.00 9.99	
17-25yrs	12.44 4.13	12.56 4.27	13.58 3.65	13.33 5.20	14 Female	F E M A L E S	63.70 9.95	69.11 13.79	73.50 19.16	58.11 17.11	
26-39yrs	12.67 2.90	14.50 3.45	11.84 3.17	14.33 2.52			60.52 10.99	64.83 12.15	69.72 12.98	53.67 17.24	
40-65yrs	11.86 2.41	14.20 4.13	13.92 2.64	12.40 1.52			59.71 9.94	67.80 15.30	66.33 13.82	67.20 14.70	
Combined	12.45 3.19	12.59 3.69	13.12 3.40	12.66 3.32	13.23 3.56	A L L	60.15 11.39	66.76 11.97	68.00 13.04	58.11 13.16	63.13 12.48

Regarding TRQ, Neu, Aff, and Total score analysis, it was factor B (diagnostic group) which contributed the significant F ratios. Regarding With scores, it was factor A (sex); Females, with a mean With score of 13.00, scored significantly higher than Males with a mean of 12.39 ($F = 3,996$; $p < .05$).

In no analysis did factor C (age) contribute a significant F ratio, and no significant interactional effects were noted. Those F ratios which did not reach significant levels were all small, leaving little doubt that, except for the With scale, GPPT scores are not systematically influenced by either the sex or age of the testee.

The influence of diagnosis on GPPT scores can be seen by referring to figure 5. In this figure the normal group ($N = 100$) is represented by the horizontal line through T-score 50, and raw scores on all GPPT scales are plotted such that one std. deviation (normal group) is equivalent to a T-score deviation of 10. The profiles of the various diagnostic groups relative to the South African norm were constructed from the "combined" means given in table 9. These means combine all the sex and age groups of each diagnostic group.

Discussion

The most striking aspect about the mean profiles in figure 5 is the similarity between neurotic in-patients and out-patients on the one hand, and between normals and "behaviour problems" on the other. This makes the interpretation of significant F ratios much easier, as the problem of deciding which group differs significantly from which other group does not arise.

It would appear quite in order to conclude from figure 5 that neurotics (both in- and out-patients) scored significantly higher than normals and "behaviour problems" on TRQ and Total scores ($p < .001$), and on Neu ($p < .05$). Neurotics also scored significantly lower than normals and "behaviour problems" on Aff ($p < .001$). Thus all these scales (TRQ, Neu, Aff and Total score) appear to be measuring some aspect of personality or symptomatology that is related to the dimension of neuroticism.

Another striking aspect of figure 5 is the position taken up by the means of the psychotic group. Although this group was

/not

above findings is to regard high TRQ, Neu, and Total scores; and low Aff scores, as indicating neurotic maladjustment, rather than general poor mental health. The tendency for psychotics' scores to deviate slightly towards the poles of neurotic maladjustment is consistent with such an interpretation. It appears that the GPPT fails to detect psychotic symptomatology as such, but does detect the neurotic anxiety and feelings of distress which are secondary to mental disturbance of a psychotic nature.

If the GPPT "Total score" served as an index of general mental health, as Cassel and Kahn claim, then psychotics would be expected to obtain more deviant scores than do neurotics. It is, I believe, generally accepted that psychosis is a more severe and disruptive form of mental disorder than is neurosis, and is especially disruptive of the personality structure. The fact that no GPPT score (except, possibly, the Succ score) shows the psychotic group as most deviant leads one to conclude that these scores are measuring, not psychotic, but specifically, neurotic maladjustment.

The conclusion above is supported also by the failure of the GPPT scores to detect patients with behaviour problems. It will be remembered that the criteria used to place patients in this group were that they displayed negligible signs of anxiety or tension, denied that anything was wrong, and coped satisfactorily with social intercourse. The general pattern of scores for this group was one of lowered scores on all GPPT scales as compared with the norm group. Cassel and Kahn's interpretation of lowered scores generally as indicative of immaturity is supported by this pattern.

The next aspect of ~~Figure~~ Figure 5 requiring some explanation is the almost perfect correspondence of the profiles of residential- and out-patient neurotics. Why is it that the GPPT failed to discriminate those patients who had to be admitted to Stikland, and who were therefore judged as more severely maladjusted, from those who could carry on life as out-patients? This failure of the test to indicate the severity of maladjustment can be understood by considering the anxiety levels of both patient-types at the time of testing. Residential patients were generally tested during the first week after admission. They were also, generally, receiving very high doses of tranquilising medication, and had

/been

been removed from the stresses of normal living. The general level of anxiety of these patients must have dropped sharply during this first week. Out-patients, on the other hand, could not be so heavily tranquilised and had still to cope with everyday stresses. Thus the GPPT failed to indicate the severity of maladjustment within these two groups as they were not matched regarding the time, during the course of treatment, at which they were tested.

All of the above considerations; namely, the failure of the test to show up psychotics, patients with behaviour problems, or in-patient neurotics, as more disturbed than out-patient neurotics, lead one to the conclusion that the GPPT scores are more sensitive to transient neurotic symptomatology than to enduring deviations of personality structure. This argument is based on Foulds' (1965) suggestion that, in order to increase the reliability of psychiatric diagnosis, a distinction should be made between the symptoms and signs of illness on the one hand, and the basic personality characteristics on the other. The above considerations also lend support to Eysenck's (1952) position which regards psychosis and neuroticism as basic and factorially separate dimensions of personality, except that his model does not distinguish between behaviour that is characteristic (personality traits) and that which is uncharacteristic (symptoms) of the individual.

S T U D Y 4

VALIDITY OF THE GPPT AS A MEASURE OF ADJUSTMENT: SCORE CHANGES ASSOCIATED WITH "DRAMATIC" IMPROVEMENT.

A longitudinal approach to the question of the GPPT's validity as a measure of adjustment is to examine patients' scores before and after successful therapy. This approach should help to clarify the issue of whether scores represent stable and enduring personality traits, or whether unstable and rapidly changing behaviour patterns contribute most to score variance. This is an important issue as regards the design of investigations relating to the reliability of test scores. If score changes do represent a valid indication of short-term alterations of certain behaviour patterns, then the test-retest method of estimating score reliability would appear to be inadequate for this instrument. The low reliabilities associated with the GPPT scales (Cassel and Kahn, 1961) need not reflect too severely on the test, except in so far as it is regarded as a measure of enduring personality traits.

Ideally, a controlled study of test score stability should include two groups of patients of similar diagnoses and personality types, but who differ in their reactions to therapeutic intervention. One might hypothesise that the control group (unchanged) would show no difference in GPPT scores on retest, but that the experimental group (improved) would obtain scores indicating a significant shift towards adjustment and better mental health.

Unfortunately this study was not preplanned, but arose spontaneously after the discovery that certain patients did exhibit marked changes in their scores after successful therapy. No control group is therefore included.

The null-hypothesis here is that the GPPT score means obtained by patients after exceptional improvement will not differ significantly from those score means of tests administered on admission to the hospital. The experimental hypothesis is that all GPPT scales except Aff and Nurt will show significant reductions on post-testing, and that Aff and Nurt scores will increase significantly ($p < .05$). The hypothesis that all scales

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of the GPPT, except Nurt and Aff, indicate maladjustment when scores are high accords with the findings of previous research related to fakability as well as with the results of study 3 of this investigation. It is also the "common-sense" hypothesis when the descriptions of what each scale measures (Cassel and Kahn, 1961) are taken into account.

Method

Subjects: The criterion of "dramatic improvement" was judged by the concensus of opinions expressed spontaneously at Stikland's discharge conferences. Such opinions involved ward-staff, occupational therapists, social workers, and the medical and psychological staff-members. Whenever it was spontaneously noted that a patient had improved "dramatically", "remarkably", or "very much", and this opinion was generally agreed upon, then the patient concerned was regarded as a candidate for this study.

Apart from the above criterion relating to improvement, the following criteria were also required to be met:

- a. The patient must have completed the GPPT shortly after admission to the hospital.
- b. The patient must have been diagnosed, initially, as having some form of personality disorder of long duration.
- c. The patient must be female.
- d. She must be prepared to complete the GPPT for a second time before being discharged.

Only 7 patients fulfilled the above criteria and could be retested. They were all discharged from the hospital during the first half of 1971, but lengths of hospital stay (equal to test-retest intervals) varied from 3 to 32 weeks. This large variation of test-retest intervals is regarded as inconsequential as it corresponds to a real situation. Improvement just doesn't take place at the same rate for different individuals.

Procedure: Instructions on post-testing were identical to those given on the initial administration of the test, except that it was made clear to these patients that their results would not influence the decision to discharge them. The reason offered for re-administration of the test was factual: it was explained to

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the patients that the test was still in the process of development and validation, and that their scores were of interest as it was considered that they had made considerable progress during their stay in the hospital.

It was decided to be as honest as possible with these individuals so as to discourage faking and careless answering. This principle is in compliance with Jourard's (1968) opinion that manipulation of experimental subjects serves only to decrease co-operation and increase the contribution to score variance of uncontrolled variables such as response set.

Results

Table 10 indicates the raw scores, pre- and post-test means, and t values (dependent samples) on each GPPT scale for the seven individuals of this study. The null-hypothesis was rejected in the case of both TRQ and Total score, where post-test scores were significantly lower than those obtained on admission to the hospital ($p < .01$ in both cases).

Table 10 - GPPT score changes of patients judged as having improved dramatically after admission.

S's age yrs.	test- retest wks.	TRQ		Nurt		With		Neu		Aff		Succ		Total		No of S
		1	2	1	2	1	2	1	2	1	2	1	2	1	2	
29	10	37	23	13	15	17	19	18	12	14	16	8	7	62	50	(1)
20	3	44	31	16	17	12	8	10	10	10	14	8	9	61	49	(2)
24	20	96	24	4	8	7	8	18	17	11	14	26	24	113	55	(3)
23	26	10	3	5	7	15	13	16	9	19	23	6	7	35	26	(4)
49	3	52	28	9	4	14	13	25	25	8	18	11	12	75	55	(5)
30	3	64	32	8	11	13	18	24	19	10	11	13	12	83	62	(6)
35	32	59	38	7	6	8	10	24	27	16	12	13	11	77	61	(7)
<u>1</u>	Mean	51,71		8,86		12,29		19,29		12,57		12,14		72,3		
	SD	26,4		4,30		3,64		5,44		3,91		6,67		23,9		
<u>2</u>	Mean	25,57		9,71		12,71		17,0		15,43		11,71		51,1		
	SD	11,18		4,82		4,46		7,14		4,08		5,82		12,1		
t (df=6)		-3,17		0,75		0,38		-1,62		1,81		-0,81		-3,32		
p level		<,01		ns.		ns.		ns.		ns.		ns.		<,01		

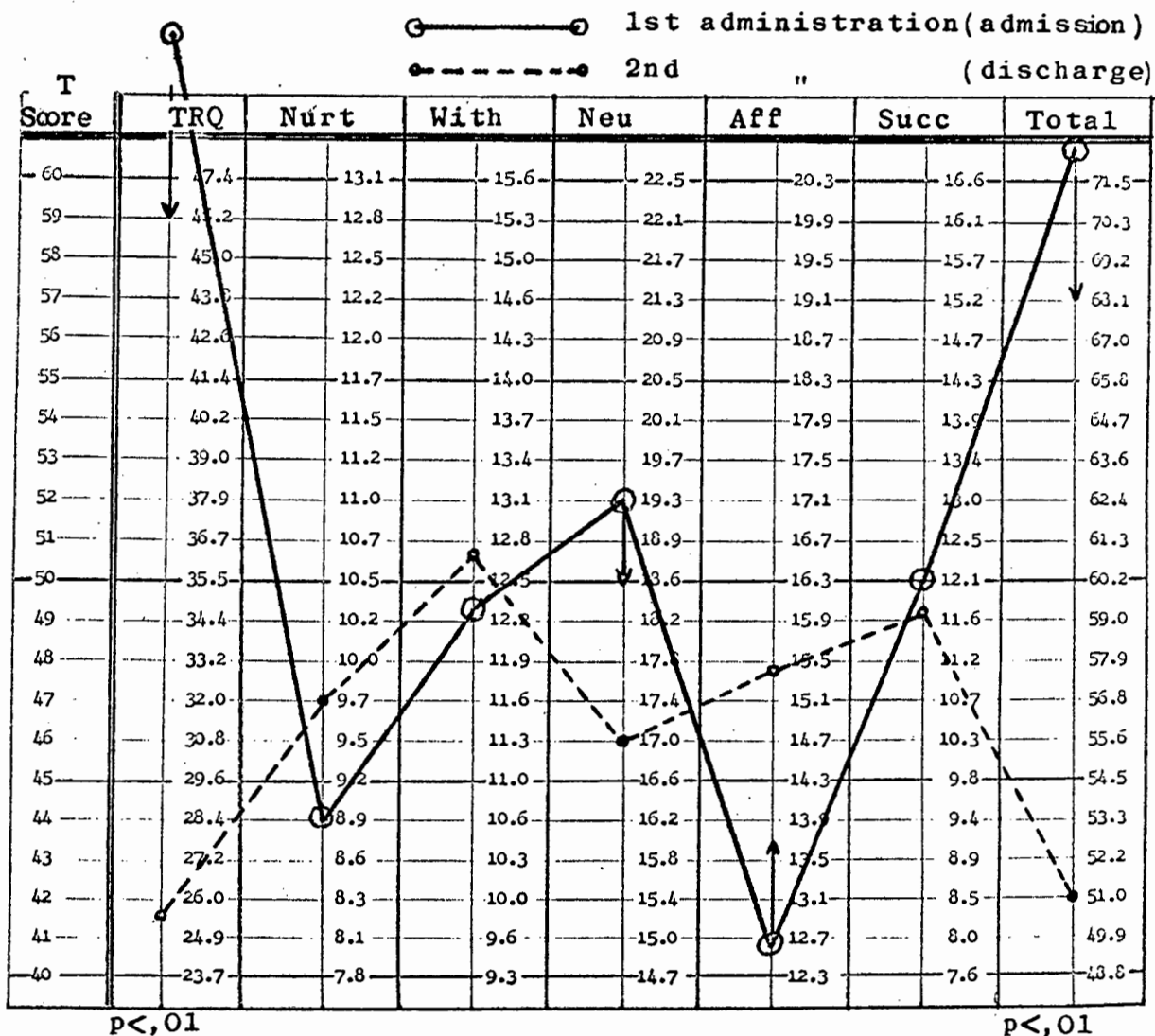
* 1 refers to test scores on admission (pre-test)

2 refers to scores before discharge (post-test)

On all other GPPT scales pre-test and post-test scores did not differ significantly ($.05$ level; one-tailed) but further investigation appears to be necessary in the cases of Aff and Neu. On both these scales retention of the null-hypothesis possibly involves a type II error as t values were high, and the size of this sample is small.

Figure 6 shows the mean profiles of these 7 patients on admission (pre-test) and after dramatic improvement (post-test). These profiles are constructed relative to the South African norm group ($N=100$) discussed in study 1.

Figure 6 - Mean GPPT profiles on admission, and when discharged, of patients who improved "dramatically".



Discussion

Examination of the raw data of this investigation reveals exceptionally large variations in the TRQ and Total scores between different individuals. Patient 3, for example, obtained a pre-test TRQ of 96 while patient 4 obtained only 10. If, as the previous studies of this investigation indicate, high and low TRQ scores are suggestive of neurotic maladjustment and general immaturity respectively, then high and low scores should not both be expected to decline on retesting. No conclusion can be made on the basis of one patient (number 4) who did, in fact, have an even lower TRQ score than 10 on retesting. But further studies relating to the issue of score-changes with successful therapy should take the initial scores into consideration. Patients who obtain exceptionally low scores on any one scale should not be included in the same group as those who score high, and different hypotheses need to be made regarding the influence of improvement on GPPT scores for different patient groups.

Since all the patients in this study, except patient 4, did obtain above-normal TRQ and Total scores when tested initially, it seems reasonable to conclude that the lowering of such high scores is associated with a real shift towards adjustment and better mental health. Whether this shift involved lasting alterations in the underlying personalities of these individuals, or merely the lessening of anxiety together with the neurotic symptomatology associated with it, is not clear. This question will be discussed more fully in the final chapter of this thesis.

OVERALL DISCUSSION AND CONCLUSION

In order to simplify the evaluation of the GPPT's validity as a test of personality, each scale will first be considered separately, as was done in study 2 of this investigation. The aim of this chapter is to consider all evidence relating to the score variance of the test, and to arrive at some sort of conclusion about what it is that is being measured. An attempt will be made to integrate the information both from this investigation and from the independent studies reviewed in the main introduction.

(1) TRQ and Total Score

These scales are considered together in view of their very high correlation ($r = .967$; see page 54). Apart from the few minor differences between them as noted in the discussion of study 2, no other evidence appeared to indicate that they should be considered separately.

The results of correlations with other questionnaire measures of personality indicated that high scores on these scales are associated with high anxiety levels, especially overt or symptomatic expressions of anxiety. Introversión, dissatisfaction with self and relationships with others, rigidity, and meticulousness were also involved. These descriptions appear to support the conclusion of study 3, that neurotic maladjustment is indicated by high scores. Study 4, which showed that scores on these scales are significantly reduced with a shift towards stability and adjustment (as judged clinically) in certain individuals, also support the conclusion of study 3.

The various fakability studies, reviewed on page 26, indicate that when individuals strive to make a good impression they obtain scores lower than their baseline, and when they strive to present a poor, or maladjusted impression, they obtain higher scores. These results, also, support the conclusions above.

Cassel and Kahn's (1961) various investigations, which associated high scores on these scales with inadequate social insight, poor scholastic achievement, ego-weakness, and impoverished family backgrounds, led them to postulate that "general emotional disturbance" was involved. This interpretation is consistent with the conclusions of this thesis, except that, due to the reasons

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given in the discussion of study 3, it would appear wise to distinguish between neurotic and psychotic maladjustment. The variance of the GPPT scores appears to be primarily related to the former, and only secondarily to the latter.

Low scores on the TRQ and Total were regarded by Cassel and Kahn (1961) as indicative of immaturity. To the extent that the absence of anxiety and tension in an individual is associated with immaturity, the results of this investigation support such a conclusion. The only direct correspondence between immaturity and low scores to be suggested was noted in study 3: Patients diagnosed as "behaviour problems" and who displayed little subjective distress tended to score low on all GPPT scales (relative to the South African norm). These deviations were, however, very small, and no single one of them could be regarded as statistically significant. Further investigation into the meaning of low scores is therefore required.

(2) Nurt scale

Very little information resulted from any of these studies as to the meaning of score variance on the Nurt scale. The analysis of variance of study 3 gave results indicating independence of this score over sex, diagnostic group, and age variables. Scores also remained unchanged after dramatic improvement of certain patients (Study 4), and only one of the fakability studies (Cassel and Brauchle, 1959) showed a significant change in Nurt; with instructions to fake "poor" profiles this score was found to be reduced.

Only 3 of the 48 correlations relating to this scale in study 2 were significant (5% level). These results suggested that high Nurt is associated with freedom from ergic tension, independence from family influences, and the tendency to be tough-minded, self-reliant, and realistic.

Examination of the means of the various diagnostic groups (Figure 5) reveals that, although not significantly different by the F value, all patient groups scored lower than the norm group. Reanalysis of the data by combining all patient groups and comparing their mean with that of the norm (South African), does result in a significant t value ($p < .05$), but no definite conclusion can be made following such a statistical manoeuvre. This

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result can only be used as a basis for the hypothesis that reduced Nurt scores are related to maladjustment, and particularly to maladjustment of the kind exhibited by the "behaviour problems" of study 3. Such a hypothesis is consistent with the interpretation of low scores suggested by study 2, namely as indicating high ergic tension, tender-minded sensitivity, and dependency on family influences or relationships.

Cassel and Kahn's interpretation that high Nurt scores are related to the need to play a "father role", or need to aid others, although not inconsistent with the above conclusions, were not directly supported. It is, therefore, considered that neither individual nor group scores on this scale be accepted at this stage as having any definite meaning, and that score deviations require further investigation. The writer's opinion is that the major part of the score variance on this scale will be found to relate to response set, or to other factors not primarily associated with personality characteristics.

(3) With scale

As was the case regarding Nurt scores, the With scale was found to be unrelated to diagnostic group or age of individuals. Sex, however, did influence scores significantly ($p < .05$), females scoring higher than males. The results of study 2 showed raised scores to be associated with individuals who are anxiety-free; sober, taciturn, and serious; sociable; and who have adequate self-esteem. This description suggests a picture of mental health, except that patients (Study 2) tended to score higher than normals (although the F-ratio here was not significant).

Regarding fakability studies, instructions to "fake-good" were associated with reduced scores, and instructions to "fake-poor" with raised scores (Cassel and Brauchle, 1959; Braun, 1967). These results would appear to support Cassel and Kahn's view that high With scores indicate needs to avoid group activity and personal or social responsibility, which are certainly undesirable attributes. But the correlations of study 2 of this investigation, suggesting sociability and freedom from anxiety as attributes of the high With scorer, are difficult to reconcile with Cassel and Kahn's view. It could be that the trait of "desurgency" (sober, taciturn, and serious) is more central to the meaning of a high With score. The desurgent and introverted individual possibly

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describes himself as calm, sociable, and having adequate self-esteem on questionnaire measures only in so far as he has been successful in escaping intense involvement with others. Such an avoidance of intense involvement would certainly be close to "avoidance of personal and social responsibility" (Cassel and Kahn, 1961).

In any case, the failure of this scale to discriminate between patients and normals, and the negligible shift in scores of those patients who improved dramatically with therapy, raises some question as to its use to the clinician. Score variance appears to be related to some enduring personality attribute, but this relationship is complicated by its correlation with anxiety.

(4) Neu scale

A raised score on this scale, as was the case with TRQ and Total score, seems to be related to maladjustment, especially maladjustment of a neurotic nature. The mean of neurotics from study 3 was significantly higher than normal ($F = 3,76$ $p < .05$), and the results of study 2 indicated that raised anxiety levels contributed most significantly to high Neu scores. The results of study 4, although not significant at the .05 level, did suggest that patients who improved with therapy tended to score lower on retesting, and further investigations in this area were recommended.

Apart from its relationship with several components of anxiety, high Neu was also correlated with "naivette"; the tendency to be forthright, unpretentious, but socially unpolished (16PF N-), but was not related to any scale measuring the various components of introversion-extraversion, as was TRQ. The Neu scale, therefore, appears to be a purer measure of anxiety than is TRQ. The fact that it did not correlate as highly with anxiety measures as did TRQ is possibly a consequence of the way this scale is scored; all (c) responses are summed instead of a ratio being formed, as is done with the (a) responses that constitute the TRQ scale. The variance of the Neu scale must, as a result, be particularly sensitive to response sets, and it is possibly losing its power as a measure of anxiety through contamination by such variables as response set and social desirability of the answer-choices.

Cassel and Kahn's interpretation that high Neu represents an inability to make decisions, indicating worry, and vagueness in planning, is quite consistent with the findings of this investi-

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gation. This interpretation appears to be another way of saying that the Neu scale measures a dimension of neurotic maladjustment, and, more specifically, a dimension of anxiety at the time of testing.

(6) Aff. Scale

This scale gave rise to the highest F-ratio in study 3 where it was found to separate neurotics from normals with greatest accuracy; ($F = 10,0$; $p < .001$). The personality pattern of individuals who scored low was, according to Study 2, characterised by ego-weakness, intellectual inefficiency, submissiveness, desurgency (the tendency to be sober, taciturn, introspective, and serious), and guilt-proneness. It was concluded that these individuals tended to direct their drive and energy towards self-reproach and worry rather than to use it effectively for personality growth and relationships with others. Cassel and Kahn's view that low scores indicate "psychosexual immaturity" was regarded as accurate so long as the word "sexual" was interpreted in a broad sense, that is, as denoting the general "libido" or life-force of the individual.

The ineffective utilisation of energy, as noted above, is consistent with the conclusion of Study 3. The results of this study suggested that neurotic maladjustment was being indicated by low scores.

Regarding high scores, Cassel and Kahn said that these represent a need for group-membership and for intimate relationships with others. No direct support for such an interpretation was indicated by this investigation, which identified individuals who scores high as emotionally stable, intellectually effective, dominant, enthusiastic, and self-assured.

The score-changes associated with successful therapy (Study 4) were in the expected direction, but not significant. As was the case with the Neu scale it was concluded that, in view of the large t -value obtained and the small sample used, further investigation in this area should be undertaken.

Regarding fakability studies, Cassel and Brauchle (1959) found that S's could reduce their Aff scores significantly when asked to "fake-poor", but could not fake good results. Braun's results (1967) also indicated that S's could not "fake-good" on this measure.

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The Aff scale, considering all of the above, appears to be one of the most important and valuable measures in the GPPT. It is surprising that it was weighted only one compared with, say, the With scale's weight (8) for calculation of the Total score. The Total was supposed to be an index of general mental health. Cassel and Kahn's error in this respect appears to have been a result of considering only raised scores. A raised Aff score, indicative of good adjustment, is correctly weighted by this approach. Had they considered the clinical meaning of low scores also, it is doubtful that Cassel and Kahn would have computed the Total score in the way they did.

(6) Succ. scale

The results of Study 2 suggested that individuals who obtained high scores on this scale were characterised by general immaturity and inadequacy. To recapitulate; these persons appeared to be emotionally unstable (ego-weakness), guilt-prone, tense, lacking in self-confidence and self-esteem, and dependent on family (especially parental) ties. But study 3 failed to indicate significant differences between the means of normals and various patient groups (psychotic group excluded). Examination of Figure 5 (page 66), however, shows that the psychotic mean was slightly raised as compared with the depressed scores of patients manifesting behaviour problems. This pattern suggests a reexamination of the Succ scale as a means of discriminating psychotic from sociopathic symptomatology.

Of all the scales of the GPPT, this one appears to be the most stable as regards test-retest scores. Both study 4, which indicated negligible changes in scores when patients were retested after dramatic improvement, and Cassel and Kahn's (1961) reliability coefficients support this opinion. This stability is probably a consequence of the scale's insensitivity to transient neurotic symptomatology.

Regarding fakability studies, Cassel and Brauchle (1959) found Succ scores to be increased by "fake-poor" instructions, but unchanged when S's were required to "fake-good". Braun's (1967) study confirms the inability of S's to fake "good" scores, as was the case with the Aff scale. The possibility remains, of course, that S's were unable to "fake-good" as they had already done so on the initial administration of the test.

It would be more likely that they would fake-sick (meh)
The overall conclusion to be made considering all of the

80. what is it?

above is that this scale does measure some enduring personality trait, but that this trait is unrelated to neurotic maladjustment. It could be that high scores indicate general immaturity and dependent inadequacy as an enduring personality characteristic, an interpretation that closely resembles Cassel and Kahn's (1961) "need to seek aid and to play an infant role". But it is difficult to reconcile this interpretation with the insensitivity of the scale to neurotic patterns. A possible explanation is that neurotics, basically dependent and with many feelings of inadequacy, have engaged in a struggle to become independent, and avoid the endorsement of items relating to mother-infant, or other relationships of extreme dependency. One could imagine such persons admitting to a lack of self-confidence on questionnaire measures of personality, but becoming upset and defensive when confronted with the rather more concrete material which makes up the GPPT.

Whatever the explanation for the inability of this scale to distinguish neurotics from normals, this failure renders it of doubtful value to the clinician. It is felt that the present evidence relating to the construct validity of the Succ scale is very meagre, and that its use be restricted to experimental work until further findings become available.

The GPPT as a whole

Consideration of each GPPT scale independently led to the conclusion that three scales, namely, Nurt, With, and Succ, are of doubtful validity and require further investigation before they can be accepted as meaningful measures by the clinical psychologist. The remaining scales, namely TRQ and Total score (which appear to measure the identical dimension), Neu, and Aff, do provide useful and meaningful information, especially with regard to the measurement of neurotic maladjustment.

Symptom or trait?

not in light of the small n in Study 4

A remarkable aspect of these investigations was the congruence of results of Studies 3 and 4. Only those GPPT scales which significantly separated neurotics from normals (Study 3) were found to be related to improvement when certain patients were retested (study 4). The Nurt, With, and Succ scales, all unable to detect neurotic maladjustment in a cross-sectional study, also remained

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unaltered when certain patients, diagnosed as personality disorders, were retested after displaying unusually rapid improvement.

Considering the rapidity with which some of these patients of Study 4 improved, it is extremely unlikely that their GPPT score changes were associated with lasting alterations of underlying personality structure. What appears to be more likely is that, owing to the medication and environmental changes following admission to the hospital, they ceased to exhibit so many neurotic symptoms. This improvement was reflected in the TRQ, Neu, Aff, and Total scores of the GPPT, which are precisely those scores which were identified as measures of neurotic maladjustment in study 3. These scales, therefore, would appear to be more sensitive to transient neurotic symptomatology than to enduring deviations of personality structure. In view of this sensitivity, it is concluded that the traditional test-retest reliability coefficient is an inappropriate measure of reliability for these measures. *So, what might you suggest? (Covariance?)*

The Nurt, With, and Succ scales, on the other hand, were found to be insensitive to transient neurotic symptomatology. It is possible that they reflect enduring aspects of personality structure, but such aspects have not been positively identified, nor found to be definitely related to any form of psychopathology.

Generalisation to other populations

All of these conclusions, of course, depended on the results obtained from South African Adults of the Western Cape who were predominantly Afrikaans speaking. The type of neurotic maladjustment most prevalent in this culture might be quite unlike that of other cultures, and this could account for many of the failures of this investigation to support the claims made for the GPPT by Cassel and Kahn. The method used in Study 2, where many different measures were correlated with each GPPT scale, would be less likely to yield results that are culture-dependent, but generalisation to other populations must still be made with caution. For example, a GPPT stimulus suggesting an aggressive response towards an authority figure might be anxiety-provoking to a South African, but quite acceptable to an American. Endorsement of such a response would therefore mean different things to the two persons, depending on their cultural backgrounds, and, likewise, such endorsement might be found to have different correlates among other personality measures.

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South African norms

As noted in the discussion following Study 1, South African norms can be expected to differ radically from those of the USA. The group of 100 Bellville working adults differed significantly ($p < .001$) from typical Americans on every GPPT scale except Neu. TRQ, Aff, and Total score deviations were all in the direction indicating greater neurotic maladjustment, but, as already pointed out, these differences could have resulted from other factors. One factor which was not controlled was the effect on scores of test-translation, and the other was that Americans and South Africans possibly differed in their ability to fake good scores.

Factorial validity

Regarding the factorial validity claimed for the GPPT, certain important criticisms were made in the main introduction (page 20). The failure of this investigation to identify unitary and non-overlapping personality traits amongst the various GPPT scales could be taken as empirical evidence that such factorial validity of these scales was an artefact of the test ^{Format} lay-out.

Alternatively, it could be reasoned that the various criteria selected in these studies, and especially in Study 2, were more concerned with the outer layer than with the middle layer of personality (see Murray, 1938). The GPPT was designed to assess certain aspects relating to the middle layer. Factorially independent needs of this middle layer of personality may combine to express themselves via only one outer layer trait; or any one need may express itself via a whole cluster of "source" traits such as those measured by the 16PF. There is no reason why any single middle layer need should express itself solely via one outer layer trait.

This form of reasoning, however, is inconsistent with the definition of personality proposed at the outset of this thesis. Personality was defined as "those aspects and organisation of the individual's behaviour that permit his identification as a unique person". The concept of middle and outer layers does not make sense when one deals only with observable behaviour. A unitary personality trait, on the behavioural level, could be likened to the clinician's concept of a syndrome. Such a trait would be

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composed of many patterns, or types, of behaviour that tend to "go together", that is, that correlate highly as regards the probability of their occurrence.

The factors isolated by factor analysis, on the other hand, are hypothetical "source" traits presumed to underlie certain observable surface traits or behaviour. Their validity is established only in so far as they can reliably predict, or be consistently correlated with behavioural criteria. Moreover, the factors must be independent of each other. Although possible, it is extremely unlikely that two source traits, or factors, would both be correlated with the identical set of surface traits. But the GPPT factors were found to overlap considerably when described in terms of the surface traits associated with other test-factors. All GPPT scales were associated, to a greater or lesser extent, with those 16PF factors which group together to form the second order anxiety vs. adjustment factor.

The final decision as to the factorial validity of the present GPPT scales depends on whether anxiety (or neuroticism) is regarded as a unitary source trait, or whether it is the behavioural product (syndrome) resulting from the combined effects of many more basic source traits. This is a matter which is presently the subject of vigorous dispute (see Eysenck, 1971; Cattell, 1972).

A general index of mental health

The most important practical finding to emerge from this investigation is, perhaps, that the "Total score" cannot discriminate sufficiently accurately between South African well-adjusted and disturbed individuals. Overlap between the scores of these groups was too great to allow for individual assessment of mental health. It will be recalled that this "Total" is calculated as follows:

$$1/10 (8 \times \text{TRQ} + 3 \times \text{Nurt} + 8 \times \text{With} + 4 \times \text{Neu} + 1 \times \text{Aff} + 8 \text{ Succ})$$

These weights give an indication of each scale's ability to discriminate between American typical adults and neuropsychiatric patients (mostly schizophrenics). They are certainly not valid for assessment of neurotic maladjustment among South African adults, where the Aff, TRQ, and Neu scales appear to require the largest weights. A new combined, or total, score is required in this respect.

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The establishment of new scale-weights for South African conditions according to point bi-serial validity indices (scale score vs. adjusted/disturbed) would be an easy matter. However, considering the doubtful factorial unity of these scales (since the factor-analysis of an ipsative measure is mathematically questionable), and since Cassel and Kahn did not begin their analysis by correlating each GPPT response with every other response, it would appear more sensible to establish a new "Total score" according to the power of each individual GPPT response to discriminate between well-adjusted and neurotic individuals.

This work is presently in progress, and preliminary results suggest that an empirically derived scale can differentiate between normals and neurotics with remarkable accuracy. Further research may well advance the psychometric assessment of neurotic maladjustment to such an extent that, as happened in the case of IQ measures, such assessments will exceed clinical ratings in reliability and validity.

It is concluded that the GPPT embodies an effective and novel approach to the problem of assessing neurotic maladjustment. Not all of the present scales of the test, however, appear suitable, or sufficiently elaborated, for use with individuals in South Africa.

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COUNCIL

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DIE GROEP-
PERSOONLIKHEIDSPROJEKSIETOETS

THE GROUP
PERSONALITY PROJECTIVE TEST

deur

by

RUSSELL N. CASSEL, Ed.D.
THEODORE C. KAHN, Ph.D.

Illustrations by

Illustrasies deur

Frederick L. Finch, B.A.

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PSYCHOMETRIC RESEARCH

KOPIEREG VOORBEHOU

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deur

by

PSYCHOLOGICAL TEST SPECIALISTS

MISSOULA, MONTANA,

U.S.A.

ALGEMENE AANWYSINGS

Hierdie toets kan jou help om jousef beter te verstaan; daarom behoort jy die vrae so eerlik as moontlik te beantwoord.

Jy het 'n vraeboekie en 'n antwoordblad ontvang. Die onderwyser sal aan jou verduidelik hoe om jou naam en ander besonderhede op die antwoordblad te skryf. In die boekie is prentjies en vrae wat jy moet beantwoord. Daar is geen regte of verkeerde antwoorde nie. Dikwels sal nie een van die antwoorde wat in die boekie verskaf word, presies beskryf wat na jou mening plaasvind nie. Jy moet egter op elke vraag een antwoord gee. Kies dus die antwoord wat die beste by die prentjie pas. As jy op 'n antwoord besluit het, moet jy die antwoordblad neem en die nommer van die vraag wat jy wil beantwoord, daarop vind. Kleur dan die betrokke ruimte oor die letter A, B, C, D of E in om jou keuse aan te dui, byvoorbeeld:

34. A B C D E

In bostaande voorbeeld het die persoon wat vraag 34 beantwoord het, besluit dat C die beste antwoord is.

Maak seker dat jy elke vraag teenoor die regte nommer beantwoord. As jy 'n antwoord wil verander, vee die ou antwoord skoon uit. Moenie jou antwoorde met ander bespreek terwyl jy met die toets besig is nie. Moenie op hierdie boekie skryf of krap nie.

Daar is geen tydsbeperking vir hierdie toets nie, maar jy behoort dit in een klasperiode of ongeveer 40 minute te voltooi.

MOENIE OMBLAAI NIE

WAG TOTDAT AAN JOU GESÊ WORD OM DIT TE DOEN

GENERAL DIRECTIONS

This test may help you to understand yourself better; you should, therefore, answer the questions as conscientiously as possible.

You have received a question booklet and an answer sheet. The teacher will explain to you how to write your name and other information on the answer sheet. In the booklet there are pictures and questions which you have to answer. There are no right or wrong answers. Many times none of the answers provided in the booklet will quite describe what you believe is taking place, but you are to select the answer that suits the picture best. It is always necessary that you select one of the answers, and only one, for each of the questions. When you have decided on your answer, take the answer sheet provided and find the number of the question you are answering on it. Then blacken the appropriate space across the letter A, B, C, D or E to indicate your choice for the corresponding answer as shown in the example.

Example: 34. A B C D E

In the example above the person who answered question 34 decided that C was the best answer to it.

Make sure that you mark each answer next to the right number. Erase neatly if you want to change an answer. Do not discuss your answers with others while you are taking the test. Do not write or make any marks on this booklet.

There is no time limit, but you should be able to finish the test in one class period or about 40 minutes.

DO NOT TURN THE PAGE

WAIT UNTIL YOU ARE TOLD TO DO SO

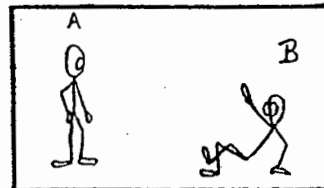
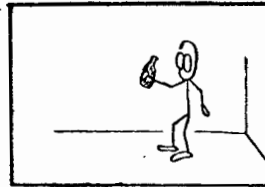
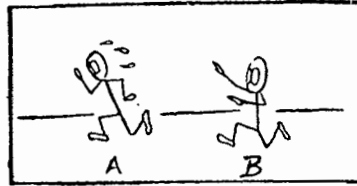
1. Wat sal gebeur as B vir A vang?
 - a. Hulle speel maar net vrot („touch“)
 - b. A gaan pak kry
 - c. B gaan vrede maak en 'n goeie vriend van A word
 - d. A sal in B se span speel
 - e. B sal vir A leer om nie leuens te vertel nie

2. As daar iets in die bottel is, wat is dit?
 - a. 'n Baie belangrike nuwe soort medisyne
 - b. Vitamines vir siek mense
 - c. Niemand weet wat dit is nie
 - d. Alkoholiese drank vir 'n partytjie
 - e. Melk vir 'n baba

3. Wat doen die persoon in die prentjie?
 - a. Met vakansie in die berge
 - b. Kruip weg vir die polisie
 - c. Probeer goud ontdek
 - d. Spioeneer op die vyand
 - e. Huil omdat hy gestraf is

4. Waarom lees die persoon in die prentjie?
 - a. Probeer om geld na te maak of te vervals
 - b. Probeer om van sy probleme te vergeet
 - c. Probeer om 'n moeilike probleem op te los
 - d. Lees 'n liefdesverhaal
 - e. Hy studeer

5. Wat gebeur in die prentjie?
 - a. A en B werk saam
 - b. A wys vir B hoe om te dans
 - c. A en B het baklei en B probeer om vrede te maak
 - d. Twee lede van 'n dansgeselskap
 - e. A het vir B betrap dat hy iets van hom steel



1. What will happen if B catches A?
 - a. They are only playing a game of touch
 - b. A will be spanked
 - c. B will make up and become A's good friend
 - d. A will play in B's team
 - e. B will teach A not to lie or tell untruths

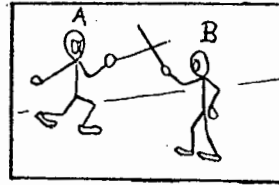
2. If something is in the bottle, what is it?
 - a. A great and newly invented medicine
 - b. Vitamins for sick people
 - c. No one knows what it is
 - d. Mixed drinks of an alcoholic type to make cocktails for a party
 - e. Milk for a baby

3. What is the person in the picture doing?
 - a. On a holiday in the mountains
 - b. Hiding from the police
 - c. Trying to discover gold
 - d. Spying on the enemy
 - e. Crying because he has been punished

4. What is the person in the picture reading for?
 - a. Trying to make counterfeit or fake money
 - b. Trying to forget some troubles
 - c. Trying to solve a difficult problem
 - d. Reading a love story
 - e. Studying his school lesson

5. What is taking place in the picture?
 - a. A and B are working together
 - b. A is showing B how to dance
 - c. A and B were fighting and B is trying to make up.
 - d. Two members of a dance team
 - e. A caught B stealing from him

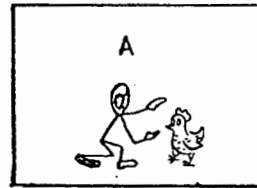
6. Wat doen A en B in die prentjie?
- Twee seuns wat met besemstokke (speel
 - B is A se instrukteur, en albei is soldate
 - A en B oefen om deel te neem aan 'n sportsoort
 - A probeer om B dood te maak
 - B wantrou A baie



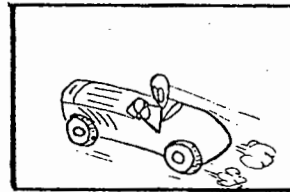
7. Hierdie kind huil omdat hy/sy?
- Baie gelukkig is
 - Van die huis af weggehoop het
 - Verdwaal het en nie die pad huis toe kan vind nie
 - Met ouer kinders baklei het
 - Baie verlang en graag wil huis toe gaan



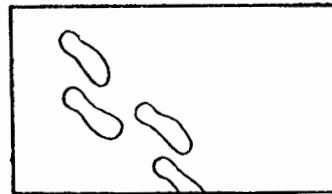
8. Wat gebeur in hierdie prentjie?
- A is 'n hoenderboer
 - Die hoender is A se troeteldier
 - A probeer om die hoender mak te maak
 - A wil die hoender slag en eet
 - Die hoender weet nie of hy vir A kan vertrou nie



9. Wat doen die man in die motor?
- Hy probeer 'n wedren wen
 - Gaan ry 'n entjie op 'n Sondagmiddag
 - Gaan huis toe om vrede te maak met sy vrou nadat hulle 'n hewige rusfe gehad het
 - Kom 'n afspraak met sy meisie na
 - Gaan sy moeder besoek



10. Wie se voetspore is in die prentjie?
- 'n Eensame persoon wat 'n entjie gaan stap
 - 'n Kind wat van die huis af weggehoop het
 - 'n Persoon wat probeer om 'n baie belangrike probleem op te los
 - 'n Goeie vriend wat aan dieselfde klub behoort
 - 'n Dief wat iemand probeer beroof



6. What are A and B doing in the picture?
- Two boys playing with broom sticks
 - B is the teacher of A, and both are soldiers
 - A and B are practising to play in a sport
 - A is trying to kill B
 - B distrusts A very much

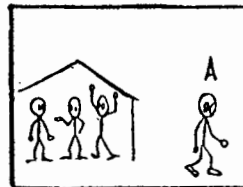
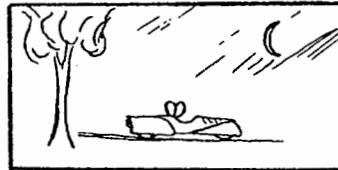
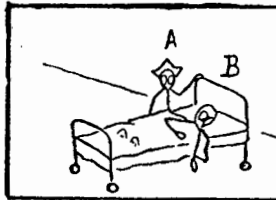
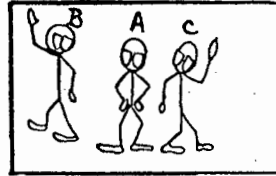
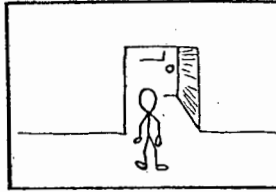
7. This child is crying because?
- It is very happy
 - It has run away from home
 - It is lost and cannot find its way home
 - It has been in a fight with some older children
 - It is homesick and wants to go home

8. What is taking place in this picture?
- A is a chicken raiser or farmer
 - The chicken is a pet of A
 - A is trying to make a pet out of the chicken
 - A wants to kill the chicken and eat it
 - The chicken does not know whether to trust A

9. What is the man in the car doing?
- He is trying to win a race
 - Going for a ride on Sunday afternoon
 - Going home to make up with his wife after having a big argument with her
 - Going on a "date" with his girl friend
 - Going to visit his mother

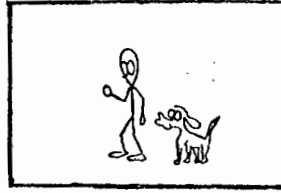
10. Whose footprints are in the picture?
- A lonely person going for a walk
 - A child running away from home
 - A person trying to solve a very important problem
 - A good friend who belongs to the same club
 - A thief trying to rob someone

11. Waarheen gaan die persoon in die prentjie?
- Met 'n lekker vakansie
 - Net vir 'n wandeling
 - Hy is bekommerd omdat sy vrou vir 'n bevalling in die hospitaal is
 - Hy kom van die werk af en gaan huis toe om by sy gesin te wees
 - Hy gaan kerk toe om na die prediker te luister
12. Wat gebeur in die prentjie?
- Drie vriende op 'n partytjie
 - A is B en C se baas en hy praat met hulle
 - A probeer die vrede tussen B en C herstel
 - Hulle is almal lede van dieselfde gesin
 - A is die moeder van die kinders, B en C
13. Wie is die persone in die prentjie?
- B het probeer selfmoord pleeg
 - B is net besig om te rus en 'n goeie vriend het kom gesels
 - A is 'n verpleegster wat B verpleeg
 - A en B is man en vrou
 - B gaan 'n moeder word
14. Wat gebeur in die motor?
- Man en vrou met vakansie en hulle geniet dit
 - Pa en dogter wat ry
 - Twee sakevennote wat gesels
 - 'n Seun en meisie wat saam uitgaan
 - Ma en dogter wat ry
15. Wat doen A in die prentjie?
- Die ander drie wil nie vir A in hulle groep hê nie
 - A is die vader van die gesin
 - A is bekommerd oor 'n groot probleem wat hy het
 - A probeer 'n sosiale klub stig
 - A is die moeder van die gesin

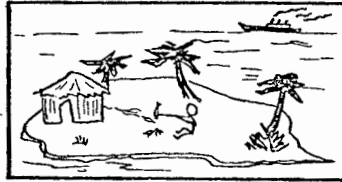


11. Where is the person in the picture going?
- On a holiday for a good time
 - Just taking a walk
 - He is worried because his wife is having a baby in the hospital
 - He is going home to his family after work
 - He is going to church to listen to the preacher
12. What is taking place in the picture?
- Three friends at a party
 - A is the boss of B and C, and he is talking to them
 - A is trying to settle an argument between B and C
 - They are all members of the same family
 - A is the mother of the children who are B and C
13. Who are the persons in the picture?
- B tried to commit suicide
 - B is just taking a rest and a good friend came in to talk
 - A is a nurse who is treating B
 - A and B are husband and wife
 - B is going to be a mother
14. What is taking place in the car?
- Man and wife on holiday, and they are having a good time
 - Father and daughter driving
 - Two business partners talking
 - A boy and girl on a "date"
 - Mother and daughter driving
15. What is A doing in the picture?
- The other three do not want A in their group
 - A is the father of the family
 - A is worrying about some big problem which he has
 - A is trying to organise a social club
 - A is the mother of the family

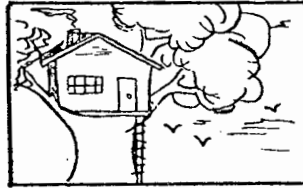
16. Wat maak die hond in die prentjie?
- Die hond en die kind speel maar net
 - Die kind is besig om die hond nuwe toertjies te leer
 - Die hond wil vriende maak
 - Die hond probeer die persoon byt
 - Die hond het die kind gevang terwyl hy steel



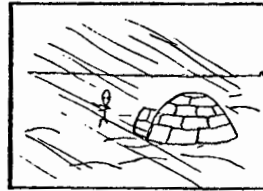
17. Wat gebeur in die prentjie?
- Die persoon op die eiland is 'n skipbreukeling
 - Die eiland dien as vuurtoring om skêpe te help
 - Die skip het op see verdwaal
 - 'n Inboorlingfamilie op 'n eiland
 - 'n Sendingstasie vir barbare



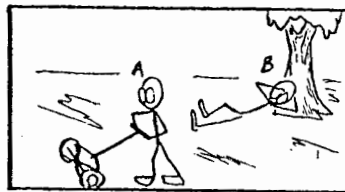
18. Wat is die huis in die boom?
- Kinders se speelhuisie
 - Die huis van 'n kluisenaar wat alleen is
 - 'n Persoon wat probeer vrede maak met barbare
 - Die tuiste van 'n pragtige prinses
 - 'n Wegkruipplek van 'n paar rowers



19. Waarvoor word hierdie Eskimo-hut gebruik?
- 'n Danssaal
 - 'n Skoolgebou
 - 'n Hofsaal
 - 'n Sosiale klub
 - 'n Woonhuis



20. Wie is B in die prentjie?
- 'n Baie bedroefde persoon
 - 'n Vriend wat ontspan
 - 'n Predikant
 - A se broer
 - A se moeder



16. What is the dog in the picture doing?
- The dog and child are just playing
 - The child is training the dog to do some new tricks
 - The dog wants to make friends
 - The dog is trying to bite the person
 - The dog caught the child stealing

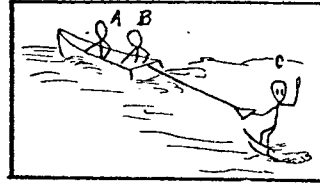
17. What is taking place in the picture?
- The person on the island was stranded in a shipwreck
 - The island is a lighthouse to guide ships
 - The ship is lost at sea
 - A tribal family on an island
 - A savage church and a mission

18. What is the house in the tree?
- Children's playhouse
 - The home of a hermit who is alone
 - A person who is trying to make peace with savages
 - Home of a beautiful princess
 - A hide-out for some robbers

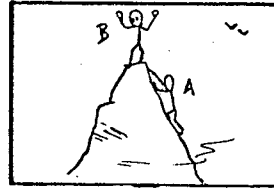
19. What is the Eskimo igloo used for?
- A dance hall
 - A school house
 - A court of justice
 - A social club
 - A family house

20. Who is B in the picture?
- A very sad person
 - A friend taking it easy
 - A religious minister or preacher
 - The brother of A
 - The mother of A

21. Wat gebeur in die prentjie?
- A, B en C is vriende met vakansie
 - C probeer 'n wedstryd wen
 - C is bekommerd oor 'n probleem wat hy het
 - A en B is C se broers
 - C vertrou nie vir A nie en probeer hom oorhaal om die boot te stop



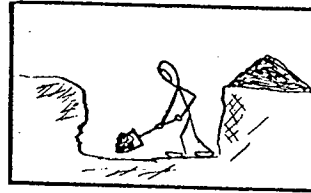
22. Wat gebeur in hierdie prentjie?
- Twee eensame persone op 'n berg
 - Twee kinders loop van die huis af weg
 - Twee professore probeer 'n probleem oplos
 - 'n Man en vrou op 'n uitstappie
 - A spioeneer op B omdat hy hom nie vertrou nie



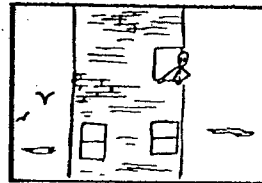
23. Wat gebeur in die prentjie?
- 'n Ongeruimde persoon maak musiek
 - 'n Beuelblaser in die leër gee die teken dat die soldate moet opstaan
 - 'n Dronk man maak 'n gek van homself
 - 'n Skooldans
 - Probeer geld insamel vir die armes



24. Wat doen die persoon in die prentjie?
- Grawe 'n graf vir iemand wat dood is
 - Bou 'n huis vir sy gesin
 - Soek na 'n verborge skat
 - Bou 'n saal vir klub-byeenkomste
 - Probeer sy geld begrawe sodat dit nie gesteel kan word nie



25. Wat doen die persoon in die venster?
- Probeer selfmoord pleeg
 - Kyk sommer uit om die tyd om te kry
 - Probeer 'n persoon in die gebou langsaaan verhoed om uit te spring
 - Probeer flankeer met 'n meisie langsaaan
 - Roep om hulp na die mense langsaaan



21. What is taking place in the picture?
- A, B, and C are friends on a holiday
 - C is trying to win a contest
 - C is worried about some problem which he has
 - A and B are brothers of C
 - C does not trust A and is trying to get him to stop the boat

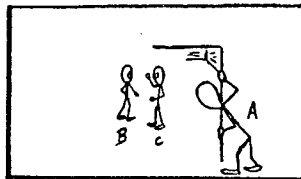
22. What is happening in this picture?
- Two lonely persons on a mountain
 - Two children running away from home
 - Two professors trying to solve a problem
 - Man and wife on a camping trip
 - A is spying on B because he does not trust him

23. What is taking place in the picture?
- A happy person playing music
 - An army bugler getting soldiers out of bed
 - A drunk fellow making a fool of himself
 - A school dance
 - Trying to collect money to give to the poor

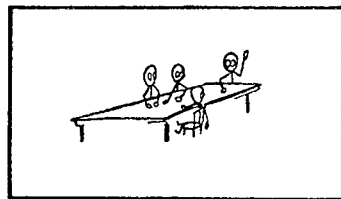
24. What is the person in the picture doing?
- Digging a grave for a dead person
 - Building a house for his own family
 - Hunting for a buried treasure
 - Building a house for club meetings
 - Trying to bury his money so that it will not be stolen

25. What is the person in the window doing?
- Trying to commit suicide
 - Just passing some time looking out
 - Trying to keep a person in the next building from jumping out
 - Trying to flirt with a girl next door
 - Calling for help to people next door

26. Wat gebeur in die prentjie?
 a. A beplan om B en C te beroof
 b. Dis 'n speelgrond by die skool
 c. Dis 'n samekoms by die kerksaal
 d. B en C is susters wat met hulle broer, A, speel
 e. A is 'n tronkbewaarder



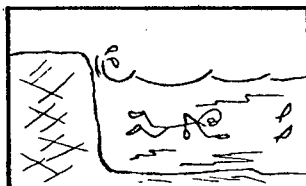
27. Wat gebeur in die prentjie?
 a. Dis 'n maaltyd saam met vriende in die buitelug
 b. 'n Baas berispe sy werksmense
 c. Persone probeer om 'n moeilike probleem op te los
 d. Seuns met hulle meisies besig om 'n afspraak vir ete na te kom
 e. Diewe besig om 'n groot rooftog te beplan



28. Wat gebeur in die prentjie?
 a. 'n Persoon beoefen sy stokperdjie
 b. Besig om 'n standbeeld van 'n beroemde generaal uit te kap
 c. 'n Speurder probeer 'n groot misdaad oplos
 d. Besig om die standbeeld van 'n mooi vrou uit te kap
 e. 'n Bandiet of gevangene besig met dwangarbeid



29. Wat gebeur in die prentjie?
 a. 'n Persoon wat verdrink het en dood is
 b. Die kaptein van 'n swemspan
 c. 'n Persoon wat probeer om vis te vang
 d. 'n Meisie in 'n bikini of kort swempakkie
 e. 'n Persoon is besig om te verdrink en roep om hulp



30. Om watter rede skiet die man met die pistool?
 a. Hy is die afsetter van 'n wedren tydens 'n kermis
 b. 'n Polisieman oefen om skyf te skiet
 c. 'n Jagter het in die bosse verdwaal en probeer die aandag van sy makkers trek
 d. 'n Eensame persoon probeer die aandag van 'n paar meisies in die nabyheid trek
 e. 'n Polisieman agtervolg 'n rower



26. What is taking place in the picture?
 a. A is planning to rob B and C
 b. It is a school playground
 c. It is a meeting at a church hall
 d. B and C are sisters who are playing with their brother, who is A
 e. A is a prison guard

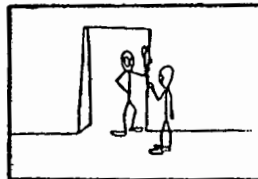
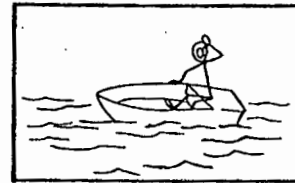
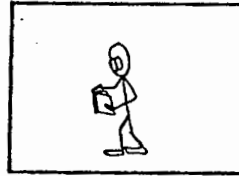
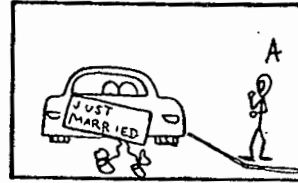
27. What is taking place in the picture?
 a. It is a picnic dinner with friends
 b. A boss scolding some workmen
 c. People trying to solve a very difficult problem
 d. Boys with their girl friends on a dinner "date"
 e. Thieves planning a big robbery

28. What is taking place in this picture?
 a. A person working at his hobby
 b. Carving the statue of a great army general
 c. A policeman trying to solve a big crime
 d. Carving the statue of a beautiful woman
 e. A convict or prisoner in a labour gang

29. What is taking place in this picture?
 a. A person who has drowned and is 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

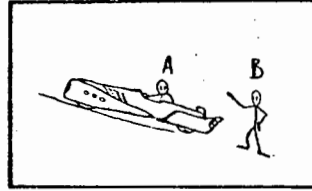
30. What is the man shooting the pistol for?
 a. He is starting a race at the fête
 b. A policeman is doing target practice
 c. A hunter who is lost in the woods and is trying to attract the attention of his fellow-hunters
 d. A lonely person trying to attract the attention of some girls in the vicinity
 e. A policeman after a robber

31. Wie is A in hierdie prentjie?
- 'n Baie bedroefde gewese kêrel van die bruid
 - 'n Gelukkige vader van die bruid
 - Weet nie wie dit kan wees nie
 - 'n Gelukkige broer van die bruid
 - 'n Gelukkige moeder van die bruid
32. Wat doen die persoon in die prentjie?
- Iemand besig om 'n gelukkige verhaal te lees
 - 'n Predikant besig om sy preek vir Sondag voor te berei
 - 'n Prokureur wat 'n wetboek lees om uit te vind of iets wettig is
 - 'n Meisie wat poësie vir haar beminde voorlees
 - 'n Sport-afrigter bestudeer 'n nuwe boek met reëls
33. Wat doen die persoon in die boot?
- Besig om sy vakansie te geniet
 - Het gaan visvang om weg te kom van 'n rusie by die huis
 - Hy is kwaad omdat hy 'n seil verloor het en nie by die huis kan kom nie
 - Hy is lid van die bootklub
 - Hy is bang omdat hy dink 'n groot storm dreig en hy het geen seil nie
34. Wat doen die persoon met die geweer?
- Op 'n jagtog saam met vriende
 - 'n Polisieman probeer om 'n rower te vang
 - Wou liever gaan visvang, maar het gaan jag om sy vriende tevrede te stel
 - Hy is in 'n geveg met 'n ander persoon betrokke en hy probeer om hom te skiet
 - Hy leer hoe om met 'n nuwe geweer, wat sy pa vir hom gegee het, te skiet
35. Wat gebeur in die prentjie?
- Twee vriende beplan 'n partytjie wat hulle binnekort wil gee
 - Twee persone gesels maar net
 - 'n Persoon is kwaad en skel 'n verkoopsman uit
 - 'n Seun probeer om 'n afspraak te maak met 'n meisie wat langsaan woon
 - 'n Angstige moeder kry melk vir haar baba



31. Who is A in this picture?
- A very sad ex-boy friend of the bride
 - The happy father of the bride
 - Don't know who it might be
 - A happy brother of the bride
 - The happy mother of the bride
32. What is the person in the picture doing?
- A person is reading a very happy story
 - A preacher studying his sermon for Sunday
 - A lawyer reading a law book to find out if something is legal
 - A girl reading poetry to her lover
 - A sports coach reading a new book of rules
33. What is the person in the boat doing?
- Having a good time on a holiday
 - Has gone fishing to get out of a family quarrel
 - He is angry because he has lost a sail and he cannot get home
 - He is a member of a boat club
 - He is afraid because he thinks a big storm is coming up and he has no sail
34. What is the person with the rifle doing?
- On a hunting trip with friends
 - A policeman trying to catch a robber
 - Likes fishing better, but went hunting to please his friends
 - He is in a fight with another person and is trying to shoot him
 - He is trying to learn how to shoot a new gun which his father has given him
35. What is taking place in the picture?
- Two friends are planning for a party they want to give shortly
 - Two persons just talking
 - An angry person scolding a salesman
 - A boy trying to make a 'date' with a girl who lives next door
 - An anxious mother getting milk for her baby

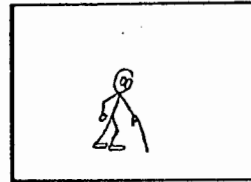
36. Wat gebeur in hierdie prentjie?
- Twee persone gaan 'n entjie in 'n nuwe motor ry
 - B probeer 'n nuwe motor aan A verkoop
 - B raas met sy seun omdat hy die motor sonder toestemming geneem het
 - B sê tot siens vir sy vrou wat na 'n vergadering gaan
 - B probeer 'n nuwe motor koop



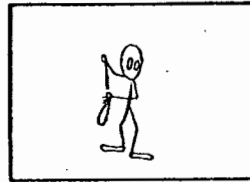
37. Wat gebeur in die prentjie?
- A en B is besig met 'n nuwe uitvinding
 - B verduidelik waarom A 'n toets in die skool gedruip het
 - A en B probeer vasstel waarom hulle nuwe uitvinding nie werk nie
 - B verduidelik aan 'n vennoot hoe om geld te maak
 - B probeer by 'n dokter uitvind aan watter siekte hy ly



38. Wat doen die man met die klerie?
- Iemand het nou net iets uit sy sak gesteel
 - Gaan vir 'n wandeling in die park
 - Probeer besluit of hy moet gaan jag
 - Die direkteur van 'n groot maatskappy of fabriek
 - Kollekteer geld vir die bou van 'n nuwe kerk



39. Waarvoor word die tou in die prentjie gebruik?
- Die persoon wil daarmee selfmoord pleeg
 - Dis 'n "cowboy" se vangtou
 - Sal gebruik word vir toutrek of 'n ander speletjie
 - 'n Oproerige skare wil dit gebruik om iemand daarmee op te hang
 - Tou van 'n kerkklok



40. Waaroor handel die prediker se preek
- 'n Begrafnispreek
 - Oor dobbelary in die klein dorpie
 - Oor oorlog en Kommunisme
 - Oor huweliksprobleme en die opvoeding van kinders
 - 'n Vroeë-oggend Paasdiens



36. What is taking place in this picture?
- Two persons going for a ride in a new car
 - B is trying to sell A a new car
 - B is scolding his son for taking the family car without permission
 - B is saying goodbye to his wife who is going to a club meeting
 - B is trying to buy a new car

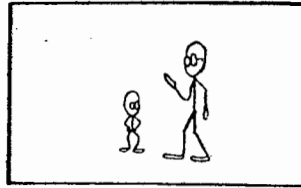
37. What is taking place in the picture?
- A and B are inventing something new
 - B is explaining how A failed a test in school
 - A and B are trying to find out why their new invention doesn't work
 - B is explaining to a partner how to make money
 - B is trying to find out from a doctor what his illness is

38. What is the man with the cane doing?
- Someone has just picked his pocket
 - Going for a walk in the park
 - Trying to decide whether to go hunting
 - The president of a large company or factory
 - Collecting money to help build a new church

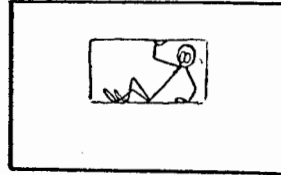
39. What is the rope in the picture used for?
- A person plans to commit suicide with it
 - It is a cowboy's lasso
 - To be used for a tug-of-war or game
 - A mad group or crowd wants to use it to lynch or hang someone
 - A church bell-rope

40. What is the preacher's sermon about?
- A funeral sermon
 - About gambling in the small town
 - On war and Communism
 - On marriage problems and the raising of children
 - An Easter sermon during an early morning service

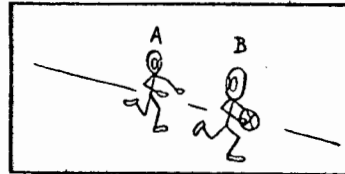
41. Wat maak die persoon met die kind?
- Neem die kind na 'n sirkus toe
 - Gee opdragte aan 'n jong werker
 - Bestraf die kind omdat hy die venster met 'n bal gebreek het
 - 'n Ouer wat met sy kind praat
 - Vertel die kind van ou mense se probleme



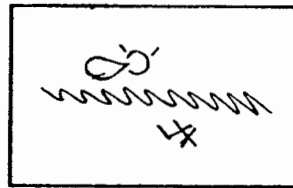
42. Wat gebeur in die prentjie?
- 'n Kind speel wegkruipertjie met sy vriende
 - 'n Kind kruip weg vir een van sy ouers wat kwaad is
 - Probeer uitvind waar 'n verborge skat weggesteek is
 - Kruip weg vir die polisie
 - Lê 'n dief voor



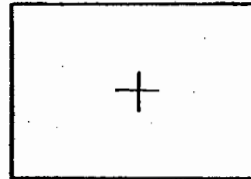
43. Wat doen die persone in die prentjie?
- A en B speel met 'n bal
 - Hulle het die bure se venster gebreek en hardloop nou weg
 - A is kwaad vir B en probeer hom vang
 - B het A se bal gesteel
 - B vertrou A nie baie nie



44. Wat stel die tekening in die prentjie voor?
- 'n Sonnige lentemôre op die platteland
 - 'n Stiergeveg in Lourenco Marques
 - 'n Hewige donderstorm
 - 'n Trop koeie wat in die veld wei.
 - 'n Bankroof



45. Wat sou die simbool in die prentjie kon voorstel?
- Geld in die bank
 - Niks anders as 'n plusteken nie
 - Kruispaaie van die lewe
 - Godsdiens
 - Die simbool van 'n rampokker of 'n bende slegte seuns



41. What is the person doing with the child?
- Taking the child to a circus
 - Giving orders to a young worker
 - Scolding the child for breaking a window with a ball
 - A parent talking to his child
 - Telling a child about the troubles of old people

42. What is taking place in the picture?
- A child playing a game of hide-and-seek with friends
 - A child hiding from an angry parent
 - Trying to find out where a treasure is hidden
 - Hiding from the police
 - Watching for a thief

43. What are the persons in the picture doing?
- A and B are playing ball together
 - They have broken a neighbour's window and are running away
 - A is angry with B and is trying to catch him
 - B has stolen the ball from A
 - B does not trust A very much

44. What do the drawings in the picture represent?
- A sunny spring day in the country
 - A bull fight in Lourenco Marques
 - A big thunderstorm
 - A group of cows grazing in the pasture
 - A bank hold-up and robbery

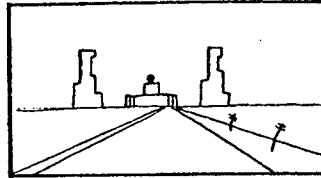
45. What could the symbol in this picture represent?
- Money in the bank
 - Nothing but a plus sign
 - Cross roads of life and mystery
 - Religion
 - The symbol of a gangster or of a group of bad boys

BLAAI OM

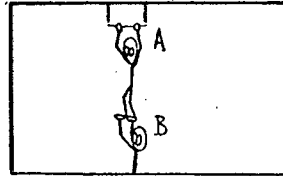
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TURN OVER

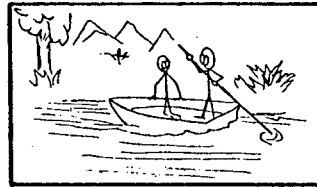
46. Wat stel hierdie tekening voor?
- 'n Vakansie-oord waar mense kom vakansie hou
 - Slegs 'n prent om teen die muur te hang
 - Die plek waar 'n konferensie oor 'n baie belangrike wêreldprobleem gehou word
 - 'n Vliegveld in 'n oorlogsgebied
 - 'n Plek van aanbedding



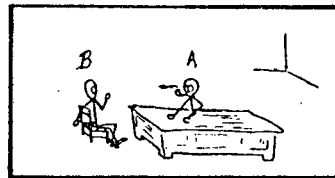
47. Wat gebeur in die prentjie?
- Kinders speel op 'n swaai
 - B probeer A oorreed om te antwoord op die geroep van sy ma om huis toe te kom
 - A en B kruip versigtig na die kant van 'n gevaarlike afgrond toe
 - Twee broers bou 'n swaai
 - Twee diewe breek by 'n huis in



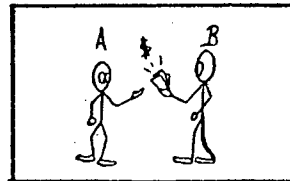
48. Wat doen die twee persone in die bootjie?
- Hulle stry oor waarheen hulle sal gaan
 - Hulle gesels maar net om die tyd om te kry
 - Probeer besluit waar hulle moet oornag
 - Hulle is vennote in 'n sake-onderneming en gesels oor die geld wat hulle gemaak het
 - Wildbewaarders of polisie wat jagters bespied



49. Wat vind plaas tussen A en B?
- Hulle beplan die oprigting van 'n nuwe gebou
 - A, die baas, is besig om B in die pad te steek
 - A en B probeer 'n probleem oplos
 - Twee sakemanne sluit 'n ooreenkoms
 - B probeer by A geld leen



50. Wat doen die persone in hierdie prentjie?
- A koop 'n vliegtuigkaartjie na Frankryk vir 'n vakansie
 - B gee vir A sy weeklikse loon
 - B koop 'n kaartjie om alleen na die berge toe te gaan
 - B koop lekkergoed om vir sy nooi te gee
 - A kollecteer geld om die armes te help



46. What is this picture about?
- A holiday resort where people come to spend their holidays
 - Only a picture to place on a wall
 - The site of a conference about a very important world problem
 - An airfield in a war battle zone
 - A family altar where prayers are said

47. What is taking place in the picture?
- Children playing on a swing
 - B is trying to get A to answer his mother who is calling for him to come home
 - A and B are crawling cautiously to the edge of a dangerous canyon
 - Two brothers are building a swing
 - Two burglars are entering a home

48. What are the two persons doing in the boat?
- They are arguing about where they should go
 - They are just talking to pass time
 - Trying to decide where to stop for the night
 - Partners in a business and are talking about the money they have made
 - Game wardens or policemen spying on some hunters

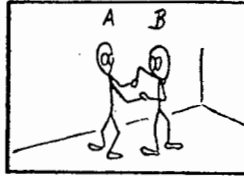
49. What is taking place between A and B?
- They are planning to build a new building
 - A, the boss, is firing B
 - A and B are trying to solve a problem
 - Two business men making a deal
 - B is trying to borrow some money from A

50. What are the persons in the picture doing?
- A is buying an aeroplane ticket to France for a pleasure trip
 - B is giving A his weekly pay cheque
 - B is buying a ticket to go to the mountains alone
 - B is buying sweets to give to his girl friend
 - A is collecting money to help the poor

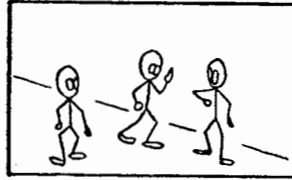
51. Wat doen die persoon in die prentjie met die byl?
- 'n Timmerman is besig om 'n huis te bou
 - Dis net 'n speelding
 - Die seun met die speelding is kwaad
 - 'n Indiaan met 'n strydbyl veg in 'n oorlog
 - 'n Honger seun probeer kos soek in die berge



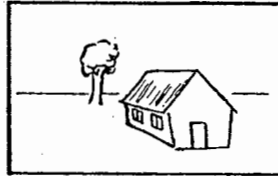
52. Wie is die mense in die prentjie?
- Twee kinders wat speel
 - B terg vir A wat kleiner as hy is
 - A is kwaad en probeer weghardloop
 - 'n Seun dans met sy beste vriendin
 - Ma en dogter in hulle huis besig om mekaar se hande vas te hou



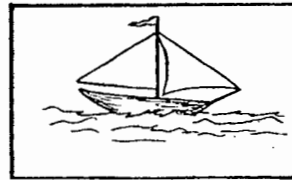
53. Die drie persone in die tekening is?
- Mense wat op 'n partytjie gesels
 - 'n Baas wat met 'n paar werkers praat
 - Drie persone wat iets soek om te doen
 - Drie persone wat met mekaar argumenteer
 - Twee inboorlinge wat met 'n sendeling in 'n onbeskaafde land praat



54. Wat gebeur in die huisie?
- Daar is 'n groot partytjie aan die gang
 - Daar is niemand in die huis nie
 - Twee ouers stry met sommige van die ouer kinders
 - Dis 'n skool wat aan die gang is
 - Dis 'n kerk wat aan die gang is



55. Wat gebeur met die skip?
- Dit vergaan in die diepsee
 - Dit vaar maar net verby
 - Dit verkeer in 'n groot storm
 - Dit neem 'n pasgetroude paartjie op hulle wittebroodsdae
 - Dis 'n rowerskip met seerowers aan boord



51. What is the person in the picture doing with the hatchet?
- A carpenter is building a house
 - It is only a toy
 - It is an angry boy with a toy
 - An Indian with a tomahawk fighting a war
 - A hungry boy trying to find something to eat in the mountains

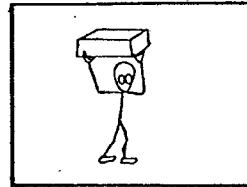
52. Who are the persons in the picture?
- Two children playing
 - B is teasing A who is smaller
 - A is angry and wants to run away
 - A boy is dancing with his best girl friend
 - Mother and daughter are holding hands in their home

53. The three persons in this picture are?
- People talking at a party
 - A boss talking to some workers
 - Three persons trying to find something to do
 - Three persons arguing with one another
 - Two natives talking to a missionary in an uncivilised country

54. What is going on inside the house?
- There is a big party going on
 - No one is in the house
 - Two parents are arguing with some older children
 - It is a school which is in session
 - It is a church which is in session

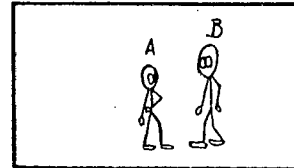
55. What is happening to the ship?
- It is sinking out in the ocean
 - It is just passing by in the water
 - It is caught in a big storm
 - It is taking a newly-married couple on their honeymoon
 - It is a pirate ship and has robbers on it

56. Wat doendie persoon in die prentjie?
- Maak meubels vir 'n nuwe huis
 - Probeer groente op straat verkoop
 - Is kwaad en breek 'n goeie meubelstuk
 - Bou 'n nuwe huis vir sy gesin
 - Bou 'n nuwe kerk vir die gemeente



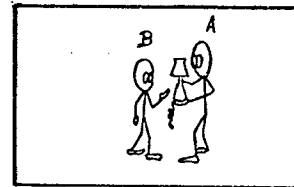
56. What is the person in the picture doing?
- Building some furniture for a new home
 - Trying to sell vegetables on the street
 - Angry and breaking up a good piece of furniture
 - Building a new home for his family
 - Building a new church for the community

57. Wat doen die persone in die prentjie?
- Hulle gaan saam op 'n lang reis
 - B is die pa en hy wys vir A hoe om te dans
 - B is bekommerd oor A se siekte en wil hom na 'n dokter toe neem
 - B soek skoor met die klein outjie A
 - B wil vir A bioskoop toe neem



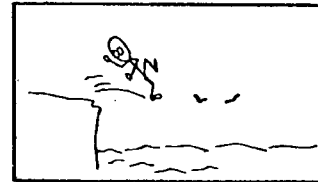
57. What are the persons in the picture doing?
- They are going on a long trip together
 - B is the father and is showing A how to dance
 - B is worried about A's sickness, and wants to take him to a doctor
 - B is picking a fight with the little fellow, A
 - B wants to take A to the bioscope

58. Wat gebeur in die prentjie?
- A en B maak hulle huis reg
 - A probeer 'n lamp aan B verkoop
 - A probeer besluit watter lamp om te koop
 - A is B se ma, en sy gee hom 'n geskenk
 - B ken nie vir A nie en vertrou hom nie



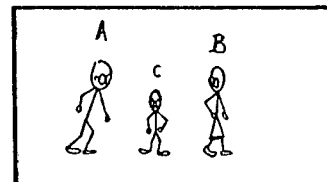
58. What is taking place in the picture?
- A and B are fixing up their home
 - A is trying to sell a lamp to B
 - A is trying to decide which one of the lamps he wants to buy
 - A is the mother of B, and is giving him a gift
 - B does not know A and doesn't trust him

59. Wat doen die persoon in die prentjie?
- Speel sommer met ander in die water
 - Probeer iemand net vir die pret vang
 - Hulle oefen vir 'n sirkusvertoning
 - Probeer leer om te duik
 - 'n Bende slegte seuns jaag hom en hy vertrou hulle nie



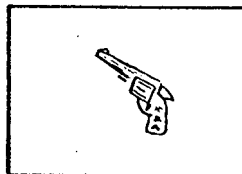
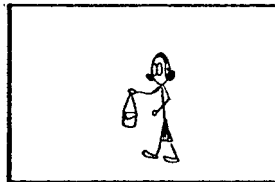
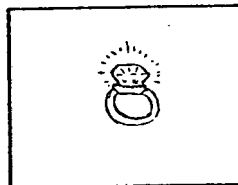
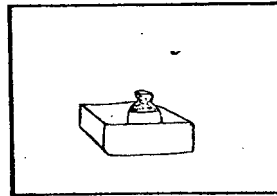
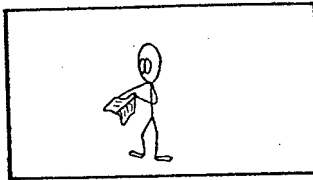
59. What is the person in the picture doing?
- Just playing in the water with others
 - He is trying to catch someone, but only in fun
 - They are practising an act for the circus
 - He is trying to learn how to dive
 - A gang of bad boys is chasing him, and he doesn't trust them

60. Wat gebeur in die prentjie?
- A en B gaan wandel in die park
 - A en B raas met C omdat hy in die straat is
 - A is kwaad omdat C teen hom vasgehardloop het
 - 'n Gesin wat by die kruidenierswinkel gaan inkopies doen
 - C probeer wegloop van die huis af



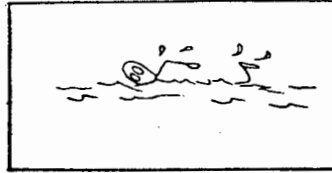
60. What is happening in the picture?
- A and B are going for a long stroll or walk in the park
 - A and B are scolding C for being in the street
 - A is angry because C ran into him
 - It is a family going to the grocery store to shop
 - C is trying to run away from home

71. Wat doen die persoon in die prentjie?
- Hy ondergaan 'n toets omdat hy siek is
 - Hy is sommer laf
 - Hy is 'n dokter wat besig is met 'n toets vir siek mense.
 - Hy is lid van 'n groep wetenskaplikes wat besig is om aan 'n toets te werk
 - Dis 'n ma wat aantrek vir 'n partytjie
72. Wat is in hierdie doos?
- Gif om iemand mee dood te maak
 - Sommer net drinkwater
 - Wyn vir 'n eetmaal
 - Plofstof vir die oorlog
 - Melk of kos vir 'n baba
73. Wat is die edelsteen in die prentjie?
- 'n Baie waardevolle geskenk van 'n moeder wat oorlede is
 - 'n Geskenk van 'n vader aan sy kind na voltooiing van die kind se hoërskoolloopbaan
 - Iemand het dit verloor en is baie kwaad
 - 'n Trouwing
 - Dis maar 'n goedkoop steen, maar lyk baie soos 'n duur een
74. Wat dra hierdie vrou in haar handsak?
- Gif om iemand mee dood te maak
 - Geld om iemand te betaal
 - 'n Geheimsinnige voorwerp en niemand weet wat dit is nie
 - 'n Wilde dier
 - Kos om 'n maaltyd vir haar gesin voor te berei
75. Waarvoor is die rewolwer bedoel?
- 'n Persoon wil daarmee selfmoord pleeg
 - Dis net 'n speelding
 - Dis gelaai, maar niemand weet dit nie
 - Dit behoort aan 'n soldaat
 - Dit behoort aan 'n rower

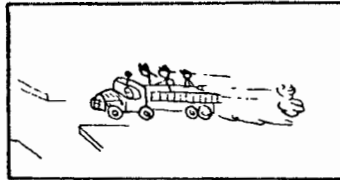


71. What is the person in the picture doing?
- He is taking a test because he is ill
 - He is just being silly
 - He is a doctor trying to make a test for sick people to take
 - He is a member of a group of scientists who are working on a test
 - It is a mother dressing for a party
72. What is contained in the box?
- A poison to kill someone
 - Just some drinking water
 - Some wine for a dinner party
 - Some explosive material for war
 - Some milk or food for a baby
73. What is the precious stone in the picture?
- A very valuable gift from a dead mother
 - A graduation gift from a father to his child on completing high school
 - Someone lost it and is very cross and angry
 - It is a wedding ring from a husband
 - It is only a cheap one, but looks very much like an expensive one
74. What is the woman carrying in her bag?
- Poison to kill someone
 - Money to pay someone
 - A mysterious object and no one knows what it is
 - A wild animal
 - Food to make dinner for her family
75. What is the revolver for?
- A person wants to commit suicide
 - It is only a toy
 - It is loaded, but nobody knows that it is
 - It belongs to a soldier
 - It belongs to a robber

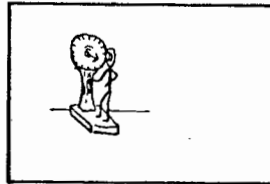
76. Die persoon in die water?
- Geniet dit om te swem
 - Probeer iemand red wat besig is om te verdrink
 - Wil homself gaan verdrink
 - Probeer 'n paar nooiens se aandag trek
 - Leer om te swem



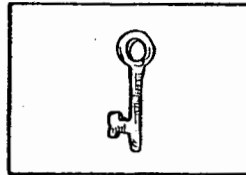
77. Die brandweerwa in die prentjie?
- Gaan 'n groot vuur blus
 - Ry net 'n entjie; daar is geen vuur nie
 - Werk nie reg nie en hulle herstel dit
 - Gaan na 'n partytjie vir brandweermanne
 - Dit was 'n vals alarm; daar is geen vuur nie



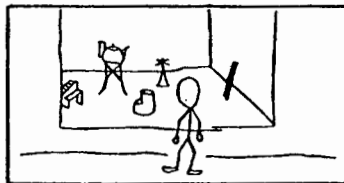
78. Die persoon op die skaal?
- Sien hy is net die regte gewig en is bly daaroor
 - Sien dat hy bietjie te swaar is
 - Is bekommerd omdat hy te swaar is
 - Is op 'n baie streng diëet
 - Wil graag meer weeg



79. Die sleutel in die prentjie kan beskryf word as?
- 'n Sleutel tot geluk
 - 'n Sleutel tot rykdom, geld en mag
 - 'n Sleutel wat op niks pas nie
 - 'n Sleutel van 'n nuwe huis vir jou gesin
 - 'n Sleutel van 'n tronk vir diewe en rowers



80. Die seuntjie wat na die winkelvenster kyk met al die goed wat te koop is?
- Voel treurig omdat hy nie geld het om die dinge te koop wat hy wil hê nie
 - Kyk net, maar wil niks hê nie
 - Is kwaad omdat hy nie geld het om die dinge wat hy wil hê, te koop nie
 - Het die geld en beplan om goed te koop
 - Beplan om die venster te breek en te steel



76. The person in the water is?
- Having a good time swimming
 - He is trying to save someone from drowning
 - He is going to drown himself
 - He is showing off in front of some young girls
 - He is trying to learn to swim

77. The fire engine in the picture is?
- Going to put out a big fire
 - They are just taking a ride; there is no fire
 - It doesn't work properly and they are fixing it
 - They are going to a fireman's party
 - It was a false alarm; there is no fire

78. The person on the scale will?
- Find he is just the right weight, and is happy
 - He weighs a little too much
 - He is worried because he is too heavy
 - He is on a very strict diet
 - He would like to weigh more

79. The key in the picture is best described as?
- A key to happiness
 - A key to wealth, money and power
 - A key that doesn't fit anything
 - A key to a new home for your family
 - A key to a prison for thieves and robbers

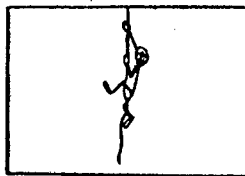
80. The boy, looking in the store window at all the things which are for sale, is?
- Sad because he has no money to buy the things he wants
 - Just looking, and doesn't want anything
 - Angry because he has no money to buy things he would like to buy
 - Has the money and is planning to buy things
 - Is planning to break the window and steal

BLAAI OM

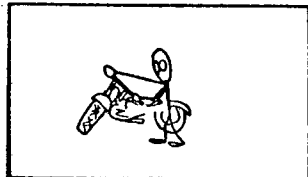
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TURN OVER

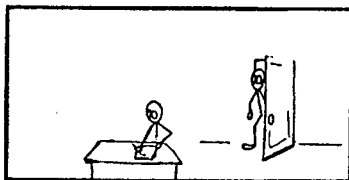
81. Die persoon aan die tou in die prentjie?
- Ontsnap uit die tronk
 - Klim op die dak om 'n vuur te probeer blus
 - Oefen 'n touklimtoertjie
 - Probeer die aandag trek van 'n paar nooiens wat kyk
 - Is 'n aap wat soos 'n mens aangetrek is



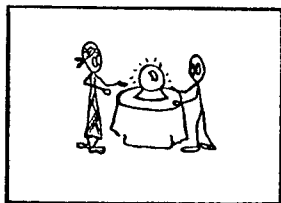
82. Die persoon met die motorfiets ry nie omdat?
- Hy nie toegelaat word om daarop te ry nie
 - Hy nie wil ry nie
 - Die motorfiets stukkend is en nie wil loop nie
 - Hy probeer die motorfiets herstel en stoot dit om dit aan die gang te kry
 - Hy te oud en te bang is



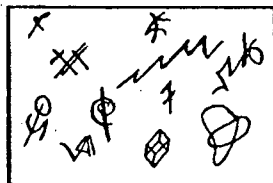
83. Die persoon wat by die deur in die prentjie inkom is?
- 'n Dief of rower
 - 'n Vader
 - 'n Onbekende persoon
 - 'n Broer of suster
 - 'n Ma of ouma



84. Die fortuinverteller in die prentjie is besig om vir die persoon te vertel dat?
- Hy te spoed sal ondervind in die nabye toekoms
 - Hy ryk en beroemd sal word
 - Hy binnekort groot probleme en bekommernisse sal kry
 - Hy binnekort sal trou en kinders sal hê
 - Hy dopgehou word deur vyande



85. Deur watter soort persoon is die krabbels in hierdie prentjie gemaak?
- 'n Ongelukkige, hartseer persoon
 - 'n Persoon wat sit en dagdroom en die tyd probeer omkry
 - 'n Persoon wat baie kwaad is
 - 'n Weduwee met klein kindertjies
 - 'n Persoon wat ander mense nie vertrou nie



81. The person on the rope in the picture is?
- Escaping from a prison
 - Climbing onto a roof to help put out a fire
 - He is practising a rope-climbing trick
 - He is showing off for some girls who are watching
 - It is a monkey dressed like a person

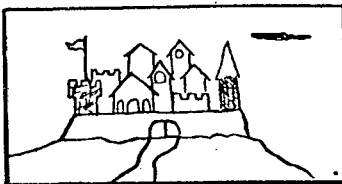
82. The boy with the motorcycle is not riding because?
- He is not allowed to ride it
 - He doesn't want to ride
 - The motorcycle does not work, and will not run
 - He is trying to fix the motorcycle and is pushing it to get it started
 - He is too old and is afraid

83. The person coming through the door in the picture is?
- A thief or robber
 - A father
 - No person who is known
 - A brother or sister
 - A mother or grandmother

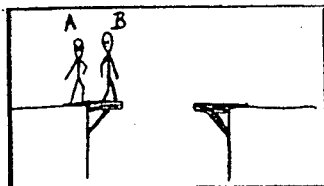
84. The fortune-teller in the picture is telling the person?
- He will have bad luck in the near future
 - He will become rich and famous
 - He will soon have big problems and things to worry about.
 - He will soon get married and raise a family
 - He is being watched by some enemies

85. The doodles in this picture were likely made by what kind of person?
- An unhappy and sad person
 - A person who is just daydreaming and passing time
 - A person who is very angry
 - A widow with small children
 - A person who does not trust other people

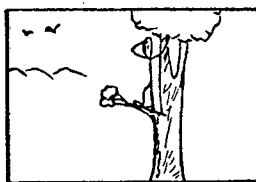
86. Mense wat in hierdie kasteel woon, kan die beste beskryf word as mense wat?
- Nie met hulle bure goed klaarkom nie
 - Hulle bure nie goed ken nie
 - Gewild is en hulle bure baie behulpsaam is
 - Gemeen is teenoor hulle bure
 - Dikwels oneerlik is



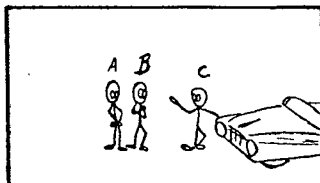
87. Wat doen A en B op die brug?
- B probeer van die brug afspring en wil selfmoord pleeg
 - Twee persone wat slegs die tyd verdryf
 - Probeer uitdink hoe om die brug te voltooi
 - 'n Kêrel wat sy nooi vir 'n wandeling neem
 - Besig om 'n buurman se brug af te breek



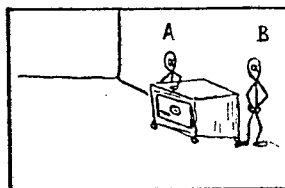
88. Wat doen die persoon in die boom?
- 'n Persoon wat vir die polisie wegkruip
 - 'n Kind wat wegkruip vir 'n kwaai onderwyser
 - 'n Persoon wat kwaad is en verdwaal het en probeer om sy pad huis toe te vind
 - 'n Voortrekkeroffisier wat uitkamp
 - 'n Polisieman wat na 'n gevangene soek



89. Wat gebeur in die prentjie?
- C vertel sy ouers van 'n ongeluk
 - Drie persone wat van die huis af wegloop
 - C probeer A en B oorreed om te betaal vir die herstelwerk aan hulle eie motors
 - 'n Kêrel probeer om twee nooiens vir 'n rit in sy nuwe motor te neem
 - C is 'n polisieman wat 'n gesteelde motor, met A en B daarin, gevind het



90. Wat gebeur in hierdie prentjie?
- A en B voel sleg omdat hulle nie die brandkas kan beweeg nie
 - A en B kyk maar net en hulle het niks met die brandkas te doen nie
 - B is kwaad omdat die brandkas gebreek is
 - A en B verskuif die brandkas
 - A en B probeer waardevolle dokumente steel



86. People who live in this castle are best described as?
- Don't get along well with their neighbours
 - Don't know their neighbours very well
 - Are liked by their neighbours and are very co-operative
 - Are mean to neighbours
 - Are often dishonest

87. What are A and B doing on the bridge?
- B is trying to jump off the bridge and wants to kill himself
 - Two persons just passing time
 - Trying to figure out how to complete the bridge
 - A fellow taking his girl for a walk
 - Breaking down a neighbour's bridge

88. What is the person in the tree doing?
- A person who is hiding from the police
 - A child getting away from an angry and cross teacher
 - An angry person who is lost and is trying to find his way home
 - A Boy Scout leader camping out
 - A policeman trying to find a prisoner

89. What is taking place in the picture?
- C is telling his parents about an accident
 - Three persons running away from home
 - C is trying to get A and B to pay for the repairs of their own cars
 - A fellow trying to take two girls for a ride in his new car
 - C is a policeman who found a stolen car with A and B in it

90. What is taking place in this picture?
- A and B feel bad because they can't move the safe
 - A and B are just looking and have nothing to do with the safe
 - B is angry because the safe is broken
 - A and B are moving the safe
 - A and B are trying to steal some valuable papers

EINDE VAN TOETS

END OF TEST

Departement Kliniese Sielkunde,
Stikland-hospitaal,
BELLVILLE.

Julie, 1972.

Geagte mnr. / mev. / mej.

U word genooi om, saam met ander Sanlam-werknemers, 'n persoonlikheidstoets te voltooi. Hierdie stap is deel van 'n navorsingsprojek wat ten doel het om die geldigheid van die betrokke toets te bepaal. Die navorsing word onderneem deur die Universiteit van Kaapstad, in samewerking met Stikland-hospitaal en die Raad vir Geestenswetenskaplike Navorsing.

Die resultate van die toets deur u afgelê sal saam met dié van die ander Sanlam-werknemers statisties verwerk word. Die gemiddelde van die gesamentlike resultate sal gebruik word as a basis waarmee die resultate van hospitaal pasiënte vergelyk kan word. U resultate sal daarom as volkome vertroulik beskou word.

Die toets sal afgeneem word op ... Julie om Sal u aseblief so vriendelik wees om teen die genoemde tyd by die groot opleidingslokaal aan te meld. Die voltooiing van die toets duur nie veel langer as 40 minute nie en vereis weinig inspanning van u kant. U samewerking sal hoog op prys gestel word.

Die uwe,

G. STONESTREET.

Kliniese Sielkundige (Intern).

PERSONALITY QUESTIONNAIRES USED AS CRITERIA FOR STUDY 2.1. Sixteen Personality Factor Questionnaire, Form A (16PF)
(South African Adaptation)

This test covers the 16 most important source traits of personality as isolated by more than thirty years of factor analytic research. R.B. Cattell is the main figure behind its development, and it is his concept of the "personality sphere" which has been integrated into the 16PF.

Form A consists of 187 items each allowing three possible answers. Answers are indicated on a separate answer-sheet.

e.g. "I have decidedly fewer friends than most people: (a) yes, (b) in between (c) no".

Items are designed for ordinary newspaper-literate adults, and are the survivors of some four to five thousand with which test development began.

South African standardisation

The 1966 Form A edition of the National Bureau of Educational and Social Research (now HSRC) was utilised in this investigation. Although the final manual detailing South African norms has not yet been published, preliminary HSRC data based on over 2000 scholars indicates sex differences, but not language-group differences on 16PF raw-scores. Forms in English and Afrikaans are therefore equivalent.

The absence of suitable norms (i.e. of working adults) for the South African 16PF was not a problem as this investigation focussed on score variability (correlations) rather than on actual score values. Raw scores were used for these computations and conversion into stens was not necessary.

Reliability

Form A test-retest coefficients (4 to 7 day intervals) based on 146 American subjects were as follows (Cattell, Eber, and Tatsuoka; 1970, p. 30):

A	B	C	E	F	G	H	I	L	M	N	O	Q ₁	Q ₂	Q ₃	Q ₄
81	58	78	80	79	81	83	77	75	70	61	79	73	73	62	81

Validity

Validity of the 16PF is reflected in its development, which

/was

Table 11 - The primary source traits covered by the 16PF

Factor	Low score	High score
A	Sizothymia - Reserved, detached, critical, aloof, stiff.	Affectothymia - Outgoing, warmhearted, easygoing, participating.
B	Dull, low intelligence, quitting.	Bright, high intelligence, persevering.
C	Lower ego-strength - affected by feelings, emotionally unstable, easily upset, changeable.	Higher ego-strength - mature, emotionally stable, faces reality, calm.
E	Submissiveness - Humble, mild, easily led, docile, accommodating.	Dominance - Assertive, aggressive, competitive, stubborn.
F	Desurgency - Sober, taciturn, serious.	Surgency - Happy-go-lucky, gay, enthusiastic.
G	Weaker superego strength - Expedient, disregards rules	Stronger superego strength - Conscientious, persistent, moralistic, staid.
H	Threctia - Shy, timid, sensitive to threat.	Parmia - Venturesome, uninhibited, socially bold.
I	Harria - Tough-minded, self-reliant, realistic	Premisia - Tender-minded, sensitive, clinging, protected
L	Alaxia - Trusting, accepts conditions	Protension - Suspicious, hard to fool.
M	Praxernia - Practical, "down-to-earth".	Autia - Imaginative, bohemian, absent-minded.
N	Artlessness - Forthright, unpretentious, but socially clumsy.	Shrewdness - Astute, polished, socially aware.
O	Untroubled adequacy - self-assured, placid, secure, complacent, serene.	Guilt proneness - Apprehensive self-reproaching, insecure, worrying, troubled.
Q ₁	Conservatism - respecting traditional ideas	Radicalism - Experimenting, liberal, free-thinking.
Q ₂	Group-adherence - dependent a "joiner" and follower.	Self-sufficiency - resourceful, prefers own decisions
Q ₃	Low self-sentiment integration - Undisciplined self-conflict, lax, follows own urges, careless of social rules	High strength of self-sentiment - Controlled, exacting will-power, socially precise, compulsive, following self-image.
Q ₄	Low ergic tension - Relaxed tranquil, torpid, composed unfrustrated.	High ergic tension - Tense, frustrated, driven, over-wrought.

was based on a large number of factorial studies, and in the many investigations relating scores of objective behavioural measures and other external criteria. References to these investigations can be found in the 16PF Handbook (Cattell, Eber, and Tatsuoka; 1970).

Score interpretation

Bipolar descriptions of each 16PF source trait are included in the 1970 Handbook. These are summarised in table 11. It has been assumed that the South African edition of the 16PF is sufficiently similar to the American original to justify the use of these descriptions.

2. Ipat Anxiety Scale Questionnaire (South African adaptation)

Originally developed by R.B. Cattell and I.H. Scheier, this scale covers five of the sixteen factors of the 16PF which cluster together to form the second-order-factor termed "anxiety", or "adjustment vs. anxiety". The 40 items are, as was the case with the 16PF, survivors of some four or five thousand with which test development began.

8, 6, 4, 12, and 10 items respectively cover the dimensions of Q_3 , C, L, O, and Q_4 . Half of the items within each dimension pertain to covert, hidden, or indirect expressions of anxiety (scale A), and half are concerned with overt and symptomatic anxiety (scale B). Each item is paired with three alternative responses, answers being marked directly on the two inside pages of the four-page test booklet.

e.g. "As a child I was afraid of the dark ..."

often	sometimes
never	

Scoring keys are designed such that a higher score always means more anxiety, hence the first two anxiety dimensions are denoted $Q_3(-)$ and $C(-)$ to maintain consistency with 16PF notations.

South African standardisation

HSRC booklet NB618 (copyright: R.B. Cattell, 1963) was utilised for administration of the anxiety scale in this investigation. Equivalent forms are available in English and Afrikaans. Standardisation based on over 10 thousand European high school

/pupils

pupils aged 15 to 19 years indicated age and sex differences, but no language differences, in the raw scores of this group.

Reliability

For the Total score (arithmetic sum of part scores) test-retest coefficients (2 week interval) ranged from .83 to .88 in four samples, each composed of approximately 90 South African pupils. Spearman-Brown corrected split-half coefficients were .76 and .80 for English and Afrikaans groups of 319 and 470 pupils respectively. Reliabilities of the A and B scales (.76 to .84 on test-retest) were also satisfactory, but those of the five anxiety components were very much lower (HSRC Handbook, 1968).

Validity

As is the case for the 16PF, the validity of this scale is reflected in its development which relied on a vast number of factorial studies, and in its relations to various external criteria. The agreement between scale scores and psychiatric ratings of anxiety possibly offer the most acceptable evidence as to validity (see: Cattell and Scheier, 1961).

Interpretation of scores

The system of score interpretation put forward in the HSRC Handbook (NB620, Pretoria, 1968) is summarised as follows:

- Q₃(-) Lack of self-sentiment development; failure to integrate behaviour about a clear self-concept and about socially approved standards.
- C(-) Ego weakness; incapacity to control and express frustrative tensions in a suitably realistic way; insecurity; defensiveness.
- L(+) Suspiciousness; paranoid-type insecurity.
- O(+) Guilt proneness; feelings of unworthiness and depression.
- Q₄(+) Frustration tension, Id pressure; excited drives and unsatisfied needs of all kinds; proneness to emotionality, tension, irritability, and "jitteriness".

3. PHSF Relations Questionnaire (HSRC 1970)

The PHSF is wholly South African, having been developed and standardised in this country. Its purpose is to determine the

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level of adjustment within four areas of relations; namely, personal, home, social and formal relations. Adjustment is defined as "the dynamic process by which a person strives to satisfy his inner needs through mature, efficient and healthy responses, and at the same time strives to cope successfully with the demands of the environment in order to attain a harmonious relationship between the self and the environment" (Fouche and Grobbelaar, 1970). The level of adjustment of a person is determined by the frequency with which responses are mature or immature, and efficient or inefficient. This, according to the test-developers, "does not imply concern with the measurements of personality traits as such, but rather with the expression and dynamics of these traits in the person's striving for harmony within the self and between the self and the environment".

The test consists of 180 questions, (e.g. "How often do you worry about your health?") and responses are indicated on a separate answer sheet according to four categories, namely: (a) Always/Almost always, (b) Often, (c) Sometimes, (d) Rarely/ Never.

Standardisation

A preliminary form of the PHSF, consisting of 350 items, was administered to 2294 pupils in standards 6 to 9 at 15 different high schools. After item and factor analysis, the final form (180 items) was administered to 1788 standard 10 pupils for calculation of norms. Separate tables for the conversion of raw scores into stanines were compiled for males and females.

Scale interpretation

The PHSF measures 11 components of adjustment within the four main areas of personal, home, social, and formal relations. Low scores always suggest poor adjustment. The adjustment components are described in the manual (1970) as follows:

P. (Personal Relations)

- (1) Self-confidence - The degree to which a person has confidence in his ability, real or fancied, to be successful.
- (2) Self-esteem - The inner appraisal based on evaluation and acceptance of real or fancied personality characteristics, abilities, or defects.

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- (3) Self-control - The degree to which a person succeeds in controlling and channeling his emotions and needs in accordance with his principles and judgement.
- (4) Nervousness - symptoms of nervousness as expressed by anxious, purposeless, repetitive behaviour.
- (5) Health - preoccupation with the physical condition.

H. (Home Relations)

- (6) Family Influences - The degree to which a person, as a dependent in a home, is influenced by factors such as position in the family, family togetherness, relationship between parents, and socio-economic conditions.
- (7) Personal Freedom - The degree to which a person feels restricted by his parents.

S. (Social Relations)

- (8) Sociability - G - The degree to which a person has a need for and spontaneously participates in social group interaction (extravert) in comparison with aversion to social group interaction (introvert).
- (9) Sociability, S - The degree to which a person has a need for interaction with a specific person of the opposite sex.
- (10) Moral Sense - The degree to which a person feels that his behaviour corresponds to the accepted norms of society.

F. (Formal Relations)

- (11) The degree to which a person at school, college, or in his occupation, is successful in his formal relations with fellow-pupils/students/colleagues, as well as with figures of authority and superiors.

Reliability

Split-half reliability coefficients for the various scales range from 0.71 ($S_{\bar{x}} = 1.06$) to 0.91 ($S_{\bar{x}} = 0.59$) for boys, and from 0.70 ($S_{\bar{x}} = 1.07$) to 0.89 ($S_{\bar{x}} = 0.65$) for girls. (Std. errors in terms of stanines). Sample sizes used for the calculation of the above statistics are not specified in the manual.

Validity

Administration of the PHSF to 62 boys and 114 girls in

/schools

schools for behavioural deviates showed that the majority of PHSF scales discriminated between normal and deviate groups at the 1% level of confidence. Scale 9 (sociability) could discriminate only in the case of girls (5% level), and scale 2 (self-esteem) only in the case of boys (1% level). The deviate groups obtained scores indicating poorer adjustment in all cases.

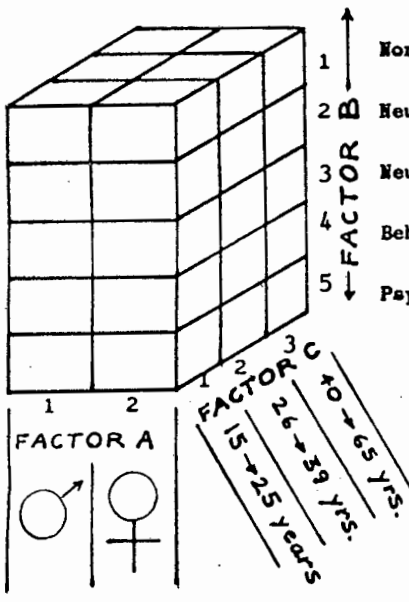
A desirability scale is also included in the PHSF, low scores indicating that the testee wanted to make a favourable impression. Intercorrelations between component scores show that the dimensions of self-control and moral sense (scales 3 and 10) are most severely distorted by the need to make a favourable impression ($r \approx .50$ for both sexes; $N \approx 900$).

4. The Minnesota Multiphasic Personality Inventory (MMPI)
Form R, by Hathaway S.R. and McKinley J.C.

This test is so well known that it is considered unnecessary to describe it further. The system of scale interpretation used for this investigation followed that prepared by Pearson and Swenson, 1967.

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Raw Data - 3 Factor ANOVA



Each row of data reprs. the GPPT scores of a single individual in the order TRQ, NURT, WITH, NEU, AFF, SUCC, & TOTAL.

Cell A1 B1 C1 N=14

45	10	14	18	16	11	68
44	11	12	16	16	19	71
26	15	11	14	18	13	52
44	10	9	19	22	14	66
47	8	16	17	13	15	73
46	19	10	12	11	14	67
42	11	6	20	13	15	63
27	8	9	23	20	8	49
37	7	12	23	15	14	63
15	11	16	16	12	8	42
47	11	11	24	12	15	73
24	14	9	16	21	6	44
14	10	14	18	19	7	40
21	8	11	22	22	13	50

Cell A2 B1 C1 N=27

30	9	8	20	20	13	54
59	12	8	16	14	23	83
53	7	11	29	9	19	81
48	9	8	19	15	18	71
41	8	12	17	15	16	66
40	11	16	10	19	14	65
35	10	16	17	11	16	65
35	10	17	18	15	10	61
30	13	14	15	14	11	56
31	13	16	21	9	15	63
30	10	17	16	16	11	57
45	12	8	19	18	13	66
29	11	16	14	17	15	59
27	12	14	26	13	14	60
32	8	17	18	11	10	58
45	8	16	20	15	11	70
52	11	9	16	12	18	74
56	10	7	19	16	20	78
16	9	23	22	12	5	48
36	9	15	18	17	9	60
31	9	9	21	22	16	58
33	7	9	24	13	16	59
56	11	15	28	9	9	79
32	10	9	22	21	6	52
16	9	12	19	22	9	42
50	10	12	20	11	11	71
38	11	12	24	18	12	64

Cell A2 B1 C3 N=7

42	13	11	14	14	14	64
42	14	12	18	16	11	65
33	16	14	18	12	9	58
41	15	11	13	12	10	61
15	8	9	18	20	12	40
42	16	10	17	20	13	72
48	13	16	15	16	13	58

Cell A1 B1 C2 N=18

32	11	19	15	16	4	55
10	10	12	15	24	8	35
33	10	16	18	20	8	58
32	9	10	19	15	15	57
17	10	14	18	22	3	40
33	10	15	18	16	4	54
32	7	12	16	20	7	51
15	15	21	8	17	9	45
48	12	8	15	20	12	66
38	10	14	20	17	16	68
59	10	13	20	14	16	83
43	9	14	17	20	9	64
50	9	11	22	13	19	77
21	10	11	28	13	9	48
24	12	10	24	16	11	51
32	6	12	19	21	7	52
12	13	11	17	25	7	37
39	7	7	21	24	13	60

Cell A2 B1 C2 N=21

57	12	9	17	16	15	77
32	10	12	12	16	18	59
43	9	19	18	16	14	72
48	10	11	21	15	12	69
26	16	13	13	17	12	53
28	14	10	20	19	9	51
29	11	10	14	15	12	51
30	10	18	21	7	7	56
25	16	14	19	13	12	55
38	12	11	25	13	8	61
39	14	13	15	15	15	65
54	12	11	15	16	25	84
17	9	13	18	22	10	44
45	12	16	24	17	10	72
53	8	8	16	20	19	75
32	16	14	16	13	12	59
38	8	10	24	18	15	64
25	11	12	18	19	8	48
38	7	13	19	13	11	59
24	10	17	17	17	4	48
25	12	12	16	25	9	49

Cell A1 B1 C3 N=13

38	5	9	25	12	23	68
44	10	15	23	9	17	74
21	7	14	18	14	9	46
30	7	16	11	10	9	51
32	11	9	17	21	13	55
27	9	11	15	17	16	54
40	10	13	23	12	17	69
53	8	11	13	22	17	74
35	10	13	18	22	8	59
38	11	12	21	21	5	58
45	7	13	19	14	8	62
11	5	15	21	20	2	34
56	9	9	25	13	18	80

Cell A1 B2 C1 N=8

37	11	13	14	18	7	56
57	10	11	26	13	7	75
27	9	11	22	15	11	52
40	8	9	21	15	16	64
38	13	15	17	15	9	62
52	10	10	23	16	12	73
40	8	17	24	11	5	63
40	7	12	20	14	12	63

Cell A2 B2 C1 N=9

30	6	12	21	19	6	51
32	5	15	26	12	12	60
20	10	22	17	11	5	49
42	8	13	19	21	10	64
61	10	9	14	19	14	78
62	9	9	26	12	13	82
58	15	14	12	13	11	77
63	9	8	20	13	24	88
47	10	11	24	15	15	73

Cell A1 B2 C2 N=13

52	6	19	22	7	7	72
40	12	10	13	16	19	66
30	15	17	36	9	3	60
50	15	11	27	12	7	71
17	11	21	16	17	7	47
36	9	14	21	12	12	62
39	15	5	15	22	10	56
50	12	11	19	14	6	66
40	11	13	21	9	16	58
54	11	13	18	21	14	77
32	6	17	22	14	12	60
50	15	12	19	13	11	72
65	9	13	25	8	18	90

Cell A2 B2 C2 N=12

63	13	10	15	16	17	84
39	6	14	23	14	15	65
35	14	10	11	19	11	60
33	14	17	18	11	9	60
53	9	12	26	12	14	78
24	9	16	16	16	6	48
45	11	13	25	10	7	67
39	8	17	22	13	7	63
45	11	13	21	12	11	69
43	8	13	26	6	15	70
50	9	17	20	12	10	74
8	10	22	13	13	8	40

Cell A1 B2 C3 N=6

52	6	15	19	11	14	71
33	14	12	22	17	3	53
35	12	8	21	14	16	60
59	10	16	24	10	13	84
48	5	14	17	11	18	73
64	10	13	19	16	18	88

Cell A2 B2 C3 N=10

67	10	17	23	13	15	93
42	7	10	31	10	13	67
33	12	13	24	11	9	58
41	6	7	17	19	21	67
57	6	17	19	11	16	82
33	9	15	18	9	3	52
43	13	18	9	16	20	74
25	9	20	20	14	7	54
64	16	10	22	16	13	84
20	10	15	15	15	10	47

Cell A2 B3 C1 N=12

64	11	13	22	8	13	85
96	4	7	18	11	26	113
44	9	13	22	13	7	72
50	8	11	22	16	13	72
47	7	12	25	9	21	77
57	8	13	22	10	9	76
14	7	22	19	7	7	45
38	7	16	19	15	9	62
81	9	12	28	12	8	96
33	13	16	20	15	8	59
53	13	16	17	13	12	77
18	13	12	26	12	11	48

Cell A1 B3 C1 N=8

44	10	9	19	13	14	65
58	12	10	11	22	16	77
36	9	17	19	11	9	61
47	10	14	24	13	12	80
38	14	12	25	16	7	61
46	8	7	18	19	14	65
60	5	15	25	12	13	83
22	10	13	25	11	8	49

Cell A1 B3 C2 N=17

14	9	10	28	14	14	46
40	12	18	20	11	9	66
38	11	12	15	19	12	63
29	7	9	31	9	12	55
35	5	13	16	15	15	60
36	10	14	22	13	9	60
58	7	13	15	12	17	80
35	5	26	16	8	9	64
62	8	16	21	14	16	87
38	11	19	19	15	2	59
29	12	11	23	14	16	59
42	16	11	18	13	8	62
41	7	16	29	11	10	69
48	13	10	21	9	10	68
32	10	13	17	10	9	54
45	11	11	15	10	23	74
23	9	17	20	14	12	54

Cell A2 B3 C2 N=25

64	8	13	24	10	13	83
57	11	11	21	9	15	79
50	8	11	23	13	7	67
31	8	11	25	18	14	59
82	6	9	26	13	9	94
50	13	8	25	15	17	75
31	7	9	20	16	14	55
32	9	16	13	12	18	62
50	5	16	22	18	9	72
88	8	6	19	14	17	100
36	7	13	19	15	21	67
50	12	17	17	18	16	79
52	15	9	26	5	10	72
61	10	8	23	9	9	76

Raw Data - 3 Factor ANOVA (continued)

Cell A1 B4 C1				N=5	Cell A1 B4 C2				N=11	Cell A2 B4 C3				N=5	Cell A2 B5 C2				N=6															
50	11	12	19	17	9	69	24	11	13	12	20	6	45	67	8	10	22	15	16	87	61	10	8	15	10	24	84							
62	8	10	12	15	19	81	48	13	13	14	20	7	66	28	13	12	22	13	11	51	23	9	17	17	10	14	54							
40	7	15	21	14	13	66	43	9	15	14	14	8	63	52	9	14	25	8	11	75	48	12	17	24	9	6	71							
13	8	6	19	25	8	34	16	12	9	22	19	9	42	28	4	13	25	18	12	55	48	11	13	21	11	13	72							
46	11	14	12	15	12	67	48	5	11	24	18	9	65	37	13	13	15	12	21	68	22	10	11	21	21	9	47							
							23	8	12	19	17	21	57									20	14	11	17	14	24	56						
							32	7	11	16	21	10	53	Cell A1 B5 C1				N=5	Cell A1 B5 C3				N=3											
45	10	10	13	18	18	68	15	11	13	20	16	10	43	53	8	11	19	19	14	74	56	9	16	21	11	15	82							
28	11	7	19	22	13	54	44	7	13	26	14	7	65	47	9	12	17	19	18	73	47	7	10	19	17	19	72							
56	9	12	16	13	12	75	27	10	18	18	12	10	56	58	11	12	23	11	14	81	60	14	16	16	12	13	75							
44	7	10	22	18	20	73	33	15	14	14	14	13	60	25	10	13	20	16	11	54														
58	10	13	22	13	12	80								37	9	14	17	17	14	63	Cell A2 B5 C3				N=6									
10	5	15	16	19	6	35	Cell A1 B4 C3				N=11	Cell A2 B5 C1				N=2	27	5	13	17	22	10	51											
30	12	20	14	16	8	57	32	9	15	19	16	6	54	54	14	15	24	16	8	67	14	15	17	16	14	7	43							
19	6	23	17	12	5	47	27	12	16	15	13	8	52	56	9	6	17	23	26	82	11	8	9	15	24	16	40							
9	9	10	10	28	11	34	48	10	10	20	11	10	67								41	8	12	23	10	11	64							
							21	14	16	14	16	11	50	Cell A1 B5 C2				N=8	27	5	17	15	20	11	54									
Cell A2 B4 C2				N=3	35	10	14	16	14	9	57	36	8	11	20	14	12	59	33	10	9	26	12	3	51	53	13	13	21	7	21	83		
43	11	12	24	16	13	69	38	9	12	28	12	13	66	29	10	20	18	11	13	56														
14	6	17	14	15	1	35	38	11	7	20	21	10	57	48	9	10	20	7	10	66														
							29	6	9	21	18	18	57	33	11	9	19	21	12	56														
							8	13	11	19	19	4	32	33	8	15	21	11	17	64														
							44	9	9	18	14	13	64	25	13	12	22	19	12	54														
							16	12	17	18	14	10	47	22	5	20	22	18	7	51														
														30	10	19	16	17	5	54														

Raw Data - GPPT vs. IPAT Anxiety Scale (N = 83)

TRQ	NURT	WITH	NEU	AFF	SUC	TOT	Q3	C	L	O	Q4	A	B	TOT	TRQ	NURT	WITH	NEU	AFF	SUC	TOT	Q3	C	L	O	Q4	A	B	TOT.	
45	8	12	21	19	10	66	5	7	6	7	6	4	8	6	33	14	12	22	17	3	53	7	6	7	4	5	5	5	5	
36	7	13	19	15	21	67	6	7	10	9	8	8	9	9	30	14	10	16	18	12	54	1	4	4	3	3	2	3	2	
16	6	19	16	17	9	45	3	6	5	4	4	3	5	4	37	11	19	19	15	2	59	5	9	6	8	10	8	9	9	
46	10	10	21	14	10	66	4	10	6	8	8	5	10	8	42	9	11	18	20	8	61	9	7	10	9	9	10	10	10	
24	11	13	17	17	10	49	1	5	6	3	4	3	3	3	45	11	13	25	10	7	67	10	8	10	10	10	10	10	10	10
29	13	16	15	11	10	55	8	6	4	8	7	7	7	8	31	7	9	20	16	14	55	7	5	7	9	8	8	7	8	
54	11	11	27	14	15	80	5	5	8	6	4	4	6	5	56	10	8	18	10	21	79	9	9	8	8	10	8	10	10	
24	11	10	18	18	15	51	4	5	6	4	4	5	3	4	39	8	17	22	13	7	63	7	7	8	7	8	9	7	8	
31	7	16	22	15	7	56	4	5	4	5	6	5	5	5	45	11	13	21	12	11	69	4	4	6	7	5	4	6	5	
50	12	17	17	18	16	79	7	8	7	9	9	8	9	9	35	12	8	21	14	16	60	7	8	4	7	7	6	7	7	
57	10	11	26	13	7	75	7	7	7	9	5	7	9	8	63	7	11	20	13	15	82	10	8	10	10	10	10	10	10	
10	6	17	17	14	6	36	6	4	4	7	7	6	6	6	42	16	11	18	13	8	62	7	6	8	9	8	7	9	8	
93	5	8	23	4	22	110	8	10	10	10	10	10	10	10	35	13	12	20	10	12	60	2	5	8	4	2	5	3	4	
57	11	11	20	14	20	83	8	9	8	7	8	10	7	9	52	12	18	20	8	5	72	7	7	6	6	7	8	6	7	
53	12	8	22	12	19	78	6	6	3	8	8	6	7	7	57	11	11	20	20	14	79	7	6	5	5	5	5	6	5	
71	7	11	18	12	7	82	8	10	9	10	9	10	10	10	50	9	17	20	12	10	74	6	7	6	6	9	7	8	8	
67	8	9	27	15	10	84	7	5	6	5	6	5	6	6	32	9	16	13	12	18	62	8	7	6	8	10	8	8	8	
43	9	14	22	14	14	70	6	10	6	7	7	7	8	8	43	13	18	9	16	20	74	9	4	10	5	4	6	6	6	
61	17	12	13	15	10	78	7	9	8	9	6	8	8	8	57	11	11	21	9	15	79	9	9	8	10	10	9	10	10	
54	13	14	23	10	17	82	4	4	6	3	3	2	4	3	78	2	7	25	13	29	103	6	8	8	8	9	7	10	9	
38	19	14	16	16	9	59	7	4	10	6	5	8	5	6	52	14	10	16	13	13	73	6	9	8	8	7	6	10	8	
35	6	15	21	14	8	58	7	7	7	10	10	9	10	10	53	14	16	19	18	8	82	5	6	3	7	5	5	6	5	
58	13	10	23	14	10	80	8	9	8	10	10	9	10	10	38	11	7	20	21	10	57	8	8	7	10	9	7	10	10	
27	9	11	22	15	11	52	6	4	4	8	5	7	5	6	46	10	9	18	12	13	66	7	8	6	8	8	9	8	8	
54	10	18	19	14	6	75	5	9	6	9	6	5	10	8	31	12	16	18	13	15	62	6	5	7	5	4	3	6	4	
43	6	12	25	11	14	68	9	8	3	10	8	7	10	9	59	10	16	24	10	13	84	5	7	3	5	5	4	6	5	
61	10	9	14	19	14	78	10	5	6	9	7	8	9	8	26	10	13	10	15	15	52	4	6	8	4	5	6	4	5	
48	10	10	20	11	10	67	8	9	8	5	7	9	6	8	81	9	12	28	12	8	96	10	6	8	10	10	9	10	10	
58	10	13	22	13	12	80	9	10	9	10	10	10	10	10	40	7	12	20	14	12	63	8	7	6	9	9	8	10	9	
40	12	10	20	14	14	56	9	10	8	8	8	10	9	10	43	11	12	24	16	13	69	6	9	6	8	10	8	9	9	
45	11	11	15	10	23	74	7	9	6	8	7	9	7	8	48	5	11	24	18	9	65	7	9	5	10	10	10	7	9	
45	15	16	18	9	12	71	8	7	6	9	8	8	9	9	50	15	12	19	13	11	72	8	6	7	8	7	7	9	8	
57	12	10	26	16	13	80	7	8	6	8	10	9	8	9	50	12	10	12	19	19	74	8	9	6	8	8	9	8	9	
33	10	12	15	14	6	51	8	8	7	8	7	6	10	8	8	10	22	13	13	8	40	4	4	2	2	3	3	1	1	
30	6	13	13	20	8	50	7	2	9	9	8	7	8	8	19	6	23	17	12	5	47	5	3	3	4	3	3	2	3	
70	8	5	22	20	15	85	9	8	8	9	8	8	10	9	25	13	14	15	10	14	53	9	5	5	5	8	8	5	7	
14	9	10	28	14	14	46	5	6	7	7	6	6	7	7	</															

Raw Data - GPPT vs. 16PF Form A (N = 38)

Table with 23 columns: Age, TRQ, Nurt, With, Neu, Aff, Suc, Tot, A, B, C, E, F, G, H, I, L, M, N, O, Q1, Q2, Q3, Q4. It contains 38 rows of individual test scores.

Means and standard deviations

Summary table for GPPT vs. 16PF Form A showing means and standard deviations for various scales and percentiles. Includes columns for AGE, TRQ, Nurt, With, Neu, Aff, Suc, Tot, A, B, C, E, F, G, H, I, L, M, N, O, Q1, Q2, Q3, Q4.

Raw Data - GPPT vs. MMPI Form R (N = 30)

Table with 24 columns: AGE, TRQ, Nurt, With, Neu, Aff, Suc, Tot, L, F, K, Ha, D, Hy, Pd, Mf, Pa, Pt, Sc, Ma, Si, Means & std.dev. It contains 30 rows of individual test scores for MMPI Form R.

Raw Data - GPPT vs. PHSF Relations Questionnaire (N = 30)

Age of S	TRQ	Nurt	With	Neu	Aff	Succ	Total	S-confid.	S-esteem	S-contrl	Nervous.	Health	F-inflc.	Freedom	G-sociab.	S-sociab.	Moral-s.	Formal
36	38	7	12	26	17	6	59	17	22	24	16	25	25	17	12	21	28	18
34	50	7	10	24	14	15	73	25	14	30	30	19	30	36	16	11	40	45
33	37	9	15	19	11	9	60	35	21	37	25	32	28	32	31	35	45	45
55	16	6	19	16	17	9	45	40	26	37	35	30	33	36	38	25	34	35
31	33	10	9	26	12	3	51	29	21	26	28	30	30	32	24	27	36	28
25	52	9	9	20	11	20	77	22	19	18	14	35	34	15	24	16	33	32
20	67	8	9	27	15	10	84	30	18	29	35	36	25	38	4	12	29	25
31	59	6	11	20	18	17	81	27	15	12	20	22	18	16	30	27	24	31
21	50	11	16	20	11	14	76	9	14	21	14	22	24	40	14	14	29	23
24	22	9	13	15	14	21	55	18	19	25	18	22	7	12	20	31	36	24
32	22	10	11	21	21	9	47	27	15	25	29	34	27	40	34	28	42	27
23	38	9	19	12	13	6	59	28	32	35	38	41	42	38	32	45	30	34
18	30	12	20	14	16	8	52	28	27	28	31	43	40	31	37	23	34	38
33	63	6	26	23	6	10	91	29	19	17	18	28	21	16	26	37	26	24
39	40	12	10	20	14	14	56	23	16	29	26	28	39	-	24	2	39	-
18	18	13	-	26	12	11	48	30	21	25	24	30	27	21	34	24	32	31
50	27	5	13	17	22	10	51	18	14	23	18	25	15	16	17	29	38	29
36	42	9	14	16	11	14	66	9	9	27	13	13	39	31	15	16	45	30
17	14	13	21	16	13	5	44	35	22	31	9	17	26	39	21	8	38	41
14	31	11	13	13	21	13	56	28	23	21	24	31	39	41	26	29	31	27
45	48	7	9	27	13	12	61	25	26	29	28	42	36	37	22	25	45	38
23	52	10	10	23	16	12	73	11	10	20	12	25	30	37	16	34	44	24
22	40	8	17	24	11	5	63	23	18	26	29	35	35	45	22	34	39	31
15	62	8	10	12	15	19	81	12	12	24	21	21	14	22	14	13	25	17
41	53	14	16	19	18	8	82	30	24	29	34	30	31	31	26	18	33	31
29	31	12	16	18	13	15	62	29	27	34	15	35	36	40	25	25	42	35
29	30	10	19	16	17	5	54	25	23	28	32	30	31	30	21	23	36	30
49	28	13	12	22	13	11	51	21	14	34	30	33	34	19	28	19	35	28
17	50	9	12	17	19	11	70	22	23	24	16	24	22	23	22	36	23	26
19	63	15	9	18	21	7	77	36	25	23	27	38	33	31	25	36	19	27
<u>Mean</u>	40.20	9.600	13.79	19.57	14.83	10.97	63.50	24.70	19.63	26.37	23.63	29.20	29.03	29.72	23.33	24.10	34.33	30.14
<u>s dev.</u>	14.81	2.551	4.342	4.417	3.680	4.535	12.98	7.708	5.462	5.753	7.846	7.282	8.228	9.570	7.700	9.710	6.896	6.745

3 Factor ANOVA - Bartlett's test for homogeneity of variance

$$\chi^2 = \frac{2.3026 \left\{ \sum_i^n (N_i - 1) \text{Log } S_T^2 - \sum_i^n [(N_i - 1) \text{Log } S_i^2] \right\}}{1 + \left\{ \sum_i^n \frac{1}{(N_i - 1)} - \frac{1}{\sum_i^n (N_i - 1)} \right\}} \bigg/ 3(n - 1)$$

Where n = number of samples

N_i = number of scores in sample n_i

S_i = std. deviation of sample n_i

S_T^2 = estimate of variance of all samples combined

= "error" mean square from 3-Factor ANOVA summary.

For all of the 7 3-Factor ANOVA computations, since each is based on the same number of cells with the same number of scores per cell :

$$n = 24 ; \quad \sum_i^n (N_i - 1) = 264 ; \quad \sum_i^n \frac{1}{N_i - 1} = 3.0724$$

$$\text{Denominator of } \chi^2 \text{ equation} = 1.0445$$

Summary table for χ^2 calculations

Dependent variable of ANOVA	S_T^2	$\sum_i^n (N_i - 1) \text{Log } S_i^2$	χ^2
TRQ	199.01	596.722	22.45
NURT	7.196	217.093	19.35
WITH	11.442	267.670	25.90
NEU	19.442	331.190	19.94
AFF	12.669	282.393	19.21
SUCC	21.123	338.188	25.65
TOTAL	155.76	569.08	21.40

$.30 < p < .70$ for all the above χ^2 values; hypothesis of homogeneity of sample variance retained for each ANOVA.