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Temperament Trait Differences between Two Groups High and Low in Psychological Defensiveness on the Guilford-Zimmerman Temperament Survey

James B. Harney
Loyola University Chicago

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by

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Abstract

This study investigated the relationships between psychological defensiveness and ten temperament traits, the stability of defensiveness as a personality variable, and the importance of item content as an important determinant of responses to personality inventories. Subjects were 126 psychiatric patients recently admitted for hospitalization. A group of 68 subjects constituted a High defensive group on the basis of an MMPI K raw score of 13 or more; 58 subjects with a raw score on K of 12 or less constituted a group Low in defensiveness. Groups were equated on the following variables: sex, age, formal education, intelligence, and interval between administration of the MMPI and the Guilford-Zimmerman Temperament Survey. Comparisons were made between groups on ten temperament factors and three validity scales of the Guilford-Zimmerman inventory. Significant differences between the groups were found on seven temperament scales and three validity scales. Conclusions were that psychological defensiveness, (a) is a stable personality variable, (b) that responds to item content, and (c) has a greater internal than external orientation.

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I would like to take this opportunity to thank all of the faculty members of Loyola University who have trained me in the field of clinical psychology. I wish to especially thank Dr. Frank J. Kobler, Dr. Ronald Walker, and Dr. James Erdmann for their helpful suggestions relating to the design, execution, and writing of this dissertation.

Vita

James B. Harney was born in Chicago on April 5, 1924. He was educated in the Chicago area and received his A.B. in philosophy from De Paul University in 1949. In 1951 he received an M.A. in philosophy from the University of Toronto. In 1959 he received the Lectorate in Theology from St. Albert College in Oakland, California. In 1962 he was awarded the Lilly Foundation Fellowship for studies in the fields of Psychology and Religion at the University of Illinois at Champaign-Urbana. He received his A.B. in psychology from the University of Montreal in 1963 and his M.A. in clinical psychology at Loyola in 1967.

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Chapter 1

Purpose

Responses to personality inventories are known to be the result of many variables. Earlier investigations have isolated some of these influences but the names of these variables leads to some confusion. A distinction based on the role and importance of item content can be used to separate and classify most of the response variables. Under the general term 'set' are included such content determined variables as "dissimulation," "psychological defensiveness," "faking good," "faking bad," and "social desirability." Under the general term 'style' are classified the variables considered to be operating independently of item content such as "acquiescence," "sequential dependencies," "response style," and "extreme response style."

The position adopted in this study was that psychological defensiveness (PD) is a response to item content, therefore a 'set' type variable. By PD is meant a psychic process serving to automatically protect the self from anything perceived as a threat. In personality inventories like the MMPI or the Guilford-Zimmerman Temperament Survey (GZTS) the effect of PD is such as to either raise or lower scores on the various inventory scales. Thus PD takes either a positive (i.e. self-enhancing) or negative (i.e. self-debasing) direction. The

self-enhancing person typically reacts to item content by denying personal faults and failings, indicating by his denial an unwillingness to admit personal shortcomings. The self-debasing person does just the opposite and uses item content as an opportunity to overstate his case presumably in the hope of gaining sympathy and attention. In either case the person is attempting to defend himself from some threat and uses item content for this purpose.

One aim of this study was to use two separate personality inventories, similar in content, to see if PD is something constant rather than a momentary reaction. If defensiveness is neither "test specific" nor a momentary reaction but a stable content determined response, then a group tending to enhance (or debase) their self image on one inventory should do likewise on a separate personality inventory.

The subjects in this study were 126 hospitalized psychiatric patients. The K scale of the MMPI was used as the first personality inventory and on the basis of the raw score obtained on the K scale, the total sample was divided into high and low defensive groups. The K scale raw score thus served as the criterion for patient placement and is thus the independent variable in this study. The hypothesis tested was:

I. On the basis of the MMPI's K score, the high K group will score higher

than the low K group on the ten temperament scales of the Guilford-Zimmerman Temperament Survey.

The Guilford-Zimmerman Temperament Survey (GZTS) was the second personality inventory used to determine the extent to which hypothesis I was valid. The ten temperament scales represent different dimensions of a person's temperament. Four of the ten scales (Emotional Stability, Objectivity, Friendliness, and Personal Relations) constitute a second-order factor called "Emotionality." The correlates of Emotionality (Factor I) indicate that it is concerned with a general lack of emotional maturity, a tendency to emotional vulnerability with difficulty in achieving self control, an expression of emotions that is therefore both inappropriate and extreme with little concern about others and a failure to conform to generally accepted ways of behaviour. High scores on Factor I reflect attempts to deny personal faults of an emotional nature and low scores on these four scales reflect a subject's tendency to readily admit to personal shortcomings. The content of these scales was felt to be such that they would reflect clearly attempts at self-image distortion.

Four other GZTS scales (Restraint, Ascendancy, Sociability, and Thoughtfulness) have been grouped into a second general

factor called "Social Drive" (Factor II). This factor is quite similar to the familiar Introversion-Extroversion dimension. The GZTS items in these four scales reflect a concern (or lack of concern) for environmental predictability and social structure, a sustained desire and effort toward achievement of life goals and the attitudes of others toward one's own behaviour. High scores on this factor indicate that the subject considers himself to be serious minded, deliberate and persistent in his efforts, comfortable in the presence of others, has many friends and acquaintences, is able to speak and converse comfortably and is interested in the behaviour and interests of others. Low scores reflect a tendency to deny these positive social qualities. The items in this factor appear to be less ego oriented than Factor I items.

The GZTS was chosen as the second inventory because its content should be sensitive to the distorting effects of PD if item content is the determining influence. In addition to the high degree of homogeneity for its scales, the GZTS was to be used to isolate specific areas sensitive to the effects of psychological defensiveness. If PD is a response to item content, then content plays the role of specifying the responses. If PD is responding to content then it must be a selective phenomenon, that is, it would not be a random or haphazard process. As a stable and selective phenomenon it should be predictible. However if PD merely reflects a

tendency to choose a certain response option (i.e. true or false) regardless of item content then scales approximately evenly divided as to their T and F answers will fail to differentiate high and low defensive groups since the tendency to endorse T items will be negated by the other group's tendency to choose the F option:

The following hypotheses were proposed to test the significance of item content in relation to PD:

II. Defensiveness, as measured by the MMPI's K score, is positively correlated with the GZTS's Factor I (Emotionality) and Factor II (Social Drive), Factor I will show the stronger relationship being more ego centered.

III. The high K group will be significantly higher than the low K group on both the Gross and Subtle Falsification scales of the GZTS.

IV. There will be a significantly positive correlation between the MMPI's K scale and the GZTS's Gross Falsification scale, and between the K scale and the GZTS's Subtle Falsification scale, the Gross Falsification scale will show a stronger relationship.

The Gross (GF) and Subtle Falsification (SF) scales were used to provide evidence that high K subjects were more concerned with creating a favourable impression than low K subjects. If PD is a tendency to choose a true or false option independently of item content, then on the basis of the distribution of T and F in the GF and SF scales, the high K group should outscore the low K group on GF while the low K group should outscore the high K group on SF. All thirty item on the K scale are keyed in the False direction, thus a maximum raw score on K of 30 (i.e. a high K) is the result of choosing the F option for all K items.

A search of the literature failed to show any previous use of the GZTS with a psychiatric population. It was considered necessary therefore to investigate the reliability of the ten GZTS scales in order to determine how this sample compared with the results published in the manual.

A final purpose was to determine the GZTS intercorrelations to judge the extent to which each scale achieved independence and can be considered to reflect a different aspect of temperament. The intercorrelations also would serve to clarify the relationship between the GZTS and the MMPI's K scale. Various multiple correlations between K and the GZTS Factor I and Factor II were computed in order to assess the separate contribution of the GZTS scales to the variance of the K scale.

Chapter 2

Review of the Literature

In the last dozen years an active area of research has been the study of response sets and styles (Block,1965; Jackson & Messick,1962; Messick & Jackson, 1961). As a result of such investigations into the factors influencing responses to personality and interest inventories, many new explanatory terms were coined leading to confusion as to their classification. A conceptual distinction between 'sets' and 'styles' has been proposed (Rorer,1965), the former referring to criteria according to which a subject considers and evaluates item content when selecting his answer; the latter refers to a way of responding, such as selecting a particular response option independently of item content. Sets (defensiveness, dissimulation, social desirability) are a function of the meaningfulness of item content whereas styles (yea saying, nay saying, extreme response bias) operate in the absence of such content.

The present form of the MMPI includes besides its ten clinical scales, three validity indicators, the L, F, and K scales. As Dahlstrom and Welsh (1950) indicate, L and F were formed on a judgmental basis or a priori approach whereas the K scale was both empirically determined and validated. The K scale was specifically constructed to detect the presence and degree of psychological defensiveness in psychiatric patients.

Since defensiveness is a protective reaction to anything threatening, the content of the K scale items is used to determine whether the respondent is tending to evaluate items in either a faking good or bad direction, thus it is called a response 'set'. K items were chosen using an actuarial approach with the result that the scale is extremely heterogeneous in content. In the MMPI, many K items are used in the clinical scales and Wheeler (1951) noted that intercorrelations obtained from scales with overlapping items hinder factor analytic attempts to interpret such factors as are extracted. This limitation was specifically applied to the K scale (Lebovits and Ostfeld, 1967) and the meaning of a high K score is still a moot question. The relationship between K and the ten GZTS scales can provide evidence relating to the meaning of a high K.

The willingness of a subject to conceal or exaggerate personality defects is called "faking good" and "faking bad" and the K scale of the MMPI measures this tendency (Meehl & Hathaway, 1946). K attempts to deal with attitude variance by suppressing the effects of distorting attitudes by statistically weighing various clinical scales. This viewpoint regards attitude variance as distorting the 'true' picture by introducing unwanted error variance which K seeks to negate. At a later date Dahlstrom and Welsh (1960) revised this opinion stating that rather than reflecting something momentary and consciously held, such attitudes may reflect a long standing, deeply ingrained

self view, in which case attitudes can indicate personality variables having clinical value. This viewpoint was supported by subsequent studies (Gough, 1957; Dickens, 1963, Lebovits & Ostfeld, 1967) which provided additional evidence supporting attitude bias as a relevant aspect of personality. Such evidence supports the conclusion that attitude variance need not and perhaps should not be removed from scales designed to measure personality traits. Error variance would seem to be more properly applied to the "style" (or content independent) variables while the "set" (or content relevant) variables merit consideration in their own right.

The relationships between K and a multitude of variables have been investigated. Van Evra and Rosenberg (1963) studied ego strength in a sample of 98 hospitalized psychopaths and found a significant relationship between K and measures of ego strength. High K scores were interpreted as suggesting greater defensiveness and greater ability to recognize socially desirable personality descriptions. Heilbrun (1961) studied the psychological significance of the K scale in a normal population and his 639 collegians were divided on the basis of their asking for help with vocational or personal problems or not seeking such help. Results showed that the positive relationship between K and defensiveness extends more to maladjusted subjects from a normal college population than to defensiveness when psychologically healthy subjects are considered; Heilbrun's

findings confirmed those of an earlier study (Smith,1959). High K scores have been shown to reflect an attempt to present a favourable self image (Lebovits & Ostfeld,1967; Shipman & Marquette,1963) and that this tendency increases as a function of educational level. The Lebovits and Ostfeld study is especially significant both for the size of the sample (1,852 males) and its conclusions. Contrasting high and low K groups resulted in evidence that significant differences existed with high K groups showing less anxiety, greater denial and more repression. They stated that "one of the fundamental findings of this study is the difference in the distribution of K scores in the various educational levels. Subjects with more education achieved significantly higher scores on the K scale than those with lesser amounts of education"(p.387). The better educated were believed to possess more sophistication and ego strength and greater insight into and knowledge about the significance of the MMPI statements and their answers to them. These results show clearly that research samples must control for the educational level when group comparisons are made.

The defensiveness associated with faking good or bad means more than merely denying or claiming negative characteristics. Studies have related K scores to measures of ego strength or weakness (Heilbrun,1961; Younge,1966) and interpreted as indicating a capacity to respond in an adjustive fashion when confronted by threatening situations.

In summary there is considerable evidence that the K scale measures specific personality variables and in particular defensiveness, in addition to operating as a suppressor agent.

The MMPI's K scale is composed of 30 items, the initial 22 selected by contrasting replies given by a special group of defensive clinical cases with those given by the general Minnesota normals. The items were scored so that high raw scores reflect a greater tendency to cover up personality deviations, while low scores tended to exaggerate such defects.. The last eight items were chosen and scored in such a way that abnormal cases having validly high clinical scores would get higher raw scores on K, these items helped separate faking bad cases from those with actual personality difficulties(Dahlstrom & Welsh,1960). The final form of K thus consisted of 30 items found to differentiate clinical patients whose scale scores appeared normal from persons who were actually normal. Its original purpose was to serve as a correction scale or suppressor variable for improving the discrimination yielded on the already existing personality scales, "it was not assumed to be measuring anything which in itself is of psychiatric significance"(Meehl & Hathaway,1946). The relationship between K and personality variables discussed earlier have shown this to be untrue and this study was designed to investigate the relationship between K and ten GZTS scales to determine the extent to which high and low K groups differed along the ten

temperament dimensions.

The reliability of K has been limited to test-retest coefficients since "the construction of K being what it was, odd-even or Kuder-Richardson reliabilities were not computed" (Meehl & Hathaway, 1946). Retest reliabilities on normal and abnormal adults range from the .50's to low .90's (Dahlstrom & Welsh, 1960). The intervals between retests varied from a few days to over a year. The differences between reliabilities of normal and abnormal samples over time is not noticeably different. As is to be expected, higher reliabilities are the result of time interval between administrations. One obvious difficulty of reliability with psychiatric samples is the presumed therapeutic efforts occuring between administrations. Lewinsohn (1965) studied 114 psychiatric patients focusing on personality changes (as measured by MMPI scales) concomitant with changes in the clinical condition of the patients. He sought to identify the dimensions of individual differences on MMPI scales following treatment. Relevant to this study was the significant (.001) mean change in K between the mean Admission raw score and the mean Discharge score. K changed from 14.8 (admission) to 17.7 (discharge). In general the test-retest reliabilities of K are only moderately high at best.

The present form of the GZTS is the result of some twenty years of refinement on three previous inventories. The 300 items are equally divided with 30 items per scale. Item selection was

on the basis of internal consistency or item intercorrelation procedures (Guilford, 1949). This statistical method has the advantage of constructing a scale which is relatively factor pure since it chooses items which best fit together or 'do the same thing.' The scale's homogeneity thus makes understanding and interpretation of item content easier. Unlike the MMPI, the GZTS item is used on only one scale and is scored in only one direction.

The degree of scale intercorrelation determines the extent of scale independence; it is Guilford's (1949) opinion that the GZTS scales' intercorrelations were "gratifyingly low" enough to indicate that each scale represents a different aspect of temperament. In this regard Van Steenberg (Buros, 1949) noted that the intercorrelations are "generally small enough" to allow "us to accept the existence of ten separate dimensions" of personality. The review of Saunders (Buros, 1959) holds that the GZTS can prove useful in personality research but its reliabilities and intercorrelations make questionable its use in individual evaluation.

Earlier studies using the GZTS have provided a basis for the hypotheses in this investigation. Bendig (1960) studied the effect of age differences on the GZTS factor structure with four groups of 100 males. He tentatively identified three major orthogonal factors: Friendliness(Fr.), Social Activity(SA), and Extraversion-Introversion(EI). The study indicated the import-

ance of controlling for age in this study. Age differences were noted on two (SA and EI) of the three factors identified. For the third factor (Fr.) the GZTS scales Objectivity and Friendliness remained relatively constant as age varied while Personal Relations tended to increase with age, reaching a peak with the 30-39 years age group. The Bendig results however show that the broad Fr. factor was quite stable as age varied. The findings are important here in providing evidence that Factor I (Emotionality) appears to be relatively stable as age increases. The Bendig Fr. factor and this study's Factor I had the same three GZTS scales (Objectivity, Friendliness, and Personal Relations). While the last scale of Factor I (Emotional Stability) was not included in Bendig's Fr. grouping, group results indicated that it had no consistent variation with age and Emotional Stability had loadings on all of Bendig's second order factors (Fr., SA, and EI). The common factor variance was consistently greatest with the Fr. factor which supports placing Emotional Stability in Factor I of this study.

The two factors identified by Linden (1962) and used here are similar to those found in similar studies. Factor I (Emotionality) is similar to the description of Mitchell and Pierce-Jones (1960) for their "Adjustment by Social Conformity" factor, and by Kassebaum, Couch, and Slater (1959) for their "Ego Strength versus Ego Weakness" factor. The GZTS Social Drive (Factor II) is likewise similar to the "Social Poise or Extra-

version" factor of Mitchell and Pierce-Jones (1960) and the "Introversion-Exteraversion" factor of Kassebaum, Couch and Slater (1959).

Of particular relevance here are Nichols and Schnell's (1963) results between the California Psychological Inventory and the GZTS. They identified a "Value Orientation" factor having significant correlations with Factor I (Emotional Stability:.44; Objectivity:.70; Friendliness:.58; Personal Relations:.59). Their description of Value Orientation is quite similar to that of the GZTS Factor I (Emotionality). They further identified a "Person Orientation" factor judged as "measuring the familiar Extraversion-Introversion dimension," which is similar to Factor II (Social Drive) in this study. The Person Orientation factor correlated positively with two Factor II scales (Sociability,.59 and Ascendancy,.61) but negatively with Restraint (-.44). A weakness in the study is the relatively small number of subjects used in comparing the two inventories (64 high school counselors), although the CPI factors were based on the scores of 500 undergraduate collegians. Their findings do help to confirm the groupings for Factor I and II in this study as shown by the above correlations. These earlier studies gave evidence that the GZTS grouping used here would provide new evidence to help interpret the relationship between PD and temperament.

This study sought to determine the extent to which the ten GZTS temperament factors were related to the MMPI's K scale.

Since the meaning of high K scores is unclear the homogeneous GZTS scales offered one way of determining which scales were most closely related to K defensiveness. Murray and Galvin (1963) reported the sole correlation between the two inventories and obtained significant correlations between K and the four Factor I scales (Emotional Stability:.45, Objectivity:.51, Friendliness:.42, Personal Relations:.44). Of the four scales grouped under GZTS Factor II, (Social Drive), a significant positive relationship was found between K and Sociability (.27) and a significant negative relationship existed with Thoughtfulness (-.30). These results for 241 collegians suggested that in a psychiatric sample PD might well have a stronger relationship, especially with GZTS Factor I. This expectation concurs with the findings of Hamilton (1968) that extreme responses occur with greater frequency in abnormal subjects, and are related to item content (O'Donovan, 1965), that is, the item's content is a stimulus which is "in some way important or meaningful to the individual."

These studies and the content of Factor I led to the hypothesis here that Factor I scales were more sensitive to the effects of PD since Factor I scales appeared to have a more direct and obvious self orientation. The four Factor II scales appeared to have an outward or external orientation and should therefore be less affected by defensiveness.

The GZTS manual (1949) states that internal or factorial

validity of scores is fairly well assured by its foundation in factor analytic investigations. In addition, this assurance rests on the successive item-analyses which were directed toward achieving internal consistency in the scales and uniqueness of factor purity. Guilford concluded that what each score measures appears to be fairly well defined and represents a confirmed dimension of personality. One notable weakness in the manual is that while noting that evidence of the GZTS's practical validity is extent, few references are cited. In most instances these validities refer to earlier inventories rather than to the GZTS. The extensive changes between the GZTS and its predecessors make questionable applying to the GZTS such validity studies. Guilford states that the evidence obtained by the earlier inventories "can be applied with confidence to the scores on the present Survey" but offers no evidence to support this statement.

The manual also lacks information regarding the effect of such variables as age, sex, education and socio-economic on scores. The Bendig(1960) study makes clear that certain GZTS scales are affected by the age factor. Whether the trait differences reflect age changes or differences in early environmental influences is unclear; what is clear is that group comparisons must control for the age factor.

The reliability of the GZTS scales in the manual indicate that they are reliable for personality research but only the

Guilford sample is reported. It would have been most helpful if more information on different samples had been included, especially test retest reliabilities. Jackson (1961) apparently has the only study on GZTS test retest reliability. His two administrations were given 18 months apart and results were that the GZTS scales are generally stable in what they measure; Jackson's split half coefficients were approximately of the same magnitude as the Guilford sample. Jackson felt that the GZTS measures relatively permanent traits but this must be qualified by noting that his original sample of 96 had dropped to 49 by the second administration. In most instances where the GZTS has been used, the scale reliability, both split half and test retest, has apparently been taken for granted. This study provided new evidence relating to the split half reliability of the ten temperament scales as well as their intercorrelations.

Chapter 3

Procedure

Subjects

The subjects were 126 males recently admitted to a psychiatric ward for hospitalization by the Veterans Administration. Patients over 65 years were excluded as well as those having an MMPI F score of more than twenty raw points. Excluded also were patients whose primary diagnosis was brain damage. Where there was reason to suspect brain damage the medical records were examined for evidence since patients are typically sent for a complete neurological examination and EEG study. The decision of the neurologist in his report was used to determine the presence of brain damage. Subjects had a minimum of eight years of formal education although Dahlstrom and Welsh (1960) indicate that a "sixth-grade education is sufficient" to read and understand MMPI items.

Once admitted for hospitalization, each patient was administered the MMPI and GZTS respectively. The booklet form of the MMPI was used because of ease in administration and to familiarize subjects with IBM answer sheets. The subjects were tested individually in a private room and no time limit was imposed on either inventory. A subject was excluded if he left thirty or more MMPI statements unanswered; he was also excluded if he omitted more than one item per scale on the GZTS.

Design

A score on the K scale of 12 or less placed a subject in a group referred to as the Low defensives, while a score of 13 or more constituted a group called High defensives. Each group was equated on the basis of sex, age, formal education and interval between MMPI and GZTS administrations.

MMPI Data

Means and standard deviations for all MMPI scales were computed for the total sample. Separate means and standard deviations and *t* ratios were computed for the High and Low groups. For the total sample only the correlations between the GZTS and MMPI were reported.

GZTS Data

For the total sample, means and standard deviations and intercorrelations of ten temperament and three validity scales were computed. Three separate reliability estimates and the standard error of measurement for the ten scales were made. Reliability of scales was further analyzed by comparing the correlation of the total score with each half score to see if each half contributed equally to the total obtained score..

The intercorrelations between the ten temperament scales was computed to establish their independence. The intercorrelations were necessary to estimate multiple coefficients(R) between K and the GZTS Emotionality & Social Drive factors.

The multiple correlation was used to assess how much common and specific K variance could be related to the various scales contained in the two general GZTS second-order factors.

For the High and Low group comparisons, means, standard deviations, standard errors of means, standard errors of obtained scores, standard errors of differences between means and *t* ratios were computed.

Chapter 4

Results

There were no significant differences between the High and Low defensive groups with respect to their age, education, intelligence, and interval between inventory administrations. Table 1 presents data referring to these variables. Various measures of intelligence were available for 26% of the Highs and 24% of the Lows. Only recent test results from the WAIS and full form of the Quick Test were used. When the intelligence estimate is coupled with the educational level a presumption was made that the two groups were approximately equal in intellectual functioning. On the basis of the data in Table 1, it was concluded that both groups were properly equated on the variables indicated.

Table 2 and Figure 1 present information relating the extent wherein High and Low groups were found similar on the MMPI scales. Table 2 results indicated that significant differences existed on both the validity indicators L and F and on eight of the ten clinical scales, all differences except for the .05 on Mf were beyond .01. Significant differences did not exist on the Hysteria and Psychopathic Deviate scales. The t ratio for the K scale was omitted since it was used to divide the sample and thus introduced an artificial and invalid t value. The higher Lie score of the High defensives confirms the

Table 1

Frequency, Means, Standard Deviations, and *t* ratios for Variables Equating High and Low Defensives

Variable	N		Mean		S.D.		
	High	Low	High	Low	High	Low	*t*
Age	58	68	40.0	39.8	9.11	6.73	.20
Educ. (yrs.)	58	68	11.9	11.4	2.53	2.90	.90
I.Q.	15	15	103.0	102.5	9.88	9.58	.13
Time Interval*	41	51	2.9	3.8	3.10	3.22	.13

* Refers to the number of days intervening between MMPI and GZTS administrations.

TABLE 2

Total and Group MMPI values for 126 High and Low Defensive subjects.

MMPI	Total Mean	Total S.D.	High Def. Mean	High Def. S.D.	Low Def. Mean	Low Def. S.D.	t
L	3.5	2.17	4.4	2.33	2.8	1.73	4.34**
F	9.7	5.00	7.0	3.65	11.9	4.91	6.26**
K	12.1	4.66	16.3	2.89	8.5	2.10	----
Hs	17.6	6.30	16.0	4.84	19.0	7.07	2.67**
D	28.7	7.40	26.6	7.20	30.5	7.15	3.02**
Hy	25.9	6.90	25.3	6.58	26.4	7.18	0.80
Pd	28.0	5.33	27.8	5.25	28.2	5.43	0.35
Mf	26.7	4.73	25.7	4.91	27.6	4.4.	2.29*
Pa	13.0	4.57	11.3	4.03	14.5	4.50	4.22**
Pt	34.1	8.38	32.0	7.55	35.9	8.67	2.69**
Sc	34.3	10.28	30.5	8.08	37.6	10.88	4.08**
Ma	22.4	5.74	20.8	4.50	23.8	6.35	3.02**
Si	32.7	10.94	27.1	9.83	37.4	9.55	5.98**

* $p < .05$

** $p < .01$

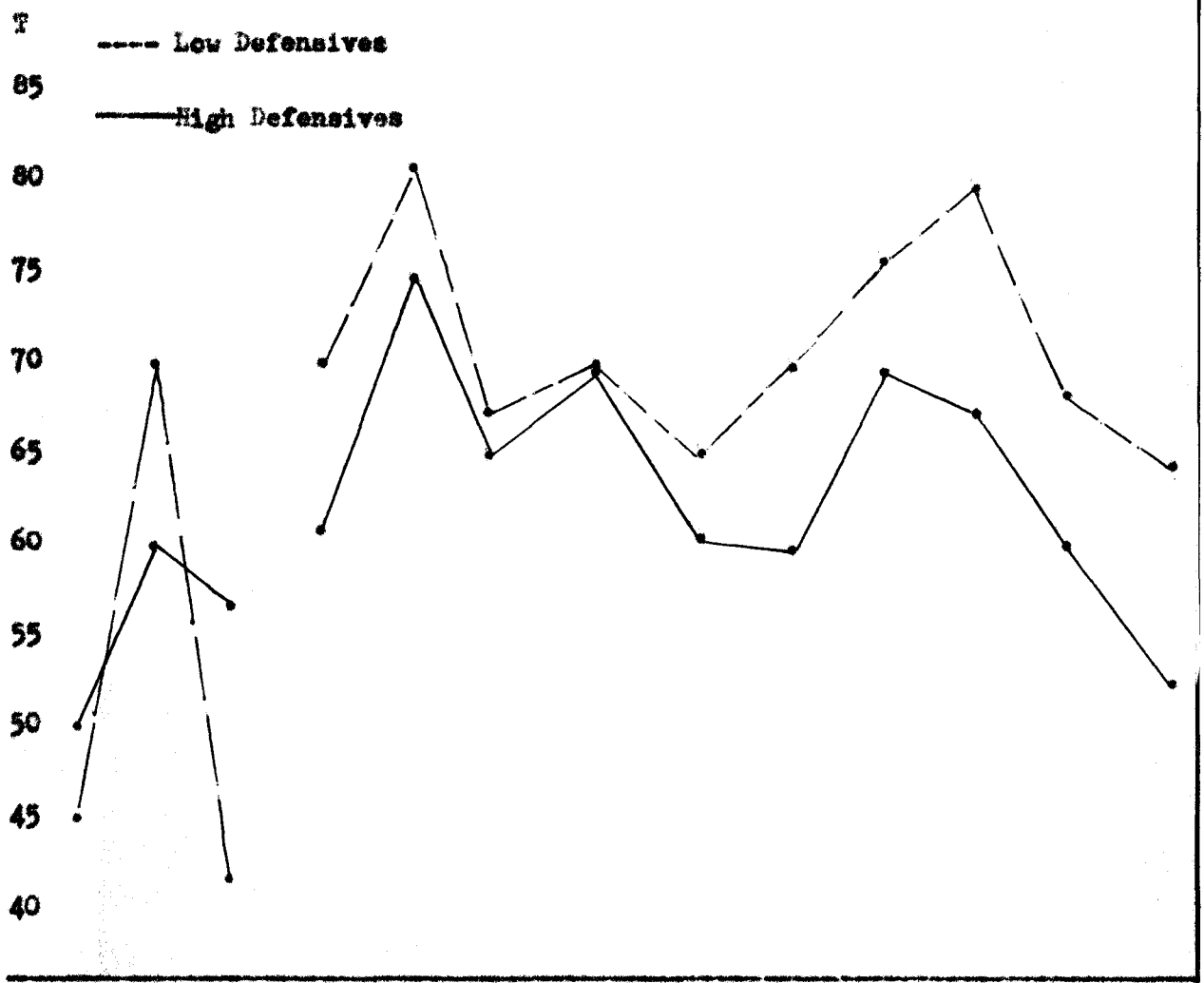

Fig.1. Mean profile for High and Low defensives.

the differences on K, since a high raw score on L indicates that subjects were attempting to falsify their scores by always choosing the response that placed them in the most favourable light. A high L and K score accompany a low F score in most cases since low F indicates that a subject's responses were rational and relatively pertinent. A high F score indicates that subjects may have been careless or unable to comprehend the items, or because extensive scoring or recording errors were made. The latter case does not apply here since each record was checked twice to avoid both scoring and recording mistakes. Moreover, a control was used in this study by eliminating records with an F score of over 20 raw points to insure that MMPI records would be more valid. Dahlstrom and Welsh (1960) indicated that concern for the F score should exist only when records having a raw score of 17 or more exist. The mean value for the Low defensive group is 11.9 and therefore it appears reasonable to assume that the Low group F mean is within acceptable limits.

The significant differences on eight of the ten clinical scales indicated that the Low defensive group had a greater degree of pathology. It must be remembered however that the two groups were determined by their tendency to either conceal or exhibit pathology. While the actual degree of pathology may be reflected by the MMPI scores there are other possible explanations. One possibility is that if both groups were equal

in degree of pathology, then the K correction is not as effective a suppressor variable as it might be and perhaps greater weights should be given to the K correction factor. A second possibility is that it is easier to simulate abnormality than normality on the MMPI (Grayson & Olinger, 1957; Heilbrun, 1964). In other words, subjects desiring to look bad on the MMPI are able to do a better job of it than subjects trying to conceal pathology. Nevertheless, on the basis of the MMPI results there exists a greater degree of pathology in the Low defensive group.

Figure 1 indicates the mean profiles for the High and Low defensive groups on the MMPI scales. Divergence between the shape of the profiles occurs on the Paranoia (Pa) and Schizophrenia (Sc) scales; the overall pattern of the profiles is however similar and groups were judged similar in this respect.

Table 3 presents the correlations between the thirteen MMPI scales and the thirteen GZTS scales. With a sample size of 126 subjects, an obtained correlation of .17 is significant at the .05 level and a coefficient of .23 represents significance at the .01 level. Significant positive relationships were found to exist between the MMPI's K scale and the Emotionality (Factor I) factor of the GZTS on all four scales (Emotional Stability, Objectivity, Friendliness, and Personal Relations). Since the intention of this study was to confine itself to psychological defensiveness as represented by the MMPI's K scale, remarks were limited to correlations bearing on this point. The results

Table 3

Correlations for 126 male psychiatric subjects on the MMPI and GZTS

MMPI	G	R	A	S	E	O	F	T	P	M	GF	SF	CD
L	08	15	01	08	36	29	21	-16	15	12	36	24	-13
F	-13	-20	-14	-37	-50	-56	-31	03	-40	-15	-31	-30	51
K	01	18	16	40	60	63	56	-32	56	25	67	38	-48
Hs	-11	-05	-07	-13	-35	-30	-13	02	-07	-20	-12	-15	38
D	-41	02	-42	-49	-58	-34	06	-19	00	-17	-22	-42	49
Hy	-17	08	-09	-06	-24	-12	10	-06	11	-14	04	-03	22
Pd	02	-18	-07	00	-18	-19	-40	-14	-09	-12	05	01	20
Mf	-18	00	-09	-25	-36	-29	-13	10	-08	-27	-26	-28	24
Pa	-18	-02	-12	-18	-36	-46	-07	06	-11	-34	-12	-12	42
Pt	-31	-10	-35	-39	-48	-36	06	-13	00	-25	-14	-36	40
Sc	-27	-20	-24	-38	-51	-52	-16	03	-23	-30	-24	-37	49
Ma	16	-23	30	10	-14	-36	-50	23	-41	-22	-27	05	25
Si	-35	-09	-66	-78	-55	-44	-02	-14	-12	-12	-38	-60	46

in Table 3 show that a significant relationship exists between K and three of the four GZTS scales of Factor II (Social Drive); a significant positive relationship existed between K and GZTS scales Restraint and Sociability but not on Ascendancy. The last Factor II scale, Thoughtfulness, had a significant negative relationship to K. Hypothesis II in this study was that defensiveness, as measured by the MMPI's K score, would be positively correlated with GZTS Factor I and II, with Factor I showing a stronger relationship. The results substantiate completely the positive relationship with Factor I and two of the three positive relationships with Factor II are significant, but the relationship between K and Thoughtfulness is not positive but significantly negative. The results also show that the relationship between K and Factor I is the stronger in the sense that twice as many GZTS scales were significant as between K and Factor II.

The correlation between K and Factor I (E,O,F,P) is confirmed by the coefficients between the MMPI's L and the GZTS scales Emotional Stability, Objectivity and Friendliness, all of which reach significance except Personal Relations which did not. The correlations between L and the four Factor II scales (Restraint, Ascendancy, Sociability and Thoughtfulness) did not reach significance.

On the basis of the results in Table 3 it was concluded that PD as measured by the MMPI's K scale was more closely

and clearly related to temperament traits involving variables connected with emotions and feelings than variables more external and social in nature. The orientation and focus of PD was more inward than outward and concern for self precedes concern for things external to the self.

The results reported by Murray and Galvin (1963) between the MMPI and GZTS with collegians are similar to this study, especially between K and Factor I. To determine if this sample's relationship (K and Factor I) was stronger than Murray and Galvin's sample the differences between the respective Factor I scales were computed. The critical ratio of 2.04 indicated that the relationship found in this study was significantly greater. This supports the contention that the degree of defensiveness in psychiatric patients may be stronger than in normals. Such evidence supports the notion that there is a greater degree of defensiveness where there is a greater degree of pathology.

Since the GZTS manual (1949) reported results only for the original sample, this study investigated scale reliability. Each GZTS total score had half scores established by dividing the 30 items equally. The manual notes that each half score may be compared to determine the extent to which a subject is self consistent. The reliability coefficient indicates how much difference can be tolerated, by determining the standard error of the obtained score. A difference twice as large as the standard error gives cause for concern and if the difference exceeds twice

Table 4

Three Estimates of Split-Half Reliability for Ten GZTS Scales

GZTS	S-B	Guttman	K-R	S.E.$_{meas.}$*
General Activity	.84	.84	.84	2.5
Restraint	.67	.64	.64	2.6
Ascendancy	.86	.86	.84	2.4
Sociability	.92	.86	.88	2.5
Emotional Stability	.88	.88	.87	2.4
Objectivity	.80	.79	.81	2.7
Friendliness	.86	.85	.84	2.4
Thoughtfulness	.66	.66	.55	2.2
Personal Relations	.84	.84	.84	2.5
Masculinity	.69	.69	.66	2.5

* S.E. meas. was computed using Guttman's values.

the standard error, the total score is questionable.

Table 4 presents three different reliability estimates for the ten GZTS scales. The Guttman values were used to compute the standard error since they do not require the assumption of equal variances for the half scores (Helmstadter, 1964). The values obtained here agree quite closely with Guilford, the largest difference being .40 for Restraint. The Kuder-Richardson reliabilities in this sample and those of Guilford (in parentheses) when grouped by Factor I and II were:

I		II	
Emotional Stability	.87(.84)	Restraint	.64(.80)
Objectivity	.81(.75)	Ascendancy	.84(.82)
Friendliness	.84(.75)	Sociability	.88(.87)
Personal Relations	.84(.80)	Thoughtfulness	.55(.80)

The reliabilities on Factor I in this sample exceeded those reported by Guilford while the reverse was true of Factor II. It was Saunder's opinion (Buros, 1959) that for individual evaluation purposes reliabilities of .8 are the minimum, while for research purposes .5 can be used since there is hope of improving the coefficient by lengthening or purifying scales. Guilford (1946) felt that scales with reliabilities "as low as .35 have been found useful when utilized in batteries."

One possible explanation for the differences in reliability on scale Thoughtfulness may be that the K-R formula is considered to "underestimate" actual reliability when the scale measures

a trait assumed to be simple but which is actually complex in nature (Guilford, 1965; Helmstadter, 1964). In relation to the other temperament scales, the variability of the Thoughtfulness scale was noticeably less. Gulliksen (1950, p.114) has stated "that an increase in observed standard deviation will have the effect of increasing reliability, if it is due to an increase in true variability, and will have the effect of decreasing the reliability if it is due to an increase in error variability." There is no obvious reason to believe that error variance was the cause in this case in view of the controls exercised over both testing methods and conditions. The most reasonable explanation seems to be that the restriction of range lowered the reliability coefficient. To reach the Guilford reliability value, true variance here would have had to be increased by approximately two-thirds.

Table 5 shows correlations between first half (A) and second half (B) scores of GZTS scales as well as that between each half and the total score. Notably low are the coefficients between the halves of Thoughtfulness (T) as well as the ones for Restraint (R) and Masculinity (M).

Table 6 shows the intercorrelations between the ten GZTS scales for the total sample. Its purpose was to show the degree of independence between scales as well as offering a comparison with those reported by Guilford (1949). In comparing the direction of these 45 coefficients with Guilford

Table 5

Correlations Between Halves and Total Scores on Ten GZTS Temperament Scales

Scales	A vs. B	A vs. Total	B vs. Total
General Activity	.73	.93	.92
Restraint	.50	.88	.86
Ascendancy	.76	.94	.93
Sociability	.84	.96	.96
Emotional Stability	.79	.95	.94
Objectivity	.66	.92	.90
Friendliness	.75	.94	.92
Thoughtfulness	.50	.88	.84
Personal Relations	.73	.94	.92
Masculinity	.53	.86	.88

Table 6

Intercorrelations of Total Scores

Between 10 GZTS Factors

	G	R	A	S	E	O	F	T	P	M
G	--	-22	52	43	27	10	-30	19	-21	15
R		--	-11	-03	22	23	32	24	26	04
A			--	67	37	27	-32	20	-17	14
S				--	60	42	08	09	08	11
E					--	66	28	-05	37	19
O						--	50	-27	57	37
F							--	-42	65	23
T								--	-28	-25
P									--	16
M										--

only three showed a change in direction, the only notable one was the -.28 between Personal Relations and Thoughtfulness whereas Guilford reported the coefficient as .22. There was also a close similarity between the two samples in regard to the magnitude of the correlations. In both samples this was especially true of Factor I (Emotionality) scales Emotional Stability and Objectivity (.69 in Guilford) and Factor II (Social Drive) scales Sociability and Ascendancy (.61 in Guilford). The intercorrelations for the four Factor I scales (Emotional Stability, Objectivity, Friendliness, and Personal Relations) are higher than the four Factor II scales (Restraint, Ascendancy, Sociability, and Thoughtfulness). In this study, like Guilford's, no coefficient accounts for more than half of the other's variance. It must be noted however, that the scales in Factor I do correlate to a significant degree and the matter of their independence can legitimately be questioned. The magnitude of the Factor I coefficients tends to deny Guilford's claim that each scale represents a "unique" and "different" aspect of temperament.

A complete report of the intercorrelations between half and total scores has been placed in Appendix A. They allow a judgment to be made as to the extent to which each half of the scale contributes to the total score. For example, the discrepancy between scales Thoughtfulness and Personal Relations in Guilford's sample (.22) and here (-.28) is mainly due to the

the first half of Thoughtfulness and the second half of Personal Relations as well as each scales second half since the first halves correlate in a positive direction.

On the basis of this sample's intercorrelations the GZTS scales showed enough independence to be useful in personality research although the Factor I scale intercorrelations are questionably high. In no instance did any intercorrelation exceed Guilford's highest value. The negative values in Table 6 are the result of differences in scoring procedures, a high MMPI score is an unfavourable sign while a high GZTS score is in a favourable direction. All correlations were Pearsonian values and decimal points were omitted from some tables. A complete set of means and standard deviations for both halves and total GZTS scales was placed in Appendix B.

High versus Low Groups on the GZTS scales

Table 7 presents the results of the comparisons made between the High and Low defensives on the ten GZTS scales. Hypothesis I was that the High group would score higher (i.e. in a favourable direction) than the Low group on the ten scales. Significant differences in the predicted direction were found on six (Sociability, Emotional Stability, Objectivity, Friendliness, Personal Relations, Masculinity) scales, differences failed to appear on three scales (General Activity, Restraint, Ascendancy) although scoring was in the predicted direction. The difference on Thoughtfulness, while significant at .05, was

Table 7

Means, Standard Deviations, and t ratios on 10 GZTS Scales for High and Low Groups

GZTS	High Def. Mean	High Def. S.D.	Low Def. Mean	Low Def. S.D.	t
General Activity	17.6	6.96	17.0	5.72	0.54
Restraint	17.8	4.19	17.0	4.52	0.98
Ascendancy	15.0	6.48	13.5	6.08	1.37
Sociability	18.5	6.29	13.9	6.87	3.91**
Emotional Stability	17.1	6.37	10.3	5.73	6.33**
Objectivity	17.0	5.19	11.4	5.29	6.00**
Friendliness	16.9	5.38	11.9	6.02	4.89**
Thoughtfulness	17.8	3.94	19.8	3.54	3.02**
Personal Relations	20.4	5.52	15.3	5.96	5.00**
Masculinity	18.5	4.55	16.9	4.35	2.00*

* $p < .05$

** $p < .01$

in the wrong direction. The Thoughtfulness scale was previously called "Thinking Introversion" in an earlier inventory and high scores mean a tendency to be reflective, more interested in thinking than overt activity, philosophically inclined and self observant. There is some confirmation for this self view in the significant differences on Sociability (S) which was formerly called "Social Extraversion". The high S scorer is described as having many friends and acquaintances and a liking for social contacts and activities and a desire to converse with others and seek the limelight. It should be noted that the correlation between Thoughtfulness and Sociability here (.09) and in Guilford (.04) do not indicate that a common element exists.

In summary, evidence was found to support Hypothesis I on six scales, three scales were not significant and one was significant but in a direction opposite to the predicted one. The exact reason why General Activity and two Factor II scales (Restraint and Ascendancy) failed to reach significance is unclear. One possible explanation may be that the content in these scales is relatively neutral, that is, the content does not have a strong enough stimulus value to warrant an attempt to distort it. It should be noted that it was hypothesized that Factor I (Emotionality) would show a stronger relationship to K defensiveness than Factor II (Social Drive) since the former's content was considered more sensitive to

defensiveness being more inward or ego oriented than the latter factor. Results showed that four Factor I GZTS scales were significant while two of the four Factor II scales were significant.

The GZTS scales were used partially because of high homogeneity of content which aids in clarifying the meaning of PD. Various multiple correlations (R) between the MMPI's K scale and the GZTS scales were computed to determine which combination best accounted for K variance. The multiple correlation between K and Factor I scales (E,O,F,P) was R = .75, thus approximately 56% (i.e. R^2) of K variance was accounted for by the four scales. In terms of the individual contributions, the amounts were 21% for Emotional Stability, 10% for Objectivity, 15% for Friendliness and 9% for Personal Relations. All betas were positive.

In order to further clarify the contributions of individual scales to K variance, both the direct and indirect contributions were estimated. Direct contributions of the criterion (i.e. K) variance accounted for were 13% by Emotional Stability, 3% by Objectivity, 8% by Friendliness, and 2% by Personal Relations. In subtracting the latter percentages from the former ones, the indirect contributions were 8% for Emotional Stability, 7% for Objectivity, 7% for Friendliness, and 6% for Personal Relations. The standard error of the estimate for the obtained multiple R was 3.10, indicating that two thirds of the obtained K values lie within 3 points of the predicted K values.

The regression equation computed to predict K scores from the Factor I scales was 2.07 + .24 Emotionality + .13 Objectivity + .21 Friendliness + .12 Personal Relations. Following Guilford's (1965) suggestion, the Index of Forecasting Efficiency was computed and results show that predictions from the regression equation were 33% better than one made from the mean value of the K scale obtained in this sample.

Since the multiple R capitalizes upon chance deviations, it was deflated to obtain a less biased estimate of the R existing in the actual population. The shrinkage was negligible, from .75 to .74, the standard error of R had a value of .04. For this sample's size, the value of R is significant when R is .27 at the .05 level, and .32 at the .01 level. On the basis of the obtained R of .75 there is no reason to doubt that a genuine multiple correlation exists in the population at large.

The correlations between K and the remaining GZTS scales were examined, as well as the GZTS intercorrelations, to determine which combination of GZTS scales would most effectively and efficiently predict the criterion scores. Of the various combinations computed, Emotional Stability and Friendliness proved to best meet this two fold criteria. The multiple correlation for Emotional Stability and Friendliness was .72, thus 52% of K variance was accounted for by these two scales. Both betas were positive and the direct and indirect contributions

totaled 29% for Emotional Stability and 23% for Friendliness. The direct contribution of Emotional Stability was 23% (thus 6% was indirect) and the direct Friendliness contribution was 18% (thus 6% was indirect). The prediction equation for these two scales was 3.25 + .33 E + .32 F. The Index of Forecasting Efficiency was a 31% improvement. Comparison between the effectiveness and efficiency of the two regression equations indicated that the latter grouping would be best since nothing was gained by the addition of two more Factor I scales.

Table 8 shows results on comparisons between the High and Low defensive groups on the three validity indices of the GZTS. The third hypothesis stated that the High group would be significantly higher on both the Gross and Subtle Falsification scales than the Low defensive group. Significant differences were found on the Gross and Subtle Falsification scales at the .01 level and in the predicted direction. The Careless-Deviancy scale also showed a significant difference at the .05 level. Since the variability between the two groups on the Gross Falsification scale appeared notable, a critical ratio was computed and the value (4.22) indicated that the difference in variability was significant at .01. This would indicate that the High defensive group was more heterogeneous on the Gross Falsification scale than the Low defensive group.

Table 8

Means, Standard Deviations, and *t* ratios for High & Low Groups on 3 GZTS Validity Indices

GZTS	Mean		S.D.		*t*
	High	Low	High	Low	
Gross Falsification	11.8	7.5	5.01	2.79	6.18**
Subtle Falsification	22.9	20.1	5.48	4.08	3.31**
Careless-Deviancy	3.0	5.0	2.14	2.70	2.16*

* $p < .05$

** $p < .01$

The correlations between K and the GZTS validity scales (Table 3) indicated a significant relationship existed between the scales, that between K and the two falsification scales (GF and SF) being positive while that between K and the Careless-Deviancy (CD) while significant was in a negative direction. The greater relationship was between K and Gross Falsification. This is accounted for by the fact that approximately 63% of the GF items are found in the scales constituting Factor I (Emotional Stability, Objectivity, Friendliness, Personal Relations), whereas the Factor II scales (Restraint, Ascendancy, Sociability, Thoughtfulness) represent 33% of the items in GF (the remaining 4% are from General Activity and Masculinity). It was noted earlier that the scales in Factor I were all significantly related to K while only two of the four in Factor II were significant.

The Subtle Falsification (SF) scale contains 29% of Factor I items and 41% of Factor II items. The correlation of SF with K was significant as well as the *t* ratio between High and Low groups, the latter being smaller than between K and GF.

The results shown in Tables 3 and 8 support the third and fourth hypotheses in this study. The results indicated that differences are to be explained on the basis of item content and not content independent variables.

If responses to GZTS scales were a tendency to choose a particular response option (i.e. T or F) independently of item content, then the High defensive group would be expected to

score higher on the Gross Falsification scale and lower on the Subtle Falsification scale. A high K score is the result of choosing the 'false' answer and all 30 K items are keyed false. While the Gross Falsification scale has 17 (70%) items keyed in a false (i.e. favourable) direction, only 16 (40%) of the Subtle Falsification scale items are in the false (favourable) direction. Thus if content is irrelevant the High K (i.e. false markers) should outscore the Low K (true markers) on GF but not SF and results show this was not the case.

Additional evidence for the importance of content was found on the temperament scales. The Sociability and Personal Relations scales each have 15 items keyed 'yes' and 15 'no'. On the assumption that content is unimportant and only response 'styles' operate, no differences should appear on these two scales between High and Low groups. The tendency of the Highs to choose 'false' options should negate that of the Lows to choose 'true' options. Table 7 results indicated that both Sociability and Personal Relations were significant (.01) in degree and in the predicted direction.

The Careless-Deviancy (CD) scale is about evenly divided with 8 (57%) items keyed false and 6 (43%) keyed true. A high score on CD is an unfavourable sign. Results show that the High K group was significantly lower than the Low K group which means the groups went contrary to the tendency assumed to exist on K items. The prediction on CD would have been to

expect no difference on the basis of an even distribution of T and F answers.

The GF and SF scales of the GZTS were constructed to detect attempts to present a favourable self image. The Gross Falsification scale was composed of items easier to fake in the desired direction than the Subtle scale items. The GF and SF scales were effective in separating the High and Low groups in the anticipated direction. The Careless-Deviancy scale was designed to indicate the extent to which carelessness or random marking may have occurred on the GZTS scales. The difference in this sample (.05) was significant in favour of the High K group. This is interpreted as negative evidence to the content relevant hypothesis in this study. It would have been better if the two groups did not separate on this scale thereby indicating that random or careless marking did not occur. A possible alternate interpretation may be found in the significantly high correlation between Careless-Deviancy and the MMPI's F scale, .51. Both scales were constructed on the same basis, i.e. items were chosen on the basis that 90% of the normal population choose a certain response option (the non keyed option). The Low defensive group placed their answers with the 10% group significantly more often than the High group, the latter choosing again the favourable direction. If it is recalled that the Low K group represents attempts to look bad, then these CD results appear logical. One positive aspect to the GZTS validity scales

is that the level of significance on CD was .05 while that of the two falsification scales (GF and SF) was at the .01 level.

Chapter 5

Discussion

The results of this study indicated that the tendency to give either a favourable or unfavourable self description on personality inventories is stable and constant. Subjects unwilling to admit to failures and shortcomings and those who exaggerate their faults are alike in presenting a constant picture of themselves but different in the way they defend themselves. Psychological defensiveness is a variable that is both stable and a phenomenon that reacts to item content. Since it is not a momentary reaction to situational variables it is predictible. Defensiveness is better viewed as a personality characteristic to be measured rather than a source of error to be eliminated from inventory scores.

The relative importance of content relevant versus content independent variables has been argued pro and con in the past dozen years. The results of this study indicated that defensiveness was not only stable in direction but the result of a selective process, the selection being determined by item content. It was shown that content which relates to oneself is more important than content which is oriented to matters external to the self. The results confirm the generally held opinion that defense mechanisms are 'in the service of the ego.' The defensive patient, whether a self enhancer or a

self-debaser, tends to focus on himself and his internal states and is less concerned with his environment.

The tendency to affirm or deny appears strongest when questions relate to mood fluctuations, feelings such as egoism, anger, hostility, self pity, suspiciousness and the like are asked. Less concern is attached to questions about one's pace of activities, work efficiency, love of excitement, and leadership qualities. When less distant relationships with the environment are involved the degree of defensiveness increases, such as the number and type of friends, how ill at ease does one feel in social gatherings, how satisfying are mutual relationships.

The results indicated that the relationship between defensiveness and temperament traits is similar in normals and psychiatric patients. The relationship between PD and the general Emotionality(Factor I) factor was significantly stronger in patients however and this was interpreted as indicating that defensiveness was stronger when the threat to self integrity was greater.

The study of the reliability and independence of the GZTS scales led to the conclusion that the respective values were similar to the original sample of Guilford. There is however some question about using the GZTS for individual evaluation although the reliabilities and intercorrelations offer promise for personality research purposes. The fact

that ten of the 13 GZTS scales had significant differences between the High and Low groups supports its use for research.

It would be interesting to duplicate this study in order to substantiate its conclusions. One unfortunate omission was the failure to correlate the High MMPI scores with the High GZTS scores(the same with the Lows). An examination of the individual group relationships would have clarified the relative contribution of each group to the significant differences obtained. It is possible that one group may have contributed relatively more to these GZTS differences and results would have had relevance to other studies indicating that it is easier to simulate abnormality than normality on personality inventories.

A second unanswered question relates to which of the items on a scale contributed to the differences observed. It is clear that certain items could be eliminated from the scales which would both reduce their length and improve their ability to discriminate.

A further important suggestion would be to investigate the test-retest reliability of the GZTS, an area about which there is almost a complete lack of information regardless of the population. The GZTS is based on Guilford's trait theory of temperament and a trait is, by definition, something that is assumed to be relatively stable. The absence of more information on the stability of the GZTS over time makes the

results of this study tenuous.

The results obtained here show that the GZTS scales are not pure measures of their trait names. There are quite a few substantial intercorrelations among the scales, especially those grouped under Factor I and to a lesser extent those of Factor II. Nevertheless, among some of the scales there appears to be a quite satisfactory degree of scale independence and support for the belief that those scales are tapping a unique and different aspect of one's temperament.

Appendix A

GZTS Intercorrelations of First Half Scores with First Half Scores for 126 Subjects

	G1	R1	A1	S1	E1	O1	F1	T1	P1	M1
G1	--	-10	45	49	29	16	-24	14	-14	21
R1		--	-06	01	32	22	27	24	29	03
A1			--	60	29	23	-26	11	-14	16
S1				--	51	33	00	13	-02	12
E1					--	54	25	04	32	15
O1						--	44	-14	53	26
F1							--	-32	55	11
T1								--	16	-10
P1									--	05
M1										--

Appendix A

GZTS Intercorrelations of Second Half Scores with Second Half Scores for 126 Subjects

	G2	R2	A2	S2	E2	O2	F2	T2	P2	M2
G2	--	-23	44	30	17	01	-28	21	-23	-02
R2		--	-13	-06	05	12	26	14	16	06
A2			--	59	36	18	-32	20	-18	07
S2				--	57	40	15	06	14	09
E2					--	60	20	-11	27	19
O2						--	40	-32	46	28
F2							--	-30	59	26
T2								--	-29	-22
P2									--	21
M2										--

Appendix A

GZTS Intercorrelations of First Half Scores with Second Half Scores for 126 Subjects

	G2	R2	A2	S2	E2	O2	F2	T2	P2	M2
G1	--	-29	54	46	38	20	-18	10	-16	17
R1	-09	--	-07	-02	30	24	19	11	30	06
A1	34	-12	--	54	37	28	-27	07	-13	08
S1	31	-07	67	--	51	31	01	12	02	00
E1	13	06	28	57	--	61	28	-15	36	13
O1	-03	16	22	44	56	--	41	-31	55	30
F1	-31	34	-29	12	24	44	--	-38	58	27
T1	20	17	25	-01	03	-12	-34	--	-14	-26
P1	-20	12	-13	-02	34	39	55	-31	--	12
M1	13	-02	14	12	16	32	11	-16	16	--

Appendix B

Means and Standard Deviations of Halves and Total Scores on 10 GZTS Scales for 126 Psychiatric Subjects

GZTS	Part	Mean	S.D.
General Activity	A	8.8	3.32
	B	8.4	3.46
	Total	17.3	6.33
Restraint	A	8.3	2.65
	B	9.0	2.44
	Total	17.4	4.37
Ascendancy	A	6.8	3.51
	B	7.4	3.20
	Total	14.2	6.30
Sociability	A	8.4	3.66
	B	7.6	3.60
	Total	16.0	6.98
Emotional Stability	A	6.7	3.84
	B	6.7	3.47
	Total	13.4	6.91
Objectivity	A	7.5	3.50
	B	6.5	3.01
	Total	14.0	5.93
Friendliness	A	7.3	3.56
	B	6.9	3.11
	Total	14.2	6.24
Thoughtfulness	A	9.2	2.38
	B	9.7	2.07
	Total	18.9	3.85
Personal Relations	A	8.9	3.51
	B	8.7	3.24
	Total	17.6	6.29
Masculinity	A	9.0	2.49
	B	8.7	2.66
	Total	17.7	4.50

Appendix C

Key of Abbreviations

MMPI Scales

L (The Lie Score)

F (An Unnamed Validity Score)

K (An Unnamed Suppresser Variable)

Hs (The Hypochondriasis Scale)

D (The Depression Scale)

Hy (The Hysteria Scale)

Pd (The Psychopathic Deviate Scale)

Mf (The Masculinity-Feminity Interest Scale)

Pa (The Paranoia Scale)

Pt (The Psychasthenia Scale)

Sc (The Schizophrenia Scale)

Ma (The Hypomania Scale)

Si (The Social Introversion Scale)

GZTS Scales

G (The General Activity Scale)

R (The Restraint Scale)

A (The Ascendancy Scale)

S (The Sociability Scale)

E (The Emotional Stability Scale)

O (The Objectivity Scale)

F (The Friendliness Scale)

T (The Thoughtfulness Scale)

P (The Personal Relations Scale)

M (The Masculinity Scale)

GF (The Gross Falsification Scale)

SF (The Subtle Falsification Scale)

CD (The Careless-Deviancy Scale)

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APPROVAL SHEET

The dissertation submitted by James B. Harney has been read and approved by members of the Department of Psychology.

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

September 9, 1969
Date

Frank J. Kobler
Signature of Advisor