A Comparison of the Intellectually Gifted, Average, and Below Average High School Subjects on the Guilford-Zimmerman Temperament Survey

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A COMPARISON OF THE INTELLECTUALLY GIFTED, AVERAGE, AND BELOW AVERAGE HIGH SCHOOL SUBJECTS ON THE GUILFORD-ZIMMERMAN TEMPERAMENT SURVEY

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The purpose of the study was to investigate the relationship between intellectual ability of 276 high school students and personality as measured by the Guilford-Zimmerman Temperament Survey (GZTS) factors. The 10 GZTS traits utilized were: General Activity, Restraint, Ascendance, Sociability, Emotional Stability, Objectivity, Friendliness, Thoughtfulness, Personal Relations, and Masculinity. The study was designed to test for the relationship between three IQ groups (high, middle, and low) and each of 10 GZTS personality factors. A multiple groups design was used, in which the three groups of subjects were blocked across intelligence. Ten one-way analyses of variance were performed to determine if significant differences between the IQ groups existed on the 10 GZTS factors. None of the analyses yielded significant findings. That is, no significant differences in personality across IQ groups were obtained. Seven non-significant trends between intelligence level and specific personality factors are presented and discussed.
Chapter I
Introduction

In order that he might function, man is self-centered. He does not live unless he eats, drinks, and breathes. In his earliest form, he did not live unless he could protect himself and had enough ability to find food and water. He had to and still has to be self-aware, for his awareness and self-concern tell him when he should seek food, drink, or sleep. If man were not self-centered, he could not survive.

These very basic self-concerns have led man to question his needs, and through his reasoning to evaluate himself. Through the eons man has progressed from merely evaluating how he must find water for himself to existential questioning of his own value. Man, then, from whatever eon, of whatever intelligence, is a self-evaluating being.

"Man is a social creature [Bertrand, 1967, p. 6]." He seeks out the companionship of other men—men who like himself are self-evaluating, self-aware beings. Early man began being "other-aware" when he had to battle humans for food and protection, and later when he became socialized, living and eating together.
with others. He learned to evaluate his peers—who was the strongest, the best hunter, the best food preparer. Man then moved to more sophisticated methods of "other-evaluation." He found it necessary to establish governments, laws, religion, and values. Therefore, man is today pictured as a self- and other-evaluating organism, with his evaluative processes falling on a continuum from basic to sophisticated methods of evaluation.

Man has developed systems of investigating special abilities on social, intellectual, and physical levels. He speaks of his fellow man as a "great personality," a "real brain," or a "super athlete." Kelly (1963) stated that man constantly evaluates himself and others through his own construct systems. Often man accepts or considers a specific system of evaluation or model as delineated by another person. Many such systems have been constructed regarding man's intelligence and personality.

Guilford (1959b) devised such a system of evaluating intellectual abilities, stating that such functioning is determined by five separate abilities or operations: memory, cognition, convergent thinking, divergent thinking, and evaluating. Guilford conceptualized his model as a cubical composed of cells, each cell described in terms of the operations, products, and content involved in that intellectual endeavor. The operations cited above each resulted in products of units, classes, relations, systems, transformation, or implications composed of contents which were figural, symbolic, semantic,
or the theoretical behavioral. Therefore, Guilford saw, for example, that intellectual divergent thinking (an operation) could produce relations (a product) in symbolic terms (content). Guilford used this model to conceptualize intellectual abilities, specific tasks determined by the operation, product, and content involved. The ability to adequately solve such intellectual tasks under this model was referred to as intelligence.

Social intelligence differs from academic intelligence in that it is the capacity to maintain mature, productive relationships with others (Jarecky, 1959). The socially gifted person was seen by Jarecky as being as important to our society as the skilled scientist. Guilford (1959b) conceptualized social intelligence as the behavioral category under the contents structure within his model of the academic intellect. He chose to refer to this ability as "social cognition."

The socially intelligent person was seen as having an unusual ability to cope with any social situation, stimulating productive behavior in others, maintaining enduring relationships with others, and "policy makers" within their own group (Jarecky, 1959).

Many theoretical viewpoints concerning man's traits have resulted in varied models of personality. Guilford (1959a) defined personality as "a person's unique pattern or traits [p. 5]." He saw different aspects of personality as being represented by the modalities of attitudes, temperament, aptitudes, morphology, physiology, needs, and interests. He found it useful to refer to two models of
personality. In dealing with the general personality as an n-dimensional sphere, he recommended using factor analysis for providing information concerning trait dimensions, noting that such a method provides a moderate number of traits while satisfying the requirements of empirical verification. He proposed another model when considering the individual personality. This model was in the form of a hierarchical series of traits, composed of the most general syndrome types, the least general hexes, and the intermediary primary traits.

By examining Guilford's models of intellect, social intellect, and personality, one notes that he saw social intelligence as being absorbed by the more general "academic" intellect, and the intellectual functions in turn as a part of the more general model of the personality. Many have viewed these constructs as identical, seeing personality as being composed of many traits, one of them being intellectual abilities (aptitudes), with social intelligence composing a portion of the intellect. Note should be made that Guilford considered these modalities to be functioning aspects, working in an intergrated whole of personality (i. e. the modality of attitude functions, influencing the modality of aptitude).

Whatever model of social intellect, academic intellect, and personality one chooses to follow, there are hundreds of other models, each maintaining different conceptualizations, different methods of evaluating these constructs. As if this conflict over choice were not enough, further dissent occurs when one considers the relationship
among which models he has chosen. If, as Guilford has proposed, abilities are part of the functioning whole of personality, then how divergently can the parts function and still remain part of the whole? Can social intelligence function well when academic intelligence cannot?

Among the first to propose that social intelligence was distinctly different from traditional intelligence was R. L. Thorndike (1920). Shanley, Walker, & Foley (1971) stated that "social intelligence" as a concept has been defined and researched in various ways, with most instruments proportioning to measure it being invalid. Others (Allport, 1937; Taft, 1955; Rothenberg, 1970) have stated that social intelligence correlated directly with academic or verbal intelligence. Such differentiation is perhaps giving a different name to the same construct. Cronbach (1960) stated:

No evidence of validity is yet available which warrants confidence in any present technique for measuring a person's ability to judge others as individuals. . . . After fifty years of intermittent investigation, . . . social intelligence remains undefined and unmeasured [pp. 319-320].

As noted earlier, Guilford did refer to his behavioral cognition as a specific ability of the intellect. O'Sullivan & Guilford (1968), using factor analysis, established the construct validity of behavior cognition and indicated that their tests were not measuring general intelligence. However, Shanley et al. (1971) in a study using the O'Sullivan and Guilford tests, found that the majority of correlations
between general and social intelligence was significant (p < .025) and questioned the independence or the two types of intelligence. Rothenberg (1970) noted that social intelligence (defined as accurate social perceptions) was a function of the contributions of age, interpersonal adjustment, and intellectual ability.

Conflict exists not only over the relationship between social and academic intelligence, but also over the relationship between the intellect and the personality. Myths are extremely hard to document, and it is assumed that all are aware of the stereotyped intellectually gifted person who is pigeonholed as a social misfit. Barbe (1955) reported that the basis for the eccentric intellectually gifted could be found in writings of Nineteenth Century authors. Such authors believed that over-development of certain traits was always accompanied by other defects, even to the point of stating that instability was in direct proportion with genius.

Today the gifted misfit has been found in folklore, comic strips, jokes, and general conversation. This gifted individual is envisioned by many as a small, thin, owlish creature, complete with thick eye glasses, thin hair and totally lacking in social skills. Also commonly heard is this statement: "There's only a thread's difference between genius and insanity!" Does high intelligence render a person a social "dud," misfit, or inadequate personality? Research too voluminous to list here has thundered forth a resounding "no" for the last 40 years, yet this myth seems to continue to thrive.
The "dumb little smart kid" is all too well known in the school systems and the populace in general. Perhaps this relationship is true; a "good" personality may function inversely with extreme intellectual prowess. Certainly the relationship is one which has nurtured many conflicting opinions.
Chapter II
Review of the Literature

Guilford-Zimmerman Temperament Survey

Using his models of human functioning, Guilford became interested in methods of assessing the personality. Such instrumentation could possibly determine whether the intellectually gifted actually were lacking in certain aspects of the personality. How would the gifted misfit score on an instrument measuring his social prowess?

During the 1940's Guilford and colleagues developed a series of personality inventories consisting of Nebraska Personality Inventory, Inventory of Factors STDCR, Personnel Inventory, and Inventory of Factors GAIN. Through the years the tendency grew to administer the STDCR, GAIN, and Personnel inventories in combination, providing a more comprehensive assessment of individuals (Guilford & Zimmerman, 1949). The need existed for a single inventory, providing as comprehensive information in a more economical manner.

Using factor analysis, Guilford & Zimmerman developed the Guilford-Zimmerman Temperament Survey (GZTS) in 1949 from the STDCR, GAIN, and Personnel inventories. The symbols
and names for some of the traits were altered in the new instrument, and two traits were completely deleted. The instrument measured 10 traits, each to be defined and discussed later. They were: General Activity, Restraint, Ascendence, Sociability, Emotional Stability, Objectivity, Friendliness, Thoughtfulness, Personal Relations, and Masculinity. The GZTS was designed to be used by high school, college and adult populations and was normed (except Thoughtfulness) on 523 college men and 389 women attending one southern California university and two junior colleges.

The GZTS consisted of an inventory of 300 items to which the subject was instructed to answer "yes" if he agreed with it or it were true, "no" if it were more false than true or if he disagreed with it, or "?" if he could not decide between "yes" or "no." Scoring was done from an answer sheet, either by hand or machine, yielding a raw score on each of the 10 traits. Interpretation of raw scores was made by noting the position of the raw score in relation with the \( T \) score, the centile rank, and the \( C \) score (0 to 10, used to facilitate discussion, interpretation). Published ranges of scores indicating varying degrees of promise for success in administrative and supervisory roles were given in the GZTS manual. Ranges of "most favorable," "neutral," and "least favorable" were delineated for each trait. As Mankeim (1959) pointed out, these ranges were considered to have a wider application than supervisory promise and were commonly used in clinical settings for general personality assessment.
Each of the 10 GZTS traits will now be considered in two manners: (a) the definition of the personality trait, taken from the GZTS manual, and (b) a review of the relevant literature on the trait in relationship with intellectual ability.

GZTS Factor General Activity

The trait General Activity (G) was defined in terms of a dichotomy of positive qualities vs. negative qualities, as were all of the traits. The positive qualities were: "Rapid pace of activities; energy, vitality; keeping in motion; production, efficiency; liking for speed; hurrying; quickness of action; enthusiasm, liveliness [Guilford & Zimmerman, 1949, p. 2]." The negative qualities were: "Slow and deliberate pace; fatigability; pausing for rest; low production, inefficiency; liking for slow pace; taking time; slowness of action [Guilford & Zimmerman, 1949, p. 2]."

Comparatively little literature has dealt with the relationship between this trait and intelligence. In a study by Watley & Martin (1962) G was found to differ significantly (p<.01) between a group of academically successful and marginal college students in business administration, with the successful students scoring higher on the trait. The academically successful group ranked in the top 25% of the class after the first year's work. Percentile rank in the class was determined by the grade point average of the subjects' work during three quarters.
One method of studying activity level in children has involved the actometer, a modified self-winding calendar wrist watch that measures activity in a natural setting, usually worn on the wrist and ankle. Using the actometer, various researchers (Maccoby, Dowley, Hagen, & Dagerman, 1965; Schulman, Kasper, & Throne, 1965) found no relationship between subjects' activity level and their intelligence quotient (IQ). In a similar study using the actometer, Loo & Wenar (1971) also found that activity level was not correlated with IQ, their finding being supported by objective (−.10) and observational (+.19) measures. Here the actometer was attached to 20 girls and 20 boys, ranging in age from 3 years, 7 months to 6 years, 5 months. Their IQs ranged from 68 to 133, a mean of 102; and they wore the instrument for 1 1/2 to 2 hours during one regular kindergarten session.

Although _G_ dealt more with the manner of dealing with activities than the type or number of activities, it was assumed that positive qualities of enthusiasm and liveliness as listed under _G_ were directly associated with enthusiasm over a number of varied activities, dealing with them in a lively way. In a study dealing with 4,529 intellectually gifted children, Lewis (1940) found that teachers selected as "geniuses" those students who were active, participated in school life, and who had a large range of activities, interests, and varied hobbies. In this study range of activity and varied interests seemed to be used by teachers to differentiate the most gifted from the gifted.
GZTS Factor Restraint

Positive qualities of the GZTS trait Restraint (R) were defined as: "Serious mindedness; deliberate; persistent effort; self-control [Guilford & Zimmerman, 1949, p. 2]." as opposed to the negative R qualities of: "Happy-go-lucky, carefree; impulsive; excitement-loving [Guilford & Zimmerman, 1949, p. 2]."

In the Watley & Martin (1962) study previously noted, the GZTS trait R was found to differentiate significantly (p<.01) between academically successful and academically marginal business administration majors, with the academically successful group scoring higher. Nichols & Davis (1964) in comparing a group of 1,184 National Merit Semifinalists to a group of "average" achievers found that the Merit group described themselves less frequently than the average students as fun-loving, happy, and easy-going.

Gifted children often are found to be highly creative; therefore, studies of creativity in relation to restraint were noted. Torrance & Dauw (1966) studied a group of 712 high school seniors to whom the Torrance Tests of Creative Thinking were administered. From this sample 115 highly creative students were administered the Runner Studies of Attitude Patterns, and their scores were compared with a similar group of unselected job applicants also tested by the Runner Studies of Attitude Patterns. They found, using clusters determined by factor analysis, that the creative seniors less frequently had high Control Orientations than the control group. The Control Orientations
cluster consists of "yes" or "no" answers to an inventory dealing partially with Rules Orientation and Plans and Structure, with the high score indicating more of the attitude. In another study Torrance (1971) studied specific cases of gifted creative children and reported that the children stated that finding their sense of identity was their major problem. One subject studied reported that "Attempting to get some control of my mind and emotions by using my intellect [pp. 148-149]" was her most creative achievement. Torrance reported that a "common thread" of the 200 such subjects he studied was a serious-minded attempt to determine their identity--a persistent effort to "find their place" between the duality of uniqueness and universality.

From a file study of 24 children of IQ 170 or higher, Sheldon (1959) noted that without exception these children indicated a high degree of constriction on the Rorschach Test. Only two subjects' responses were creative, free, and original. Gallagher & Crowder (1957) studied 20 boys and 15 girls attending grades two through five, all having Binet IQs of 150 or above and enrolled in a regular classroom. Two experienced judges, using the Rorschach Test, rated each subject on the personality characteristic "ego control" as revealed by the Rorschach. This trait measured the degree of reality orientation and control. The gifted children showed relatively good reality orientation and control, with only one child revealing very poor reality contact.
Lewis (1940) found that one of the personality characteristics teachers were most likely to associate with intellectual superiority in elementary school students was dependability. Dependability was felt to be determined by many factors, certainly among them serious-mindedness, deliberateness, and self-control—all components of the GZTS trait restraint.

**GZTS Factor Ascendance**

Ascendence (A) was positively defined as: "Self defense; leadership habits; speaking with individuals; speaking in public; persuading others; being conspicuous; bluffling [Guilford & Zimmerman, 1949, p. 2]." Negative qualities of the trait were: "Submissiveness; habits of following; hesitation to speaking; avoiding conspicuousness [Guilford & Zimmerman, 1949, p. 2]."

Liddle (1958) studied the overlap among desirable and undesirable characteristics in gifted children, using the entire school population of fourth and sixth grades in a city of 45,000. For each subject the following characteristics were measured: aggressive maladjustment, withdrawn maladjustment, social leadership ability, artistic talent, and intellectual ability. Then using the top 10% of each of the characteristic scores, he used a Chi square procedure to determine the statistical significance of the difference between observed and expected frequencies of overlapping. This operation indicated that intellectual ability and social leadership ability were significantly
correlated and that they were both negatively related to withdrawal.
Pasternack & Silvey (1969) also used a Chi square procedure to
determine if leaders were likely to be more intelligent than the average
of the group led, as Leta Hollingworth had proposed (1926). Using
a measure of intelligence and leadership, they found that the highly
gifted students were more often significantly \( p < .025 \) chosen to be
group leaders than the other students.

In a 7-year project researching personality, socialization,
and mental processes at the Laboratory School, University of Chicago,
Haggard (1957) studied a class of 76 gifted children from the third
through the ninth grades. He found that by the time the high achievers
reached the seventh grade, they emerged as the social leaders of their
peers, held the important class offices, and served on the important
class committees. Harrison, Rawls, & Rawls (1971), using a popu-
lation of 649 children ranging from 6- to 11-years-old, asked school
teachers to rate children on the leadership they showed during school.
For their sample they used only those frequently, seldom, or never
chosen as leaders. They reported that subjects identified by teachers
as leaders scored significantly higher on ratings of intellectual
ability \( p < .001 \) and academic performance \( p < .001 \).

Lewis (1940) reported that ambition was one of the traits
most likely to be associated by teachers with intellectual superiority.
He further stated that there was a "mathematically significant difference
of outstanding proportions \( p. 31 \)" between the frequency with which
any other trait was assigned to the same subject. He did not, however, state the level of significance used.

In predicting academic success of business administration students, Watley & Martin (1962) found that the GZTS trait \( A \) significantly \((p < .05)\) differentiated successful and marginal students, with the successful students scoring higher on the trait.

**GZTS Factor Sociability**

The GZTS variable Sociability \((S)\) also was defined. Positive qualities were: "Having many friends and acquaintances; entering into conversation; liking social activities; seeking social contacts; seeking limelight [Guilford & Zimmerman, 1949, p. 2]." Negative qualities were: "Few friends and acquaintances; refraining from conversation; disliking social activities; avoiding social contacts; synnness; avoiding limelight [Guilford & Zimmerman, 1949, p. 2]."

Nichols & Davis (1964), studying 1,184 National Merit Semifinalists in comparison with "average" college students, found that the Merit students reported that they valued security and opportunity to work with people less frequently than did the average students. No statistical explanation of the term "less frequently" was reported. Sheldon (1959) utilized sociometric studies, classroom observations by field workers, interviews with teachers and students, and the Haggerty-Olson-Wickman Scales to determine the popularity of 28 gifted children. He determined that only 3 were popular with their
classmates, 19 were accepted, and 6 were rejected. Witty & Lehman (1927) studied the play behavior of 50 gifted children (IQs 140 or above) in comparison with a matched group (on age, sex, environment) of average intelligence in grades three to eight. They reported that the gifted child engaged in social plays and games less frequently than the average student. Terman & Oden (1947) studied 90 play activities that were rated by several judges as to the amount of participation and social organization exhibited in each activity. A sociability score was computed for each child whether a member of either the gifted or control group. They reported that the control group scored higher on sociability than did the gifted group at all ages. Working with gifted Honors and Non-Honors groups in comparison with a Norm group, Mason, Adams, & Blood (1968) also found that both gifted groups showed less need for affiliation and more for autonomy than the Norm group.

Other studies supported the high sociability of the gifted. Gallagher & Crowder (1957) studied 35 gifted children in comparison with a random sample group. They reported:

There was a strong indication that the gifted group of children were (sic) quite socially popular. Over half of the children in the group ranked in the top fourth of their class in social popularity [p. 309].

Grace & Booth (1958) studied 294 intellectually gifted elementary students using a sociometric device and found that the most gifted were among the best liked, and the least gifted among the least liked. None of the most popular students was among the least gifted.
Jones, Gottfried, & Owens (1966) studied 12 groups of exceptional children on seven interpersonal dimensions measuring acceptance. They found the gifted anchored at the favorable end of the continuum of social acceptance and the mentally retarded anchored at the opposite end of the continuum.

Gallagher (1958) studied 54 highly gifted children in grades two through five which were regular classes. When rated by their peers, 52% of the gifted group were in the top quarter of their class in terms of social choice and only 11% were in the lowest quarter of their class. Harrison et al. (1971) studied 416 leaders and non-leaders. The leaders scored significantly higher on ratings of intellectual ability. They also found that leaders were also rated as being more popular than non-leaders, well-liked (p < .05), and were chosen first by their peers for "sides" in games (p < .001).

Williams (1958) dealt with acceptance among 117 gifted elementary school children and a random sample of their peers. Sociometric data were gathered using the Classroom Social Distance Scale which yielded two scores—-one indicating the degree to which the individual accepted the group and the other the degree to which the group accepted the individual. Williams found that there was no appreciable difference in intelligence between those who scored high or low on acceptance.
GZTS Factor Emotional Stability

Emotional Stability (E) was listed as having the following positive qualities: "Eveness of mood, interests, energy; optimism, cheerfulness; composure; feeling in good health [Guilford & Zimmerman, 1949, p. 2]." Negative qualities listed were: "Fluctuation of moods, interests, energy, etc.; pessimism, gloominess; perseveration of ideas and moods; daydreaming; excitability; feeling in ill health; feelings of guilt, lonliness or worry [Guilford & Zimmerman, 1949, p. 2]."

In the Lewis (1940) study of gifted elementary school children, the data indicated that those children selected by intelligence tests and teachers as superior were more emotionally stable, as measured by the BPC Personal Inventory. Lewis also noted that the gifted girls were slightly more stable than the gifted boys. Harrison et al. (1971) determined that leadership tended to increase with IQ, and that those chosen as leaders were rated by teachers significantly higher on over-all adjustment \((P < .001)\) than nonleaders.

A 1958 study by Liddle dealing with the top 10% scorers in intellectual talent, social leadership ability, artistic talent, aggressive maladjustment, and withdrawn maladjustment found that those who were gifted in one of the three talent areas were quite unlikely to be talented in other such areas and were quite unlikely to be seen as maladjusted both by their teachers and peers. Haggard (1957) studied a group of 76 children over a 7-year period. He
found that "high general achievers showed a high degree of inner harmony, being rather adept at emotional control and at organizing and integrating their experiences, ideas, and feelings [p. 394]." McElwee (1932) investigated the personality traits of 300 accelerated, normal, and retarded children. She noted that the accelerated children possessed a greater degree of all the desirable traits than did the retarded children. Some of the desirable traits were calmness, interest in school work, and attentiveness as opposed to the negative excitableness, restlessness, and listlessness.

In the Nichols & Davis (1964) study the Merit group described themselves significantly (p < .01) more frequently than average as being impetuous, high-strung, and moody. Mason et al. (1968) used the Adjective Check List and compared groups of gifted Honors students, gifted Non-Honors students, and average students. They found that the Honors group had less satisfactory personal adjustment than the other two groups, although no level of significance of this difference was noted. Watson (1960) evaluated the records of 126 students who entered college in the top 33% of their class. In studying the honor students from this sample, she noted that they tended to be compulsive, driven, and having few or no satisfactory interpersonal relationships. The average achievers from this group were reported as less driven and repressed than the Honors group.

Gottsdanker (1968) studied two groups of 75 gifted (total scores on the School and College Ability Test over 325) and two groups
of 75 "cross sectional" randomly selected students from a college freshman population. Using the Omnibus Personality Inventory, she reported that there was no significant difference in the groups' scores relative to personality adjustment.

**GZTS Factor Objectivity**

"Being 'thickskinned' " was the sole positive quality of the GZTS trait Objectivity (_Q_) [Guilford & Zimmerman, 1949, p. 3]. The negative qualities associated with this trait were: "Hypersensitivity; egoism, self-centeredness; suspiciousness, fancying of hostility; having ideas of reference; getting into trouble [Guilford & Zimmerman, 1949, p. 3]."

Harrison et al. (1971) found, in comparing 278 leaders and 416 nonleaders, that the leaders scored higher on ratings of intellectual ability and academic performance. However, they also noted that with respect to school performance, the more intelligent leaders also required more frequent disciplinary action (p<.01), a negative _Q_ quality.

The Haggard (1957) 7-year study of achievement in gifted children found that by grade seven both the gifted low achievers and gifted high achievers experienced anxiety, but dealt with it differently. The high achievers dealt with the anxiety somewhat more objectively, controlling and channeling it through intellectualization or mastering new knowledges or skills. The high achievers also
became more aggressive, persistent, and hard driving. Thus differences existed between the gifted groups as to the degree of objectivity demonstrated, and these differences seemed to be related to academic achievement. Taft (1955) reported that the ability to judge people seemed to be directly related to intelligence. In reviewing the literature of others (Adams, 1927; Dymond, 1950) he concluded that "The evidence supports the contention that social detachment is a necessary prerequisite for making accurate judgements of others [Taft, 1955, p. 19]." Therefore, the ability to judge others seemed to be related directly to high intellectual ability and social detachment, the GZTS $Q$ trait. Witty & Lehman (1927), using a matched group of 50 gifted children (140 IQ or above) found the school teachers of the groups testified that the gifted children were more sensitive to criticism, more susceptible to correction, obeyed rules with less urging, and that problems of discipline disappeared with the segregation of the gifted.

The negative qualities of $Q$ seemed to be highly related to that measured by a high score on the Paranoia ($Pa$) scale of the Minnesota Multiphasic Personality Inventory (MMPI). Panton (1960) studied MMPI profiles of 1,079 prison inmates with respect to intelligence. He found that across six levels of intellectual ability $Pa$ scores ranged from scale means of 56.9 to 62.7, and the means were not considered significantly different. A scale score of 70 is considered indicative of psychopathology. The mentally superior
scored a scale mean of 57.0, while the borderline mentally retarded scored a scale mean 59.0. Panton also found that no significant code rank with increase in intelligence was noted for $\text{Pa}$. Kennedy (1962) studied MMPI profiles of 100 gifted adolescents (mean IQ 134.9). Their mean scale score on $\text{Pa}$ was 56, as compared with scale score of 60 for the normative sample. Using Pearsonian coefficients, Brower (1947) compared the correlation between MMPI scores and intelligence of 48 undergraduates. The correlation coefficient of $\text{Pa}$ and intelligence was not significant ($p<.001$).

**GZTS Factor Friendliness**

The variable Friendliness ($F$) was also described in positive qualities as: "Toleration of hostile action; acceptance of domination; respect for others [Guilford & Zimmerman, 1949, p. 3]." Negative qualities associated with this trait included: "Belligerence, readiness to fight; hostility, resentment; desire to dominate; resistance to domination; contempt for others [Guilford & Zimmerman, 1949, p.3]." Note should be made that trait $S$ dealt with the number of friends and seeking and liking social contact, while trait $F$ dealt more with "agreeableness," and the specific attitudes maintained by the individual.

Witty & Lehman (1927) reported that the teachers of the gifted felt they were more sensitive to criticism and more susceptible to correction, seemingly accepting the domination by the teachers...
and respecting them. The teachers further reported that when the average and gifted groups were segregated, discipline problems disappeared among the gifted. Hollingworth (1962) stated that teachers of gifted children reported that the gifted student was more courteous than his intellectually average peer. Creativity has been often directly associated with intellectual ability. Torrance & Dauw (1966) administered the Runner Studies of Attitude Patterns to 115 creative high school seniors. When compared with a similar group of unselected job applicants, the creative seniors had less frequent high patterns than the comparison group on Passive Compliant, and Hostility and Blame scales. A high score indicated "more" of the trait in each person.

However, Nichols & Davis (1964) in their work with National Merit Semifinalists noted that the gifted subjects described themselves significantly (p < .01) more frequently than average as dominant, forceful, impetuous, and rebellious.

**GZTS Factor Thoughtfulness**

Thoughtfulness (T) was defined by the positive qualities as:

"Reflectiveness, meditativeness; observing of behavior in others; interested in thinking; philosophically inclined; observing of self; mental poise [Guilford & Zimmerman, 1949, p. 2]." Negative qualities of T were: "Interested in overt activity; mental disconcertedness [Guilford & Zimmerman, 1949, p. 3]."
The GZTS was found to significantly \((p<.001)\) differentiate between academically successful and academically marginal business college students. The successful students had significantly higher scores on \(T\) (Watley & Martin, 1962). Gottsdanker (1968) studied intellectual interest patterns in gifted college students. She found that the more able students scored significantly higher on the scales indicative of intellectual commitments, desire for independent thought, and interest in abstractions as measured by the Omnibus Personality Inventory. Lewis (1940) investigated the hobbies of gifted and average "unselected" students in grades four through eight. He found that the gifted children had a greater interest in studying, whereas the "unselected" children devoted more time working in non-academic tasks.

In his 1940 book Carroll noted that gifted children were characterized by initiative and independence in thinking, early development of self-criticism, and ability to see relationships and make associations. Taft's (1955) study of the ability to judge people showed that there was a positive relationship between intellectual abilities and the ability to judge others. Observing behaviors of others was considered a prerequisite to being able to analytically perceive and judge others on a social level. After reviewing the literature, Taft also stated that those who were able to rate their peers accurately on traits also showed insight into their own status with respect to their peers. According to Taft, the person who judged others well
also showed self-insight and tended to be of more than average intelligence.

In contrast, Terman (1924) studied the play activities of 90 gifted children, having each child rate the play activities with respect to their knowledge of them, their interest in them, and the time devoted to them. He concluded that "the gifted are somewhat less interested than the control pupils in intellectual and sedentary games [p. 163]."

GZTS Factor Personal Relations

The GZTS trait Personal Relations (P) was defined as having positive qualities of: "Tolerance of people; faith in social institutions [Guilford & Zimmerman, 1949, p. 3]." Negative qualities were also defined as follows: "Hypercriticalness of people, faultfinding habits; criticalness of institutions; suspiciousness of others; self-pity [Guilford & Zimmerman, 1949, p. 3]." Little literature dealt purely with this trait—"tolerance of people" and "faith in social institutions" with respect to intellectual level evidently have not been the most interesting of research topics.

The negative qualities of P seemed to be very closely related to those of F and O and the positive qualities to those of F and S. From the viewpoint of the negative P qualities, Nichols & Davis (1964) reported that their gifted subjects described themselves significantly more frequently than average as dominant, forceful,
impetuous, and rebellious. Haggard (1957) studied achievement in gifted children and found that the gifted students were aggressive, persistent and hard driving.

However, concerning P positive qualities, Witty & Lehman (1927) reported that teachers of the gifted felt that their students were tolerant and sensitive to criticism from their teachers. Hollingworth (1926) stated that the gifted were more courteous than the average child; however, one cannot assume that the courtesy was based on faith in social institutions or tolerance of people (positive P factors). Gallagher & Crowder (1957), Grace & Booth (1958), Jones et al. (1966), and Gallagher (1958) all attested to the sociability of the gifted. It was assumed that having many friends and social dealings would require a large degree of tolerance of people (P positive quality).

GZTS Factor Masculinity

The trait Masculinity (M) was defined as: "Interest in masculine activities and games; not easily disgusted; hardboiled; resistant to fear; inhibition of emotional expressions; little interest in clothes and styles [Guilford & Zimmerman, 1949, p. 3]." The negative qualities of M (supposedly the feminine counterpart) dealt with: "Interest in feminine activities and avocations; easily disgusted; sympathetic; fearful; romantic interests; emotional expressiveness; much interests in clothes and styles; dislike of vermin [Guilford
& Zimmerman, 1949, p. "ji." The purpose of this review was not to validate the characteristics associated with the two qualities of $M$, nor was it to investigate the difference between gifted children across sex. Instead the purpose was to investigate the literature dealing with the differences in $M$ for each sex, with respect to intelligence.

Witty & Lehman (1927) investigated the play activities of 50 children with IQs of 140 or above in comparison with those of a control group. On the following activities the gifted boys' frequency of participation as compared to the controlled boys' was: boxing (29% less), running races (29% less), jumping for height (33% less), baseball with a hard ball (21% less), and watching athletic sports (17% less). In dealing with differences among the upper 10%, upper 2%, and "genius" groups, Lewis (1940) noted that as intellectual level increased, percentage of interest for active games or sports decreased. The following activities showed an increase in participation between 10% and "genius" intellectual levels: playing musical instruments, playing make believe games, sewing, and housework. It should be noted, however, that many other masculine activities remained stable in interest measures as intelligence increased.

Kennedy (1962), Levy (1952), Winfield (1953), and Panton (1960) empirically determined that more intelligent males showed more deviation toward femininity on the Minnesota Multiphasic Personality Inventory than did the normative population.
However, Terman & Oden (1947) computed a masculinity score for each gifted child in their study based on the masculinity of the activities which the children expressed as preferred.

These indices showed that in play interests gifted boys tended to be rather more masculine than unselected boys at all ages from eight to twelve years, after which there was little difference [p. 35].

Concerning the "fairer sex," Gottsdanker (1968) studied four groups of 75 students, two gifted groups (divided as to sex) and two cross-sectional groups (also divided as to sex). She found that the women's scores were significantly (p < .01) different on seven intellectual scales, with the gifted women showing the largest differences from the typical women in expressed ideas of independence, attraction to self-initiated intellectual endeavors, and interest in theoretical problems. The gifted women showed greater interest in activities generally considered masculine than did the typical women. In Lewis's (1940) study of three gifted groups (top 10%, 2%, "genius") it was noted that as intelligence increased, percent of interest in sewing, knitting, and housework decreased. However, other masculine-oriented and feminine-oriented activities remained stable across intellectual level.

Terman & Oden (1947) computed a masculinity index for 90 activities and measured the difference of participation in the activities across groups. They reported that the mean activity scores for the gifted and unselected girls did not differ significantly between
ages 8, 9, or 10. However, at ages 11, 12, and 13, the gifted girls tended to participate in more masculine activities. Bachtoed (1968) used the Survey of Interpersonal Values to appraise differences in values between 12- to 14-year-old gifted and average girls. She found that the gifted girls gave higher valuation to independence than did the average girls.

Overview of the Literature

In summary, research dealing with the traits of factor G have stated both that the gifted tended to be more active, participating, and enthusiastic and that there was no relationship between level of activity and IQ. Extreme restraint (R) was noted as a characteristic of the gifted in one study, while another reported that gifted students had well-adjusted levels of control. Giftedness is often found with creativity; and a study showed that creative students were less controlled than others. On trait A the positive trait of leadership was shown to be associated with high intellectual level, and teachers associated ambition with high IQ. Some evidence was presented stating that the gifted tended to be less sociable (S), both by self-report and sociometric studies. Other research supported the high sociability with the high IQ person. Yet another study showed no relationship between acceptance and IQ. Several factor E studies both supported and negated the emotional stability of the intellectually gifted, and another study reported no relationship between personality adjustment and intelligence.
Factor O studies showed both that the gifted were more objective and more non-objective, as defined by the GZTS. Social intelligence was noted to correlate highly with general intelligence, and the belief that detachment was a prerequisite for social intelligence was presented. The position that the gifted child was friendlier (F) was supported by various studies; however, a self-report study stated that the gifted were unfriendly. Factor T was found to be associated with giftedness in several studies, while one study supported a negative T trait associated with the gifted. The P studies were those cited for traits F, O, and S. Factor M dealt with the masculinity of each sex of the high IQ person. Conflicting research supported both that non-gifted boys engaged more often in more masculine activities and the converse of this statement. Gifted women were shown in other research to be more interested in activities generally considered masculine. Further studies dealt with the age at which such differences in women seemed to occur.

In reviewing this literature, great discrepancies were noted. For almost all the personality traits here considered, one was faced with contradiction--the gifted have more of a trait, less of a trait, or the amount of intelligence is not related to that trait. Further research was definitely in order here, both to alleviate or explain the contradictions and to compile further knowledge of certain traits on which little or no literature was found.
More specifically, certain deficits were noted in the existing literature. The definition of traits reviewed, and often the term "intellectually gifted" itself have differed considerably from study to study. In checklists and other such research the traits often were not defined at all. It was felt that studies that deal with a large number of often interrelated traits function with the possibility of misinterpretation and great overlap of the personality variables. Research appeared to be needed on traits which were dealt with operationally and which function independently.

Similarly related to the above point was the fact that many researchers have "bitten off more than they could chew," studying large numbers of traits or activities in one study. This often has resulted in a very global picture, without either statistical testing for significance or consideration of the interactions of the other variables involved. Figuratively speaking, such studies leave the reader with a general view of the "woods," but without significantly knowing what "trees" grow there. There existed a need for studies which precisely measured a few independent, stable, concise traits and noted their interactions with respect to intellectual ability.

The sampling techniques of many studies have led to confusion upon interpretation. They seemed to fall into two types. In one, two homogeneous groups, the intellectually gifted and the intellectually non-gifted (sub-normal, slow learner, etc.) were studied. In taking only the two "extremes" such authors were inflating their
data and ignoring the important and interesting role of the intellectually average. In the other, two groups were also studied, one a homogeneous group of the intellectually gifted and the other a cross-sectional, random sample which often included distributions non-representative of the general population (i.e., college students). Even if the sample group was representative of the general population, it was still often heterogeneous. Thus gifted subjects were compared with other gifted, average, and below average subjects. There was a need for studies comparing personality functioning with three specific blocks of subjects—the gifted, the average, and the below average.

After reviewing the literature and noting these deficiencies, it was decided to undertake research which would hopefully yield specific knowledge in more appropriate manners than have existed in the past. The problem considered was: To what degree do the intellectually gifted, average, and below average differ in personality? The GZTS was used as a measure of personality since it yielded a comprehensive yet independent measure of 10 operationally defined personality traits. Three groups composed of basically homogeneous intellectual levels were used, including the often omitted "middle man." This study hopefully dealt with the problem in such a manner as to more precisely determine the relationship between intelligence and the 10 specific personality factors, enlightening the contradictions of past literature.
Chapter III
Method and Procedure

Selection and Use of Subjects

A total of 905 10th, 11th, and 12th grade students at Ardmore High School, Ardmore, Oklahoma, comprised the population of the present study. This population was given a battery of three instruments consisting of the Kinget Drawing-Completion Test, Kuder Vocational Preference Record, and the Guilford-Zimmerman Temperament Survey. The battery was administered during the fall of the school year 1963-1964 in association with a doctoral dissertation prepared on creativity and imagination across different intellectual levels (Laird, 1964).

Cumulative record files contained an intelligence score on each subject as measured by the Otis Quick-Scoring Mental Ability Tests. Using these scores, three groups of subjects were determined based on intelligence. From the population that had completed the above battery, 92 subjects (Ss) were randomly selected from the cumulative files in each of the following groups: the intellectually gifted (Group I, IQ scores of 130 or above), the intellectually average (Group II, IQ scores of 86-129), and the intellectually
below average (Group III, IQ scores 85 and below). This procedure resulted in three randomly chosen equal-n groups across three levels of intelligence.

Other factors involved in the population sample were age and sex of the sample groups. To eliminate the possibility of merely measuring age differences, one can either strive to have a sample as heterogeneous or homogeneous as possible with regard to chronological age. For the present study a sample of differing ages was more advantageous, allowing for random selection of the groups from the complete school population of 905. Across all three groups ages ranged from 15 to 18 years. In Group I the over-all mean age was 16.6 years, the female mean age was 16.7 years, and the male mean age was 16.5 years. For Group II the over-all mean chronological age was 16.4 years, for the females a mean age of 16.3 years and for the males a mean age of 16.5 years. For Group III the over-all mean chronological age was 16.4 years, while the female mean was 16.4 years and the male mean 16.3 years. All Ss in each group ranged in age from 15 to 18 years, and the mean ages, both between sexes and over-all group ages, were extremely close.

In keeping with the randomization procedures, no specific controls were maintained for sex. From a developmental viewpoint, such controls were not particularly important, since by the mean ages for groups as stated (16.6, 16.4, and 16.4, respectively), developmental discriminative abilities across sex for all practical
purposes have dissipated. The age differences across sex for each group have already been started and were very close. In Group I there were 45 females and 47 males; in Group II there were 41 males and 51 females; and in Group III, 34 females and 58 males. The over-all female: male ratio was 136:146. These were considered acceptable ratios across sex and further alleviated possible differences in scores due to sex.

**Multiple Groups Design**

The present study used a multiple groups design with each of the three IQ groups blocked according to intellectual level. The independent variable was intelligence as measured by the Otis Quick-Scoring Mental Ability Tests. The three levels used were: IQs of 130 and above (Group I), IQs of 86 to 129 (Group II), and IQs of 85 and below (Group III), with 92 Ss at each level.

The Otis Quick-Scoring Mental Abilities Tests, (Otis, 1954) were developed in a series of three forms: the Alpha for grades one to four, the Beta for grades four to nine, and the Gamma for high schools and colleges. The Gamma form was the one compiled in the files of the Ss used. This form was composed of 80 items, consisting of analogies, vocabulary, opposites, mixed sentences, reasoning, and proverbs along with several non-verbal items. The items were arranged in order of increasing difficulty. The manual was somewhat vague in discussing the norms used; evidently
all norm data were obtained from schools using the test. Although
the coefficients of reliability for the Gamma form were not extremely
high, they were acceptable. The major advantage of the Otis Quick-
Scoring was that of ease and quickness in scoring, yielding a general
measure of over-all intellectual abilities. The IQ score yeilded
on this instrument was a deviation IQ, based on the subject's deviation
from a mean score.

The dependent variables used were the scores of the Ss on the 10
scales of the Guilford-Zimmerman Temperament Survey (Guilford
& Zimmerman, 1949). The raw scores on the scales range from
0 to 30, with the high score indicative of more positive qualities
of the trait. These raw scores were transformed into T scores
for ease in interpretation and comparison. These scale scores
each represented a factor of personality as measured by the GZTS.

Guilford & Zimmerman (1949) stated that the factorial validity
of the scales was well assured by the foundation of factor validity
studies plus the item-analyses directed toward internal consistency
of each scale. The validity of this instrument was very important
to the present study to assure independence of the varied values
involved. Bendig (1962) administered the GZTS to 299 male college
freshmen. He then divided each scale into three subscales, inter-
correlated the 30 subscales, and, rotating the factors, extracted
10 first-order centroid factors from the matrix. He stated:
The analysis of the subscale intercorrelations demonstrated the factorial validity of the GZTS scales as each of the subscales loaded on only one factor and the subscales from a given scale loaded on the same factor [p. 317].

In a correlational study of the MMPI and the GZTS, Murray & Galvin (1963) supported the concurrent validity of the GZTS, finding that the relationship between the two was predominantly negative. Such a relationship was to be expected, since the instruments score in opposite directions. Dealing specifically with the measure of masculinity-femininity, Barrows & Zuckerman (1960) studied those scales on the GZTS, and MMPI, and the Strong Vocational Interest Blank. They found that all three scales correlated significantly with each other in a positive direction. Linden & Olson (1959) compared the E and Q scales of the GZTS with the Taylor Manifest Anxiety Scale (MAS). They found that the E and Q scales seemed to be measuring the same variable or variables as did the MAS.

During test construction Guilford & Zimmerman (1949) applied Kuder-Richardson formulas to the data for men and women, separately and combined. With the sexes combined, the reliability coefficients ranged from .75 for scale Q to .87 for scale S. Jackson (1961) administered the GZTS to 72 female "white-collar" employees and 24 female supervisors. The same group, somewhat reduced in number, was retested 18 months later; and Jackson found that the GZTS demonstrated considerable stability or high test-retest reliability.
Procedure

The population of 905 senior high school students was administered a battery of three instruments: Kinget Drawing-Completion Test, Kuder Vocational Preference Record, and the GZTS. These tests were administered in 75 regular class sessions at various times during the school day. Administration of the GZTS was done according to the standardized procedures outlined in the manual. The GZTS protocols were scored by machine from IBM answer sheets.

Statistical Treatment of Data

The hypothesis for this study was that the means for all three IQ groups on each GZTS scales would be equal. Ten one-way analyses of variance were used in which the variances between and within groups were hypothesized to be unbiased estimates of the same population variables. The significance of the differences between these variances was to be determined by using the $F$ test. When the $F$ ratios for the corresponding $df$ were equal to or less than a probability of $0.01 (p \leq 0.01)$, the differences were considered significant, and the null hypothesis was rejected.

Basic to analysis of variances were three assumptions of the treatment (Downie & Heath, 1970). The first was that the subjects comprising the three IQ levels be selected by random sampling for a normally distributed population. A random sampling
technique was used to choose the subjects across each level.

The population used was not normally distributed; however, analysis of variance procedure was assumed robust enough to allow the violation of this assumption without detriment to the study.

The second assumption was that the subgroup variance be homogeneous. For the purpose of this study, it was assumed that such a condition existed. If in fact homogeneity of variance were not the case, it was felt that the analysis of variance treatment was robust enough that this assumption could be violated without alarm.

The third assumption of this treatment was that the samples comprising the subgroups be independent of each other. As previously noted, all of the subgroups in the present study existed independently of each other. No one S who was a member of one group was a member of any other group. Research also cited in the present study noted that the 10 GZTS scales existed independently of each other.

The null hypothesis associated with each of the 10 one-way analyses of variance was that no significant difference would be found between the three intellectual groups on any of the 10 GZTS scales.
Chapter IV

Results

The purpose of this study was to investigate the relationship between intellectual level of 276 high school students and personality as measured by the 10 factors of the Guilford-Zimmerman Temperament Survey. The null hypothesis was that no significant difference would be found between the three IQ groups on each of the GZTS personality factors. To specifically test this hypothesis, 10 one-way analyses of variance procedures were utilized. The results of these procedures are presented in Table 1.

The null hypothesis was accepted since none of the $F$ ratios for the $df$ on each of the ten factors were significant ($p > .01$). Although non-significant, several tendencies across groups on the 10 personality factors merited attention.
### TABLE I

Analyses of Variance

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<td>Within</td>
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<td>Within</td>
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* p > .01
As noted in Table 2, the low and middle IQ groups’ mean scores were almost identical on factor B, whereas the high IQ group tended to score non-significantly higher on this trait. The same tendency was noted on factor E, with the high IQ groups tending again to score somewhat non-significantly higher on the trait. Another non-significant trend was noted with trait O. Here the high and middle IQ groups’ means were very close, while the low IQ group tended to score lower on O. The same non-significant tendency for the low IQ group to score lower than the middle and high groups was also noted on factor E.

On factor T the middle group’s mean score was non-significantly slightly higher than those of the high and low IQ groups. As IQ level increased, so did non-significantly the mean scores on P. Concerning factor M there was a slight non-significant tendency for the high IQ group to score higher than the almost identical means of the middle and low IQ groups.
### TABLE 2

Means for A x B Effects

<table>
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<tr>
<th>I Q</th>
<th>G</th>
<th>R</th>
<th>A</th>
<th>S</th>
<th>E</th>
<th>O</th>
<th>F</th>
<th>T</th>
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<tbody>
<tr>
<td>Group I</td>
<td>49.3</td>
<td>44.9</td>
<td>47.4</td>
<td>47.4</td>
<td>42.7</td>
<td>46.0</td>
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<td>46.1</td>
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<tr>
<td>Group II</td>
<td>47.0</td>
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<td>49.4</td>
<td>44.6</td>
<td>46.4</td>
</tr>
<tr>
<td>Group III</td>
<td>48.4</td>
<td>41.3</td>
<td>46.9</td>
<td>47.2</td>
<td>43.9</td>
<td>39.2</td>
<td>42.9</td>
<td>46.0</td>
<td>41.7</td>
<td>46.8</td>
</tr>
</tbody>
</table>
Chapter V
Discussion and Implications

Discussion

The results of this study showed that there was no significant difference between the scores of three IQ groups on the 10 Guilford-Zimmerman Temperament Survey personality factors. Group I, Group II, and Group III had no significant differences between any of the mean scores for the 10 factors.

Concerning the review of the literature on the relationship between IQ and personality, relatively few studies substantiated the results of this study. Following are those that did substantiate this study, in accordance with the GZTS factors. In studies discussed under GZTS factor G, various researchers found no relationship between subject's activity level as measured by the actometer and their IQs (Macoby et al., 1965; Schulman et al., 1965). Loo & Wenar (1971), using the actometer, also found that activity level was not correlated with IQ and supported their finding with objective and observational measures.

Relevant to factor S was a study by Williams (1958) on the acceptance of gifted children in the classroom. Using sociometric
measures, he found that there was no appreciable difference in intelligence between those who scored high or low on acceptance.

Gottsdanker (1968) researched the personality adjustment of gifted and "normal" college students in a study which closely dealt with GZTS factor E. Using two gifted groups and two random groups, she reported no significant difference in the groups' scores relative to personality adjustment.

The negative GZTS O qualities were highly related to that measured by a high Pa scale on the MMPI. Panton (1960) studied MMPI profiles of 1,079 prison inmates with respect to six intellectual levels. He found no significant differences between Pa scores across the six intellectual levels and no significant code rank changes for Pa as intellectual level increased. Kennedy (1962) studied MMPI profiles of 100 gifted adolescents and found that their mean Pa score was extremely close to that of the normative population.

In a correlational study Brower (1947) researched the relationship of MMPI scores and intelligence of 48 undergraduates. He found the correlation between Pa and intelligence to be non-significant.

Although the difference between GZTS scores across IQ level was non-significant, various trends in scoring across the three intellectual levels were noted as shown in Table 2. These were, however, only tendencies to score in certain ways and not significant differences. Nevertheless they were of interest to the present study.
On factor R Group I tended to score higher than Groups II and III. There was a non-significant tendency for the gifted group to score as being more restrained than the middle and low IQ groups. Ranges of "most favorable," "least favorable," and an intermediary borderline area were first devised by Guilford & Zimmerman (1949) for predicting supervisory promise, but have since come to be used in general clinical interpretations (Mankeim, 1959). All of the groups scored in the borderline area on trait R (Guilford & Zimmerman, 1949).

On factor E Group I tended to score higher than Groups II and III. There was a non-significant tendency for the gifted group to score as more emotionally stable than the middle and low IQ groups. Even though the high IQ group tended to score higher than the other groups on E, they did not score high enough to be in the "most favorable" range; whereas, the middle and low IQ groups scored in the "least favorable" range (Guilford & Zimmerman, 1949).

On trait O Group III tended to score lower than Groups I and II. Thus the low intelligence group tended to not score as being as objective as the high and middle IQ groups. Here again the scores of the high and middle groups were borderline, not high enough to be in the "most favorable" range; but the score of the low IQ group was in the "least favorable" range (Guilford & Zimmerman, 1949).

The same pattern was noted in factor F, with Groups I and II tending to score higher than Group III. The tendency was for the high and middle IQ groups to score as being friendlier
than the low IQ group. Generally speaking, on $F$ the groups fell within borderline ranges (Guilford & Zimmerman, 1949).

With trait $T$ a different pattern was noted. Group II tended to score higher than either Groups I or III. The middle IQ group then tended to score as more thoughtful than either the high or low IQ groups, with the high group scoring the higher of the two. These mean scores placed the high and middle IQ groups in the "most favorable" range with the low IQ group bordering the category (Guilford & Zimmerman, 1949).

There was a directional tendency for $P$ scores to increase with intellectual level. Such scores fell within the "least favorable" range for all three groups (Guilford & Zimmerman, 1949).

For factor $M$, Group I scored higher than Groups II and III who scored very closely to each other. There was a tendency for the gifted group to respond in more masculine ways than the middle and low groups. The gifted group, combined for sexes, scored at the normative mean; while the low and middle groups scored slightly below the mean, in the "feminine" direction. For the combined sexes, all groups scored in the "least favorable" range on trait $M$ (Guilford & Zimmerman, 1949).

Implications

The most general implication from this study was that the stereotype of the gifted misfit who cannot function well in social
matters was not found. On several of the GZTS factors the gifted student tended to score higher, more positive scores when compared either separately or conjointly with his middle and low IQ peer. These scores, however, were only tendencies and were non-significant.

By the same token, any myths concerning the "dumb" kid who is boring, slow, a social "joke" were not confirmed. The low intelligence high school student did not score significantly lower than his gifted and average intelligence peer on any of the GZTS personality factors.

In general, what this study supported was that "We're all the same animal" concerning personality, regardless of intellectual level. Based on a given intellectual level alone, one cannot make predictions concerning personality functioning as measured by any of the 10 GZTS factors.

The sample mean for all three groups' scores also closely approximated those of the normative sample. Only one mean score deviated more than one standard deviation from the normative mean, while most were extremely close to the normative means. Therefore, the sample closely approximated that of the normative sample.

One weakness of this study was the lack of controls or differentiation by sex. As Gallagher (1966) reported, when studying giftedness, sexes should not be combined. Significant differences across sex on certain dimensions can be diluted by combining
sexes. Controls across sex or differentiation would also have been interesting in this study, especially on factors A, F, and M which were interpreted in the GZTS manual (Guilford & Zimmerman, 1949) differently for each sex. For this reason only general statements were given regarding ranges in discussion of these scores, dealing only specifically with means for combined sexes on these three factors.

Group administered intelligence tests generally do not yield as reliable and valid results as do individually administered instruments (e.g., Thorndike & Hagan, 1969). Perhaps the results of this study would have been different if the IQs for the students had been based on individual test administrations. Such a replication of this study with this modification would be highly relevant.

In reviewing the literature concerning the relationship between intelligence and personality, it was found that further research was needed concerning concise, independent, and little-researched factors such as the GZTS P, O, and T factors. Such traits have been under-researched, and often have been assumed to be functions of other factors from which Guilford & Zimmerman (1949) have shown them to be independent. For example, many researchers have assumed "being thickskinned" of factor O to be a part of a more general trait of emotional stability, ignoring the precise and independent functioning of O. Hopefully further such research would also include the "average" person, if applicable,
since including the middle range reduces the error of inflated data
and renders data more valid.
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