SECOND-ORDER PERSONALITY FACTORS: SUBDIVISIONS WITHIN AN INCARCERATED JUVENILE POPULATION

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PREFACE

Two personality tests, a biographical questionnaire, a biographical fact sheet, and a behavioral observation questionnaire were used to explore homogeneous groupings within an incarcerated juvenile population. Sixty-six male residents, from four juvenile institutions, were administered the Cattell Sixteen Personality Factor Questionnaire (16PF) form C, the Oklahoma Personal Style Inventory (OPSI), and a biographical questionnaire. Institutional line staff provided behavioral observations concerning each of the juvenile participants. Case records were consulted in order to complete a biographical fact sheet on each participant.

The results of this study reveal four clusters or groupings of juveniles. These clusters are differentiated and labeled on the basis of personality characteristics. The biographical variables, which by themselves do not delineate these cluster groupings very well, provide confirmatory support for the cluster identifications which resulted from the primary analysis based solely upon personality characteristics.

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CHAPTER I

INTRODUCTION

The term classification is sometimes used to refer to the procedure for deciding to which of a known number of existing classes a new object is to be assigned (Gordon, 1981). Classification is also defined as the ordering or arrangement of objects into groups or sets on the basis of their relationships (Sokal, 1974). The major difference between these two definitions is that classes exist prior to object assignment in the former and subsequent to the data analysis in the latter. This distinction is apparent in the difference between heuristically deduced classifications (a priori classification categories) and empirically induced classifications (a posteriori classification categories). Regardless of which of these two approaches is adopted, the primary purpose of a classification is to describe the structure and relationship of the constituent objects to each other while at the same time simplifying those relationships in order that general statements can be made about the various classes of objects (Sokal, 1974; Gordon, 1981; Hirschi & Selvin, 1967).

Since the amount of information describing objects is likely to be complex, methods of summarizing data can help to detect the important relationships and patterns within

the data. If patterns appear and clustering of objects result the clusters can be named and their properties summarized. This process of simplification produces a more efficient organization of the information and results in a taxonomy which subsumes the individual descriptions of the elements contained within it.

The assignment of an object to a specific classification grouping is dependent upon the internal cohesion or connectivity the object has with other elements of a cluster and the concurrent dissimilarity the object has with elements of other clusters. As such, classifications can be used to make predictions about other similar objects. The predictions may concern properties that are not recorded for the object but which are apparent in the other common cluster elements. On a deeper level, cluster membership can lead to the development of hypotheses concerning the observed data (Gordon, 1981; Wenk, Halatyn, & Harlow, 1974; Glasser & Strauss, 1968). In line with this, Sokal (1974) states that the principal scientific justification for establishing classifications is to stimulate the development and investigation of hypotheses. Under these circumstances, classification is viewed as an exploratory procedure.

Since a group of objects can potentially be classified in a variety of different ways, it is imperative that care be used in selecting the variables which will be used to differentiate the objects under study. If this is done, a classification is produced which adequately addresses the topic of interest. It should be apparent that the

usefulness of a taxonomy or classification is dependent upon the theoretical bases adopted for selecting the variables that describe the objects being typed (Bolz, 1977, Gordon, 1981).

Winch (1947) states that classifications can be either heuristically or empirically produced. Heuristic classifications are based upon strong theoretical foundations. Using theory as construction blocks, deductive logic is used to formulate a classification. Unfortunately, heuristic classifications often do not have applied utility because they lack operational definitions and have not been validated (Megargee & Bohn, 1979). Empirical classifications, which rely upon inductive logic, make use of the observed patterns of covariation within a set of variables. Empirical classifications are frequently the product of a multivariate statistical analysis. The resulting empirical taxonomy reflects the statistical relationships inherent within the data. Furthermore, empirically induced classifications have better practical application because they are derived from data supplied by a population to which the resulting taxomony will later be applied.

Ferdinand (1966) proposes a third way to formulate classifications which he calls a synthetic approach. This approach to classification formulation serves as a compromise between the empirical and heuristic methods of classification. The synthetic approach to classification utilizes the best aspects of the heuristic and empirical

models, specifically the theoretical foundation of the heuristic approach and the statistical and applied nature of the empirical approach.

The term classification, as it is used in correctional research, refers to a system or process by which correctional agencies differentiate the handling of criminal offenders. The justification for developing classifications of offenders reflects the sentiment that to treat all offenders as a single group tends to distort any real distinctions among them. Whereas, the evaluation of these distinctions may lead to a better understanding of the etiology of deviant and criminal behavior, or be used to guide the development of effective therapeutic and preventive programs (Wenk, Halatyn, & Harlow, 1974). Eysenck and Eysenck (1970) state that by attending to differences within the criminal population, differences between the criminal and normal populations will be easier to discern. Although they believe the search for a single theory of criminality is futile, they believe that breaking criminals into homogeneous units is still desirable because it makes the problem easier to study and ultimately easier to understand.

In light of the fact that many taxonomies and classifications have been put forth in the area of delinquent and adult corrections, criteria are needed to evaluate their usefulness. Roebuck (1967) indicates that any attempt to explain criminal behavior should be directed toward the discovery, through analysis, of particular or

unique behavioral patterns. Other criteria; clarity, objectivity, comprehensiveness, parsimony, reliablity, validity, and the production of mutually exclusive groupings are offered by Gibbons (1975) and Megargee (1977). In addition to these criteria, Gibbons points out that the value of any classification cannot be separated from how well it fulfills its intended function. This criterion, one of utility, is especially important.

According to Roebuck (1967) criminal classifications can be divided into four broad approaches. One approach, the legalistic, is based upon the definitions of criminal acts and the appearance of offense patterns. The second, the sociological approach, views criminal behavior as a product of social interaction, social orientation, or cultural values and rules. The third approach, physical-constituent-heredity, views criminality as arising from heredity or disease either of which may lead to the development of an abnormal organism. Finally, there is the psychological-psychiatric approach which views motivational patterns, arising from various personality structures and psychological states, as being the impetus for criminal action.

CHAPTER II

REVIEW OF THE LITERATURE

The criminal and delinquency literature is replete with heuristic taxonomies. Researchers using a legalistic approach have classified criminals by type of offense, such as violent assault (Megargee, 1966) and murder (Glaser, Kenefick, and O'Leary, 1968; Abrahamsen, 1960); and by pattern of offenses (Morris, 1965; Clinnard and Quinney, 1973; Glaser, 1972; Buikhuisen & Jongman, 1970; Gibbons, 1975).

Although the legalistic approach appears appealing, several criticisms of the heuristically derived, offense-based taxonomies have been presented by Megargee and Bohn (1979) and Hood and Sparks (1970). They claim that it is impossible to determine offense patterns for first and second time offenders because most criminals do not confine themselves to the commission of a single type of criminal offense. Further, the offense-based taxonomies prove to be less than acceptable in terms of placing all delinquents or criminals into their specified categories. Finally, the approach distorts reality because the actual offense patterns are often mitigated by plea bargaining.

The literature contains other heuristic classifications based upon a sociological approach. Researchers have

developed classifications based upon social structure, class structure, subcultural and cultural influences, group norms, values, and roles (Schrag, 1961; Garabedian, 1963, 1964; Ferdinard, 1966). Many of these sociologically based classifications are predicated upon Merton's Theory of Anomie (Merton, 1938), Sutherland's Theory of Differential Association (Sutherland, 1947), or Cohen's conceptualization of the delinquent subculture (Cohen, 1955).

Merton's Theory of Anomie proposes that normlessness develops when people are frustrated in their attempts to legitimately achieve socially or culturally valued goals. As a consequence, people engage in delinquency or criminality as an adaptive method of coping with a frustrating situation.

Sutherland states that delinquency or criminality arises when a person has learned more definitions favorable to the violation of law than definitions unfavorable to the violation of law. In essense, he introduces the notion that deviant behavior is acquired through a learning process that takes place within the "intimate personal groups" (1947, p. 6) with which one associates.

Cohen, on the other hand, scrutinizes the value system held by members of the delinquent subculture. He indicates that delinquents hold values that are largely nonutilitarian, malicious, and negativistic. Furthermore, he suggests that strong group solidarity results from shared counter-culture attitudes, norms, and values.

Heuristic classifications based upon the physical-

constituent-heredity approach also appear in the literature. Some of these classifications propose categories based upon differences in body type characteristics (Kretschmer, 1925; Sheldon, Hurtl, and McDermott, 1949). Other classifications, based upon developmental models, differentiate categories on the basis of individual maturity levels and complex information processing capabilities (Hunt and Hardt, 1965; Warren, 1969). The primary aim of the developmental classification is to produce groupings which are amenable to differential treatment. These differential treatments have been readily adopted in the area of educational programming. As such, the identification of appropriate therapeutic experiences, mechanisms for producing change, and the identification of attainable goals for each classification grouping is pursued.

The Warren classification (1969), which is based upon interpersonal maturity levels (Sullivan, Grant, & Grant, 1957), proposes nine juvenile subtypes. The nine subtypes span three levels of maturity (levels II-IV). The three levels and their corresponding subtypes are as follows: Level II - asocial aggressive and asocial passive, Level III - immature conformist, cultural conformist, and manipulator, Level IV - conflicted acting out, conflicted anxious, situational emotional reaction, and cultural identifier.

Warren states that the asocial aggressive subtype is active, demanding and aggressive when frustrated. The asocial passive subtype complains and then withdraws when frustrated. Both of the level II juvenile types operate

from a strictly egocentric perspective.

At the next maturity level (III), the juveniles have an awareness that their behavior has an influence on other people. Juveniles at this stage often attempt to manipulate others as a means of achieving their personal goals. The three subtypes at this maturity level are the immature conformist who follows whomever is in the position of power, the cultural conformist who adheres to the rules of the delinquent peer group, and the manipulator who strives to ascend to a position of power.

Juveniles at Level IV have developed to a level where they possess an internalized set of values. They are able to perceive how their behaviors influence others and how the behaviors of others influence them. The four subtypes at this level are; the conflicted acting out who misbehaves in an effort to avoid anxiety, the conflicted-anxious who is characterized by emotional disturbance, the situational emotional reaction subtype who exhibits acting out behavior in response to a crisis situation, and the cultural identifier who adheres to the delinquent culture value system.

The Warren system has been supplemented with differential treatment methods. Indications of treatment effectiveness have been supplied by Warren (1977) and Palmer (1974) who indicate that differential treatment methods yield differential outcomes (in terms of recidivism) between experimental and control groups. Regardless of the fact that the outcomes were not all in the expected direction

(i.e., lower recidivism for experimentals than controls), the fact that treatment is differentially affecting outcome and that most juveniles can sucessfully be categorized into one of the nine subtypes is viewed as support for this particular classification system (Megargee and Bohn, 1979).

In addition to the heuristic classifications there exist empirically induced classifications. The empirical classifications are usually produced from the interpretation of multivariate statistical results, specifically from techniques such as component analysis, cluster analysis, and discriminant analysis. Typically the component analytic procedures make use of the intercorrelations/similarities among variables which are then used to identify the underlying dimensions or components. In the case of cluster analysis, objects or subjects are usually grouped together on the basis of dissimilarities/distances. In the case of discriminant analysis the object or subject groups are already known and a linear composite of the variables is developed to discriminate between the groups. Relying on these statistical techniques, the empirical approach often emphasizes the identification of homogeneous groupings of objects or subjects within the population under study.

From a purely empirical standpoint the statistical outcomes, in their raw form, define the classification. As such pure empiricism does not attempt to integrate theory with the empirical findings. Fortunately, researchers performing empirical studies use theory and the results obtained in past research studies to guide their

interpretations. This synthesis is particularly helpful in labeling clusters and factors. As a result, most empirical studies reflect a synthetic approach.

Empirically induced juvenile and criminal classification systems have been generated by many investigators. Megargee (1966), using the Minnesota Multiphasic Personality Inventory (MMPI) profiled murderers. He distinguished two broad personality types which he termed the under-controlled (exhibiting few inhibitions) and the over-controlled (over-inhibited types). The existence of these two types have been confirmed by Wardell and Yeudall (unpublished manuscript). Wardell and Yeudall administered a battery of psychological and neuropsychological tests to a sample of criminal patients at a mental hospital. The data were subjected to factor analysis producing ten interpretable factors. Respondent factor scores were subsequently cluster analysed. This produced a four cluster solution. Two of these clusters were described as low in inhibition and labeled primary and secondary psychopaths. The two remaining clusters were high on inhibition and labeled violent aggressive and overcontrolled hostile.

Jenkins and Hewitt (1944) describe three personality syndromes commonly encountered in child guidance clinics. These syndromes were related to three types of children. They were labeled; the overinhibited type, the unsocialized aggressive type, and the socialized delinquent type. Hewitt and Jenkins (1946) extended the understanding of these three types of child syndromes by performing a correlational

analysis on behavioral observation data. Jenkins and Glickman (1947) replicated their findings by applying the same analysis scheme to data obtained from adjudicated delinquents. In both studies, clusters of behavioral observation variables were identified to describe each juvenile type. The analyses produced the same types except the label of the overinhibited type was changed to the disturbed type by Jenkins et al. (1947). The unsocialized aggressive type was described as impudent, irritable, vulgar, disobedient, and aggressive. The socialized delinquent type was described as exhibiting loyalty toward group members, displaying courage in adhering to group codes, and possessing a basic socialization. The disturbed type was depicted as lonesome, showing poor social integration, overdependent, immature, seclusive, apathetic, and suspicious.

Quay (1964) applied factor analysis to the same type of data used by both Jenkins and Glickman (1947) and Hewitt and Jenkins (1946). Four factors were produced. These factors were labeled, unsocialized-psychopathic (assaultive, malicious, defiant), neurotic-disturbed (anxious, withdrawn, hypersensitive, possessing feelings of inferiority), subcultural-socialized (strong delinquent peer group ties and values, looking for the approval and recognition of delinquent peers), and inadequate-immature (apathetic, mildly neurotic, and immature).

In the decade that followed, Quay and Parsons (1970) and Quay and Peterson (1975) developed a three instrument

multidimensional behavioral classification system. The system is based upon three separate types of information concerning incarcerated juveniles. These three types of information consist of, ratings from institutional staff members acquainted with the juveniles in question, data obtained from the case history files, and juvenile self-report data. These three types of information were used to assign juveniles into one of the four classification categories put forth by Quay (1964).

Megargee and Bohn (1979) indicate several drawbacks associated with the Quay behavioral classification system. First, the system only stipulates four types (each represented by a single dimension) therefore making it difficult to classify those juveniles who exhibit high factor scores on more than one dimension. In essence, the Quay system contains only four possible types when a maximum of 16 types (2^4) could be found to exist if high or low measures were used to describe each dimension and patterns across the four dimensions were interpreted. A second drawback concerns the need to obtain extensive case history data which may not be readily available. It is also likely that an extended time period would be required for institutional staff to become sufficiently acquainted with each juvenile in order to provide an assessment of their behavior. Finally, the length of time a juvenile is incarcerated may be too short (3-9 months) to warrant the extensive data collection necessary to make an appropriate classification.

The preceeding review has served to indicate the large volume of heuristic and empirical taxonomies which have been generated. Owing to the large number of independently generated classifications, it is quite possible that researchers are describing the same basic types but affixing different labels to them. Hirschi and Selvin (1967) in addressing the redundancy of factor analytic work state that,

> ...there is little point in replicating a methodologically sound factor analysis where the analyist restricted his interpretation to those factors with strong, clear patterns, since, a replication will only serve to confirm the existence of the major dimensions of variation produced by the earlier study (p. 56).

Two researchers, working independent of one another have each proposed their respective interpretations of the redundancy of meaning behind the labels used in various taxonomies. These enquiries were conducted by Kinch (1962) and Warren (1971).

Kinch reviewed 15 classifications and noted that each classification could be viewed in terms of the offender orientation to the larger society and the degree to which different groups serve as major reference sources. As a result, he proposed three broad categories which he labeled; antisocial (individuals having criminal peer associations and possessing criminal norms and values), prosocial (individuals having normal values and peers but become known to the correctional agencies as a result of happenstance or participation in adolescent pranks), and asocial (individuals who possess neither majority nor criminal

values, identify with neither group, and have inadequately developed superegos).

Warren (1971) performed a cross tabulation on a combination of 16 empirical and heuristic delinquent and juvenile classification systems. Her analysis produced six cross-classification bands that resemble the categories she advocates in her own developmental classification. The first classification band labeled the asocial type, includes individuals characterized by alienation, impulsivity and hedonism. The second band labeled the conformist type, contains individuals characterized by behaviors which are shaped by external rules or structure and a lack of internalized values. A third category, the antisocial manipulator type, is characterized by individuals who are hostile, lack conventional values, are free of guilt, exhibit power seeking behavior, and are defiant. The fourth band contains the neurotic type who is characterized by depression, anxiousness, inhibition and maladjustment. The fifth type is labeled the subcultural-identifier. Individuals in this group are characterized by an internalized set of criminal values. Finally, there is the situational type who is basically a normal individual with conventional values but ends up violating the law in response to extreme situational circumstances.

The preceeding review has provided an extensive and thorough yet not exhaustive examination of the many efforts to develop heuristic and empirical legalistic, sociological, and physical-constituent-heredity classifications. Another

avenue which has been pursued in the criminal and delinquent classification literature is the psychological-psychiatric approach. Researchers using this approach have attempted to differentiate between criminal and normal populations with personality measures. Review articles by Schuessler and Cressey (1950), Waldo and Dinitz (1967), and Tennenbaum (1977) indicate that 42%, 80%, and 67%, respectively, of the studies in this area reveal personality differences between criminal and noncriminal samples. In addition, they indicate that recent studies reveal personality differences within the criminal population.

According to Waldo and Dinitz (1967), and Tennenbaum (1977), the studies that claim real differences between the criminal and noncriminal populations are capitalizing on tautological arguments which ensure that these differences will be found. An example is seen in the use of the Psychopathy scale (Pd) of the MMPI. This scale is operationally defined as a scale containing those items which discriminate between a group of young delinquents and a group of normal juveniles (Tannenbaum, 1977). When these group differences are produced researchers conclude that criminals are more psychopathic then noncriminals. In light of this type of tautological argument, these authors propose that the identified differences between criminal and normal groups have been inadequately demonstrated. The reported differences within the criminal population, however, are considered real.

In order to examine some of the personality differences

within the criminal population studies using the Eysenck Personality Questionnaire (Eysenck and Eysenck, 1975), the Cattell Sixteen Personal Factor Questionnaire (16PF) (Cattell, Eber, Tatsuoka, 1970), and several other personality inventories will be reviewed. The purpose of this review is to determine which dimensions seem to differentiate criminal types.

While proposing the use of personality measures as variables for offender classification, Eysenck, Rust, and Eysenck (1977) suggest that no comprehensive offender classification currently exists which subsumes all forms of criminality. Further, they suggest that failure to find a useful taxonomy lies in the exaggerated expectations of what is to be found. In response to the heuristic classifications showing sociological and environmental causation, Eysenck, Rust, and Eysenck (1977) state that,

> ...psychological theories centering in genetic causes, mediated through personality factors, may be equally important and may be useful in arriving at an empirically verifiable classification (p. 169).

Citing both twin and adopted children studies (Eysenck, 1973; Crowe, 1972; Hutchings and Mednick, 1973) which lend support to a strong genetic foundation, Eysenck and Eysenck (1970, 1971a, 1971b) make the case that criminal behavior is linked with three personality factors. They call these factors Neuroticism (N), Extraversion (E), and Psychoticism (P).

The rationale for tying the E and N factors to criminality (Eysenck and Eysenck, 1970) rests on the

assumption that the propensity to commit crime is universal. Fortunately for society, most people hold this predisposition in check by developing a generalized set of classically conditioned responses. These responses (purported by Eysenck to represent the conscience), may be inadequately developed if either, the necessary social and family conditions did not exist to foster their development, or, there existed an innate weakness in the mechanism(s) involved in the elaboration of conditioned responses. Since it has been indicated that extraverts do not condition as well as introverts, under certain conditions, it is possible that extraverts fail to be properly socialized (Eysenck, 1982). This rationale has lead Eysenck to suggest that extraverts are more prone than introverts to behave in an antisocial fashion. In addition, high degrees of anxiety or neuroticism tends to act as a drive which reinforces the extraverted or introverted tendencies to either favor or disfavor antisocial conduct. Based upon this logic, it was deduced that antisocial conduct would be found more frequently in people whose personality characteristics reflected both high levels of extraversion and high levels of neuroticism (Eysenck & Eysenck, 1970).

Eysenck (1967) has stated that the N and E factors are orthogonal to one another. In addition the third factor, P, is orthogonal to both E and N (Eysenck and Eysenck, 1970). The P factor, which has only recently been related to criminality, is still undergoing investigation. The current expectation, however, is that criminals will yield high

Psychoticism scores.

Based upon this theoretical foundation, Eysenck, Rust, and Eysenck (1977), suggest that a proper classification, based upon personality and sociological variables (the types used by criminologists for offender classification) could be developed. Using the Eysenck Personality Inventory (EPI) and three psycho-physiological measures (galvanic skin response, conditioning to air puffs, and evoked potentials) Eysenck, Rust, and Eysenck tested five offender groups whose a priori classification was determined using criteria reflecting the criminals' offense pattern. The results supported the idea that psychological factors can be used to differentiate groups of criminals. These results support the contention made by Eysenck and Eysenck (1970) that by paying attention to the E, N, and P factor differences, smaller homogeneous groups of criminals may be obtained.

Eysenck's Theory of criminality has received empirical support from Wilson and MacLean (1974), Eysenck (1974), Burgess (1972), McGurk and McDougall (1981), and McEwan (1983). Several other studies (Hoghughi and Forrest, 1970; Cochrane, 1974) produce results showing delinquents as more introverted than adolescents in the normal population. These last two studies run counter to the expected higher extraversion scores proposed by Eysenck.

Gossop and Eysenck (1983) studied personality factor differences between drug addicts in treatment and the criminal population. They found that male prisoners were more extraverted than male drug addicts but that male drug

addicts were more neurotic than male prisoners. Female prisoners and female drug addicts did not display any dramatic differences. This lead to the conclusion that female prisoners are more psychiatrically disturbed.

The research results obtained with the Eysenck Personality Inventory (applied to both criminals and delinquents) largely support Eysenck's theory that a large portion of the criminal population will score high on the E, N, and P dimensions. Further, these studies support the idea that there exist personality differences within the criminal population.

In order to gain a more thorough understanding of the actual meaning of the E, N, and P factors, it will be instructive to consider an extension of the Browne and Howarth study (1977). Eysenck (1978) performed a principal components analysis using the correlation matrix reported by Browne and Howarth. The Browne and Howarth study consisted of a factor analysis of 400 personality test item scores which were extracted from empirical studies in the field. Browne and Howarth produced a 19 factor solution. Eysenck (1978), pointed out that the this was not the best solution because the factors were intercorrelated owing to a maximum oblique factor solution. Observed factor inter-correlations were observed as high as $r = .59$.

By using the intercorrelation matrix reported by Browne & Howarth, Eysenck generated a three dimensional solution. He labeled the dimensions N, E, and P. The attributes defining each component are as follows: N, or neuroticism,

moodswings, inferiority, poor emotional adjustment, lack of social responsibility, high suspicion, lack of persistence, social shyness, impulsivity, and a poorly developed superego; E, or extraversion, low social shyness, sociability, friviolity, impulsiveness, general activity, social conversation, and overt sexuality; P, or psychoticism, dominance-leadership, optimal arousal, dominance, and the absence of superego strength.

Eysenck (1978) says these descriptions represent close approximations to the constructs measured by the N and E dimensions but less so for P dimension. The reason, according to Eysenck and Eysenck (1976), is that the traditional inventories (upon which the Browne and Howarth study was based) have stressed the N and E dimensions while not being overly concerned with psychoticism as a dimension of personality.

Eysenck (1978) states that the N, E, and P factors represent "higher order superfactors" (p. 475). He states that his factors are further up in the personality hierarchy than the primary or first order factors offered by Cattell and Guilford. An extended discussion of the nature of the Cattell, Eysenck, and Guilford factors is offered by Guilford (1975).

The Handbook for the 16 Personality Factor Questionnaire (Cattell, Eber, Tatsuoka, 1970) provides profiles produced by delinquents who were administered the 16PF. Delhees (1977) also provides profile information using this test. Delhees presented the differences and similarities between

normal, delinquent, and neurotic samples. According to Delhees, delinquents score higher than normals on certain of the 16PF scales. These scores indicate that juveniles are more tense, frustrated, driven (Q4), suspicious, jealous (L), ascendant, dominant, assertive, aggressive, competitive, stubborn (E), and slightly more sensitive and dependent (I), than normals. At the opposite extreme, delinquents score lower than normals on six of the 16PF scales. These scores indicate that juveniles possess less ego strength, are emotionally less stable, more easily upset (C-), lack self control, follow their own urges, disregard social rules (Q3-), are shy, timid, restrained, and withdrawn (H-), do not accept group standards, disregard rules, are expedient (G-), have dull intelligence (B-), and are slightly more conservative or tolerant of traditional ideas (Q1-), than normals. Delhees (1977) also states that delinquents and neurotics are quite similar except that delinquents are less anxious, less introverted, less compulsive, but more dominant and more impulsive.

In addition to the 16 first-order personality characteristics produced by the 16PF, Cattell provides four second-order factors labeled extraversion, anxiety, tough poise, and independence. The extraversion and anxiety factors account for most of the variance in personality functioning (Karson & O'Dell, 1976).

Karson and O'Dell provide the 16PF primary scale patterns which best exemplify each of the four second-order trait composites. Specifically, they indicate that extraversion

is indicated by the patterning of four primary scales. The pattern consists of high sten scores on scales, A (warmth), F (impulsivity), and H (boldness), and a low sten score on scale Q2 (self-sufficiency). Introversion is represented by an inverted extraversion profile pattern. Anxiety is indicated by the pattern of five primary scale scores. This pattern consists of high sten scores on scales, Q4 (high tension), O (guilt proness), and L (suspiciousness), and low sten scores for scales, C (ego strength), and Q3 (compulsivity). The inverted anxiety profile is indicative of individuals who are considered to be adjusted. High tough poise (cortertia) is represented by the pattern created by three primary scales. This pattern consists of low sten scores on scales, A (detachment), I (tough-mindedness), and M (practicality). People having this scoring pattern are described as less likely to be swayed by their feelings than their intellect. An inverted sten score pattern is produced by individuals who are thought to be influenced more by their feelings than by their intellect (pathemia). The fourth second-order composite is called independence. Independence is represented by the pattern created by five primary scales. This pattern consists of high sten scores on scales, E (dominance), L (suspiciousness), M (imagination), Q1 (rebelliousness), and Q2 (self sufficiency). Subduedness is represented by the inverted sten score pattern indicated for independence. Although other second-order factors have been suggested, the four mentioned above account for most of the overall

variance and have received the most empirical support.

Evidence for the 16 primary and the four secondary factors was provided by Bolton (1977). He collected 16PF data from 449 rehabilitation clients. The data were factor analysed at the item level (128 items), parcel level (32 parcels of 8 items per scale), and the scale level (16 scale scores). The results verify the existence of the second-order traits. Five second-order traits; intelligence, extraversion, anxiety, tough poise, and independence, were found at each level of analysis (item, parcel, and scale).

Krug (1977) compared the 16PF with the EPI and found that by using the 16PF primary scale scores it is possible to reconstruct 99% of the variance of the EPI. Conversely, the EPI could only account for 32% of the variance of the 16PF. This led to the conclusion that the EPI is narrower in scope than the 16PF.

In a study by Heskin, Bolton, Banister, and Smith (1977), the EPI, 16PF, and Hostility and Direction of Hostility Questionnaire (HDHQ) were administered to 175 long-term prisoners. The data were factor analysed producing five factors. Factor I was called Anxiety. It was characterized by Neuroticism on the EPI and guilt proness (O), high tension (Q4), low ego strength (G-), restraint (H-), lack of control (Q3-), and conservativeness (Q1-) from the 16PF. Factor II loaded on trusting (L-), submissive (E-) from the 16PF and a host of hostility measures from the HDHQ. This factor was called Hostility. Factor III, labeled Extraversion, loaded on Eysenck's extraversion, and the 16PF

scales of, impulsivity (F), warmth (A), boldness (H), and dependence (Q2-). Factor IV, loaded on shrewdness (N) on the 16PF, and the lie scale of the EPI. It was suggested that this represented Intellectual and Conversational Skills associated with convict jailyard talk. The last factor, V, was interpreted as Manipulation. This factor consisted of three 16PF loadings, low intelligence (B-), practicality (M-), and submissiveness (E-), and a high score on the EPI Lie scale.

Heskin et al. (1977) indicate that the first two factors, Anxiety and Hostility account for 34% of the variance while a third factor Extraversion accounts for only 10% of the variance. They suggest that intropunitive and extrapunitive facets of personality exceed the importance of extraversion in the prison population.

In two additional studies (McGurk, McEwan, & Graham, 1981; and McGurk, McEwan, and McGurk, 1983), delinquents were administered three personality inventories; the 16PF, HDHQ, and the Psychological Screening Inventory (PSI). In both cases, cluster analysis was applied to the raw data. Both studies produced four cluster solutions. The clusters were labeled anxious/withdrawn, normal, disturbed, and truculent (fierce, cruel, savage, rude, harsh, and mean). These studies confirm the expectation that definite personality subgroups within the criminal group exist. However, age, intelligence, and number of convictions failed to further differentiate the clusters.

A different source of information, biodata, has also been

used for classification purposes. Biodata consists of information that reflects historical events in a person's life. This information is usually verifiable. Biodata may be obtained using demographic, behavioral, and biographic variables.

Studies using biodata have been carried out by Blakely, Stephenson, and Nichol (1974), and Wilgosh and Paitich (1976). Both research groups conclude that family interaction variables, focusing on parental behaviors and parent-child relations and communication, are important variables to be included in attempts at juvenile classification.

A series of factor analytic studies utilizing demographic and behavioral variables, obtained from male and female incarcerated juvenile and adult populations, have been reported by Heckel and Mandell (1981a, 1981b, 1981c). The 48 variables used in these factor analytic studies focus on the respondents' significant interpersonal relationships, educational history, offense history, substance abuse history, parent-child relationships, parental harmony, type of discipline methods employed by the parents, and various behavior observation measures obtained during an interview session. These data were factor analysed producing dimensions representing the biodata patterns within the institutionalized population. Heckel and Mandell state that the patterns of demographic and behavioral variables defining each factor provide information separate and apart from that generated by similar procedures using personality

test measures. They go on to suggest that the clusters of biodata variables loading on each dimension can be interpreted as representing socially maladaptive behavioral patterns which lead to eventual prison involvement. In particular, those variables which reflect negative life experiences, such as exposure to parental divorce, being reared in a broken home, lack of parental closeness or support, dropping out of school, degree of parental discord, socioeconomic status of the family, substance abuse history, types and frequency of various crimes, and family involvement in criminal or illegal activities, are said to be associated with the appearance of maladaptive patterns of behavior. Using the clusters of biodata variables appearing on each factor, Heckel and Mandell (1981a) made the following interpretations for each of the six factors. factor I was interpreted as representing the expressive offender, factor II the neurotic offender, factor III the advantaged offender, factor IV the bright habitual offender, factor V the offender from a broken home, and factor VI the entrepreneurial offender.

Researchers involved in a more recent study (Smith, Quinn, Allen, and Heckel, 1983) factor analysed data collected from self-report opinion surveys, observer behavior checklist ratings, and case record information. A factor analysis of the data produced eight factors. The factors were described as (a) the undersized youthful offender with emotional problems, (b) the aggressive threatening offender, (c) the drug subculture repeat

offender, (d) the neurotic polyabuse offender, (e) the institutionally unadjusted offender, (f) the bright offender, (g) the immature neurotic offender, and (h) the established psychopathic offender.

Although there are notable differences between the solutions presented by Smith et al. (1983) and Heckel et al. (1981a), they probably result from the differences in variables used to interpret the dimensions. Both groups of researchers, however, agree that biodata (demographic, behavioral, and biographical information) are important factors to be considered when developing a classification of juvenile or adult incarcerates. Furthermore, they indicate that biodata variables provide a source of information separate from that provided by personality test measures.

A personality inventory that has not been administered to a delinquent population is the Oklahoma Personal Style Inventory (OPSI). This inventory, developed by Cervantes (1982), purports to identify individual adaptation strategies or coping styles. The inventory consists of five scales, three adaptive strategy scales (i.e., assimilation, accommodation, and conservatism) and two response bias scales (i.e., social desirability and repression).

Individuals obtaining high scores on the assimilation scale are described as being inner-directed, achievement oriented, diligent, and independent. These individuals utilize strategies which place an emphasis on the modification of the environment as a means of satisfying internal needs. In essence, these individuals exert

influence on the environment in order to satisfy personal demands and needs. Since assimilators are internally motivated and establish their own goals, they can be expected to exhibit a fair degree of control over their environment.

Individuals obtaining high scores on the accommodation scale are described as easily influenced by others, gregarious, and responsive to environmental stimuli. These individuals readily accept and adapt to changes in their environment. Since accommodators generally conform to external sources of influence, whether these be interpersonal or situational, they can be viewed as externally motivated, adaptive, and flexible. These individuals are usually well liked by others because they are not confrontive or antagonistic. As a consequence, those individuals labeled accomodators are viewed as, out going, sociable, liked by others, extraverted, followers, easy going, and compliant to external sources of influence.

The third scale, conservatism, describes people who are moralistic, family oriented, conscientious, and traditional. These individuals are relatively unaffected by external influences. Instead, they adhere to their internalized ideals, beliefs, and values. It is common for conservatives to engage in routine or stable activities. These activities provide more consistency and safety than participation in novel or exciting ventures. Furthermore, an attempt to alter a conservative's value or belief structure will be perceived as a threat. As such, conservatives tend to

interact with persons possessing similar backgrounds and values to their own. This strategy reduces the possibility of encountering ideological conflicts. These individuals tend to insulate themselves from threatening stimuli by either avoiding or ignoring them. As a consequence, these individuals may appear aloof, rigid, and unwilling to engage in risk taking behavior.

The fourth and fifth scales, contained in the OPSI, are the response bias scales called social desirability and repression. The social desirability scale serves as a measure of the respondent's tendency to respond to the inventory questions in a socially desirable fashion. Simply stated, the respondent will generate the response that places him/her in a socially advantageous manner, (regardless of whether it is true). The nine items used to make up this scale were selected from the 39 items of the Edwards Social Desirability Scale (Edwards, 1957). The repression scale, on the other hand, measures the degree to which the respondent favors negative over affirmative responses to questions that everyone, if answered honestly, could not deny. A question like, I sometimes get angry - answered no would be an indication of repression since everyone at some time gets angry. This scale can therefore be said to measure respondent nay-saying. The eight repressive items were selected from the MMPI R Scale (Cervantes, 1982).

Anastasi (1978) states that while response sets are often used to remove error variance from the respondents' scoring

pattern, they may also be interpreted as broad and enduring personality characteristics. Cervantes (1984) appears to have used these response bias scales as an indication of the latter.

Cervantes (1984) compared OPSI scale scores obtained from a sample of normal college students with those obtained from a sample of psychiatric inpatients. An a priori expectation was to find differences between the adaptation strategy patterns produced by these two groups.

Cervantes reports significant mean differences between the college group and the psychiatric group on the conservatism scale and the social desirability scale. In addition, he states that the college group displays a general coping factor which is not indicated for the psychiatric group. Jaynes (personal communication) has indicated the existence of a computational error which when corrected reduces the strength of the argument supporting the existence of the general coping factor in the college sample. The significant mean differences for conservatism and social desirability were not affected. The analysis of the corrected data appear to be somewhat consistent with the views of Schuessler and Cressey (1950), Waldo and Dinitz (1967), and Tennenbaum (1977) who indicate that personality differences between normal and criminal groups (analogous to normal versus psychiatric) do not exist, while, within group personality differences do exist.

It is interesting to note the possible correspondence that exists between the constructs measured by each of the

three OPSI adaptation strategy scales, and the constructs measured by the four 16PF second-order trait composites. Although there is not a perfect correspondence, at least two of the OPSI scales, accommodation and assimilation, appear to measure constructs similar to those measured by the second-order traits of extraversion and independence. The similarity between the construct measured by each pair of scales is revealed when one considers the descriptions provided for each scale and trait.

Cervantes (1984) describes individuals scoring high on the OPSI scale of accommodation as carefree, liked by others, people-oriented, seeking novel and exciting situations, and adaptive to external sources of influence. In comparison, the 16PF extraversion composite reflects a construct generated by the A, E, F, H, and -Q2 primary scales. Cattell, Eber, and Tatsuoka (1970) provide descriptions for each of these primary scales. Individuals scoring high on the A scale are described as warm, outgoing, and participating. Those scoring high on the E scale are viewed as assertive and competitive. Individuals scoring high on the F scale are described as happy-go-lucky, heedless, enthusiastic, talkative, and alert. Those individuals receiving high scores on the H scale are seen as socially adventurous and enjoy meeting people. Finally, those individuals obtaining low scores on the Q2 scale are said to exhibit group dependency, be followers or joiners, and adhere to group standards and values.

The common link between the OPSI accommodation scale and

the 16PF extraversion composite is sociability, adventurousness, enthusiasm, and adherence to group or external scources of influence. As such, it is likely that both the accommodation scale and the extraversion composite provide approximate measures of the same construct.

Cervantes has identified individuals scoring high on the OPSI assimilation scale as being independent of others, achievement-oriented, inner-directed, and able to modify their environment in order to satisfy internal demands. According to Cattell, Eber, and Tatsuoka, the 16PF second-order composite labeled independence reflects a construct generated by the E, L, Q1, M, and Q2 primary scales. They interpret high scores on each of these scales in the following fashion. High scores on the E scale indicate independent-mindedness, dominance, assertiveness, ascendence, and competitiveness, high L scale scores indicate suspicion, high Q1 scale scores indicate liberalism and free-thinking, high M scale scores reflect imagination, and the high Q2 scale scores measure self-sufficiency. Although the 16PF independence trait score includes measures of suspicion and imagination (which probaby are not measured by the assimilation scale), the E, Q1, and Q2 scales which measure aggressiveness, assertiveness, competitiveness, free-thinking, and self-sufficiency, seem to match the characteristics of the assimilator quite well. It is, therefore, likely that both the assimilation scale and the independence composite provide approximate measures of the same construct.

The construct measured by the OPSI conservatism scale does not correspond to either of the constructs measured by the two remaining 16PF second-order trait scores of anxiety and tough poise. The conservatism scale has been identified by Cervantes as measuring individuals possessing traditional, moralistic, and family orientations. Furthermore, conservatives prefer stable and routine activities over novel or exciting ones. In order to generate an approximate measure of the construct measured by the conservatism scale, three 16PF primary scales can be pooled. The Q3, G, and -F scales were chosen to produce this composite. Cattell, Eber, and Tatsuoka state that high scorers on the Q3 scale are self-controlled, maintain an organized and calculated approach to life, and conform to group standards. High scorers on the G scale are moralistic, conventional, resistant to change, responsible, conscientious, concerned about moral standards and rules, and possess high ego strength. Low scorers on the F scale are introspective, taciturn, serious, and adhere to their inner values and standards. Taken together, these three 16PF primary scales produce a measure of an individual who is serious, conscientious, conventional, moralistic, sober, controlled, exacting will power, and resistent to changes in value orientation. This composite appears to provide a reasonable approximate to the construct proffered by Cervantes for Conservatism.

In summary, it is appears that the aforementioned corresponding OPSI scales and the 16PF second-order

composites are measuring similiar constructs. In addition, the 16PF second-order composites of tough poise (possessing low levels of warmth, tender mindedness, and imagination) and anxiety (exhibiting low levels of ego strength and compulsivity and high levels of suspicion and guilt) do not appear to be related to either of the three OPSI adaptation strategies. In addition, the relation of the two OPSI response bias scales to the 16PF second-order trait scores is not apparent. Since Anastasi (1978) has indicated that the response patterns may be interpreted as underlying personality characteristics, some sort of relationship between the 16PF second-order traits and the response set scales may exist.

The question as to whether the previously identified pairs of 16PF and OPSI scales provide approximate measures of the same constructs will be addressed in this current research study. The scale-composite correspondence can be determined by investigating the factor loading patterns generated from a factor analytic procedure. Both Anastasi (1978) and Cronbach (1984) indicate that construct validity may be extended to new test instruments by factor analysing the scores obtained from the new test with those obtained with more thoroughly investigated test instruments whose scales purport to measure similar constructs. Since the process of factor analysis reduces the number of variables or categories that are introduced, a smaller number of factors or common constructs is revealed. As such, the variables which exhibit large loadings on each dimension can

be interpreted as measuring the construct which represents that factor. The identification of the construct represented by a particular factor is revealed by assessing the meanings of those variables loading on it. More precisely, the construct representing a given factor is determined by the variables exhibiting large positive or negative loadings on it.

It has been suggested by Thurstone (1947) that at least three variable anchors are needed to properly identify the construct representing a given factor. This requirement makes it necessary to split either the three OPSI adaptation strategy scales or the four 16PF second-order trait scores. A decision to split the OPSI scales instead of the 16PF second-order scores was based on the knowledge that the 16PF scores are produced by a weighted composite of primary scale scores. Since the second-order composite scores are based upon these weighted scores (weights based on normative data), it seemed best to leave them unified. Additionally, the 16PF primary scales contain fewer test items than each of the three OPSI scales. Since the OPSI scales contain more items, are not weighted, and do not have established norms, they were chosen to be split. In addition, the items making up each OPSI scale are fairly homogeneous and as such would almost certainly produce two scales measuring the same construct. The internal consistency measures provided by Cervantes (1984) are .68 for conservatism, .61 for accommodation, and .81 for assimilation.

As a result of splitting the OPSI scales, a total of 13

personality measures will be generated. They are the extraversion, anxiety, tough poise, independence, and constructed conservatism composites from the 16PF and the assimilation I, assimilation II, accommodation I, accommodation II, conservatism I, conservatism II, repression, and social desirability scales from the OPSI.

Statement of Problem

Principal and multiple group component analyses will be used to investigate the question of construct correspondence between the OPSI scales and the 16PF composites. This line of enquiry supplements the principal focus of this study, that being the exploration of personality subgroups in the delinquent population. Both the OPSI and the 16PF will be used to obtain personality measures from each of the subjects participating in this study. Additional biographical and behavioral variables (biodata) will also be collected.

It is proposed that the accommodation, assimilation, and conservatism OPSI scales will correspond to the 16PF extraversion, independence, and the constructed conservatism composites, respectively. In addition, it is expected that several homogeneous clusters, reflecting personality patterns, will be identified in the sample. Finally, biodata measures will be used to provide a fuller interpretation of the dimensions previously defined by the personality measures, and, to see whether the

differentiation of subjects, previously produced using the personality generated component scores, can be shown using the biodata variables alone.

CHAPTER III

METHOD

Subjects

A list of 30 male residents from each of four juvenile institutions were randomly selected from institutional population rosters for participation in this study. At each institution, 20 subjects, were asked to participate in this study. Those who consented were assigned to one of the two test sessions conducted at each institution. Each subject was asked to sign a statement of voluntary participation. This was done in order to protect both the institution and the experimenter from any grievances concerning coerced participation. In addition, the form stipulated that participants would receive two dollars compensatory pay. If a subject rejected the offer to participate, a substitute resident (randomly selected resident 21 through 30) was extended the opportunity. Once a total of 20 residents (per institution) had been recruited the search for subjects was terminated. Of the 80 subjects that had agreed to participate, 14 changed their mind prior to or at the test session. As a result, a total of 66 incarcerated juvenile delinquents participated in the data collection phase of this study. The participants ranged from 13 to 18 years of age.

Materials

16PF Form C

The Cattell Sixteen Personality Factor Questionnaire (16PF) Form C, contains 105 multiple choice test items. Each questionnaire item provides three alternative responses. These responses, with the exception of those corresponding to the intelligence scale, possess a positive, neutral, and negative anchor. The questionnaire items produce 16 scales each measuring a different personality characteristic. The 16 scales measure warmth, intelligence, ego strength, dominance, impulsivity, group conformity, boldness, tender-mindedness, suspiciousness, imagination, shrewdness, guilt proneness, rebelliousness, self-sufficiency, compulsivity, and free-floating anxiety. These primary scales can be used to generate four second-order personality trait scores. These second-order traits are, extraversion, anxiety, tough poise, and independence.

In order to simplify the the task for the subjects (reduce problems associated with reading disabilities), and eliminate the potential for transcription errors (i.e., reading the question, selecting the answer, and then marking the corresponding response letter and question number on the answer sheet) a cassette recording of the questionnaire was prepared. The administration of this test lasted forty-five minutes.

16PF Scoring

The test responses were subsequently hand scored, using scoring templates, to obtain the raw scores for each of the 16 primary scales. The primary scores were translated into sten scores (standard scores with a mean of 5.5, a standard deviation of 2, and a range from 1 to 10) by consulting the normative tables for high school males, test form C (scoring manual). The four second-order trait scores and the constructed conservatism scale score were calculated using the resulting 16 primary scale sten scores. The procedures for obtaining these second-order scores appear in the 16PF scoring manual. The constructed conservatism score was calculated by using the G, F, and Q3 scales. Both the G and Q3 scales were positively weighted while the F scale was negatively weighted. Each scale received a unit weight. The composite was adjusted to reflect a sten score with a mean of 5.5, a standard deviation of 2, and a range from 1 to 10.

In addition to the 16 primary scales, and the four second-order scores, a motivational distortion scale (MD) was assessed. This scale measures the degree to which each respondent attempts to project themself as a good person. A high score on this scale indicates that the individual is making themself look better than they really are. As such, this scale provides a faking score (in the positive or desirable direction). The scoring manual provides normatively derived sten score corrections for subjects

obtaining a sten score of seven or higher on the MD scale. The recommended scale corrections were administered prior to further data analysis. A total of 18 subjects required sten score corrections.

OPSI

A second personality test, the Oklahoma Personal Style Inventory (OPSI), contains 46 test items (Appendix A). Each question is accompanied by a five point Likert scale with values ranging from zero to four and representing strongly disagree, disagree somewhat, neither agree nor disagree, somewhat agree, and strongly agree, respectively. Again, in order to simplify the test taking procedure, a cassette recording of the OPSI was produced. The administration of this test lasted 25 minutes.

The OPSI items provide measures of three adaptation strategies represented by accommodation, assimilation, and conservatism, and two response style measures represented by repression, and social desirablity. In order to meet the requirements of the factor analysis, it was necessary to split the assimilation, accommodation, and conservatism scales. The procedure resulted in eight scale scores, assimilation1, assimilation2, accommodation1, accommodation2, conservatism1, conservatism2, repression, and social desirablity. The splitting of the scales is justified on the basis of the homogeneity of the scale items. The internal consistency coefficents for the assimilation, accommodation, and conservatism scales are

.81, .68, and .61, respectively (Cervantes, 1982). The scales were split by randomly selecting five of the ten scale items. The scoring key and the inventory items comprising each of the eight scales appear in Appendix B.

OPSI Scoring

The OPSI was scored for each of the six split adaptation strategy scales and the repression and social desirability scales. These latter two scales measure response bias. High scores on the repression scale indicate a tendency, on the part of the respondent, to repress honest answers in favor of responses that promote their appearance in a positive way. High scores on the social desirability scale indicate a tendency, on the part of the respondent, to make themself appear better than they are or portray themself in a socially desirable fashion. Both response bias scales measure the tendency for the respondent to provide responses that place them in a more socially appropriate perspective.

Since the OPSI is a new instrument, no normative data for a delinquent population currently exists. As such, the question regarding what is considered a high score on either of these two scales can not be readily resolved. Instead, the score distributions for each of the OPSI scales were assessed with and without the 18 subjects who produced high MD scores on the Cattell 16PF. It is assumed that the motivational distortion, repression, and social desirability scales all measure similar tendencies on the part of the resident.

Each split OPSI scale was evaluated to determine the effects of the 18 high MD scorers. If high distortion scores were dispersed throughout each of the personality scale distributions their effect could be interpreted as negligible. The charts showing the distribution of scores for each split OPSI scale, with and without the high MD scorers, are provided in Appendix C. With the exception of assimilation, it can be noted that the high scorers do not systematically effect the shape of these distributions. As a result, a decision was made to retain the 18 individuals in the subsequent analyses.

Biodata Questionnaire

A third form, a biodata questionnaire was used to obtain information regarding the respondent's history of drug and alcohol use, the degree to which they participated with others when committing a crime, their perceptions concerning parental disciplining practices, and several questions assessing how they felt in various situations. In all, this questionnaire contains 15 questions. With the exception of the first three questions, multiple-choice responses were provided for each question. The first three questions were used to obtain information (matching variables) that would make it possible to pair up each of the self-report tests with the other two sources of data collected in this study. The matching variables were birthdate, institution name, and

town and county of residence prior to incarceration. A copy of the biodata questionnaire is presented in Appendix D. The biodata questionnaire required 10 minutes to administer.

Biodata Questionnaire Scoring

The responses on this questionnaire were scored by assigning a point value to each possible response letter. A response of A was given a value of zero, a B a value of one, a C a value of two, a D a value of three, an E a value of four, and a F value received a value of five. The Likert-like scales were scored in the same manner as those appearing in the OPSI.

Biodata Fact Sheet

A fourth form, a biodata fact sheet (Appendix E), was used to record information abstracted from each participant's case record file. This form contains both biographical information and matching variable information. The information obtained was concerned with the subject's WAIS-R verbal and performance scores, indications of neglect or abuse, and the primary type of crime committed. Except for the WAIS-R scores, multiple-choice responses were provided. The fact sheets were completed for each group of respondents prior to convening their test session. This was done so that any redundancies appearing in the matching variables could be discovered. When a duplication of matching variables was encountered an additional variable was added in order to provide the necessary subject

differentiation. The three self-report tests and the biodata fact sheet were paired using the matching variables appearing on the biodata questionnaire and the biodata fact sheet.

Staff Ratings of Resident Form

A fifth form, a behavioral observation rating form was distributed to a youth guidance specialist (YGS) and a social worker who were familiar with the behavior of the resident to be rated. The rating form consisted of five questions. Each question was to be rated with the accompanying five point Likert rating scale. The scale values range from 0 to 4 representing strongly disagree, disagree somewhat, neither agree nor disagree, agree somewhat, and agree strongly, respectively. The questions focused on the degree to which the resident got along with other residents, whether the resident followed rules and directions well, whether the resident appeared withdrawn or passive, whether the resident displayed disruptive behavior as a means of gaining attention, and whether the resident possessed good conversational skills. The staff raters were instructed to circle, on the form, the response that best approximated the ratee's behavior. A copy of this form appears in Appendix F.

Procedure

This study was carried out in three phases. The first phase involved the circulation of a resident sign-up sheet to establish the willingness of residents to participate in a test session. This list was used to identify both the case records to be reviewed and the residents the institutional staff were to rate. Once the case record information was obtained the test sessions were convened.

The subjects were tested in groups of no more than ten people at a location specified by the superintendent of each of the participating institutions. Each test session lasted approximately one hour and forty-five minutes. During this time period, the Cattell Sixteen Personality Factor Questionnaire Form C, the Oklahoma Personal Style Inventory, and a biodata questionnaire were administered. The respondents were seated in a room with adequate table space, lighting, and ventilation. Pencils were provided. The subjects were told that they would be required to complete three questionnaires, two of which would be tape recorded presentations, and that the entire process would take approximately one hour and forty-five minutes. In addition, the subjects were told that the data would be used for a dissertation project. The participants were given a final opportunity to leave if they felt they could not or did not want to participate. Those individuals that remained were told that the two dollar payment would be deposited in their canteen accounts following the test session.

Since the Cattell 16PF takes the longest to complete it was administered first. After this questionnaire was completed a five minute break was given. Following the break, the OPSI and the biographical questionnaire were administered. The administration of the 16PF and OPSI were presented on tape and the biographical questionnaire was read aloud by the test administrator.

The test respondents were read the instructions corresponding to each questionnaire immediately preceeding the administration of each test. Examples of the types of questions contained in each questionnaire were introduced as a means of assessing the respondents understanding of the upcoming task. Subjects were asked to respond to all questions and told that, except for the 16PF items measuring intelligence, the questions had no right or wrong answers. Furthermore, the residents were instructed not to spend a great deal of time on each test item but rather to give the first response that came to mind after the presentation of the question and corresponding answers. The subjects were asked to follow the pace of the taped presentation while at the same time reading the test questions to themselves. The subjects were instructed to circle their answers on the actual test form. At the conclusion of the test session each subject was given a manilla envelope into which they were to place and seal their test forms. This was done to ensure the separation of individual test materials and to demonstrate confidentiality. The subjects were also instructed not to put their names on any of the test forms

or the envelope.

After the envelopes had been collected, the respondents were briefed on the purpose of the study. The subjects were thanked for their cooperation and returned to their cottages.

Analyses

One purpose of this study is to investigate the construct validity of the OPSI scales. An appropriate method for comparing variables that purport to measure a similar construct is component analysis. When variables that are expected to be related exhibit high loadings on the same dimension, the variables are interpreted as measuring the construct defining that component. This process is known as confirmatory component analysis.

Applying this rationale, a principal component analysis was performed using the four second-order 16PF trait scores of extraversion (Extra), anxiety, tough poise (Tough), independence (Indep), the single constructed conservatism scale score (Conserv), the three pairs of split OPSI scale scores representing assimilation (Ass1 and Ass2), accommodation (Acc1 and Acc2), and conservatism (Con1 and Con2), and the two OPSI response bias scales of repression (Repres) and social desirablity (Socdes). In all thirteen personality scale scores, obtained from each of the 66 subjects, were used for the component analysis.

Since a simple structure pattern (Thurstone, 1947) is rarely revealed by the initial factor loading pattern,

ancillary procedures are often applied to produce approximations to a simple structure pattern. Three such procedures were applied in the current analysis scheme. They were a principal component analysis followed by varimax rotation, a principal component analysis followed by targeted rotation, and a multiple group component analysis without rotation. The solution exhibiting the best approximation to a simple structure pattern was produced by the multiple group procedure and will be the only solution reported.

The transformation matrix which is used as a post-multiplier for the correlation matrix to produce the loading matrix, was also used as a post-multiplier of the standardized raw scores to produce the personality generated component scores. These component scores were then subjected to Ward's hierarchical clustering procedure (SAS, 1982). Although it is stated that there is no ideal manner for determining the best cluster solution, it is suggested (SAS, 1982) that a plot of the R squared values be used to guide the search. An additional criterion of whether the cluster solution makes sense, affords another guide to a satisfactory cluster solution.

The similarities and differences between clusters, in terms of the personality generated factor scores, can be assessed through the application of a multivariate analysis of variance (MANOVA). This statistical procedure (SAS, 1982) provides for three levels of analysis. The three levels are, (a) a test of no overall cluster effect based

upon a linear composite of the dependent variables, (b) F tests to determine the existence of cluster differences within each dependent variable, and (c) Tukey's studentized range (HSD) test, used to make pairwise cluster comparisons. The third level analysis identifies which specific clusters differ and the magnitude and direction of those differences. In addition, the HSD method provides controls on the experimentwise Type I error rate. In summary, the MANOVA procedure is used to ascertain whether there are differences between clusters within each of the dependent variables and further, to identify the nature of those differences.

Once the the best cluster solution is identified and the various cluster differences and similarities assessed, an evaluation of the proportion of residents, from each institution, representing each cluster type was carried out. Since the sample sizes are too small to make any nonparametric comparisons possible, only proportions and percentages are reported.

In order to determine the relationship between the dimensions identified using the personality variables and the biodata variables, an extended loadings matrix was produced. The extended loading matrix contains all the personality and biodata variables. Those biodata variables exhibiting small and moderate loadings on each of the previously defined components were identified. These biodata variables were then used to enrich the interpretation of each component.

The question of whether biodata variables, as measures of

the previously identified dimensions, can do as good a job of discriminating between subjects in each cluster was determined by performing a second multivariate analysis of variance (MANOVA). Those biodata variables displaying the small and moderate size loadings, on each component, were used to produce biodata generated component scores for each of the 66 subjects. Each subject retained the same cluster assignment that resulted from the cluster solution using personality generated component scores. The MANOVA procedure was carried out on the biodata generated component scores using cluster assignment as the independent variable and the components as the dependent variables. In order to evaluate the similarities and differences between clusters on each of the dependent variables, three levels of analysis were conducted. They were the test of the linear composite of dependent variables, the F tests for each component, and the pairwise cluster comparisons.

Finally, the results of the two preceeding MANOVA procedures were compared for differences and similarities. If the results of the MANOVA for the biodata generated component scores produce the same cluster relationships produced by the personality generated component scores, then both the set of biodata variables and the set of personality variables produce a pattern of component scores that can be used to differentiate the subjects.

CHAPTER IV

RESULTS

A principal component analysis and a multiple group component analysis were performed on the 13 personality measures obtained in this study. These analyses were done to examine the relationship between the OPSI scales and the 16PF second-order trait composites, and, to yield information regarding the nature of the personality patterns within the sample. The univariate descriptive statistics and intercorrelations for each of the 13 personality and 27 biodata variables are presented in Appendixes G and H, respectively.

Component Analysis

Prior to conducting the principal component analysis, it was anticipated that at least four meaningful dimensions would be found to exist in the solution. The interpretable components were expected to represent each of the four 16PF second-order traits. Regardless of this a priori expectation, two empirical methods were employed to determine the number of meaningful components to be retained in the solution. Both methods rely on an evaluation of eigenvalues. An eigenvalue is the amount of variance in the correlation matrix which is associated with one dimension.

Since there are as many components as there are variables and each variable adds one to the overall variance in the correlation matrix, a principal component solution generated by 13 variables, for example, will exhibit an overall variance of 13.

One method commonly used to determine the number of components to be retained in a solution is presented by Kaiser (1970). Kaiser suggests retaining all the components with eigenvalues greater than one. Table I presents the eigenvalues greater than one that were generated by an initial principal component solution without rotation and an unrotated multiple group component solution. In the case of the latter, the proportion of variance accounted for by each of the the first four components is also reported. Since only four eigenvalues were generated having values greater than one, retention of a four component solution is indicated.

A closer examination of the eigenvalues shows that each successive principal component accounts for a decreasing amount of the overall variance. This pattern indicates that the first principal component accounts for as much of the overall variance (in the correlation matrix) as possible, the second principal component accounts for as much as possible of the residual variance left unexplained by the first principal component, the third principal component accounts for as much as possible of the remaining residual variance left unexplained by the first two principal components, and so on. As a result, each consecutive

TABLE I

EIGENVALUES OF THE PRINCIPAL COMPONENT AND VARIANCES ASSOCIATED WITH THE MULTIPLE GROUP PROCEDURES

	D1	D2	D3	D4
Principal Component Eigenvalues	3.35	1.85	1.53	1.39
Multiple Group Variance	2.27	1.83	1.65	1.61
Multiple Group Proportion of Variance (%)	17.5	14.0	12.7	12.4

principal component is ordered on the basis of its ability to explain the overall variance produced by the variables under study.

An alternative method for determining component retention has been proposed by Cattell (1965). His method utilizes a plot of the eigenvalues versus their corresponding principal component numbers. Cattell suggests retaining each component that is in evidence prior to the point where the eigenvalues begin a steady gradual descent toward the horizontal axis. Cattell describes this end region as scree and the plot as a scree plot.

The scree plot, presented in Figure 1, provides a graphic illustration of eigenvalues versus principal component numbers. It can be observed that the successive eigenvalues, corresponding to components one through four, produce sharp eigenvalue decrements. It is also evident that the change in eigenvalues associated with component five through thirteen produce a gradual declining slope. As a consequence, component five through thirteen were identified as scree. Since Cattell has indicated that scree is uninterpretable, the scree plot method of component retention supports a four component solution.

The results of the Cattell scree plot and the Kaiser criterion indicate the existence of a four component solution. As a consequence, the first four components of the initial principal component loading matrix were retained. This loading matrix was produced from the intercorrelations of the 13 personality measures collected

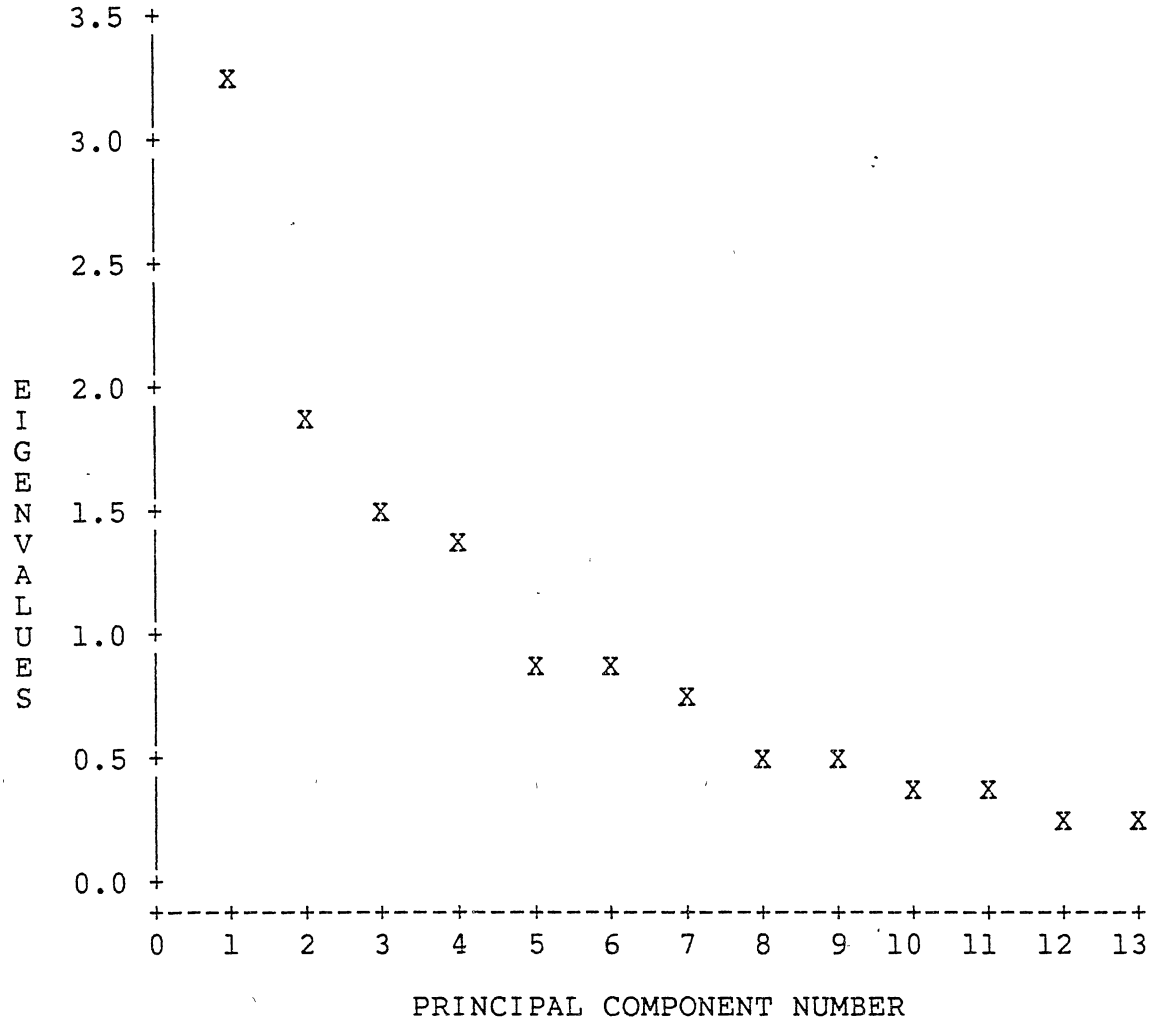

Figure 1. Scree Plot of Eigenvalues

in this study. Since the variable loading pattern produced in the initial component solution did not display simple structure, the initial loading matrix was subjected to varimax rotation. A good approximation to a simple structure solution was, however, not obtained as a consequence of this rotation. In order to better approximate a simple structure pattern the correlation matrix was used to generate a variable by component binary matrix. This matrix was used as a target matrix in an orthogonal procrustes rotation and as an extraction matrix in a multiple group component procedure. As anticipated, the best approximation to a simple structure solution was produced by the multiple group component procedure and as such will be the only solution presented.

The variable component loadings, generated by the multiple group component solution, are presented in Table II. These loadings can be used to identify the nature or content of each component in the solution. Fruchter (1954) says that this can be done by

> ...inferring what the variables with high loadings on a component have in common that is also present to a lesser degree in variables with moderate loadings and absent from variables with zero or near-zero loadings (p. 149).

Component 1

Component 1 involves three variables with large positive loadings. They are the 16PF constructed conservation composite, and the OPSI assimilation1 and assimilation2 scales. In addition, the OPSI conservatism1, conservatism2,

TABLE II

MULTIPLE GROUPS LOADING MATRIX

Variable	Component 1	Component 2	Component 3	Component 4
Extra	.14	.67	-.33	.07
Anxiety	-.15	.12	.03	-.72
Tough	-.22	-.13	-.13	.11
Indep	.04	-.04	-.69	.20
Conserv	.64	-.29	-.09	-.03
Ass1	.83	.18	-.04	.02
Ass2	.78	.11	.13	.01
Acc1	.16	.74	.25	-.03
Acc2	.46	.70	.09	-.05
Con1	.37	.29	.69	.09
Con2	.28	.30	.69	.11
Repres	-.15	-.28	.00	.69
Socdes	.09	-.05	.09	.73

and accommodation2 scales produce moderate loadings.

An interpretation of the two large assimilation loadings suggest that component 1 measures individuals who are achievement-oriented, inner-directed, and able to modify or precipitate change in their environments. The large constructed conservatism loading indicates that this component measures self-control and other characteristics reflecting an organized, calculated approach to life. Some characteristics associated with this approach to life are responsibility, conscientiousness, and high ego strength. These qualities are consistent with the personality characteristics an assimilator might be expected to possess. The moderate loadings provided by the conservatism1 and conservatism2 scales may represent conscientiousness or awareness of social values and beliefs. This awareness may help an assimilator achieve their goals or objectives in negotiations with others. The moderate loading indicated for the accommodation2 scale should be viewed with caution as the accommodation1 scale does not produce a similar size loading. As such, no interpretation is offered. Using the preceeding logic this component may best be labeled Assimilation.

Component 2

Component 2 displays large positive loadings for the 16PF extraversion composite and the OPSI accommodation1 and accommodation2 scales. In addition, moderate positive loadings are produced by the OPSI conservatism1 and

conservatism2 scales. Moderate negative loadings are indicated for the OPSI repression scale and the 16PF constructed conservatism scale.

The accommodation and extraversion loadings reflect measures of individuals who are happy-go-lucky, people-oriented, sociable, enthusiastic, talkative, and alert. The small positive loadings provided by the two conservatism scales may reflect adherence to group standards and possibly some element of traditional value orientation. The small negative loading exhibited by the constructed conservatism scale is contrary to expectation in light of the positive loadings generated by the OPSI conservatism scales. It may be that the 16PF -F scale portion of the 16PF constructed conservatism composite is being represented. The -F scale portion of the composite reflects sobriety, introspection, and deep thinking. These characteristics describe a taciturn individual. This interpretation is the opposite of that presented by the accommodator. The negative repression loading indicates a tendency for accommodators to refrain from responding in a socially desirable manner. In fact they may be providing fairly accurate and realistic assessments of themselves.

With the exception of the accommodation scales and the extraversion composite, all the reported loadings are small and therefore interpretations are tenative. The descriptions presented for the variables revealing the large loadings indicates the best label for this dimension is Accommodation.

Component 3

Component 3 provides a fairly clean solution with a single large negative loading for the 16PF independence composite and identical large positive loadings on each of the two OPSI conservatism scales. The only moderate negative loading appearing on this component corresponds to the 16PF extraversion composite.

The large conservatism loadings are interpreted as measures of individuals possessing moralistic, traditional, or conventional value orientations, as well as a preference for stable and routine activities. The negative loading for independence adds a flavor of dependence, submissiveness, passivity, conservative temperment, and a lack of imagination. The negative extraversion loading also provides confirmation of the reserved nature reflected by this component. This negative loading can be interpreted as reflecting both a lack of enthusiasm and adventurousness. These descriptions suggest that the best label for this component is Conservatism.

Component 4

Component 4 contains a large negative loading for the 16PF anxiety composite and two large positive loadings for the two OPSI response bias scales of repression and social desirability. No other interpretable loadings appear on this component.

The large negative loading for anxiety can be interpreted as describing an individual who is relaxed, tranquil, unfrustrated, controlled, socially precise, self-assured, trusting, tolerant, genial, stable, and possessing an accepting attitude. The large positive loadings for repression and social desirablity indicate the tendency for these individuals to portray themselves in a very favorable fashion. Putting these interpretations together an appropriate label for this component might be Poise.

OPSI and 16PF Correspondence

It is interesting to note that each pair of the split OPSI scales (with the exception of Acc1 and Acc2 on component one) load on the same components and exhibit similar size and sign loadings. This pattern confirms the assumption that the OPSI scales contain homogeneous items. It also indicates that the decision to split the OPSI scales on the basis of the reported internal consistency measures was justified. It can also be observed that each pair of split OPSI scales appear on different components. This is also true for the 16PF second-order trait composites with the exception of tough poise which does not generate a large loading on any component. The absence of tough poise probably indicates that while it represents a valid second-order trait, it does not correspond to the constructs measured by the other variables used in the multiple group component analysis. As a consequence, the absence of adequate size intercorrelations do not produce a large tough

poise loading on any of the components.

Of the expected OPSI-16PF relationships, only the accommodation-extraversion correspondence was observed. The conservatism-constructed conservatism, and the assimilation-independence relationships failed to materialize. Regardless, the observed scale-composite relationships were readily interpreted.

Cluster Analysis

The question of whether relatively homogeneous personality patterns exist within the sample was investigated through cluster analysis. In order to obtain quantifiable measures of the constructs representing each of the four components, the standardized raw scores were postmultiplied by the same matrix used to postmultiply the correlation matrix and produce the component loading matrix. This matrix product contains the component scores for each individual. These component scores were subsequently subjected to Ward's hierarchical clustering procedure (SAS, 1982). The individual component scores and the resulting cluster groupings are presented in Appendix I.

The cluster output contains a measure that serves as a means for determining the optimal cluster solution, or more exactly the number of clusters to be retained. This measure is represented by the semipartial R squared values. Table III contains the values representing this measure.

The semipartial R squared values are interpreted as that portion of the overall variance that can be uniquely

TABLE III

SEMIPARTIAL CORRELATION COEFFICIENTS GENERATED FROM WARD'S HIERARCHICAL CLUSTERING PROCEDURE

Cluster	Semipartial R Squared
1	0.156
2	0.144
3	0.133
4	0.070
5	0.056
6	0.051
7	0.038
8	0.033
9	0.026
10	0.026

explained by each cluster. In other words, the amount of the residual variance that each new cluster can explain. The authors of SAS, state that the semipartial R squared values can be readily interpreted when they are plotted against the objects to be clustered (in this case, subject number). This plot, presented in Figure 2, reveals both the primary and secondary cluster formations. It can be determined that four primary clusters exist in the data. The four primary clusters are differentiated by the three segmentation lines which correspond to the large semipartial R squared values appearing on the plot. The segmentation lines can be seen to exist between subjects 63 & 2, 47 & 6, and 44 & 4. The subject numbers bracketed by these segmentation lines indicate those individuals comprising each of the four clusters. Further investigation indicates that the semipartial R squared values drop to a value of .070 before any new segmentation lines appear. These new segmentation lines appear between subjects 14 & 3, 31 & 39, and 46 & 23. They can be interpreted as identifying secondary cluster formations. Since each of the secondary clusters contain only four individuals their retention was determined to have little practical value. As a result, a four cluster solution was adopted.

Multivariate Analysis of Variance
Personality Variables

In order to determine the extent of cluster differences within each of the four components a multivariate analysis

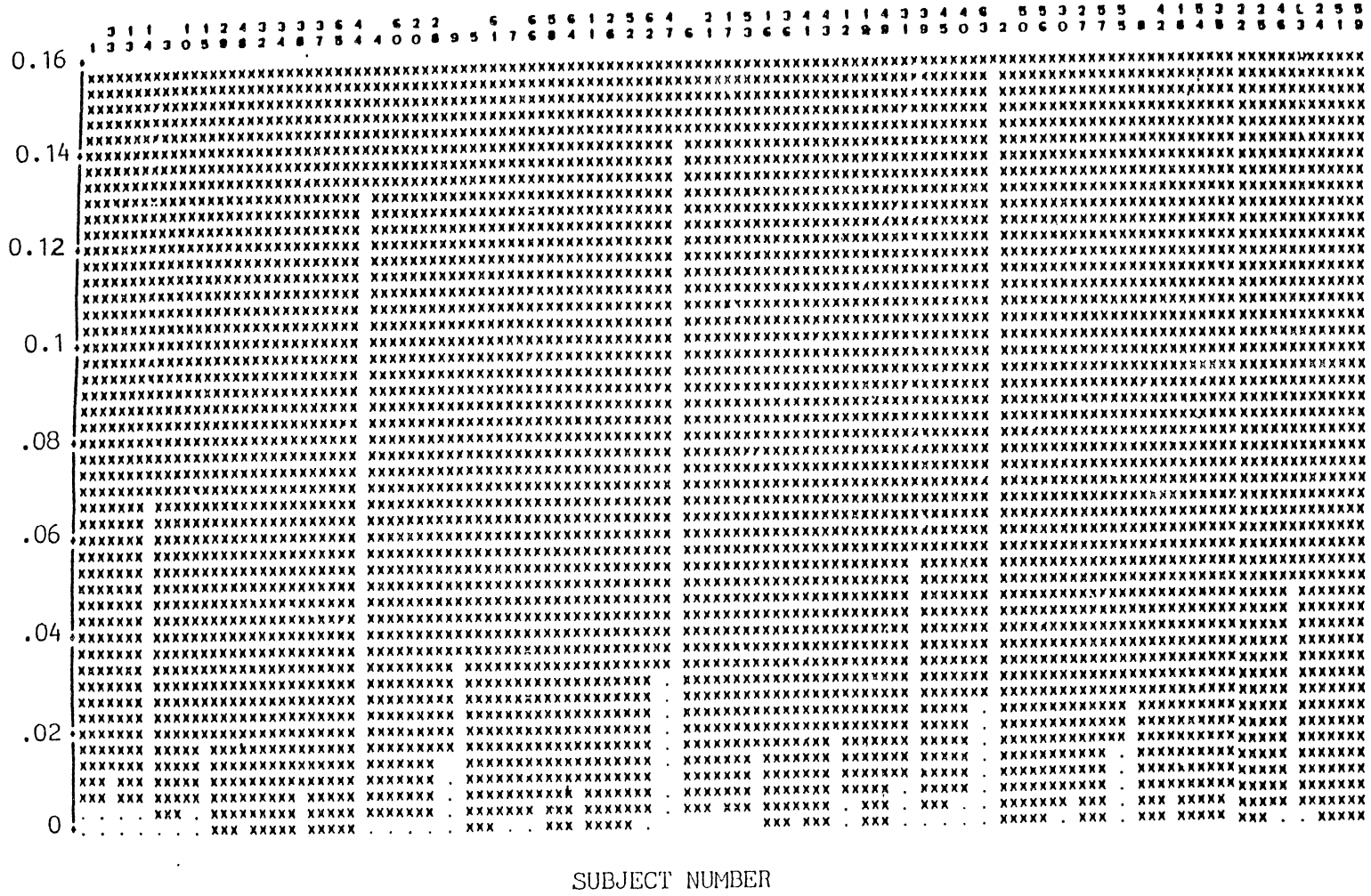

Figure 2. Cluster Identification Method Using Semipartial R Squared Values

of variance (MANOVA) was performed. The personality generated component scores, used to uniquely identify each member of a cluster on the four interpreted components, served as the data in this analysis. For purposes of this analysis, the four components served as the dependent variables and the cluster assignment served as the independent variable. The MANOVA procedure provides for three levels of analysis.

The first level of analysis consists of a test for no overall cluster effect. This test is based upon an optimally weighted linear composite of the four dependent variables. The composite can be interpeted with either the Hotelling-Lawley Trace, the Pillai's Trace, or the Wilk's Criterion. Since the Hotelling-Lawley Trace provides the most conservative test of the composite, only it will be reported. The observed value of the Hotelling-Lawley Trace was 4.24. The corresponding F value, $F(12,173) = 20.38$, was found to be significant at the $p<.0001$ level. This result is interpreted as an indication that the composite of the dependent variables differs significantly across the clusters.

In order to further investigate the existence of these cluster differences, individual F tests were carried out on each dependent variable. This second level of analysis shows the component(s) which differ across clusters. The results of the F tests are presented in Table IV. It can be seen that significant F values were obtained for the components labeled Assimilation, Accommodation, and Poise.

TABLE IV

MANOVA RESULTS FOR THE PERSONALITY GENERATED COMPONENT SCORES USING COMPONENTS AS THE DEPENDENT VARIABLES AND CLUSTERS AS THE INDEPENDENT VARIABLES

Dependent Variable	Source	df	Mean Square	F Value
Assimilation	Cluster	3	11.70	24.25 ***
	Error	62	0.48	
	Total	65		
Accommodation	Cluster	3	12.64	28.93 ***
	Error	62	0.44	
	Total	65		
Conservatism	Cluster	3	1.58	1.63 ns
	Error	62	0.97	
	Total	65		
Poise	Cluster	3	11.66	24.09 ***
	Error	62	0.48	
	Total	65		

*** Significant at the $p<.001$ level.

This means that there exist significant cluster differences within these components. The component labeled Conservatism, however, involves no cluster differences. These findings can be interpreted as suggesting the existence of personality differences between clusters within these three components. These results indicate the need to conduct a third level of analysis, that being the pairwise comparison of clusters within each component.

This final level of analysis reveals the specific cluster pairings responsible for producing the significant F values. In addition, the magnitude and direction of those differences can be determined. Tukey's studentized range (HSD) test was chosen for the pairwise comparisons because it controls for the experimentwise Type I error rate. As such, any reported differences can be interpreted at the alpha level originally stipulated as acceptable. The results of the pairwise comparisons, based upon mean differences, are presented in Table V. The actual component score means for each cluster, along each component, are presented in Appendix J.

It can be determined from the table that for Assimilation, cluster 3 has a component score mean that is significantly different from those calculated for clusters 1, 2, and 4. In fact, the mean values associated with clusters 2, 4, and 1 are more positive than the mean calculated for cluster 3. This information is necessary to interpret how the clusters relate to one another but not sufficient to understand how the individuals contained

TABLE V

TUKEY'S (HSD) PAIRWISE CLUSTER COMPARISONS OF PERSONALITY COMPONENT SCORE MEANS SHOWING NONSIGNIFICANT COMPARISONS CONNECTED BY LINES

	Cluster Displaying			
Component	Largest Mean Value	Next Largest Mean Value	Next Lowest Mean Value	Lowest Mean Value
Assimilation	4, 2		1	3
Accommodation	2	1	3	4
Poise	1	4	3	2

All significant comparisons at the $p<.05$ level.
All numbers represent clusters.
Connecting lines reflect nonsignificant comparisons for all possible combinations of connected clusters.

within each cluster rate on the construct represented by Assimilation. In order to determine how each cluster rates on Assimilation the signs and values of the component score means must be consulted. The component score mean for cluster 3 has a large negative value while the value for the means corresponding to clusters 2 and 4 are large positive values. The value of the cluster 1 mean is positive but near zero.

This information can be used to identify the clusters with the extreme positive and negative component score mean values. It can be stated that since clusters 2 and 4 display the same mean values they both rate moderately on the construct used to represent Assimilation. The individuals included in cluster 3 show the largest negative mean value and can be said to possess characteristics running counter to the characteristics describing Assimilation.

An examination of the paired cluster comparisons for Accommodation, indicate significant differences between clusters 1 vs 4, 2 vs 3, 2 vs 4, and 3 vs 4. It can be seen from the table that cluster 2 possesses the largest positive mean value followed by cluster 1, cluster 3, and cluster 4. Specific information regarding the component score mean values for each cluster indicates that cluster 2 has the largest positive mean value and cluster 4 possess the largest negative mean value. An evaluation of the actual mean values shows that clusters 1 and 2 have large positive values, cluster 3 has a negative value near zero, and

cluster 4 displays a large negative value. Using these extreme mean scores as anchors, the individuals in clusters 1 and 2 can be said to rate moderately high on the construct measured by Accommodation while those individuals in cluster 4 possess characteristics that run counter to those characteristics used to describe Accommodation.

The significant mean differences indicated for Poise indicate substantial cluster differentiation. Differences are indicated for clusters 1 vs 2, 1 vs 3, 1 vs 4, 2 vs 3, and 2 vs 4. It can be seen from the table that cluster 1 possesses the largest positive mean followed by cluster 4, cluster 3, and cluster 2. An evaluation of the actual mean values indicates that cluster 1 has a large positive mean, clusters 3 and 4 means with values near zero, and cluster 2 a mean with a large negative value. Once again, by using the extreme values the individuals in cluster 1 can be rated as high on the construct used to describe Poise while the individuals making up cluster 2 possess characteristics that run counter to those characteristics used to describe Poise.

With the clusters identified in terms of their rating on Assimilation, Accommodation, and Poise, it is possible to generate a personality profile across components for each cluster. The individuals found in cluster 1 are described as somewhat assimilative, somewhat accommodative, and highly poised. These individuals can be described as relaxed, tranquil, unfrustrated, controlled, socially precise, self-assured, trusting, tolerant, genial, stable, possessing an accepting attitude, and possessing a tendency to portray

themselves in a very favorable fashion. Putting these characteristics together, this group may best be labeled poised.

The individuals making up cluster 2 are highly assimilative, highly accommodative, and extremely anxious. These individuals can be described as inner-directed, people-oriented, assertive, competitive, tense, suspicious, guilt-ridden, alert, enthusiastic, and likely to represent themselves in a realistic manner. The label which best represents these characteristics is variable-anxious. The variable portion of this label depicts the vacillation between the assimilative and accommodative adaptive strategies.

The individuals found in cluster 3 were seen to be nonassimilative. These individuals can be interpreted as lacking energy, not attempting to influence their surroundings, and lacking motivation. The best label to describe this group is apathetic.

The individuals making up cluster 4 can be described as highly assimilative and nonaccommodative. These individuals are internally motivated and try to enforce demands on their environment. Furthermore, these individuals are likely to be controlling and assertive. At the same time, they should appear resistent to demands made on them. Thus, they may be seen as uncooperative, resistant, unfriendly, and unsociable. This group of individuals can best be labeled truculent.

Distribution of Cluster Types by Institution

In order to examine the distribution of these various resident types within the four juvenile institutions, a cross-tabulation table, residents' institutional assignment versus cluster assignment, was prepared. Table VI indicates both the number and percentage of residents, from each institution, that correspond to each cluster type. Although the table frequencies are too small for the application of nonparametric tests, the percentages and frequencies may be cautiously interpreted as indications of each institutions residential composition. It appears, from the cross-tabulation table, that the majority of residents appearing in cluster 1 (poised) are found at either institution 2 or institution 3. Most of the residents in cluster 2 (variable-anxious) are found at institutions 1 and 4. Most of the residents making up cluster 3 (apathetic) are found at institutions 2 and 4. Finally, the residents in cluster 4 (truculent) are fairly well distributed throughout the four institutions. It should again be mentioned that no strict interpretation of the cross-tablulation table figures should be applied in light of the small cell frequencies.

Extended Loading Matrix

The complete variable intercorrelation matrix (40 x 40) was reduced to a 40 x 13 matrix (reflecting the correlations for the complete set of variables with the 13 personality measures). This matrix was postmultiplied by the matrix

TABLE VI

CROSS TABULATION OF RESIDENTS' INSTITUTIONAL ASSIGNMENT AND CLUSTER ASSIGNMENT

	Inst1		Inst2		Inst3		Inst4		Total	
	N	%	N	%	N	%	N	%	N	%
Cluster1	1	8%	6	33%	7	41%	1	5%	15	23%
Cluster2	6	46%	3	17%	3	18%	7	39%	19	29%
Cluster3	3	23%	5	38%	1	6%	7	39%	16	24%
Cluster4	3	23%	4	22%	6	35%	3	17%	16	24%
Total	13	100%	18	100%	17	100%	18	100%	66	100%

which served the same function in the generation of component loadings and component scores. The result of this multiplication produced the 40 x 4 extended loading matrix presented in Table VII.

The primary reason for producing this matrix was to identify those biodata variables (behavior observation ratings, resident self-report biographical measures, and biographical information obtained from each resident's case record file) which might provide a richer interpretation of the four component constructs previously identified using the personality variables alone. It can be observed that half the biodata variables provide low or moderate size loadings on at least one of the four components.

Those variables producing loadings on component 1 are; ypassive, spassive, yverbskl, sverbskl, fairpun, joyschl, and verb. These variable loadings render an interpretation consistent with the assimilation construct previously applied. The negative loadings indicating staff ratings of resident passivity (ypassive, spassive) are in line with the concept of an energetic, inner-directed, results-oriented, and diligent assimilator. Furthermore, the positive loadings indicating staff ratings for good conversational skills (yverbskl, sverbskl) and good verbal score on the WAIS-R (verb) may indicate that strong conversational skills serve as a powerful change producing tool used by the assimilator. Since conversational skills usually prove to be direct and persuasive, the manifestation of powerful communication techniques would certainly be advantageous to

TABLE VII

EXTENDED LOADING MATRIX

Variable	Component 1	Component 2	Component 3	Component 4
Extra	.14	.67	-.33	.07
Anxiety	-.15	.12	.03	-.72
Tough	-.22	-.13	-.13	.11
Indep	.04	-.04	-.69	.20
Conserv	.64	-.29	-.09	-.03
Ass1	.83	.18	-.04	.02
Ass2	.78	.11	.13	.01
Acc1	.16	.74	.25	-.03
Acc2	.46	.70	.09	-.05
Con1	.37	.29	.69	.09
Con2	.28	.30	.69	.11
Repres	-.15	-.28	.00	.69
Socdes	.09	-.05	.09	.73
Ygetlong	.04	-.03	-.05	.23
Yrules	.08	-.14	-.04	.26
Ypassive	-.38	-.07	.03	.04
Yattrupt	.06	-.02	-.09	-.24
Yverbskl	.20	-.07	.18	.17
Sgetlong	-.14	.15	-.10	.14
Srules	-.09	-.01	.09	.11
Spassive	-.32	.00	.22	.15
Sattrupt	.08	-.01	.02	-.26
Sverbskl	.25	.10	-.37	-.12
Alcohol	.11	.14	-.12	-.10
Drug	-.10	.07	-.23	.03
Famdel	.11	-.02	-.17	.10
Withothr	.13	.17	-.16	.01
Pdispln	.02	-.12	-.18	.12
Physpun	-.09	.14	-.15	-.18
Fairpun	.24	.08	.26	.11
Joyschl	.26	.18	.29	.16
Meimport	.15	.18	.13	.07
Nofitres	-.07	-.10	.14	-.01
Goodfred	.18	.30	-.01	.12
Fredbad	-.16	.11	.03	.00
Perf	.19	-.04	-.04	-.06
Verb	.30	-.23	-.26	-.15
Mistret	.02	-.01	.09	.33
Typecrim	-.01	.05	.08	-.11
Age	.19	-.10	.05	.11

an individual who attempts to exert control over elements of the environment or obtain things from the environment. The positive loading for the resident enjoys school (joyschl) reaffirms that the resident possesses verbal proficiency which is probably related to doing well in school. The ability to do well in school may make it more enjoyable. The positive loading corresponding to the resident's perception of fair and consistent discipline by parents (fairpun) may indicate that assimilators have learned from their experience (with fair and consistent discipline) to expect reward for good works and punishment for bad. This may help explain how assimilators become achievement-oriented, self-motivated, and convinced they can have an impact on or control their environments.

Those variables loading on the second component are; goodfred and verb. These two variables provide support for the Accommodation interpretation proposed for component 2. Since accommodators are gregarious, sociable, externally-directed, easily influenced, and easy-going, it makes sense that these individuals would have or believe they have good friends (goodfred). The negative loading associated with the WAIS-R verbal score (verb), may reflect the happy-go-lucky manner in which the accommodator approaches tasks, in this case the test. Of interest is the absence of sizable loadings for staff ratings indicating the resident gets along with others (ygetlong, sgetlong). One would expect the staff ratings of gregarious or social individuals to indicate they get along with the other residents.

Considering the population and environment (juvenile delinquents in a facility where personal privacy is at a minimum), it is reasonable to expect that sociability is not considered a desirable characteristic. As such, attempts by accommodators to be sociable may be rebuffed by other residents.

Those biodata variables exhibiting low and moderate loadings on component 3 are; spassive, sverbskl, drug, fairpun, joyschl, and verb. These variable loadings provide support for the bipolar component interpretation previously presented. Positive loadings correspond to conservatism while negative loadings are consistent with independence. The positive loadings representing staff ratings regarding resident passivity (spassive), the resident's indication of enjoyment of school (joyschl) and exposure to consistent parental discipling practices (fairpun), reflect the traditional, reserved, conventional, family orientation shared by the conservative. At the opposite end of the spectrum, staff ratings of residents diplaying poor verbal skills (sverbal), resident admissions of at least moderate drug use (drug), and low verbal scores on the WAIS-R (verb), are suggestive of independence. Specifically, drug use reflects liberalism and free-thinking, while the low verbal WAIS-R scores and poor verbal skills may be indicators of a reliance on physical strength as a means of demonstrating dominance, assertiveness, and ascendence. Weak verbal skills may also suggest that these residents have to rely on themselves to satisfy their needs because their verbal

skills fail to adequately communicate their needs to others. These are traits characteristic of independence and contrary to conservatism.

The fourth component, interpreted as meaning Poise, displays low and moderate loadings for ygetlong, yrules, yattrupt, sattrupt, and mistret. These variables display loadings which are consistent with the construct used to represent Poise. The positive loadings suggest that individuals producing high positive component scores are rated by staff as likely to follow the rules (yrules) and get along with others (ygetlong). The indications of mistreatment (mistret), exposure to abuse or neglect, is contrary to what one would expect. The negative loadings reflecting staff ratings, concerning the degree to which residents display disruptive behavior as a means of gaining attention (yattrupt, sattrupt), are consistent with the interpretation of unstable or anxious individuals.

In summary, the biodata variables confirm the constructs previously used to identify each of the four components. In each case, a richer interpretation of Assimilation, Accommodation, Conservative, and Poise is provided.

Multivariate Analysis of Variance
Biodata Variables

The final analysis, a MANOVA, was conducted in order to determine whether the cluster-component relationships (previously produced by the personality variables) could be shown using only biodata variables to measure the

components. In order to produce the biodata component scores, those biodata variables exhibiting low and moderate, positive or negative loadings (in the extended loading matrix) were identified in order to produce a matrix with elements of negative one, zero, and positive one. These values refer to the maximal size and direction of the correlation of the biodata variables and each of the four previously identified components. This matrix then served as a postmultiplier for the biodata standard scores which resulted in the approximate component scores derived exclusively from the biodata variables. The biodata generated component scores, which uniquely identify each individual on the four components, served as measures of the dependent variables, the four components. The cluster assignments, previously produced by the clustering of the personality variable component scores, were retained and served as the independent variables in this analysis. The biodata generated component scores and corresponding cluster assignments are presented in Appendix K. As with the previous MANOVA, three levels of analysis were conducted.

The first level of analysis tests for no overall cluster effect. This test is based upon an optimally weighted linear composite of the four dependent variables. The Hotelling-Lawley Trace was used to make a conservative test of this composite. The observed value of the Hotelling-Lawley Trace was .490. The F value, $F(12,173) = 2.35$, was found to be significant at the $p<.008$ level. This finding indicates that the linear composite differs significantly

across the clusters. Because of this finding, the second level of analysis consisting of F tests on each of the dependent variables was conducted.

The F test results, presented in Table VIII, indicate that Assimilation and Poise contain some component score means which differ significantly across the clusters. No significant differences are indicated for Accommodation and Conservatism.

The significant F test results suggest proceeding to the third level of analysis, the pairwise cluster comparisons. This level of analysis reveals the specific cluster pairings responsible for producing the significant F values. Furthermore, the direction and magnitude of the observed cluster differences can be ascertained. Again, Tukey's studentized range (HSD) test was chosen to make the pairwise comparisons because it controls the experimentwise Type I error rate. The results of the pairwise cluster comparisons, based upon mean differences, are reported in Table IX. The actual component score means for each cluster, along each component are presented in Appendix L. In addition, the response frequencies for each of the biodata variables are presented in Appendix M.

It can be determined from the table that for Assimilation, cluster 3 has a component score mean that is significantly different from those calculated for clusters 1, 2, and 4. Furthermore, the mean for cluster 4 has the largest positive value followed by cluster 2, cluster 1, and finally cluster 3. This information is necessary to

TABLE VIII

MANOVA RESULTS FOR THE BIODATA GENERATED COMPONENT SCORES USING COMPONENTS AS THE DEPENDENT VARIABLES AND CLUSTERS AS THE INDEPENDENT VARIABLES

Dependent Variable	Source	df	Mean Square	F Value
Component 1	Cluster	3	42.67	4.04 **
	Error	62	10.55	
	Total	65		
Component 2	Cluster	3	2.94	1.23 ns
	Error	62	2.30	
	Total	65		
Component 3	Cluster	3	9.36	0.96 ns
	Error	62	9.80	
	Total	65		
Component 4	Cluster	3	28.70	2.78 *
	Error	62	10.31	
	Total	65		

** Significant at the $p<.01$ level
* Significant at the $p<.05$ level

TABLE IX

TUKEY'S (HSD) PAIRWISE CLUSTER COMPARISONS OF BIODATA COMPONENT SCORE MEANS SHOWING NONSIGNIFICANT CLUSTER COMPARISONS CONNECTED BY LINES

	Cluster Displaying			
Component	Largest Mean Value	Next Largest Mean Value	Next Lowest Mean Value	Lowest Mean Value
Assimilation	4	2	1	3
Poise	1	4	3	2

All significant comparisons at the $p<.05$ level.
All numbers represent clusters.
Connecting lines reflect nonsignificant comparisons for all possible combinations of connected clusters.

interpret how the clusters relate to one another but not sufficient to understand how the individuals contained within each cluster rate on the construct represented by Assimilation. In order to determine how each cluster rates on Assimilation the signs and values of the component score means must be consulted. The actual means for each of the clusters shows that for Assimilation, clusters 1, 2, and 4 possess large positive values. The value of the cluster 3 mean is a large negative. This information can be used to rate each of the clusters on the construct used to represent Assimilation. Those individuals in clusters 1, 2, and 4 can be described as highly assimilative. In contrast, those individuals in cluster 3 can be said to possess characteristics that run counter to the those representing the Assimilation construct.

An examination of the paired cluster comparisons for Poise, reveal only one significant cluster difference. This difference is produced by cluster 1 versus cluster 2. An examination of the table indicates that cluster one possesses the largest positive value, followed by clusters 4, 3, and 2. The component score means produced by each cluster indicate that cluster 1 displays a large positive value, cluster 4 a positive value near zero, cluster 3 a moderate size negative value, and cluster 2 a large negative value. This information can be used to rate each cluster on the construct represented by Poise. Since clusters 3 and 4 do not differ significantly from either cluster 1 or cluster 2, clusters 3 and 4 are seen to fall between the positive

and negative anchors used to describe this component. Only clusters 1 and 2 are statistically differentiated. Therefore, cluster 1 can be said to contain individuals who rate high on the construct measured by Poise and Cluster 2 can be said to contain individuals who display qualities which run counter to those used to describe Poise.

Biodata Versus Personality MANOVAs

A comparison of the cluster relationships produced by the MANOVA based on personality component scores and the MANOVA based upon biodata component scores indicates that the biodata results fail to identify some of the distinctions picked up using the personality measures. For Assimilation, the biodata scores provide essentially the same cluster interrelationships (but the means for cluster 2 and 4 are not the same) produced by the personality scores. For Poise, the biodata scores only identify the most extreme cluster difference. Furthermore, the biodata component scores fail to identify any differences on Accommodation. This is probably the result of too few biodata variable loadings on this component. Finally, the F test results in Table VIII show that the discriminating power of the biodata variables is not as strong as that of the personality variables. This can be observed by the alpha levels at which the comparisons are found to be significant.

The biodata distinctions, although not as precise or powerful at discriminating differences as the personality variables, do provide a richer basis for interpreting the

meanings of the constructs under study. The biodata variables displaying small and moderate size loadings in the extended loadings matrix readily supplement the interpretation of the four components previously described using only the loadings of the personality measures.

CHAPTER V

DISCUSSION

The present study was conducted in an effort to develop construct validity for the Oklahoma Personal Style Inventory, and, to investigate the personality domain for homogeneous groupings of personality patterns within an incarcerated juvenile sample. The Oklahoma Personal Style Inventory, the Cattell Sixteen Personality Factor Questionnaire, and a biodata questionnaire were administered to a sample of residents from each of four juvenile institutions. In addition, biodata variables were obtained from each residents' case history file and behavioral ratings were provided by institutional staff. The results of the multivariate analyses applied to these data offer construct validity for the OPSI and suggest the existence of four fairly homogeneous resident subgroups.

The correspondence between the five OPSI scales and the four second-order and the single constructed 16PF composites was revealed in a multiple group component solution. Although only one of the three anticipated scale relationships was observed, that being between accommodation and extraversion, the observed scale-composite relationships served to enrich the construct interpretations of each of the OPSI scales.

Cervantes (1984) reports a dimension which was manifested by a normal college sample but not by a psychiatric sample. This dimension, which Cervantes calls a general coping factor, displays large positive loadings for the accommodation, assimilation, and conservatism OPSI scales. Because this factor appears for normal college students and not for psychiatric patients, Cervantes states that the OPSI has the ability to discriminate between effective and ineffective coping strategies. Following this logic, the current delinquent sample can be said to be more like the psychiatric sample in that they do not exhibit a general coping factor. The delinquents, in this sample, do not demonstrate effective coping styles. This statement is tentative since the meaning of a dimension with this tri-scale loading pattern remains to be validated.

A comparison of the OPSI scale constructs presented by Cervantes and those presented in this study produce some strong similarities. Cervantes has indicated that conservatism represents a regard for authority, dogmatism, and an external locus of control. The current study indicates that conservatism is related to a respect for rules, modesty, passivity, submissiveness, tradition, caution, and dependency. In addition, Cervantes states that assimilation is associated with an internal locus of control and a disbelief in chance. These characteristics suggest that assimilation is addressing self-control and self-determination. The results of this current study confirm this interpretation. Assimilation has been shown to reflect

a serious, contemplated approach to life, yet has no relationship to physical aggression, assertiveness, or ascendence. Since strong verbal skills are associated with this component, assimilation may reflect intellectual as opposed to physical control over the environment. The correspondence between accommodation and extraversion, reported by Cervantes, was reconfirmed in this study. Adherence to group standards, assertiveness, and sociability are indentified as representing the construct of accommodation. Of particular interest in this study is the negative relationship that exists between the two OPSI response bias scales and anxiety. This relationship, although not anticipated, is in agreement with the results presented by Cervantes. For his college sample, he reports that both social desirability and repression are negatively related to psychoticism and neuroticism. Since anxiety is a symptom of both disorders, the negative relation between the response bias scales and anxiety in the current study is similar to the relations found by Cervantes. The response bias scales can therefore be said to measure stability, self-assurance, composure, or poise.

It is interesting to note the correspondence between the four component labels applied in this study and the labels applied to those factors identified by Heskin, Bolton, Bannister, and Smith (1977) and Quay (1964). Although the factor labels used in these studies are different they may reflect some of the same dimensions presented in the current study.

Heskin et al., labeled their five factor solution in the following manner: factor one was labeled Anxiety, factor two Hostility, factor three Extraversion, factor four Intellectual Skills, and factor five Manipulation (Heskin et al. indicate that the interpretation of the last two factors are tentative because of the few variables loading on these dimensions). Of these five factors, Intellectual Skills does not appear to correspond to any of the dimensions identified in this study. The remaining factors, however, do display some similarities.

The absence of Intellectual Skills as a component can be explained by noting that no intellectual ability measures were included in the portion of the component analysis where the components were extracted and subsequently labeled. As a consequence, a dimension of intellectual ability was not found. If intellectual ability measures had been included during the extraction process, a dimension of this type would almost certainly have been produced. Of the four remaining dimensions, Anxiety appears to be describing the negative pole (anxiety) of Poise. Hostility appears to correspond to the negative pole (independence) of Conservatism. This relationship is exemplified by the shared features of aggression and assertiveness bordering on ascendance. The third factor, Extraversion, has been shown to be measuring the same construct as Accommodation. Finally, Manipulation appears similar to Poise in that conforming or socially desirable behavior may be an indication of an attempt to influence or persuade others in

order to achieve personal goals.

Quay (1964) proposes a four factor solution. The four factors were, Unsocialized-psychopathic, Neurotic-disturbed, Subcultural-socialized, and Inadequate-immature. The Unsocialized-psychopathic, which is described by Quay as representing defiance, malice, and aggression, is similar to the negative pole on the Conservatism component. The factor labeled Neurotic-disturbed, reflecting anxiety, hypersensitivity, and inferiority, appears to be similar to the negative pole of the Poise component. The third factor, Subcultural-socialized reflects adherence to peer group values. This factor may be related to the Accommodation component reported in the current study. Both dimensions indicate adherence to group values. The final factor presented by Quay is the Inadequate-immature. This factor reflects apathy, immaturity, and mild neuroticism. No counterpart for this factor is observed in the present study. Since Quay was using factor labels as a means of labeling delinquent subtypes, it is not surprising that his labels reflect the resident group labels applied in this study. It can be seen that the unsocialized-psychopathic type appears to be similar to the type labeled truculent, the neurotic-disturbed type resembles variable-anxious, the subcultural-socialized type is like the poised group, and the inadequate-immature type approximates the apathetic group.

The preceeding comparisons suggest that some of the components identified in this study have construct validity.

Although there are similarities between the components identified in this study and those put forth in other factor analytic studies, there are also differences. These differences reflect the different types of variables or measures used in the various studies.

In order to investigate the existence of relatively homogeneous personality subgroups within the present sample, a cluster analysis was performed. The component scores, generated from the personality variables, were used as a means of giving each subject a score on each of the four labeled dimensions. A cluster analysis based on these scores generated four resident subgroups. These clusters along with the component scores provided the independent and dependent variables necessary to perform a multivariate analysis of variance.

The results of this analysis identified differences between the four clusters on three of the four components. Only the component labeled Conservatism revealed no between cluster differences. By rating each cluster in terms of the construct describing the three remaining dimensions, and noting the differences between clusters on these dimensions, it was possible to develop a personality profile for each cluster. The labels given to the four clusters were; poised, variable-anxious, apathetic, and truculent.

Again reviewing the correspondence between the resident types identified in this study with those identified in others is interesting. Hewitt and Jenkins (1946), Jenkins and Glickman (1947), McGurk, McEwan and Graham (1981), and

McGurk, McEwan, and McGurk (1983), each report solutions for incarcerated criminal or juvenile types.

Hewitt and Jenkins indicate the existence of three personality syndromes which correspond to three types of juveniles. They labeled the three types; socialized delinquents, unsocialized-aggressive, and overinhibited. Jenkins and Glickman applied the same subgroup labels except they changed overinhibited to disturbed. In comparing these types to those encountered in the present study, it appears that the socialized delinquent might be represented by the group labeled poised. Individuals in this cluster have acquired a basic socialization for desirable values and behaviors, yet engage in delinquent activities. The unsocialized-aggressive type is similar to the cluster labeled truculent. This group displays abundant energy, is uncooperative, resistant, and unsociable. These behaviors are in line with those behaviors exhibited by an unsocialized individual. The overinhibited, or disturbed type is probably similar to the apathetic group identified in this study. These individuals are either too emotionally disturbed to be effective in their environment, or too inhibited to try. As a result, they are seen as ineffective copers.

In the two studies by McGurk et al. (1981, 1983), three personality inventories were administered. The data were, in both cases, subjected to cluster analysis and produced four cluster solutions. These clusters probably show the closest correspondence to the clusters identified in this

study. McGurk et al., labeled the clusters; anxious-withdrawn, normal, disturbed, and truculent. The characteristics of the anxious-withdrawn group seems to approximate the qualities representing the variable-anxious group. Although both clusters exhibit anxiety, the variable-anxious group has the capacity to be both highly assimilative and highly accommodative. For this reason, the withdrawn label is perhaps indicative of differences between these two clusters. The cluster labeled normal, appears to correspond to the poised cluster. This is because the individuals in both groups are fairly stable, genial, self-assured, relaxed, tranquil, and unfrustrated. The individuals in the disturbed cluster are described as self-critical, possessing general hostility, and alienation. This group may be similar to those in the apathetic cluster. The nonassimlative character of this group may reflect alienation and self-condemnation. More information concerning the apathetic group is needed before these two clusters can be said to represent the same type of juvenile. In any case, the apathetic type does not display any of the three OPSI coping strategies. This suggests that the apathetic subgroup may be the least equipped to cope with stress. These individuals are, therefore, likely to be the most ineffectual in dealing with the external environment. The last cluster truculent, corresponds to the cluster of the same name in this study. In the McGurk et al. study, the truculent group is said to display extra-punitive hostility, assertiveness, and expedience. This description

is somewhat different from the nonaccommodating uncooperative, resistant, rude, controlling, and serious individual portrayed in the truculent group of the present study. However, these characteristics might supplement the extra-punitive physical hostility indicated for the truculent group identified by McGurk et al. Had hostility measures been used in the current study this relationship probably would have been confirmed.

The correspondence of the four cluster solution produced in this study with the types produced in previous studies tends to confirm the existence of at least four fairly homogeneous personality groupings in the incarcerated juvenile population. Furthermore, the use of adaptative strategies as a means of differentiating these groups appears to be promising.

While the current study has shown that homogeneous personality groupings do exist within the sample and the validity of these groups have been supported via a comparison to previous research studies, some questions remain unanswered. Do four clusters provide sufficient differentiation of the juvenile delinquent types? Perhaps the secondary cluster formations are meaningful when a larger sample is investigated. Furthermore, are personality variables alone sufficient to differientiate criminal types? It has been shown in this study that even though personality variables do a good job of identifying juvenile subtypes, supplemental information can be obtained from biographical information and behavior observation ratings. These types

of biodata have provided richer descriptions for each of the four subgroups. Furthermore, the biodata variables represent more concrete, tangible, or operational variables than personality self descriptions.

In addition to these concerns four limitations of this study should be noted. First, the components identified in this study were generated solely on the basis of personality measures. As such biodata and behavioral observation measures were not allowed to compete for the determination of the components. Had they been allowed to do so other dimensions, such as intellectual ability (discussed earilier), would have almost certainly appeared. Since the current research project was designed to investigate the personality realm, no attempt to extract non-personality dimensions was conducted. Second, the four juvenile types reported in this study were produced from a random sample of residents at four Oklahoma juvenile institutions. The types may therefore not generalize to the types identified within a national sample of juvenile delinquents. The close correspondence noted between the types identified in this study and those reported by other investigators suggest that the sample used in the present study is representative of juveniles found elsewhere. Third, although it was reported that 14 of the initial 80 subjects recruited for this study dropped out prior to or during the testing sessions, there is no reason to expect that their inclusion would have altered the results in specific manner. In fact, half of the subjects dropping out probably would have participated

had they not had to attend therapy sessions which conflicted with the time of the scheduled test sessions held at each institution. Furthermore, there is no reason to believe that the remaining nonparticipants constitute a different type of juvenile delinquent. Finally, only the 16PF provides corrections for the primary scales based upon the motivational distortion scale scores produced by each individual. These corrections, based upon normative data, help to provide a more accurate personality profile for each subject. The OPSI, although providing social desirability and repression scales, lacks norms for these scales. As a consequence no corrections were applied to the OPSI scales. It can be said that motivational distortion was more adequately controlled for in the 16PF than in the OPSI. However, some attempt (looking at the distribution of OPSI scale scores and their relation to the subjects with high 16PF motivational distortion scores) was made to discern whether the OPSI scale scores were valid. In addition, Cattell, Eber, and Tatsuoka (1970) indicate that a socially desirable response pattern is negatively associated with anxiety and can be interpreted as an enduring trait. If one discards high motivational distorters then there will be some loss in the shared variance between social desirability and anxiety. This means that although the OPSI scales remained uncorrected, the worst effect would have been a strengthening of the correlations between the anchors of the Poise component.

The major questions raised by this study are: Are the

personality subgroups disposed to differential treatment methods? and What treatments can be introduced to produce differential impacts?. The answers to these questions are not addressed in the current study but certainly need to be pursued. Although this study has isolated four fairly homogeneous personality subgroups, it would be fruitless to make institutional placements on the basis of these differences without first determining whether any rationale or justification exists for doing it. Perhaps the simplicity of dealing with a specific type of juvenile within one institution would provide a more consistent milieu environment. This type of environmental consistency may be more effective in promoting change. It may also be the case that increased treatment effectiveness would not be observed.

The evaluation of treatment outcomes for these groups and others, can be accomplished by using behavioral observation ratings, among other variables, as criterion measures. By attending to changes in these ratings, indications of positive or negative changes can be observed. Furthermore, the biographical and historical variables may be of use in the diagnosis of resident strengths and weaknesses. These variables can provide a deeper understanding of the characteristics of the juvenile subgroups. Unfortunately, not much is known about the relationships between biodata variables and personality types. As a result, more research is needed in this area. Specifically, those biodata variables which have predictive value, in terms of

identifying strengths and deficiencies, need to be defined. The thrust of these research efforts should produce insights into what specific historical life experiences have cultivated a life of crime, or at least paved the road to the correctional setting. It will only be after these questions have been addressed that differential treatment programs can be properly developed and implemented. These treatment programs will need to address not only psychological problems, but sociological, environmental, economic, and physiological problems as well. Without this sort of eclectic approach only minor advances in the development of effective treatment methods will be observed.

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APPENDIXES

APPENDIX A

OKLAHOMA PERSONAL STYLE INVENTORY

(FORM 3)

OKLAHOMA PERSONAL STYLE INVENTORY

(FORM 3)

Instructions: Please read the following statements, decide how you feel about each one, and circle the appropriate response on the scale supplied for each statement. For each statement there is a scale containing five numbers which have the following meanings:

4: Agree Strongly
3: Agree Somewhat
2: Neither Agree nor Disagree
1: Disagree Somewhat
0: Disagree Strongly

For example, if you strongly agree with the statement "I get angry when people don't keep their promises" you should carefully circle the number four (4) on the scale.

0	1	2	3	4
DISAGREE STRONGLY	DISAGREE SOMEWHAT	NEITHER AGREE NOR DISAGREE	AGREE SOMEWHAT	AGREE STRONGLY

If you disagree somewhat with the statement "I enjoy war movies", you should circle number one (1),

0	1	2	3	4
DISAGREE STRONGLY	DISAGREE SOMEWHAT	NEITHER AGREE NOR DISAGREE	AGREE SOMEWHAT	AGREE STRONGLY

If you feel that the statement "I am an active person" is neither true nor false as applied to you, you should mark number 2,

0	1	2	3	4
DISAGREE STRONGLY	DISAGREE SOMEWHAT	NEITHER AGREE NOR DISAGREE	AGREE SOMEWHAT	AGREE STRONGLY

There are no "right" or "wrong" answers, but if you should change your mind, be sure to erase your mark completely. Please respond to all the statements. Each statement will be repeated twice followed by a five second response interval at which time you should make your response.

1. I tend to enjoy those activities which allow me to be with other people.

2. I am a carefree person.

3. I tend to enjoy those activities which allow me to develop my skills.

4. I enjoy the excitement of a crowd.
5. I am often inclined to go out of my way to win a point with with someone who has opposed me.

6. My parents and family find more fault in me than they should.

7. When I have difficulties, I tend to look to my family for help.

8. Schools should emphasize moral and religious training.

9. My hands and feet are usually warm enough.
10. I try to avoid situations where I might be in conflict with other people, even if it means not doing something I want to do.

11. It makes me nervous to have to wait.
12. At times I feel like picking a fist fight with someone.
13. I am more self-reliant than most people.
14. Once in awhile I feel hate towards members of my family whom I usually love.

15. I enjoy parties.

16. I can be depended upon to carry my share of the load.

17. I have reasons for feeling jealous of one or more of my family members.

18. It is easy for people to get to know me.
19. I value spiritual growth most highly.
20. I take pride in being highly productive.
21. Society is in trouble today because people do not respect the traditional values which have withstood the test of time.

22. I work harder than most people.

23. I like to flirt.
24. For me the good life is one of stability and continuity.
25. I am rather traditional.

26. I usually try to handle uncomfortable situations by trying to change what is happening.

27. I like to spend most of my money on things I want, even if I have to borrow to meet unexpected expenses.

28. I am good at organizing things.

29. It is important to me to feel I have roots in the community where I live.

30. At times I feel like smashing things.

31. I feel comfortable around most people, even if they have backgrounds different from my own.

32. I expect alot of myself.

33. It makes me impatient to have people ask my advise or otherwise interrupt me when I am working on something important.

34. One might as well accept the fact that there will always be conflict among people who want the same thing.

35. My mother or father often made me obey even when I thought it was unreasonable.

36. I enjoy doing things which are routine and familiar.

37. My family does not like the work I have chosen (or the work I intend to choose for my life work).

38. I have long range goals which I hope to achieve.

39. It makes me uncomfortable to put on a stunt at a party even when others are doing the same sort of things.

40. I blush no more often then others.

41. I do not tire quickly.

42. The more challenging the assignment, the more I like it.

43. I enjoy doing things with other people.

44. Life is most satisfying for me when it consists of familiar activities with few surprises.

45. I sometimes work with people I don't like when it's necessary to achieve my goals.

46. Some members of my family have quick tempers.

APPENDIX B

OKLAHOMA PERSONAL STYLE INVENTORY

SCORING KEY

OKLAHOMA PERSONAL STYLE INVENTORY

SCORING KEY

Assimilation 1

3, 13, 16, 42, 45.

Assimilation 2

20, 22, 28, 32, 38.

Accommodation 1

2, 18, 27, 31, 34.

Accommodation 2

1, 5, 15, 26, 43.

Conservatism 1

7, 19, 21, 24, 36.

Conservatism 2

8, 10, 25, 29, 44.

Repression

-4, -5, -12, -14, -23, -30, -35, -46.

Social Desirablity

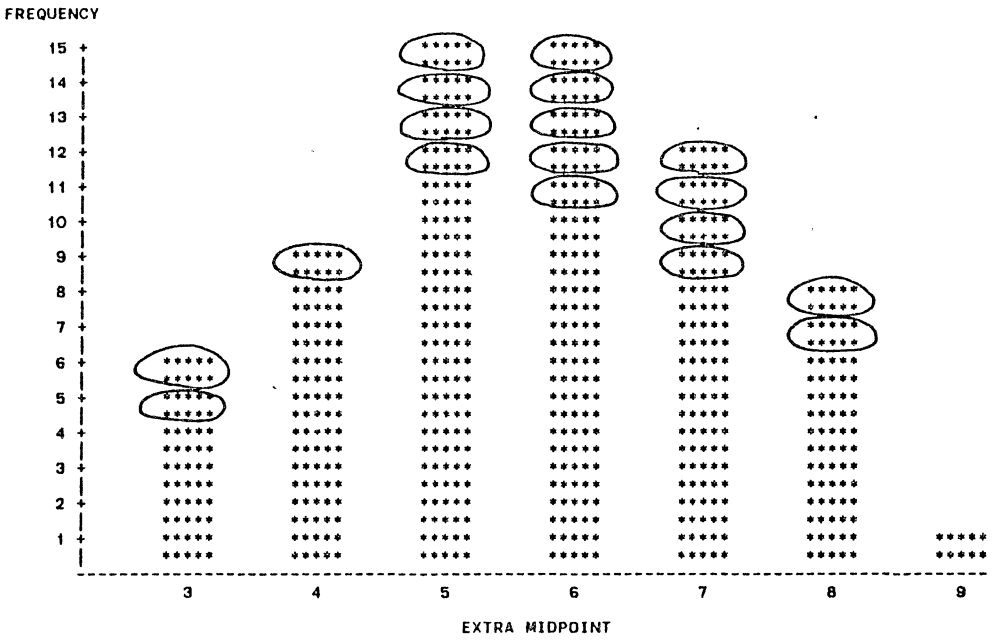
-6, 9, -11, -17, -33, -37, -39, 40, 41.

APPENDIX C

SCORE DISTRIBUTIONS FOR EACH OF THE 13 PERSONALITY SCALES

RAW STEN SCORE DISTRIBUTION FOR EXTRAVERSION (16PF)

FREQUENCY BAR CHART

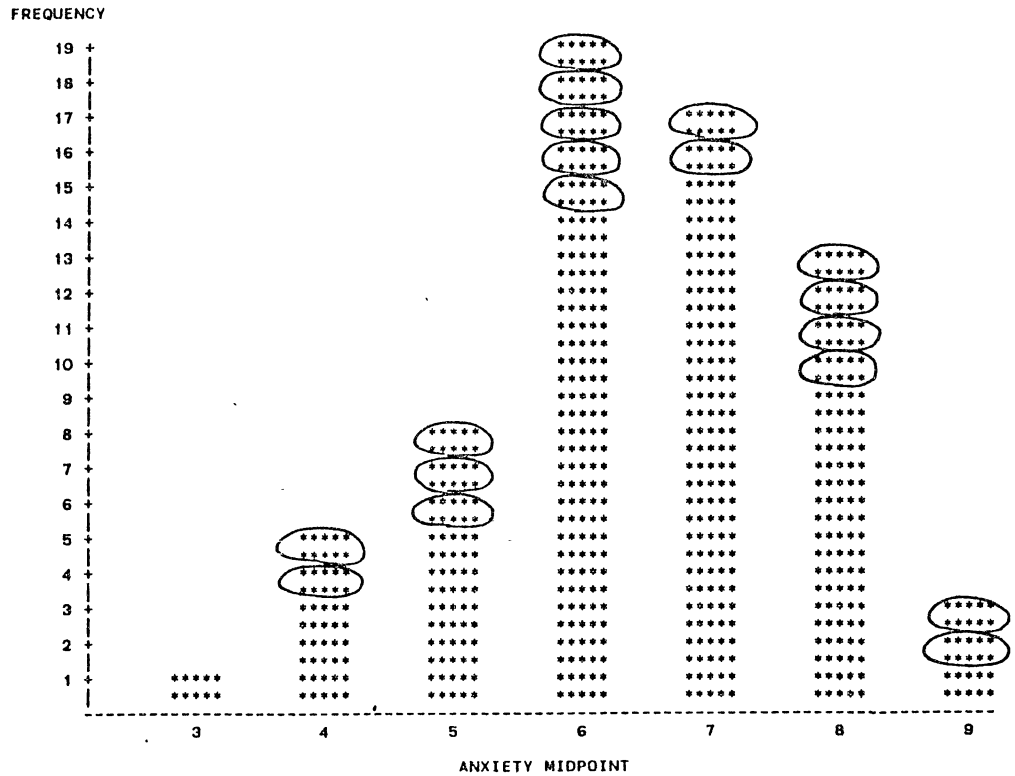


*****
***** - One person.

*****
***** - Person with a high 16PF Motivational Distortion score.

RAW STEN SCORE DISTRIBUTION FOR ANXIETY (16PF)

FREQUENCY BAR CHART

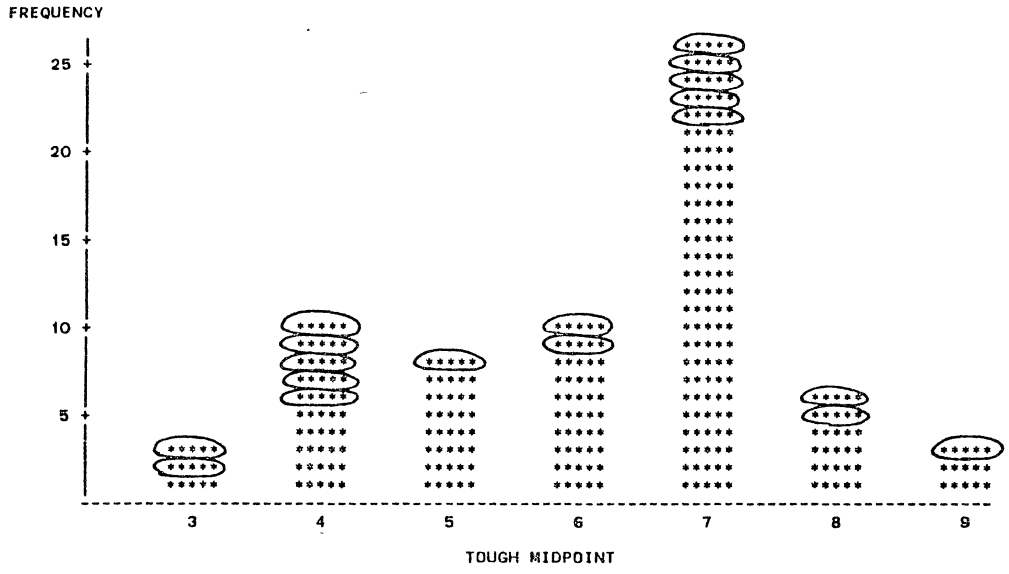


*****
***** - One person.

*****
***** - Person with a high 16PF Motivational Distortion score.

RAW STEN SCORE DISTRIBUTION FOR TOUGH POISE (16PF)

FREQUENCY BAR CHART

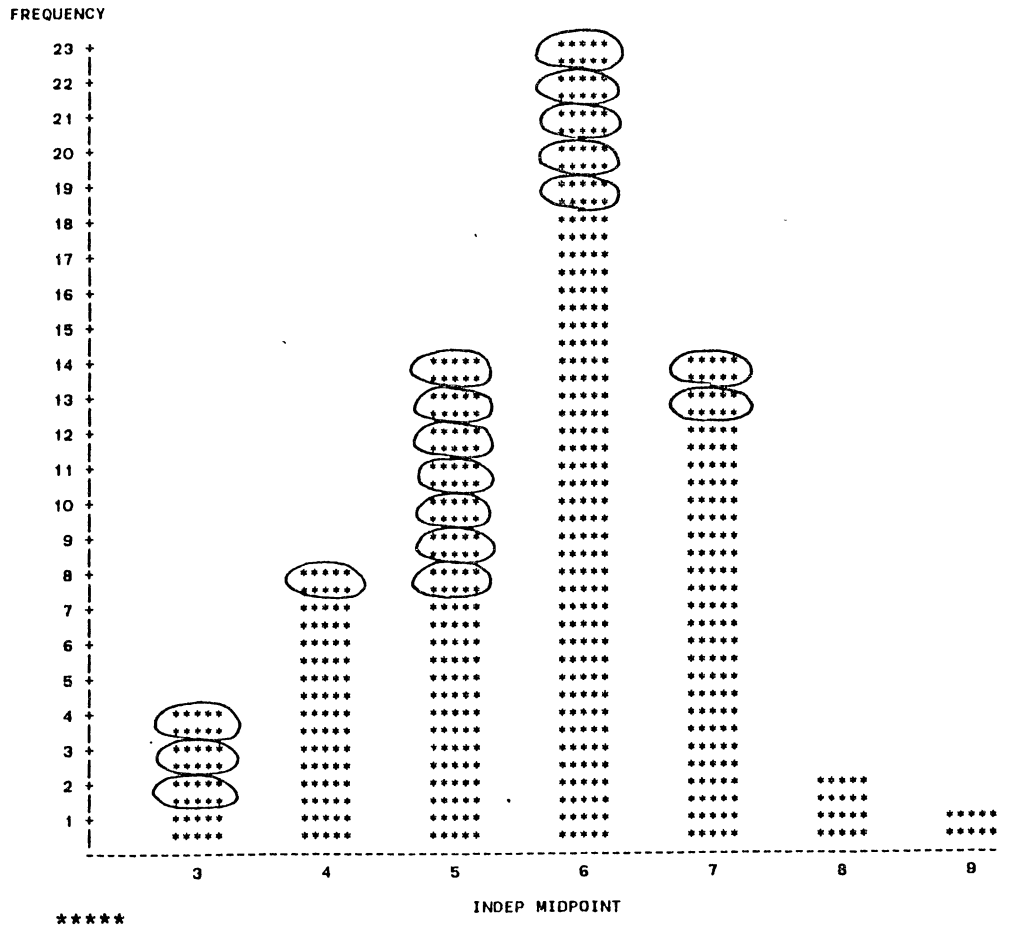


***** - One person.

(*****) - Person with a high 16PF Motivational Distortion score.

RAW STEN SCORE DISTRIBUTION FOR INDEPENDENCE (16PF)

FREQUENCY BAR CHART

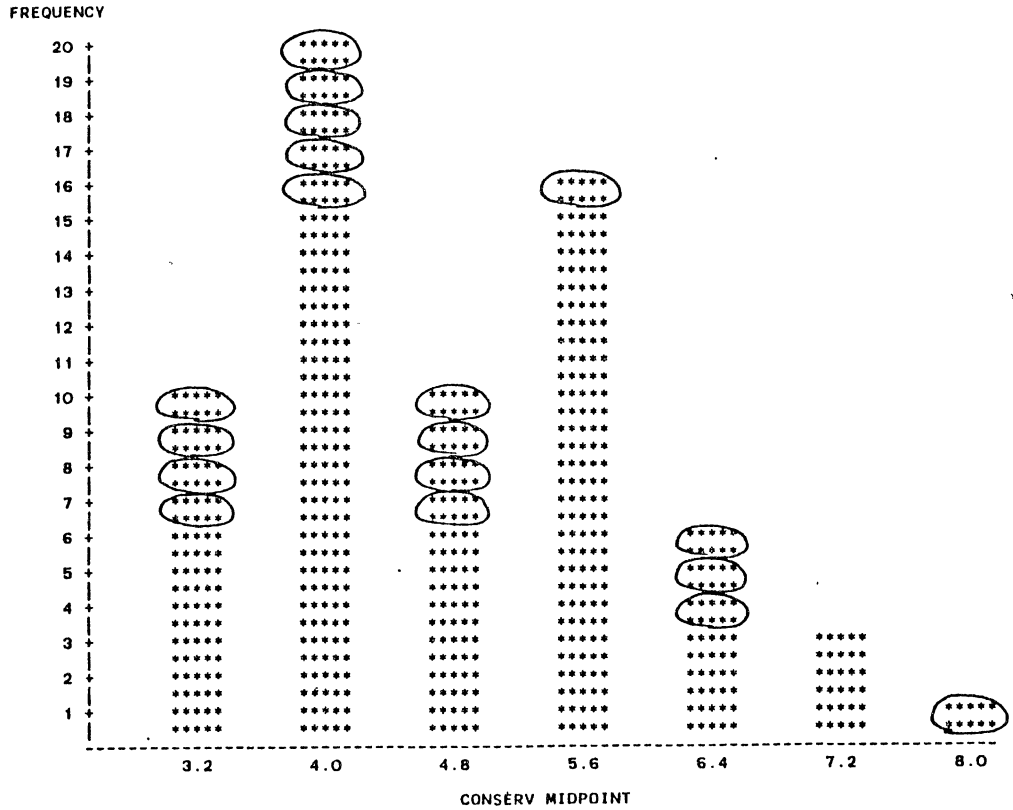


***** - One person.

***** - Person with a high 16PF Motivational Distortion score.

RAW STEN SCORE DIST FOR CONSTRUCTED CONSERVATISM (16PF)

FREQUENCY BAR CHART

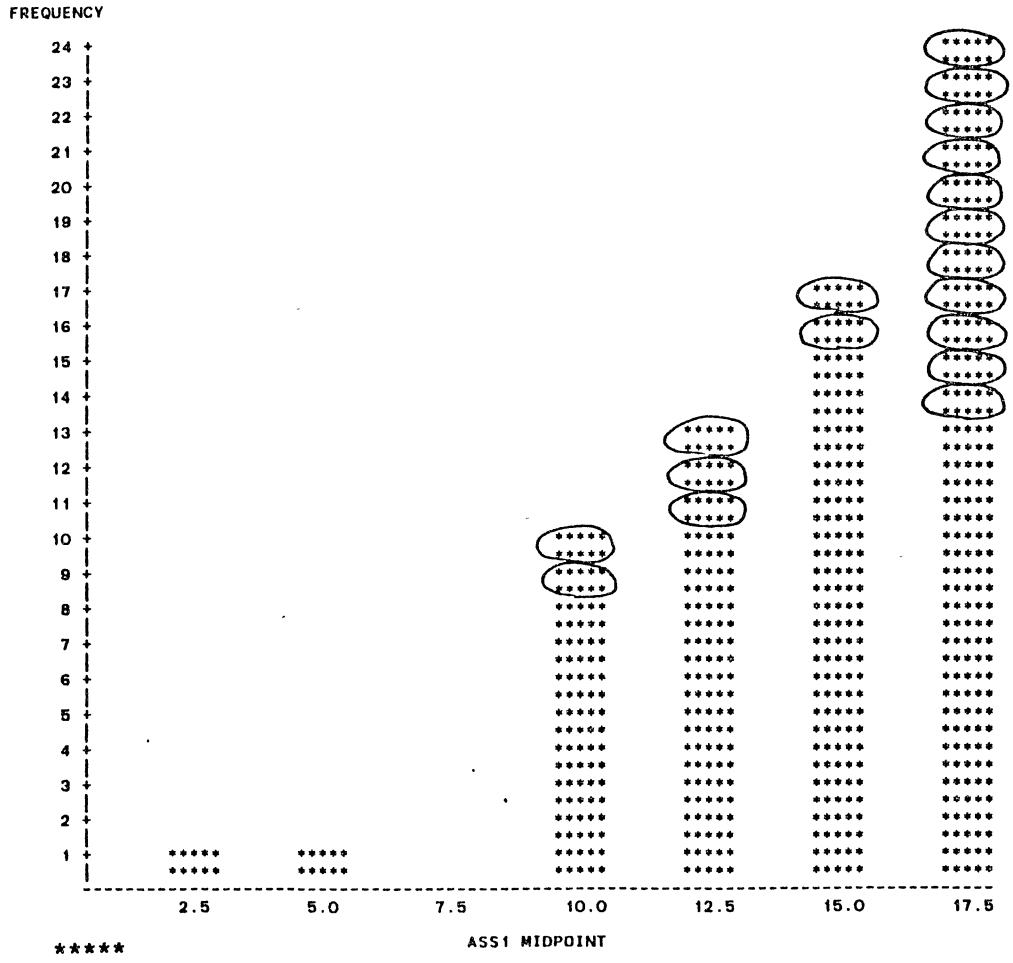


*****
***** - One person.

*****
***** - Person with a high 16PF Motivational Distortion score.

RAW SCORE DISTRIBUTION FOR ASSIMILATION1 (OPSI)

FREQUENCY BAR CHART

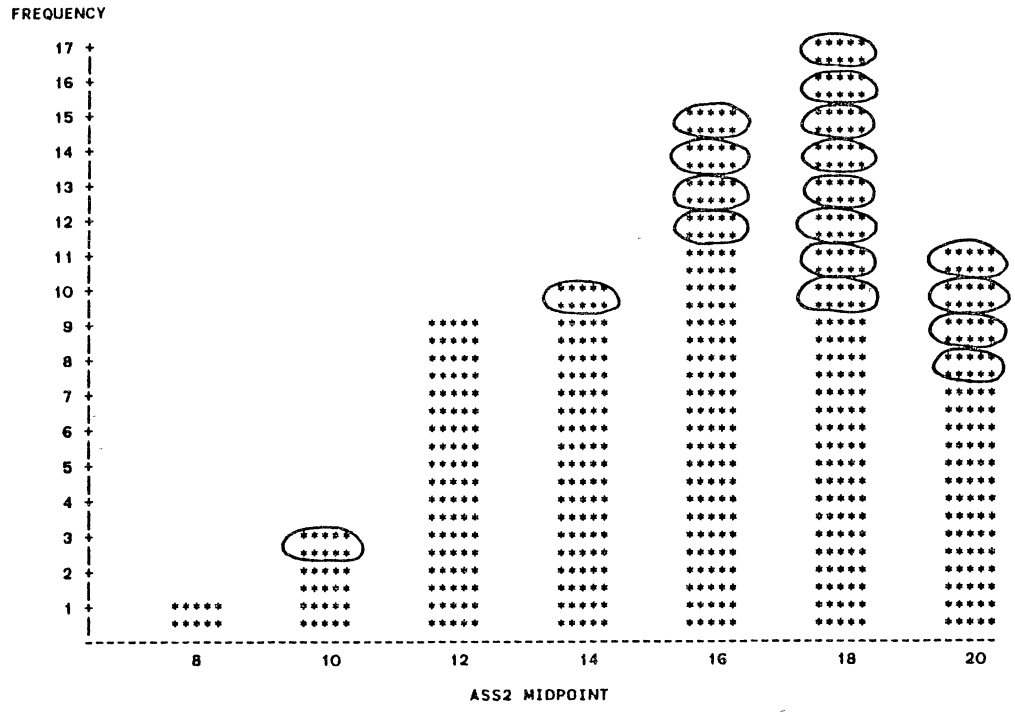


*****
***** - One person.

*****
***** - Person with a high 16PF Motivational Distortion score.

RAW SCORE DISTRIBUTION FOR ASSIMILATION2 (OPSI)

FREQUENCY BAR CHART

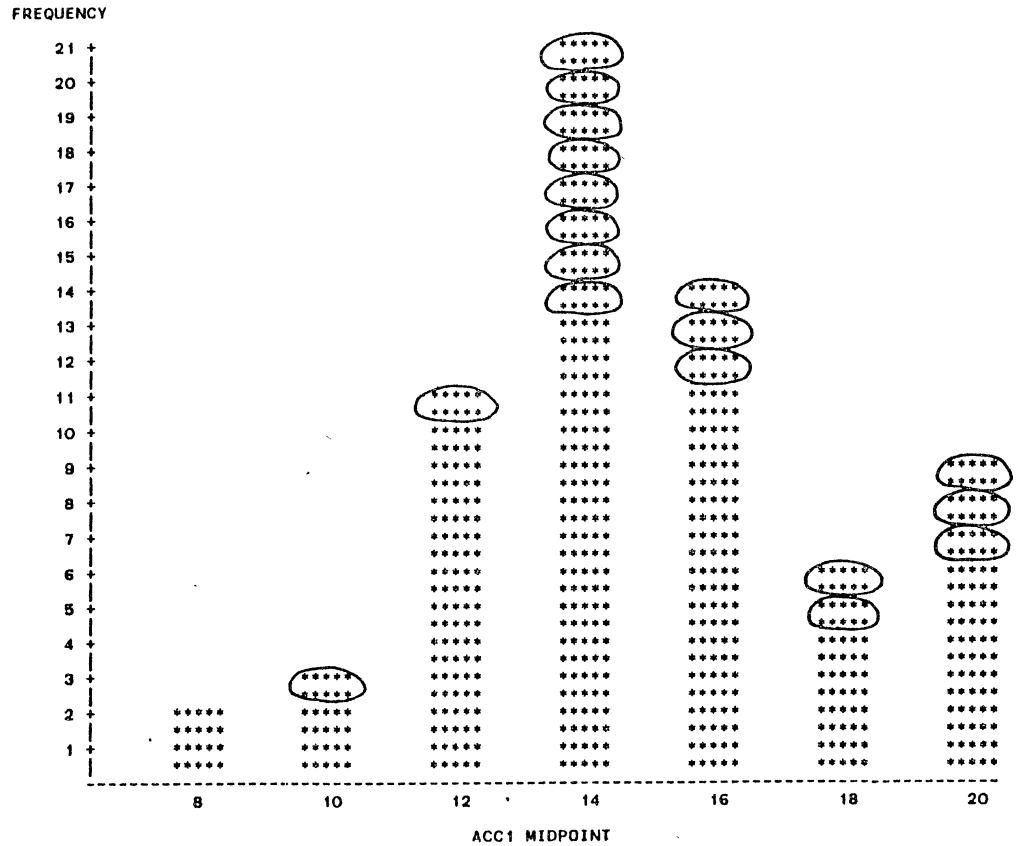


***** - One person.

***** - Person with a high 16PF Motivational Distortion score.

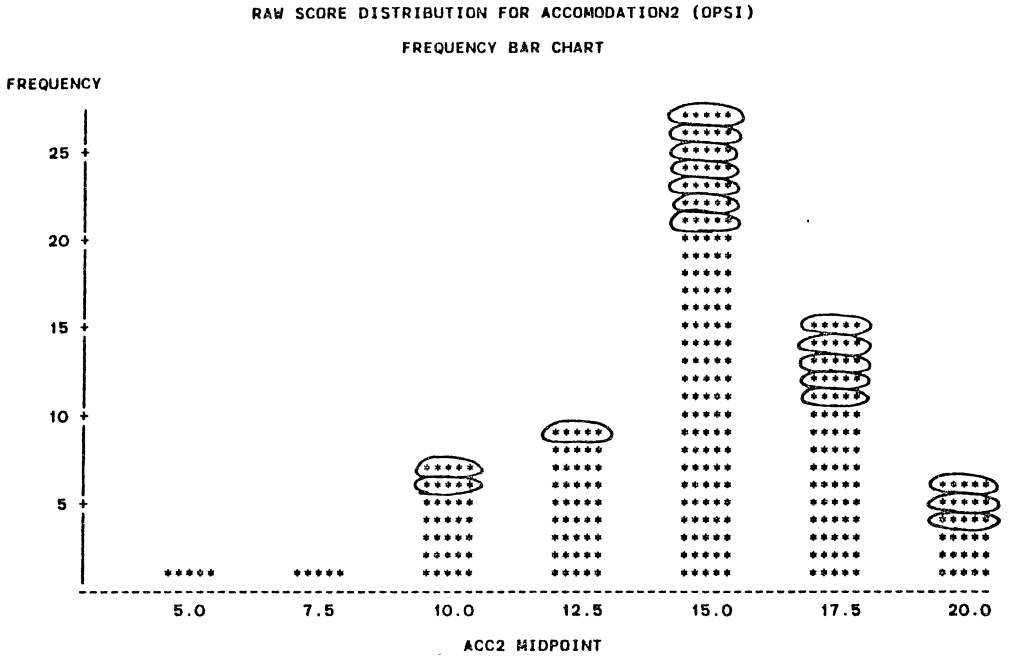
RAW SCORE DISTRIBUTION FOR ACCOMODATION1 (OPSI)

FREQUENCY BAR CHART



***** - One person.

***** - Person with a high 16PF Motivational Distortion score.

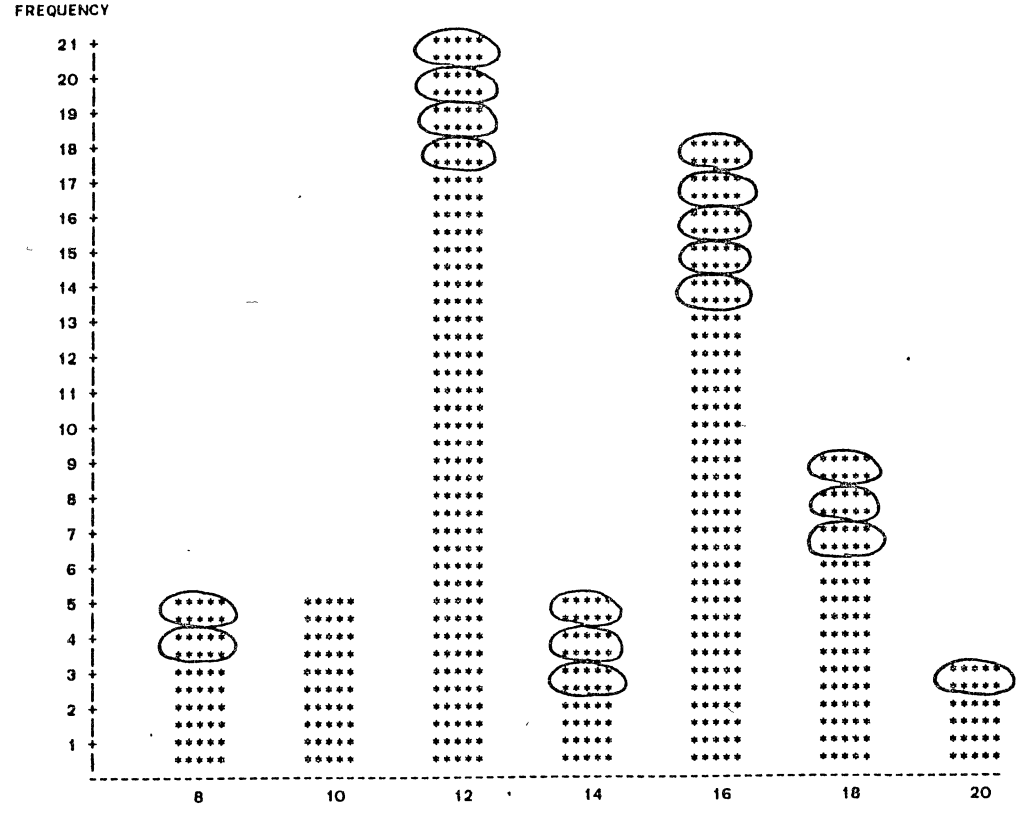


***** - One person.

(*****) - Person with a high 16PF Motivational Distortion score.

RAW SCORE DISTRIBUTION FOR CONSERVATISM1 (OPSI)

FREQUENCY BAR CHART

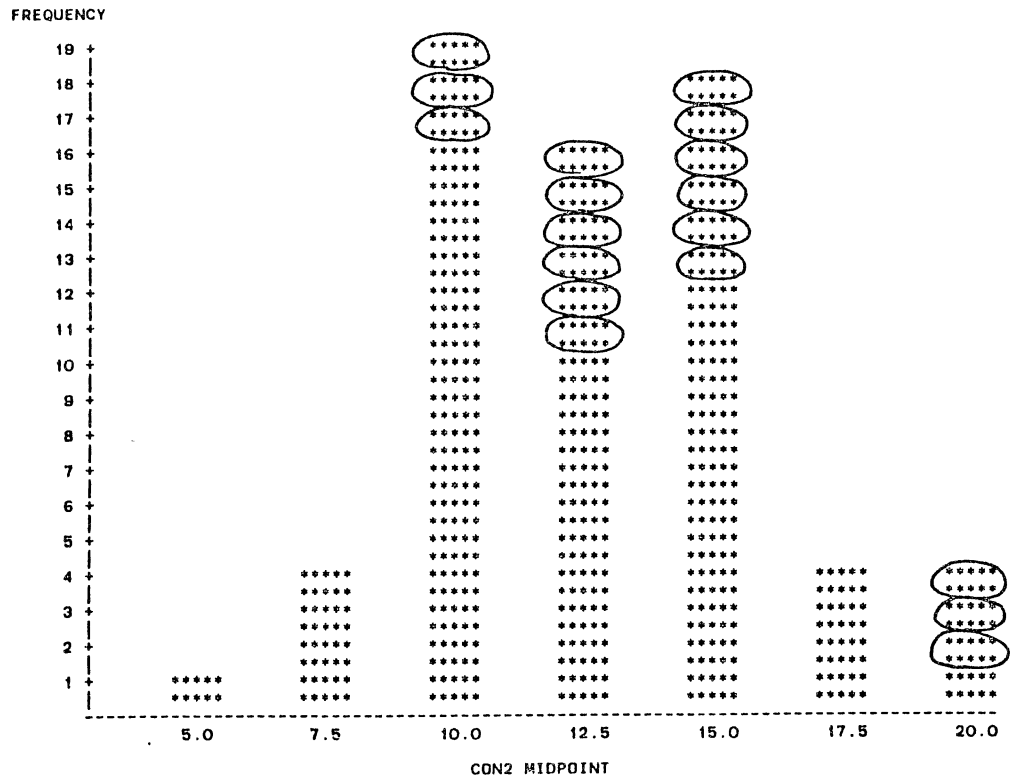


*****
***** - One person.

*****
***** - Person with a high 16PF Motivational Distortion score.

RAW SCORE DISTRIBUTION FOR CONSERVATISM2 (OPSI)

FREQUENCY BAR CHART

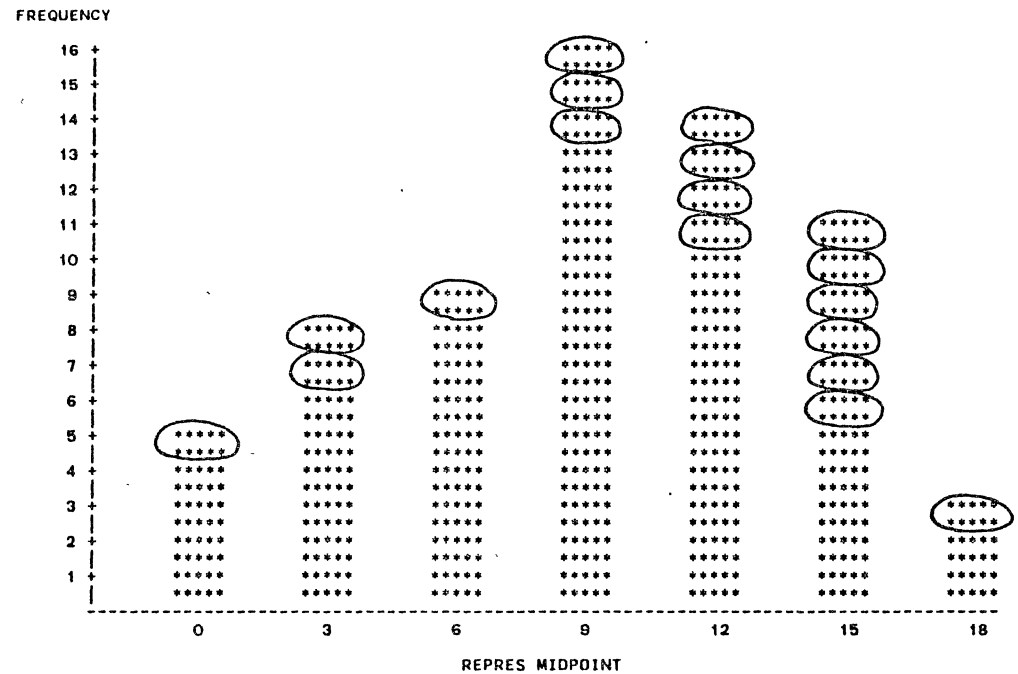


***** - One person.

***** - Person with a high 16PF Motivational Distortion score.

RAW SCORE DISTRIBUTION FOR REPRESSION (OPSI)

FREQUENCY BAR CHART

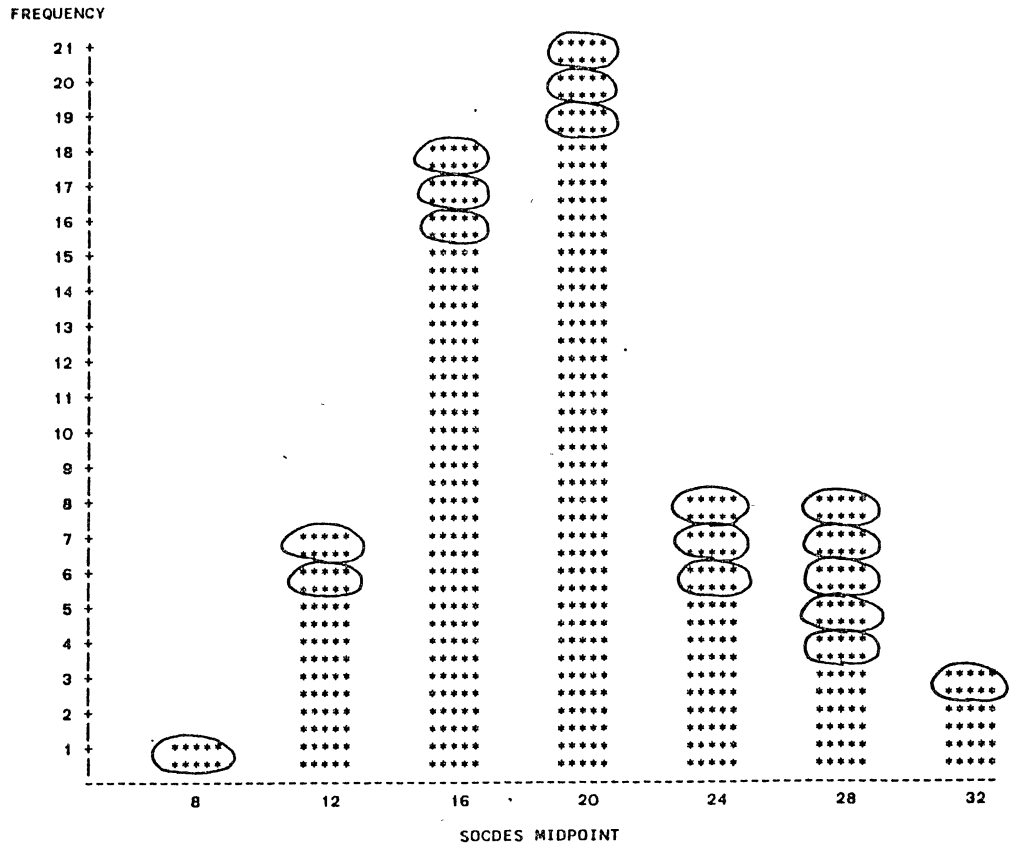


*****
***** - One person.

*****
***** - Person with a high 16PF Motivational Distortion score.

RAW SCORE DIST FOR SOCIAL DESIRABILITY (OPSI)

FREQUENCY BAR CHART



*****
***** - One person.

*****
***** - Person with a high 16PF Motivational Distortion score.

APPENDIX D

BIODATA QUESTIONNAIRE

BIODATA QUESTIONNAIRE

Please answer each question by either filling in the blank with the requested information or circling the best response. You are to answer these questions by considering your past experiences.

1. Birthdate _____/___/____
   month/day/year

2. Institution name _____

3. Town of residence _____
   County of residence _____

4. Prior to your incarceration how often did you use alcohol?

   A. Never
   B. Rarely
   C. Occassionally
   D. Often
   E. Very frequently

5. Prior to your incarceration how often did you drugs other than alcohol?

   A. Never
   B. Rarely
   C. Occassionally
   D. Often
   E. Very frequently

6. To the best of your recollection, do any other members of your family have a criminal or juvenile record?

   A. yes
   B. no

7. In the past when you have committed a criminal offense (whether you were caught or not), how often did you participate with other people?

A. I never participated with other people.
B. I rarely participated with other people.
C. I occassionally participated with other people.
D. I quite frequently participated with other people.
E. I always participated with other people.

8. Which of your parents served as the primary disciplinarian?

A. my mother
B. my father

INSTRUCTIONS 9-15. Use the following Likert scale format to make your responses. Please circle the number which corresponds to how you feel about each question.

0---------1----------2-----------3---------4
DISAGREE STRONGLY | DISAGREE SOMEWHAT | NEITHER AGREE NOR DISAGREE | AGREE SOMEWHAT | AGREE STRONGLY

9. My parents disciplined me physically when I did something wrong.
0---------1----------2-----------3---------4

10. My parents were fair and consistent in the manner in which they carried out discipline.
0---------1----------2-----------3---------4

11. There is always something enjoyable for me to do at school.
0---------1----------2-----------3---------4

12. My family makes me feel important to them.
0---------1----------2-----------3---------4

13. I do not seem to be fitting in very well with the other residents.
0---------1----------2-----------3---------4

14. Back home I have some good friends.
0---------1----------2-----------3---------4

15. My friends back home frequently get into trouble.
0---------1----------2-----------3---------4

APPENDIX E

BIODATA FACT SHEET

BIODATA FACT SHEET

1. Birthdate _____/___/____
   month/day/year

2. Institution name _____

3. Town of residence _____
   County of residence _____

4. WAIS-R performance score _____
   WAIS-R verbal score_____

5. This individual has suffered _____.
   A. neglect
   B. abuse
   C. both
   D. no indication of abuse or neglect

6. This person has primarily committed _____ crimes.
   A. property crimes
   B. person crimes
   C. person/property about equally

APPENDIX F

STAFF RATINGS OF RESIDENT FORM

STAFF RATINGS OF RESIDENT FORM

RESIDENT NAME_____

Answer the questions as they relate to the resident indicated above.

1. _____ seems to get along with other residents.

0	1	2	3	4
DISAGREE STRONGLY	DISAGREE SOMEWHAT	NEITHER AGREE NOR DISAGREE	AGREE SOMEWHAT	AGREE STRONGLY

2. _____ seems to be following the rules and directions well.

0	1	2	3	4
DISAGREE STRONGLY	DISAGREE SOMEWHAT	NEITHER AGREE NOR DISAGREE	AGREE SOMEWHAT	AGREE STRONGLY

3. _____ seems to be rather passive and withdrawn.

0	1	2	3	4
DISAGREE STRONGLY	DISAGREE SOMEWHAT	NEITHER AGREE NOR DISAGREE	AGREE SOMEWHAT	AGREE STRONGLY

4. _____ draws attention to himself by displaying disruptive behavior.

0	1	2	3	4
DISAGREE STRONGLY	DISAGREE SOMEWHAT	NEITHER AGREE NOR DISAGREE	AGREE SOMEWHAT	AGREE STRONGLY

5. _____ possesses good verbal or conversational skills.

0	1	2	3	4
DISAGREE STRONGLY	DISAGREE SOMEWHAT	NEITHER AGREE NOR DISAGREE	AGREE SOMEWHAT	AGREE STRONGLY

APPENDIX G

DESCRIPTIVE STATISTICS FOR RAW SCORE DATA

DESCRIPTIVE STATISTICS FOR RAW SCORE DATA

Variable	N	Mean	SD	Skewness	Kurtosis
Extra	66	5.60	1.50	-0.08	-0.89
Anxiety	66	6.35	1.38	-0.29	-0.52
Tough	66	6.07	1.53	-0.28	-0.45
Indep	66	5.64	1.28	-0.33	0.26
Conserv	66	4.81	1.20	0.61	0.77
Assl	66	14.70	3.61	-1.02	1.68
Ass2	66	15.45	3.08	-0.54	-0.36
Accl	66	14.36	3.00	0.16	-0.45
Acc2	66	14.94	3.20	-0.79	1.07
Conl	66	13.50	3.22	-0.09	-0.69
Con2	66	12.70	3.46	0.09	0.21
Repres	66	9.36	4.73	-0.03	-0.57
Socdes	66	19.11	5.58	0.38	-0.17
Ygetlong	66	2.62	1.15	-0.78	-0.19
Yrules	66	2.29	1.21	-0.26	-1.16
Ypassive	66	1.35	1.26	0.59	-0.78
Yattrupt	66	2.05	1.50	-0.08	-1.46
Yverbskl	66	2.21	1.28	-0.28	-1.03
Sgetlong	66	2.03	1.28	-0.15	-1.24
Srules	66	2.17	1.22	-0.12	-1.18
Spassive	66	1.83	1.28	-0.04	-1.26
Sattrupt	66	2.18	1.32	-0.26	-1.16
Sverbskl	66	2.35	1.25	-0.65	-0.70
Alcohol	66	3.35	1.50	-0.23	-1.49
Drug	66	3.41	1.67	-0.36	-1.62
Famdel	65	1.25	0.43	1.21	-0.56
Withothr	66	3.20	1.29	0.24	-0.31
Pdispln	65	1.52	0.50	-0.09	-2.06
Physpun	65	2.63	1.46	-0.74	-0.86
Fairpun	65	2.74	1.34	-0.83	-0.44
Joyschl	66	2.45	1.48	-0.51	-1.17
Meimport	65	2.94	1.48	-1.06	-0.38
Nofitres	66	1.97	1.48	-0.06	-1.46
Goodfred	66	3.42	1.05	-2.07	3.75
Fredbad	66	2.12	1.45	-0.25	-1.35
Perf	64	95.73	13.94	0.18	-0.32
Verb	64	83.95	11.80	0.79	0.50
Mistret	64	3.00	1.18	-0.60	-1.29
Typcrim	65	1.82	1.06	0.87	-0.71
Age	66	16.30	1.09	-0.52	-0.39

APPENDIX H

INTERCORRELATION MATRIX

INTERCORRELATION MATRIX

	extra	anxiety	tough	indep	conserv	ass1	ass2
Extra	1.00	-0.06	0.05	0.29	-0.07	0.26	0.12
Anxiety	-	1.00	-0.22	-0.25	-0.15	0.03	0.32
Tough	-	-	1.00	0.20	-0.33	-0.10	-0.05
Indep	-	-	-	1.00	0.07	0.08	-0.06
Conserv	-	-	-	-	1.00	0.27	0.18
Assl	-	-	-	-	-	1.00	0.59
Ass2	-	-	-	-	-	-	1.00
Accl	-	-	-	-	-	-	-
Acc2	-	-	-	-	-	-	-
Conl	-	-	-	-	-	-	-
Con2	-	-	-	-	-	-	-
Repres	-	-	-	-	-	-	-
Socdes	-	-	-	-	-	-	-
Ygetlong	-	-	-	-	-	-	-
Yrules	-	-	-	-	-	-	-
Ypassive	-	-	-	-	-	-	-
Yattrupt	-	-	-	-	-	-	-
Yverbskl	-	-	-	-	-	-	-
Sgetlong	-	-	-	-	-	-	-
Srules	-	-	-	-	-	-	-
Spassive	-	-	-	-	-	-	-
Sattrupt	-	-	-	-	-	-	-
Sverbskl	-	-	-	-	-	-	-
Alcohol	-	-	-	-	-	-	-
Drug	-	-	-	-	-	-	-
Famdel	-	-	-	-	-	-	-
Withothr	-	-	-	-	-	-	-
Pdispln	-	-	-	-	-	-	-
Physpun	-	-	-	-	-	-	-
Fairpun	-	-	-	-	-	-	-
Joyschl	-	-	-	-	-	-	-
Meimport	-	-	-	-	-	-	-
Nofitres	-	-	-	-	-	-	-
Goodfred	-	-	-	-	-	-	-
Fredbad	-	-	-	-	-	-	-
Perf	-	-	-	-	-	-	-
Verb	-	-	-	-	-	-	-
Mistret	-	-	-	-	-	-	-
Typcrim	-	-	-	-	-	-	-
Age	-	-	-	-	-	-	-

INTERCORRELATION MATRIX (Continued)

	Acc1	Acc2	Con1	Con2	Repres	Socdes	Ygetlong
Extra	0.20	0.34	0.10	0.01	-0.28	0.07	0.08
Anxiety	0.03	0.17	-0.10	-0.11	-0.30	-0.30	-0.23
Tough	-0.14	-0.36	-0.08	-0.21	0.02	0.02	0.08
Indep	-0.12	-0.21	-0.23	-0.20	0.14	0.02	0.06
Conserv	-0.12	0.07	0.06	0.04	-0.06	0.02	0.06
Ass1	0.22	0.52	0.37	0.26	-0.12	0.07	0.05
Ass2	0.27	0.44	0.42	0.34	-0.17	0.12	-0.02
Acc1	1.00	0.50	0.44	0.52	-0.19	0.15	0.03
Acc2	-	1.00	0.37	0.33	-0.25	0.05	-0.16
Con1	-	-	1.00	0.61	-0.10	0.13	0.06
Con2	-	-	-	1.00	-0.05	0.11	-0.09
Repres	-	-	-	-	1.00	0.30	0.22
Socdes	-	-	-	-	-	1.00	0.05
Ygetlong	-	-	-	-	-	-	1.00
Yrules	-	-	-	-	-	-	-
Ypassive	-	-	-	-	-	-	-
Yattrupt	-	-	-	-	-	-	-
Yverbskl	-	-	-	-	-	-	-
Sgetlong	-	-	-	-	-	-	-
Srules	-	-	-	-	-	-	-
Spassive	-	-	-	-	-	-	-
Sattrupt	-	-	-	-	-	-	-
Sverbskl	-	-	-	-	-	-	-
Alcohol	-	-	-	-	-	-	-
Drug	-	-	-	-	-	-	-
Famdel	-	-	-	-	-	-	-
Withothr	-	-	-	-	-	-	-
Pdispln	-	-	-	-	-	-	-
Physpun	-	-	-	-	-	-	-
Fairpun	-	-	-	-	-	-	-
Joyschl	-	-	-	-	-	-	-
Meimport	-	-	-	-	-	-	-
Nofitres	-	-	-	-	-	-	-
Goodfred	-	-	-	-	-	-	-
Fredbad	-	-	-	-	-	-	-
Perf	-	-	-	-	-	-	-
Verb	-	-	-	-	-	-	-
Mistret	-	-	-	-	-	-	-
Typcrim	-	-	-	-	-	-	-
Age	-	-	-	-	-	-	-

INTERCORRELATION MATRIX (Continued)

	Yrules	Ypassive	Yattrupt	Yverbskl	Sgetlong
Extra	-0.05	-0.27	-0.06	-0.02	0.17
Anxiety	-0.17	-0.03	0.21	-0.09	-0.08
Tough	-0.03	0.16	-0.15	-0.12	0.25
Indep	0.19	-0.02	0.05	-0.09	0.04
Conserv	0.06	-0.15	0.03	0.04	-0.20
Ass1	0.02	-0.42	0.00	0.21	-0.01
Ass2	0.10	-0.28	0.10	0.10	-0.09
Acc1	-0.06	0.04	0.00	-0.01	0.00
Acc2	-0.12	-0.20	0.06	0.04	0.05
Con1	0.10	-0.19	-0.09	0.20	-0.01
Con2	-0.03	-0.05	-0.02	0.17	-0.13
Repres	0.28	0.08	-0.20	0.26	0.17
Socdes	0.19	-0.02	-0.11	0.07	-0.03
Ygetlong	0.39	-0.04	-0.42	0.31	0.50
Yrules	1.00	-0.07	-0.59	0.27	0.36
Ypassive	-	1.00	-0.01	-0.42	-0.19
Yattrupt	-	-	1.00	-0.20	-0.36
Yverbskl	-	-	-	1.00	0.31
Sgetlong	-	-	-	-	1.00
Srules	-	-	-	-	-
Spassive	-	-	-	-	-
Sattrupt	-	-	-	-	-
Sverbskl	-	-	-	-	-
Alcohol	-	-	-	-	-
Drug	-	-	-	-	-
Famdel	-	-	-	-	-
Withothr	-	-	-	-	-
Pdispln	-	-	-	-	-
Physpun	-	-	-	-	-
Fairpun	-	-	-	-	-
Joyschl	-	-	-	-	-
Meimport	-	-	-	-	-
Nofitres	-	-	-	-	-
Goodfred	-	-	-	-	-
Fredbad	-	-	-	-	-
Perf	-	-	-	-	-
Verb	-	-	-	-	-
Mistret	-	-	-	-	-
Typcrim	-	-	-	-	-
Age	-	-	-	-	-

INTERCORRELATION MATRIX (Continued)

	Srules	Spassive	Sattrupt	Sverbskl	Alcohol
Extra	0.15	-0.15	-0.19	0.33	0.18
Anxiety	-0.22	-0.12	0.28	-0.03	-0.03
Tough	0.11	0.07	-0.03	0.00	0.05
Indep	0.04	-0.20	-0.24	0.26	0.14
Conserv	-0.09	-0.17	0.10	0.09	-0.04
Ass1	-0.03	-0.25	0.00	0.25	0.17
Ass2	-0.08	-0.30	0.09	0.23	0.11
Acc1	-0.06	0.12	0.09	-0.03	0.02
Acc2	-0.18	-0.20	0.14	0.11	0.19
Con1	0.05	-0.01	-0.08	-0.09	0.10
Con2	0.12	0.08	-0.09	-0.19	-0.05
Repres	0.11	0.10	-0.20	-0.20	-0.20
Socdes	-0.09	0.09	-0.08	-0.13	-0.12
Ygetlong	0.31	0.11	-0.35	0.12	0.17
Yrules	0.40	0.06	-0.52	0.19	0.01
Ypassive	-0.12	0.37	0.03	-0.33	0.00
Yattrupt	-0.41	-0.17	0.42	-0.10	0.12
Yverbskl	0.36	-0.11	-0.26	0.16	-0.06
Sgetlong	0.53	-0.02	-0.51	0.23	0.17
Srules	1.00	0.21	-0.53	0.23	-0.14
Spassive	-	1.00	-0.03	-0.41	-0.41
Sattrupt	-	-	1.00	-0.12	0.03
Sverbskl	-	-	-	1.00	0.20
Alcohol	-	-	-	-	1.00
Drug	-	-	-	-	-
Famdel	-	-	-	-	-
Withothr	-	-	-	-	-
Pdispln	-	-	-	-	-
Physpun	-	-	-	-	-
Fairpun	-	-	-	-	-
Joyschl	-	-	-	-	-
Meimport	-	-	-	-	-
Nofitres	-	-	-	-	-
Goodfred	-	-	-	-	-
Fredbad	-	-	-	-	-
Perf	-	-	-	-	-
Verb	-	-	-	-	-
Mistret	-	-	-	-	-
Typcrim	-	-	-	-	-
Age	-	-	-	-	-

INTERCORRELATION MATRIX (Continued)

	Drug	Famdel	Withothr	Pdispln	Physpun	Fairpun
Extra	0.20	0.15	0.11	-0.05	-0.01	0.01
Anxiety	-0.03	-0.01	0.04	-0.23	0.08	0.02
Tough	0.04	-0.22	0.04	0.03	-0.16	-0.11
Indep	0.07	0.14	0.07	0.15	0.04	-0.25
Conserv	-0.13	0.13	0.04	0.11	-0.07	-0.03
Ass1	-0.08	0.08	0.06	0.00	-0.13	0.30
Ass2	-0.02	0.04	0.19	-0.07	0.00	0.29
Acc1	-0.12	-0.13	0.01	-0.11	0.20	0.11
Acc2	0.00	0.02	0.33	-0.09	0.05	0.24
Con1	-0.14	-0.11	0.00	-0.17	-0.18	0.27
Con2	-0.28	-0.05	-0.07	-0.13	-0.05	0.23
Repres	-0.01	0.06	-0.09	0.08	-0.15	0.10
Socdes	-0.02	0.16	0.06	-0.01	-0.24	0.16
Ygetlong	0.24	0.19	-0.10	0.19	-0.29	0.03
Yrules	0.02	-0.04	0.05	0.01	-0.04	-0.02
Ypassive	-0.08	0.02	0.17	-0.12	-0.04	-0.23
Yattrupt	0.00	0.00	0.11	0.10	0.15	0.15
Yverbskl	-0.03	-0.13	-0.16	0.12	-0.23	0.08
Sgetlong	0.17	0.01	0.20	-0.01	-0.23	0.13
Srules	-0.12	-0.08	-0.10	-0.20	-0.14	-0.05
Spassive	-0.29	0.03	-0.11	-0.07	-0.08	-0.12
Sattrupt	-0.08	-0.19	0.07	0.09	0.25	-0.03
Sverbskl	0.13	-0.16	0.16	0.16	0.11	0.02
Alcohol	0.45	-0.07	0.23	0.23	0.03	0.01
Drug	1.00	-0.08	0.03	0.26	0.15	0.11
Famdel	-	1.00	-0.01	-0.03	-0.10	-0.02
Withothr	-	-	1.00	-0.04	0.06	-0.07
Pdispln	-	-	-	1.00	0.03	0.14
Physpun	-	-	-	-	1.00	-0.17
Fairpun	-	-	-	-	-	1.00
Joyschl	-	-	-	-	-	-
Meimport	-	-	-	-	-	-
Nofitres	-	-	-	-	-	-
Goodfred	-	-	-	-	-	-
Fredbad	-	-	-	-	-	-
Perf	-	-	-	-	-	-
Verb	-	-	-	-	-	-
Mistret	-	-	-	-	-	-
Typcrim	-	-	-	-	-	-
Age	-	-	-	-	-	-

INTERCORRELATION MATRIX (Continued)

	Joyschl	Meimport	Nofitres	Goodfred	Fredbad
Extra	0.18	0.06	-0.16	0.22	0.12
Anxiety	0.00	0.04	0.05	-0.13	-0.10
Tough	-0.21	-0.10	0.00	-0.08	-0.01
Indep	-0.18	0.00	0.12	-0.08	0.11
Conserv	0.13	-0.10	-0.01	-0.04	0.01
Assl	0.21	0.26	-0.09	0.23	-0.23
Ass2	0.24	0.17	-0.07	0.23	-0.14
Accl	0.21	0.21	0.02	0.20	0.13
Acc2	0.21	0.22	-0.13	0.35	-0.15
Conl	0.30	0.35	0.13	0.17	0.02
Con2	0.41	0.12	0.18	0.03	0.13
Repres	0.04	0.08	0.05	-0.06	-0.05
Socdes	0.27	0.05	0.04	0.05	-0.10
Ygetlong	-0.09	0.10	-0.09	0.10	-0.09
Yrules	-0.03	0.19	0.08	-0.04	-0.19
Ypassive	-0.14	-0.03	-0.01	0.00	0.11
Yattrupt	0.16	0.08	0.02	-0.10	0.19
Yverbskl	0.21	0.05	0.00	-0.07	-0.08
Sgetlong	-0.11	0.16	-0.24	0.13	-0.16
Srules	0.03	-0.01	-0.12	-0.14	-0.04
Spassive	-0.05	-0.05	0.01	-0.15	0.06
Sattrupt	0.00	-0.10	0.08	-0.07	-0.17
Sverbskl	0.09	0.07	-0.15	0.07	-0.17
Alcohol	-0.04	0.25	-0.20	0.23	0.04
Drug	-0.13	0.07	-0.25	0.21	0.04
Famdel	0.11	0.02	0.07	0.11	0.02
Withothr	0.00	0.13	-0.23	0.14	0.04
Pdispln	-0.01	0.02	0.19	0.04	-0.04
Physpun	0.04	-0.11	0.00	-0.09	0.13
Fairpun	0.34	0.57	-0.08	0.33	-0.15
Joyschl	1.00	0.08	0.15	-0.11	0.07
Meimport	-	1.00	-0.11	0.30	-0.12
Nofitres	-	-	1.00	-0.24	-0.02
Goodfred	-	-	-	1.00	-0.02
Fredbad	-	-	-	-	1.00
Perf	-	-	-	-	-
Verb	-	-	-	-	-
Mistret	-	-	-	-	-
Typcrim	-	-	-	-	-
Age	-	-	-	-	-

INTERCORRELATION MATRIX (Continued)

	Perf	Verb	Mistret	Typcrim	Age
Extra	0.09	0.02	0.09	-0.04	0.12
Anxiety	0.14	0.14	-0.11	0.05	-0.15
Tough	0.05	0.20	-0.08	-0.01	0.04
Indep	-0.08	0.11	0.05	0.05	0.00
Conserv	0.00	0.11	0.06	-0.04	0.11
Assl	0.20	0.22	-0.07	-0.05	0.27
Ass2	0.23	0.34	0.06	0.07	0.05
Accl	-0.13	-0.26	-0.03	0.12	-0.14
Acc2	0.11	-0.02	-0.07	0.02	-0.05
Conl	0.01	-0.17	0.18	0.13	0.06
Con2	-0.09	-0.23	0.06	0.12	0.10
Repres	-0.08	-0.06	0.14	-0.06	-0.01
Socdes	0.12	-0.01	0.46	-0.14	0.15
Ygetlong	-0.08	0.05	0.06	-0.11	0.22
Yrules	-0.06	0.03	0.05	-0.03	0.00
Ypassive	-0.16	-0.22	-0.15	0.08	-0.12
Yattrupt	0.07	0.08	0.01	0.11	-0.33
Yverbskl	-0.07	0.12	0.06	-0.20	0.02
Sgetlong	-0.08	0.04	-0.03	-0.02	0.09
Srules	-0.06	-0.03	0.00	0.03	0.24
Spassive	-0.10	-0.21	-0.03	-0.14	0.13
Sattrupt	0.04	0.10	-0.20	-0.01	-0.17
Sverbskl	0.16	0.37	-0.02	0.01	0.05
Alcohol	0.01	0.17	-0.03	0.08	0.05
Drug	0.24	0.34	0.19	0.03	-0.16
Famdel	-0.22	-0.12	0.20	0.08	0.18
Withothr	-0.01	0.04	-0.01	0.11	-0.22
Pdispln	-0.13	0.14	0.00	-0.12	-0.15
Physpun	0.02	-0.03	-0.08	0.25	-0.27
Fairpun	0.11	-0.04	0.05	-0.04	-0.04
Joyschl	0.16	0.06	0.14	0.05	-0.13
Meimport	-0.08	-0.11	0.06	-0.03	-0.03
Nofitres	0.00	0.06	-0.01	0.08	-0.17
Goodfred	-0.18	-0.15	0.08	-0.18	-0.10
Fredbad	0.05	-0.21	0.18	0.00	0.00
Perf	1.00	0.58	0.11	-0.10	0.06
Verb	-	1.00	0.11	-0.02	-0.05
Mistret	-	-	1.00	0.11	0.01
Typcrim	-	-	-	1.00	-0.20
Age	-	-	-	-	1.00

APPENDIX I

PERSONALITY GENERATED COMPONENT SCORES

SORTED BY CLUSTER

PERSONALITY GENERATED COMPONENT SCORES

SORTED BY CLUSTER

Subject Number	Cluster	Component 1	Component 2	Component 3	Component 4
37	1	0.1477	0.3101	0.1231	0.6267
65	1	0.1672	0.3958	-0.1345	0.5128
32	1	0.2130	0.3895	-0.5386	1.4474
34	1	0.0858	0.2999	-0.3755	1.2113
22	1	-0.3664	0.4330	0.2338	0.5859
25	1	0.4340	0.3200	-1.3570	1.2493
11	1	-0.1977	0.7230	-1.1216	1.0298
26	1	0.6238	0.1159	-0.1380	1.7697
51	1	1.2199	0.0832	-0.7771	1.0334
59	1	1.8458	-0.2903	-1.4248	1.7398
41	1	-1.1457	1.0619	0.4934	1.2619
43	1	0.1701	1.0146	1.2654	1.9152
58	1	-0.3286	0.5675	2.7144	1.3657
64	1	-1.3958	0.4099	2.0692	2.4270
52	1	1.3013	1.0092	-0.3274	2.4270
2	2	-0.2225	0.7755	0.9120	-1.0135
50	2	0.0748	0.8912	1.0032	-0.7826
44	2	0.2756	0.4932	-1.5918	-0.8421
8	2	-0.0967	0.3024	-1.4592	-0.6410
42	2	0.6753	1.6926	-0.0745	-0.7718
56	2	0.9072	1.1064	-0.0104	-0.7745
19	2	0.7881	0.1642	0.6227	-0.6239
49	2	0.6659	0.1368	0.0376	-0.9615
5	2	0.2966	1.1476	-0.2632	-0.7808
61	2	0.6936	0.0085	1.6861	-1.1774
18	2	0.5779	0.0292	0.9784	-1.4052
54	2	0.1316	0.2594	-1.0022	-1.2346
29	2	0.2552	-0.1172	1.3218	-0.6506
48	2	0.5497	0.8772	-0.4346	0.3478
24	2	1.2353	1.3175	-0.4689	-0.0335
16	2	0.5075	0.9764	0.5968	-0.2001
36	2	1.3160	1.3509	0.8305	-0.9398
38	2	0.8135	0.9824	-1.6987	-1.5709
35	2	0.1003	2.3198	1.4118	-1.3258
27	3	-0.4645	-0.5543	-0.2430	-0.5351
57	3	-0.3598	-0.8439	-0.4008	-0.7920
4	3	-1.1668	-0.8799	-0.2423	-0.2211

PERSONALITY GENERATED COMPONENT SCORES

SORTED BY CLUSTER (Continued)

Subject Number	Cluster	Component 1	Component 2	Component 3	Component 4
60	3	-1.5360	-0.8246	-0.0261	0.1429
17	3	-0.7604	-0.4260	-0.3995	-0.8876
53	3	-0.7771	0.2178	-0.6931	-0.1171
7	3	-0.5700	0.3657	-0.0882	-0.4423
66	3	-1.4546	1.2302	-0.7358	0.2787
6	3	-2.3467	0.9769	-1.0386	0.4385
31	3	-0.5917	-0.0049	0.6042	0.0744
46	3	-1.3921	0.0089	0.1041	0.4187
3	3	-1.2227	-0.2422	-0.7080	-1.2483
10	3	-0.8237	1.2640	-1.6299	0.3009
62	3	-1.5819	0.0515	-1.6172	0.0840
20	3	-3.1150	-0.4063	-0.3438	-0.7230
28	3	-2.1496	-2.2856	0.1749	1.6218
30	4	0.3526	-0.7814	1.5677	-0.2746
23	4	0.6863	-0.5443	1.2240	-0.1212
39	4	0.3388	-0.3814	0.8337	0.4970
45	4	0.8550	-0.7459	0.6736	0.8041
13	4	-0.7661	-0.8640	1.0211	-0.1004
14	4	-0.0886	-1.2957	1.3049	-0.2664
12	4	0.3432	-0.6957	-0.7982	-0.1056
1	4	0.9015	-0.7456	-0.1687	-0.6239
33	4	-0.5204	-0.9742	-0.1194	0.3454
40	4	0.2334	-1.0762	0.4558	-0.0828
15	4	0.6863	-1.9718	-0.6545	0.1139
31	4	0.3388	-1.7232	-1.5413	-1.0313
55	4	1.8518	-1.0563	0.1203	0.9003
9	4	2.0312	-2.3188	-1.6804	-0.4857
63	4	0.3570	-2.1282	1.2590	1.7842
47	4	0.3991	-1.9017	0.6835	-2.6400

APPENDIX J

PERSONALITY GENERATED COMPONENT SCORE DISTRIBUTIONS: FOR ENTIRE SAMPLE AND CLUSTER GROUPS

PERSONALITY GENERATED COMPONENT SCORE DISTRIBUTIONS:

FOR ENTIRE SAMPLE AND CLUSTER GROUPS

Group	Component	N	Mean	SD	Skewness	Kurtosis
Overall	1	66	0.00	1.00	-0.66	0.78
	2	66	0.00	1.00	-0.41	-0.05
	3	66	0.00	1.00	0.26	-0.28
	4	66	0.00	1.00	0.25	-0.12
Cluster 1	1	15	0.18	0.86	0.07	0.25
	2	15	0.46	0.37	0.11	0.03
	3	15	0.05	1.19	1.01	0.64
	4	15	1.22	0.61	0.08	-0.03
Cluster 2	1	19	0.50	0.42	0.21	-0.40
	2	19	0.77	0.65	0.60	0.17
	3	19	0.13	1.04	-0.39	-0.91
	4	19	-0.81	0.47	0.79	0.95
Cluster 3	1	16	-1.27	0.76	-1.04	0.82
	2	16	-0.15	0.89	-0.41	1.10
	3	16	-0.46	0.61	-0.57	0.27
	4	16	-0.10	0.69	0.67	1.46
Cluster 4	1	16	0.50	0.72	0.59	1.06
	2	16	-1.20	0.61	-0.62	-1.01
	3	16	0.26	1.01	-0.68	-0.54
	4	16	-0.08	0.96	-0.82	3.11

APPENDIX K

BIODATA GENERATED COMPONENT SCORES

SORTED BY CLUSTER

BIODATA GENERATED COMPONENT SCORES

SORTED BY CLUSTER

Subject Number	Cluster	Component 1	Component 2	Component 3	Component 4
1	1	-1.3807	1.4140	6.3299	-3.7701
3	1	1.4896	0.6335	-4.3138	3.4827
10	1	5.0785	-0.2338	-0.9373	-2.6363
13	1	-0.4032	1.4140	0.8638	5.1924
14	1	0.1810	1.4140	3.1596	-0.9739
15	1	-1.1405	0.3733	5.2892	1.6505
29	1	6.6160	-2.7516	-2.4748	-1.0436
32	1	2.0495	0.5467	-0.7883	5.7717
33	1	2.2710	0.0237	2.4725	4.2486
34	1	0.4841	1.3273	2.5840	2.1881
37	1	1.5915	1.0671	1.4347	6.5332
38	1	-4.0578	-0.4966	-0.2762	5.0316
44	1	-5.6266	1.3273	1.9189	-2.0704
48	1	2.8282	0.5508	0.5535	4.8359
65	1	0.0735	-1.5374	-0.2399	1.5683
2	2	4.2785	1.3273	-0.1373	-2.5666
8	2	-2.5320	1.4140	1.9606	-5.1548
16	2	-0.7242	-1.5400	-0.9364	4.0396
18	2	-3.2263	1.6742	7.3749	-2.0007
22	2	1.5505	1.9344	-1.6511	-2.3009
23	2	-3.8441	1.1538	0.9369	-0.8466
24	2	0.3421	-0.6701	-3.7934	-3.2267
25	2	-0.1796	1.8477	4.4112	-1.4000
27	2	1.4273	-2.7595	2.0868	-1.9468
30	2	-0.3926	0.3706	0.9856	-1.5260
35	2	3.7139	-0.4940	-1.1738	-0.0841
42	2	1.8575	-1.3613	-4.7648	-4.2639
46	2	-4.4162	-0.0604	0.3224	0.8765
50	2	4.5487	-1.0144	-6.1674	0.8980
51	2	3.3216	0.8937	-1.7716	1.6595
54	2	2.3606	-0.5807	-2.7005	1.8866
55	2	2.7047	0.5467	3.2434	-2.0142
56	2	4.9481	-0.9277	-1.6075	0.5278
57	2	-2.1571	2.2813	2.4689	2.0508
59	2	0.2611	-0.4073	-8.4403	-3.6756
4	3	-3.6772	0.8069	0.4573	-1.3428
5	3	0.3029	0.5467	1.4365	-4.6113

BIODATA GENERATED COMPONENT SCORES

SORTED BY CLUSTER (Continued)

Subject Number	Cluster	Component 1	Component 2	Component 3	Component 4
7	3	0.0613	0.9804	2.3626	-3.7701
9	3	-6.4259	-1.4533	-1.4314	1.2196
11	3	0.5803	0.3733	2.1991	-1.8051
20	3	-3.5047	0.0237	-4.6745	4.9405
26	3	2.0752	0.8069	-3.3813	1.6719
28	3	2.3218	0.1105	-1.8611	2.7212
47	3	-9.7079	1.5875	2.3367	6.5332
52	3	-1.3226	-1.1038	0.2301	0.0319
58	3	-6.6925	1.5875	2.3166	-4.4157
60	3	-1.5149	0.3733	-3.8674	-2.3124
61	3	1.9881	0.5508	0.3947	-1.3562
62	3	-1.2675	-4.6676	-1.1024	-2.0007
64	3	-6.8066	0.5415	2.6289	0.1579
66	3	-5.6152	0.0211	5.7204	-6.8869
6	4	1.6581	1.5875	0.5684	-6.9217
12	4	5.8675	0.5467	0.0805	2.7470
17	4	-6.6045	0.8937	-3.3742	0.0453
19	4	2.7856	-0.4966	-1.7637	1.0115
21	4	-2.8358	-0.0630	1.4639	-4.3111
31	4	0.7487	-1.9763	3.7965	4.9056
36	4	-1.0160	-0.3232	0.1559	3.5085
39	4	3.5639	-4.6649	-6.2959	-2.7532
40	4	6.6289	-2.4888	-3.2472	0.6189
41	4	-1.6674	0.9804	2.0451	3.3219
43	4	0.0606	0.3733	-0.5167	2.5389
45	4	1.3829	-0.0604	-5.0077	-0.2338
49	4	2.8100	-1.0144	-2.3494	3.3916
53	4	1.1019	1.3273	3.1297	-2.1998
63	4	0.8246	-4.4074	1.3276	-5.3853

APPENDIX L

BIODATA GENERATED COMPONENT SCORE DISTRIBUTIONS: FOR ENTIRE SAMPLE AND CLUSTER GROUPS

BIODATA GENERATED COMPONENT SCORE DISTRIBUTIONS:

FOR ENTIRE SAMPLE AND CLUSTER GROUPS

Group	Component	N	Mean	SD	Skewness	Kurtosis
Overall	1	66	0.00	3.47	-0.50	0.13
	2	66	0.00	1.53	-1.34	1.95
	3	66	0.00	3.13	-0.22	0.16
	4	66	0.00	3.34	0.06	-0.72
Cluster 1	1	15	0.67	3.12	-0.16	0.57
	2	15	0.34	1.20	-1.45	1.98
	3	15	1.04	2.77	0.10	0.21
	4	15	2.00	3.37	-0.36	-1.29
Cluster 2	1	19	0.69	2.87	-0.26	-0.98
	2	19	0.18	1.37	-0.26	-0.67
	3	19	-0.47	3.70	-1.13	0.41
	4	19	-0.95	2.38	0.24	-0.47
Cluster 3	1	16	-2.45	3.72	-0.42	-0.94
	2	16	0.07	1.50	-2.33	6.70
	3	16	0.24	2.80	-0.12	-0.33
	4	16	-0.70	3.56	0.40	-0.01
Cluster 4	1	16	1.02	3.31	-0.48	1.04
	2	16	-0.65	1.94	-1.08	0.32
	3	16	-0.67	2.95	-0.39	-0.61
	4	16	0.02	3.61	-0.59	-0.74

APPENDIX M

RESPONSE FREQUENCIES FOR BIODATA VARIABLES

FREQUENCY OF RESPONSE FOR EACH BIOGRAPHICAL VARIABLE

AGE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
13	3	3	4.545	4.545
14	5	8	7.576	12.121
15	16	24	24.242	36.364
16	18	42	27.273	63.636
17	23	65	34.848	98.485
18	1	66	1.515	100.000

YGETLONG	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	4	4	6.061	6.061
1	9	13	13.636	19.697
2	9	22	13.636	33.333
3	30	52	45.455	78.788
4	14	66	21.212	100.000

YRULES	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	4	4	6.061	6.061
1	19	23	28.788	34.848
2	7	30	10.606	45.455
3	26	56	39.394	84.848
4	10	66	15.152	100.000

YPASSIVE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	21	21	31.818	31.818
1	20	41	30.303	62.121
2	10	51	15.152	77.273
3	11	62	16.667	93.939
4	4	66	6.061	100.000

YATTRUPT	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	15	15	22.727	22.727
1	12	27	18.182	40.909
2	9	36	13.636	54.545
3	15	51	22.727	77.273
4	15	66	22.727	100.000

YVERBSKL	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	8	8	12.121	12.121
1	13	21	19.697	31.818
2	13	34	19.697	51.515
3	21	55	31.818	83.333
4	11	66	16.667	100.000

SGETLONG	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	9	9	13.636	13.636
1	18	27	27.273	40.909
2	8	35	12.121	53.030
3	24	59	36.364	89.394
4	7	66	10.606	100.000

SRULES	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	5	5	7.576	7.576
1	20	25	30.303	37.879
2	9	34	13.636	51.515
3	23	57	34.848	86.364
4	9	66	13.636	100.000

SPASSIVE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	13	13	19.697	19.697
1	16	29	24.242	43.939
2	11	40	16.667	60.606
3	21	61	31.818	92.424
4	5	66	7.576	100.000

SATTRUPT	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	9	9	13.636	13.636
1	14	23	21.212	34.848
2	10	33	15.152	50.000
3	22	55	33.333	83.333
4	11	66	16.667	100.000

SVERBSKL	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	8	8	12.121	12.121
1	10	18	15.152	27.273
2	8	26	12.121	39.394
3	31	57	46.970	86.364
4	9	66	13.636	100.000

ALCOHOL	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
1	9	9	13.636	13.636
2	16	25	24.242	37.879
3	7	32	10.606	48.485
4	11	43	16.667	65.152
5	23	66	34.848	100.000

DRUG	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
1	14	14	21.212	21.212
2	11	25	16 667	37.879
3	5	30	7.576	45.455
4	6	36	9.091	54.545
5	30	66	45.455	100.000

FAMDEL	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	1	.	.	.
1	49	49	75.385	75.385
2	16	65	24.615	100.000

WITHOTHR	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
1	7	7	10.606	10.606
2	10	17	15.152	25.758
3	27	44	40.909	66.667
4	10	54	15.152	81.818
5	9	63	13.636	95.455
6	3	66	4.545	100.000

PDISPLN	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	1	.	.	.
1	31	31	47.692	47.692
2	34	65	52.308	100.000

PHYSPUN	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	1	.	.	.
0	10	10	15.385	15.385
1	6	16	9.231	24.615
2	7	23	10.769	35.385
3	17	40	26.154	61.538
4	25	65	38.462	100.000

FAIRPUN	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	1	.	.	.
0	7	7	10.769	10.769
1	5	12	7.692	18.462
2	11	23	16.923	35.385
3	17	40	26.154	61.538
4	25	65	38.462	100.000

NJOYSCHL	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	11	11	16.667	16.667
1	8	19	12.121	28.788
2	9	28	13.636	42.424
3	16	44	24.242	66.667
4	22	66	33.333	100.000

MEIMPORT	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	1	.	.	.
0	9	9	13.846	13.846
1	3	12	4.615	18.462
2	9	21	13.846	32.308
3	6	27	9.231	41.538
4	38	65	58.462	100.000

NOFITRES	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	16	16	24.242	24.242
1	12	28	18.182	42.424
2	8	36	12.121	54.545
3	18	54	27.273	81.818
4	12	66	18.182	100.000

GOODFRED	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	3	3	4.545	4.545
1	2	5	3.030	7.576
2	4	9	6.061	13.636
3	12	21	18.182	31.818
4	45	66	68.182	100.000

FREDBAD	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
0	14	14	21.212	21.212
1	10	24	15.152	36.364
2	9	33	13.636	50.000
3	20	53	30.303	80.303
4	13	66	19.697	100.000

VERB	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	2	.	.	.
62	1	1	1.563	1.563
64	1	2	1.563	3.125
68	2	4	3.125	6.250
69	1	5	1.563	7.813
71	1	6	1.563	9.375
72	3	9	4.688	14.063
74	4	13	6.250	20.313
75	5	18	7.813	28.125
77	1	19	1.563	29.688
78	3	22	4.688	34.375
79	4	26	6.250	40.625
80	4	30	6.250	46.875
81	2	32	3.125	50.000
83	2	34	3.125	53.125
84	4	38	6.250	59.375
85	3	41	4.688	64.063
86	5	46	7.813	71.875
87	1	47	1.563	73.438
91	2	49	3.125	76.563
92	1	50	1.563	78.125
93	1	51	1.563	79.688
95	1	52	1.563	81.250
96	1	53	1.563	82.813
97	3	56	4.688	87.500
100	1	57	1.563	89.063
101	1	58	1.563	90.625
102	2	60	3.125	93.750
106	1	61	1.563	95.313
111	2	63	3.125	98.438
119	1	64	1.563	100.000

PERF	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	2	.	.	.
67	2	2	3.125	3.125
73	1	3	1.563	4.688
74	1	4	1.563	6.250
75	1	5	1.563	7.813
77	1	6	1.563	9.375
78	2	8	3.125	12.500
81	2	10	3.125	15.625
82	1	11	1.563	17.188
84	1	12	1.563	18.750
85	4	16	6.250	25.000
86	1	17	1.563	26.563
87	1	18	1.563	28.125
88	1	19	1.563	29.688
89	1	20	1.563	31.250
90	2	22	3.125	34.375
91	2	24	3.125	37.500
92	4	28	6.250	43.750
93	1	29	1 563	45.313
94	3	32	4.688	50.000
95	2	34	3.125	53.125
96	2	36	3.125	56.250
98	5	41	7.813	64.063
100	2	43	3.125	67.188
101	2	45	3.125	70.313
104	2	47	3.125	73.438
105	1	48	1.563	75.000
106	3	51	4.688	79.688
108	1	52	1.563	81.250
109	2	54	3.125	84.375
112	2	56	3.125	87.500
117	2	58	3.125	90.625
118	3	61	4.688	95.313
120	1	62	1.563	96.875
123	1	63	1.563	98.438
129	1	64	1.563	100.000

MISTRET	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	2	.	.	.
1	10	10	15.625	15.625
2	14	24	21.875	37.500
3	6	30	9.375	46.875
4	34	64	53.125	100.000

TYPCRIM	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
.	1	.	.	.
1	37	37	56.923	56.923
2	9	46	13.846	70.769
3	13	59	20.000	90.769
4	6	65	9.231	100.000

APPENDIX N

SUMMARY SHEETS: COMPONENTS, CLUSTERS, COMPARATIVE RESEARCH

SUMMARY SHEETS: COMPONENTS, CLUSTERS, COMPARATIVE RESEARCH

THIS IS A LIST OF THE FOUR IDENTIFIED DIMENSIONS RESULTING FROM A MULTIPLE GROUPS COMPONENT SOLUTION. BOTH THE POSITIVE AND NEGATIVE POLES OF EACH DIMENSION ARE INDICATED. THE COMPONENT LABELS ARE FOLLOWED BY BOTH THE PERSONALITY MEASURES AND BIODATA MEASURES THAT DETERMINE THE POSITIVE END OF THE DIMENSION. A NEGATIVE DIMENSIONAL INTERPRETATION CAN BE MADE BY TAKING THE OPPOSITE MEANINGS LISTED FOR EACH COMPONENT.

COMPONENT ONE	COMPONENT TWO	COMPONENT THREE	COMPONENT FOUR
Assimilation +	Accomodation +	Conservatism +	Poise +
NON -	NON -	Independence -	Anxiety -

PERSONALITY MEASURES

socially aware	happy go lucky	reserved	stable
achievement oriented	sociable	moralistic	tranquil
inner directed	enthusiastic	traditional	controlled
conscientious	talkative	conventional	unfrustrated
results oriented	alert	dependent	tolerant
organized approach	group follower	passive	relaxed
modifys environment	people oriented	conservative	trusting
self determining	realistic self appr.	submissive	portray self
		low imagination	favorably
		prefer stable and routine	genial
			precise

BIODATA MEASURES

not passive	good friends	low verb skill	gets along
good verbal skills	low WAIS-R verb	fair punishment	follow rule
fair punishment		enjoys school	not disruptive
enjoys school		low drug use	
good WAIS-R verbal		low WAIS-R verb	

THE FOLLOWING FOUR CLUSTER GROUPINGS WERE GENERATED AS A RESULT OF THE APPLICATION OF WARD'S HIERARCHICAL CLUSTERING PROCEDURE. THE INDIVIDUAL COMPONENT SCORES, UNIQUELY IDENTIFYING EACH RESIDENT ON THE FOUR DIMENSIONS, WERE USED AS DATA IN THIS ANALYSIS. BOTH THE BIODATA AND PERSONALITY VARIABLES ARE USED TO INTERPRET THE MEANINGS OF THE FOUR CLUSTERS. EACH CLUSTER GROUP PROVIDES A BRIEF DESCRIPTION OF THE RESIDENT TYPE IT DEPICTS AND IS FOLLOWED BY THE COMPONENT SCORE PATTERN (+ OR -) ACROSS ALL FOUR DIMENSIONS.

CLUSTER IDENTIFICATION

POISED - Relaxed, Tranquil, Controlled, Self-Assured, Trusting, Genial, Tolerant, Stable, Projecting a Favorable Facade, Gets Along With Others, Follows Rules, Is Not Disruptive, Somewhat Verbal, Has Some Good Friends.

+	+	0	++

VARIABLE-ANXIOUS - Inner-Directed, People-Oriented, Assertive, Tense, Competitive, Suspicious, Guilt-Ridden, Enthusastic, Realistic Self Appraisal, Alert, Strong Verbal Skills, Enjoys School, Has Some Good Friends, Is Disruptive in Order to Gain Attention, Does Not Follow Rules.

++	++	0	--

APATHETIC - Lacking Energy, Not Influencing Surroundings, Lacking Motivation, Passive, Poor Verbal Skills, Unfairly Punished, Does Not Enjoy School.

--	0	0	0

TRUCULENT - Internally-Motivated, Enforces Demands on Environment, Controlling, Assertive, Uncooperative, Resistant, Unfriendly, Unsociable, Active. Strong Verbal Skills, Not Many Friends, Enjoys School.

++	--	0	0

NOTE: The Conservatism dimension indicates that all four cluster groups possess approximately the same amount of conventional, moralistic, traditional values. However, these juveniles are not high nor low on this dimension.

THE FOLLOWING TABLE SHOWS THE SIMILARITIES BETWEEN FOUR PREVIOUS STUDIES AND THIS CURRENT STUDY. THE LABELS HAVE BEEN ALIGNED TO INDICATE THOSE LABELS, APPLIED IN THE VARIOUS STUDIES, WHICH MOST CLOSELY CORRESPOND TO EACH OTHER. AS CAN BE SEEN, THE FOUR CLUSTER GROUPS DISPLAY SOME SIMILARITIES AND THEREFORE ADDS VALIDITY TO THE JUVENILE TYPES IDENTIFIED IN THE PRESENT STUDY.

Present Study Gianola (1985)	Quay (1964)	Jenkins and Glickman (1947)	McGurk et al. (1981, 1983)
Poised	Subcultural-Socialized	Socialized-Delinquent	Normal
Variable-Anxious	Neurotic-Disturbed	Disturbed	Anxious-Withdrawn
Apathetic	Inadequate-Immature	Overinhibited	Disturbed (alienated)
Truculent	Unsocialized-Psychopathic	Unsocialized-Aggressive	Truculent (physical)

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