THE USE OF COMPUTERIZED MEASUREMENTS TO PREDICT SOCIAL DEVIANCY

by

Bonita L. Wright

Submitted in Partial Fulfillment of the Requirement

for the Degree of

Master of Science

in the

Criminal Justice

Program

Joseph A. Waldron, Ph.D 7/14/88

Advisor Date

Sally M. Hotchkiss July 21, 1988

Dean of the Graduate School Date

YOUNGSTOWN STATE UNIVERSITY

July 1, 1988

ABSTRACT

COMPUTERIZED MEASUREMENTS TO PREDICT SOCIAL DEVIANCY

Bonita L. Wright

Master of Science

Youngstown State University, 1988

The hypothesis that personality tests are better predictors of criminal deviancy than personality questionnaires was tested. Undergraduate volunteers used an IBM XT to report a history of their criminal deviancy on an anonymous basis. Subjects were administered personality questionnaires and personality tests to determine which type of measure had the stronger relationship to criminal deviancy. The hypothesis was partially supported and it was concluded that personality testing of criminal populations is feasible.

ACKNOWLEDGEMENTS

I would like to take this opportunity to thank Professor Joseph Waldron for his help and guidance. Assistant Dean James Conser and Dr. Larry Cummings, thank you for being on the committee. A very special thanks to Jan Colucci, Criminal Justice Secretary for knowing everything about the syntax of a thesis. To my family and friends whom I have neglected while working on this research project, thank you for your understanding and support.

I would like to express my deepest gratitude to Tony Clacko, the computer science genius who wrote the Maze program. Tony, you are amazing.

TABLE OF CONTENTS

July 1, 1988

LIST OF FIGURES

LIST OF TABLES

CHAPTER I

INTRODUCTION

Theory of Criminality As It Relates to Psychopathy

Research evidence indicates that a primary reaction tendency typically found in psychopathic individuals is deficient emotional arousal; this presumably renders them less prone to fear and anxiety in stressful situations and less prone to normal conscience development and socialization (Coleman, Butcher, and Carson, 1984). The term "psychopathic" is reserved for persons whose behavior brings them repeatedly into conflict with society. They are incapable of significant loyalty to individuals, groups, or social values. They are grossly selfish, callous, irresponsible, impulsive, and unable to feel guilt or to learn from experience and punishment. Frustration tolerance is low. They tend to blame

others or to offer plausible rationalizations for their behavior. A mere history of repeated legal or social offenses is not sufficient to justify this diagnosis (Wishnie, 1977).

Eysenck (1964) argued that Cesare Lombroso was not far wrong. There may be individuals who are truly "born criminals" due to "some kind of gene, chromosome or other structure which could be the physiological or neurological basis for differences between the criminal and non-criminal kind of person" (Eysenck, 1964).

Children are not born with a sense of right and wrong, nor are they civilized, these are learned behaviors. From an objective consideration it can be suggested that the behavior of young children is dominated by immediate uncivilized needs and passions. Becoming civilized consists, in part, of learning to inhibit or rechannel these passions. The type of learning involved in this civilizing process has been termed passive avoidance; the individual avoids punishment or fear by not doing something for which he has been punished in the past. The fear response is, to a large extent, controlled by the autonomic nervous system or ANS (Mednick, 1977).

In an early study Lykken (1957) published his now classic investigation relating properties of psychophysiological responsiveness, autonomic conditioning, and instrumental avoidance learning to the diagnosis of psychopathy. Similarily, Eysenck (1960) concluded that psychopathic individuals are less sensitive to noxious stimuli and have a slower rate of conditioning than normal individuals. As a result, psychopathic individuals presumably fail to acquire many of the conditioned reactions essential to normal avoidance behavior, conscience development, and socialization. Several authors (Eysenck, 1963; Quay, 1965; and Hare, 1970) have suggested that psychopathy is characterized by extreme stimulation seeking behavior. Quay (1965) has argued further that this behavior is a manifestation of the psychopath's inability to tolerate routine and boredom, and he has hypothesized that it is related to autonomic hyporeactivity.

Support for this hypothesis is found in the research conducted by Chesno and Kilmann (1975) who concluded that psychopathic individuals, as contrasted with normal persons, "were relatively unsuccessful in acquiring active avoidance responses."

Hare (1970) and other investigators have reported comparable findings with respect to the psychopathic individual's lack of normal fear and anxiety reactions and his/her failure to learn readily from punishing situations. However, the latter point merits qualification.

Schmauk (1970) confirmed earlier observations that such individuals were less adept than nonpsychopathic individuals when learning to avoid physical and social punishments, but Schmauk found psychopaths to be more adept than normal people when learning to avoid the loss of money, a type of punishment that was apparently meaningful to them. These findings are understandable when it is added that individuals observed in the experiment were inmates of a penal institution where physical and social forms of punishments were relatively mild for most forms of misbehavior, whereas money was both difficult to come by, and valuable for obtaining niceties.

A frequently noted feature of people with severe character disorders is their lack of affective response in shameful or anxiety-provoking situations. Of course, these situations generally involve socially

prohibited activities. Since the psychopath minimally experiences negative-affective states, his behavior is correspondingly less likely to be inhibited by these restraining forces (Kipnis, 1971). A summary of the experimental literature by Hare (1968) supports the view that psychopaths show little overt anxiety, have low levels of autonomic tensions and do not learn to avoid stressful stimuli.

This view is similar to Eysenck's description of the dimension of introversion-extraversion (1957). At one end of his dimension he has placed the quiet, well-socialized, overly controlled, conventional, anxious, and rather shy introvert. Toward the other end the unconventional, noisy, somewhat untrustworthy, impulsive, extravert is found. Eysenck considers the psychopath to be a highly extraverted individual (Eysenck, 1957).

Psychopathically disordered individuals are callous and unethical, having no feelings of loyalty or close relationships, and often exhibit superficial charm and intelligence. Both constitutional and learning factors seem to be important in causing the disorder. Treatment of these individuals is fraught with difficulties, because they rarely see a need for

self-change and tend to blame other people for their difficulties.

Psychopaths may engage in criminal behavior, but many individuals who are incarcerated for crimes are not psychopaths. A great number of crimes are committed by "professional" criminals who are not psychopaths. In many cases the personality pattern, particularly immaturity, impulsivity, and inability to learn from experience, make psychopaths unsuitable for "organized" criminal activities (Coleman et al, 1984).

If a reliable assessment of psychopathy could be developed it would be of use in the criminal justice system. Not only could it be used to detect the psychopath, it could be used to determine to what degree there are psychopathic trends in a nonpsychopathic or criminal individual. The "psychopath" as reviewed here could be considered a pure form of the criminal personality. People who repetitively engage in criminal behavior are not necessarily "psychopaths." However, to the extent that a person exhibits characteristics that are similar to the psychopath, the person is likely to participate in criminal behavior. These individuals

tend to be amoral, low on anxiety and insensitive to personal and social punishments and are likely to be criminals. It would be helpful in the criminal justice system if we had a device which assessed a suspected (or known) criminal's psychopathic tendency as one of several methods for predicting the likelihood that the person will engage in further criminal activity.

Traditional methods (questionnaires) are of limited use because people can lie. Psychopaths are more prone to lie than most because of their tendency to be unethical and unloyal. What is needed is a reliable assessment procedure that is related to criminal activity.

CHAPTER II

USE OF PERSONALITY MEASURES

Personality tests are not easily understood from a conceptual framework and often require a thorough grounding in the underlying theory. Tests measure a narrow band of interpersonal style and thus more time is required to assess the personality. Nonetheless, it is suspected that if tests related to criminality could be developed, they could prove to be better assessment devices in the criminal justice system because a test's decreased sensitivity to self-presentation should enhance the reliability and validity of an assessment.

This study is based on the theoretical framework developed by Waldron (1985a). He contends that standard tests and questionnaire assessments of interpersonal functioning are fraught with problems. When questionnaires are administered in a criminal justice setting the offender is predisposed to answer the items in a manner which indicates he wants others to perceive him as sick or healthy, socially

desirable or undesirable, weak or strong.

In general, these attitudes are contaminants of the personality assessment paradigm and must be controlled through careful questionnaire construction methods and through statistical control of the scale score properties (Waldron, 1985a).

The court often uses psychodiagnostic services to assist with the prediction and treatment of criminal tendencies in convicted felons. Corrections professionals are concerned with the lack of standards to guide the courts in selecting persons for probation, and to guide parole boards in selecting persons for release from institutions (Radelet, 1986).

Psychodiagnostic assessments have been useful in some areas and have, at times been harmful. General tests of intellectual functioning are useful to the court with regard to an offender's competence and the ability to understand courtroom procedures, as well as the ability to benefit from treatment. While estimates of intellectual functioning are of use, personality devices are of limited use.

In addition to the subject's intellectual ability to function in society, the court needs

reliable, valid methods that could be used to assess a subject's emotional stability or proclivity to engage in anti-social behavior. It would appear that personality assessment devices are of limited use due to differences in the methods used for data collection. Intelligence tests are true tests of ability, while personality assessments are usually questionnaires. In a test situation there is a specific number of correct or acceptable answers. The subject's job is to select the correct answer from memory or from a list of alternatives. This is not the case with personality questionnaires. In a personality questionnaire there are no "right" or "wrong" answers.

Nearly all of the formal questionnaire devices were developed for willing subjects who bring a problem to a clinician for assistance. Criminal justice professionals have had to resort to questionnaires such as the Minnesota Multiphasic Personality Inventory (Hathaway and McKinley, 1943) because they are commercially available, clinicians were trained to use them, and with notable exceptions (Cattell et al., 1971) no other devices have been available.

From the time of the Greek philosopher Galen, civilizations have believed that people exhibit cross-situational consistency in their behavior. That is, a person who becomes easily aroused to angry outbursts in one situation is likely to become easily aroused in other situations. And a person who exhibits intelligent behavior in one situation will do so in another situation.

The problem with personality questionnaires involves the idea that subjects are asked to give an honest opinion of themselves. Subjects usually have some idea (appropriately or not) about what the items are thought to measure. However, subjects can, and do, manipulate their self-presentation in a manner which best suits their needs at the time of the assessment. When assessed with paper-and-pencil methods, the subject perceives the questions as face valid. This leads the subject to respond to the questionnaire in a manner that is conducive to his interest at the time the questionnaire is administered. The subject is aware, or partially aware, of being assessed. In addition, personality questionnaires are somewhat transparent and the subject can be deceptive. This is especially true in

criminal justice where the subject is under disability. What is needed are tests where the subject does not know what dimension of personality is being evaluated. One solution to the face validity problem would be to develop and evaluate tests of personality.

In the criminal justice system, where subjects are seeking to avoid interference with their life style and perceived self-interest, the problem of deception is pervasive and detrimental to an accurate assessment. It is for this reason that devices like the MMPI have limited usefulness. The answer the offender chooses will most likely be the one he feels will make him look the best to the legal authorities.

In the mental health system subjects also manipulate their self-presentation and special scales have been developed to counteract this natural tendency. These scales have limited usefulness under appropriate conditions. When a specific level of intentional or unintentional deception is found the best one can say is "the questionnaire results are not useful." In the criminal justice system, where protecting one's perceived self-interest is the norm, there is a serious need to construct devices that

contribute to an accurate assessment of an individual's usual interpersonal style. Hare (1970) believes these response-bias factors include a tendency to endorse items that are considered "good" or desirable by society (social desirability) and there is a tendency to endorse items regardless of their content (acquiescence). It is likely that studies involving criminal populations are considerably influenced by social desirability factors (Hare, 1970).

Personality tests can be differentiated from personality questionnaires in that the subject does not know what is being assessed and can only do the best he can. The idea here is to construct a test similar to a test of arithmetic functioning. The purpose of the test is to determine how well one can do. By definition the subject cannot do better than his best. Thus knowing how well someone functions in one or another area takes away much of the error due to self-presentation. It would appear that if a reliable, valid evaluation of an offender's emotional tendencies and personality traits is to be obtained one must have personality tests, not questionnaires.

There are no "true" tests of personality that

are useful to the courts. Powelson, former resident psychiatrist at San Quentin, often attended Adult Authority hearings in which board members attempted to interpret Rorschach test results relative to parole decisions. He stated, "it is very hard for even a skilled person to interpret this test, to use them to predict behavior is about as valid as using a crystal ball" (Scacco, 1975). Yet, untrained individuals were often responsible for attempting to interpret such sophisticated tests and extending the time a man had to serve in prison based on their interpretation.

The reason that personality tests are not in more wide-spread use is partially based on the idea that tests are difficult to administer, score, and interpret. The construction of reliable and valid tests is a long arduous process. There are several inherent problems which have retarded personality test construction. The most important appears to be accuracy of measurement.

The use of a computer may allow for an improved ability to accurately measure human activity. In this thesis an attempt was made to determine if computerized testing procedures can be used to test stable personality charateristics. The

development of a reliable computerized test could assist with the alleviation of the problem of subjects answering paper-and-pencil questionnaires deceptively. These procedures could provide court and prison officials with better methods for predicting criminality.

In general, tests of personality require sophisticated physiological measurements that were not possible in routine practice before the advent of the microcomputer. Computer-assisted testing is at least as reliable as a human observer (Waldron, 1985). Computer-assisted testing may also be the most effective method for collecting and organizing the vast amount of data collected in a comprehensive assessment. The computer allows for a variety of research that would otherwise be virtually impossible.

The first, and most obvious benefit that is obtained from the use of computers, is that interviewers are saved time in the assessment process. In computer-assisted interviewing, interviewers are relieved from asking many routine questions, leaving more time for analyzing the information obtained and planning treatment strategies. Certain disadvantages associated with

human interviews are eliminated: (1) omission of critical questions; (2) asking irrelevant questions; (3) inaccurate recording of information; and (4) interviewer bias (Cronbach, 1965). Subjects will answer questions with a higher degree of honesty when interacting with a computer (Waldron, 1985). The subject believes that since the computer is a machine it will not be judgmental.

In the last two decades, the computer has often been used to teach individuals in the form of computer-assisted instruction. Computerized testing is simply a matter of reversing the direction of information flow: The machine gathers information from individuals rather than provides information. Within this context the following hypothesis was constructed:

> Personality tests are better predictors of criminality than personality questionnaires.

Chapter III

REVIEW OF LITERATURE

The process of administering a test or questionnaire by computer elicits the subject's concentration. When the subject answers a question, the next item is immediately presented. If branching techniques are used in which the subject's response controls the selection of the next item, the subject perceives a degree of control which he is implicitly required to exercise whenever an item is answered. The process is satisfying in much the same way that computerized arcade games are enjoyable. The subject concentrates on the task at hand and is less likely to consider other matters, such as how his responses will be perceived or interpreted by others. This aspect of computerized questionnaires should be conducive to a more accurate estimate of the subject's true score, free of some types of error variance, and thus yield improved reliabilities (Waldron, 1985b).

Computerized assessments offer many potential advantages to the modern practitioner. With regard to the reliability of computerized administrations of instruments several studies have been conducted. Lushene, O'Neil and Dunn (1974) compared on-line and off-line administrations of the MMPI and found that scale elevations were not appreciably different. Reliabilities were comparable and validities did not seem to be impaired (Waldron, 1984).

A battery of questionnaires and tests of psychopathic trends was constructed to evaluate the relative merits of tests vs. questionnaires. The instruments included the Porteus Maze Test; Eysenck Fingertapping Test; Barratt Impulsivity Scale; Lykken, Tellegen, and Katzenmeyer Activity Preference Questionnaire; and Gold's Deviancy Questionnaire.

Porteus Mazes

The Porteus Maze Tests are reliable and valid measures of foresight, planning ability, and judgment (Riddle, 1977; Weiss, 1979). Porteus' instrument also assesses impulsiveness, ability to delay

gratification, and future time perspective. It requires some aptitude in abstract spatial relations for successful performance.

To complete the 14 mazes of consecutively increasing complexity the subject marks the shortest continuous path though each maze without crossing lines or entering "dead-ends" (Porteus, 1959). While constructed to measure intellectual functioning, the test has potential for predicting behaviors that are of social concern, such as deliquency, recidivism, job stability, and perhaps the potential for drug abuse or the capacity to profit from programs designed to treat problems of this general nature (Riddle, 1977)

As a performance "test," the Maze avoids much of the bias that frequently occurs in cross-cultural testing. The test can be administered without regard to language influence. That is, it is not affected by language translation (David, 1974). The Mazes are believed to be relatively free from the influence of cultural background or educational experience (Weiss, 1980). Many examiners have reported on the interest that examinees have shown when taking the Maze test. Moreover, the high level of interest is not restricted to a particular group, culture or socio-economic

status. This appeal may help to control for motivational factors among groups (David, 1974). Most people appear to work diligently on the Maze. Not only does the Maze seem to be of intrinsic interest to examinees, people seem to enjoy completing the instrument. The Maze test demonstrates that a test does not have to be an unpleasant task.

The instructions to an examinee require only a few words. To administer the Maze in another language a few translated words will suffice. For many people the instructions can be presented nonverbally by simply demonstrating the required task. The administration of the Maze is not difficult and does not require extensive training. However, one should adhere strictly to the standardized procedures to prevent test bias from occurring. The qualitative maze score (time to complete maze, and incorrect moves) can be calculated within a minute or so of completion. Furthermore, the scoring system is objective and one can expect a high level of agreement between judges who score the same set of Mazes (David, 1974).

The Porteus Maze test was not initially designed as a measure of delinquent tendencies. It

was intended to supplement the Stanford-Binet Intelligence Scale which was used to identify mental retardation (Riddle, 1977).

Since 1914 the Porteus Maze test has continued in clinical use without major changes in character or form. New uses have been found for this measure and each use has added to the body of evidence concerning its usefulness. The Maze escapes censure on at least one essential point. It was not intended to be a general measure, but is directed toward the thorough exploration of a segment of cognitive behavior which seems to be best described as "planfulness." This is a trait-complex in which intellectual, emotional and/or temperamental factors are involved. It is directed towards measuring not high-level planning but foresight in matters of everyday experience. The cognitive activity which appears to be most directly involved in success in the Porteus Maze would seem to be vigilance or mental alertness, expecially concerning anticipatory reactions (Porteus, 1959).

The changes that have occurred in the Porteus Maze during its long history are primarily concerned with the details of scoring. The scoring range originally extended from three to thirteen years of

age. However, credits were added for successful trials in tests XII and XIV, which together with those for two adult tests enabled the subject to earn a total score of 18 years. The use of the adult tests was optional (Porteus, 1959).

The Porteus Maze test works as a measure of criminality because the test requires adherence to two opposing rules:

1. Go as fast as you can.
2. Make no mistakes.

Conscientious adherence to one of these rules is at the expense of the other rule. It would appear that ignoring rule #2 is related to ignoring other "social" rules of conduct.

The impulsive psychopathic individual could, but prefers not to, follow rule #2 and this is an enduring personality trait. It would seem the personality test assesses common characteristics the individual is not aware of, or characteristics the subject cannot control.

The reason for this type of responding appears to be related to the conscious control one can, and usually does, exert.

Organized "semi-conscious" motives are least affected by the many subtle considerations involved in the conscious control of behavior. Thus the mazes are a reasonable measure of characteristics of psychopathic and criminally oriented individuals.

Fingertapping Test

The general relationship between personality and inhibition was put forward by Eysenck (1957). The first of these relationships was called the postulate of individual differences:

> Human beings differ with respect in the speed with which excitation and inhibition produced and the speed with which inhibition is dissipated. These differences are properties of the physical structures involved in making stimulus-response connections (Eysenck, 1957, p. 79).

The second postulate was called the typological postulate:

> Individuals in whom excitatory potentials are generated slowly and in whom excitatory potentials so generated are relatively weak, are thereby predisposed to develop extraverted patterns of behaviour and to develop hysterical-psychopathic disorder in cases of neurotic breakdown; individuals in whom excitatory potential is generated quickly and in whom excitatory potentials so generated are strong, are thereby predisposed to develop introverted patterns of behaviour and to develop dysthymic disorders in

> case of neurotic breakdown. Similarly, individuals in whom reactive inhibition is developed quickly, in whom strong reactive inhibitions are generated, and in whom reactive inhibition is dissipated slowly, are thereby predisposed to develop extraverted patterns of behaviour and to develop hysterical-psychopathic disorders in case of neurotic breakdown; conversely, individuals in whom reactive inhibition is developed slowly, in whom weak reactive inhibitions are generated, and in whom reactive inhibition is dissipated quickly, are thereby predisposed to develop introverted patterns of behavior and to develop dysthymic disorders in case of neurotic breakdown (Eysenck, 1957, p. 79).

In support of his theory Eysenck cites Pavlov, who appears to call for three relatively independent dimensions of personality, one of which denoted a strength versus weakness of the central nervous system which bears some similarity to the excitation-inhibition balance put forth in the typological postulate (Eysenck, 1967).

The theory deals with an excitation-inhibition balance, that is the overall result of all the excitory and inhibitory potentials postulated to be active at any given moment (Eysenck, 1967).

To the purist the concept of inhibition and excitation as a hypothetical construct may be anathema because the constructs cannot, by their nature, be specifically located in any physiological structure. However, such concepts have heuristic

value, provided they lead to relatively unambiguous predictions of experimental outcomes (Eysenck, 1967).

In the case of extraversion-introversion, clearly the concept in experimental and theoretical psychology corresponding to the personality dimension is that of fatigue (Schmidtke, 1965). And there is ample recognition of the distinction between physical and psychic fatigue. If this general statement is accepted, it can be said that the extravert, as compared to the introvert, will behave as a more fatigued person in relation to a less fatigued person. A person high on neuroticism when compared with a person low on neuroticism would behave under suitable circumstances like a person highly motivated as compared to a person with low motivation. Thus the concept of fatigue in relation to extraversion-introversion takes the place of the concept of emotion in relation to neuroticism-stability (Eysenck, 1967).

An experimental study to test the prediction that extraverts would be more susceptible to the accumulation of inhibition and would consequently show more voluntary rest pauses than introverts has been reported by Spielman (Eyesenck, 1967). She used as her task simple tapping with a metal stylus on a metal

plate. A complex recording system enabled her to determine with considerable accuracy the exact amount of time the stylus was in touch with the metal plate on each occasion (tap) and the length of time the stylus was away from the plate between two taps (gap). Her analysis was concerned with the gaps because there is an element of artificiality connected with the length of taps by virture of the fact that the metal stylus rebounds from the plate. Involuntary rest pauses (IRP) were scored in terms of discontinuity for any given subject when all his gap times were plotted. These times were arranged in groups according to a predetermined system, and gaps were counted as IRP's when their occurrence was separated from the main body of the data by two empty groups.

Results were clear-cut. It was found that average frequency of IRPs was significantly higher in extraverts than introverts with a significance level of less than .01. The total number of IRP's observed was fifteen times as high in the extravert than in the introvert group, with no overlap whatsoever. The average onset of IRP was significantly earlier (.01 level of significance) in

the extravert group than in the introvert group.

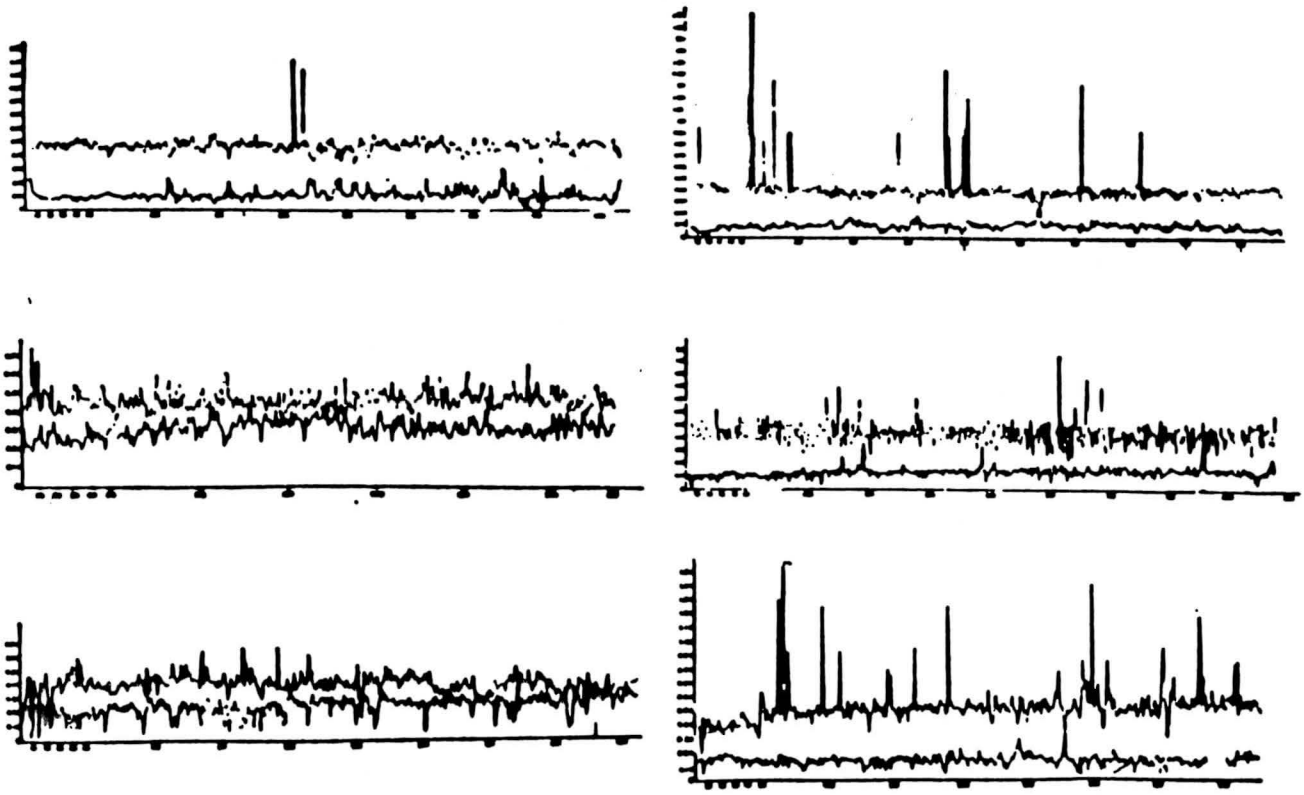

Figure 1. One minute record of 3 introverted (left) and 3 extraverted (right) subjects. Recorded are gaps (top line) and taps (bottom line). Ordinate records durations of taps and gaps (Eysenck, 1967).

Furthermore, extraverts showed a decidedly wider range of IRP durations. Testing was done for five minutes on each of five successive days. During this time introverts produced 25 IRP; none was longer than .5 seconds. These are some of the important differences observed by Spielmann (Eysenck, 1967).

People of the melancholic temperament, those combining a high degree of emotionality with a high degree of introversion, are apparently predisposed to develop dysthymic reactions; on the other hand, people of a choleric temperament, those highly emotional and highly extraverted, develop psychopathic, criminal, and delinquent behavior patterns. The observed correlation between high neuroticism and high extraversion-introversion scores and criminality, and between high neuroticism and low extraversion-introversion and neurosis, does not prove that the personality traits predispose the individual to neurosis or crime; it can be argued that the personality traits are a consequence of neurotic breakdown or punishment following criminal activity, or that both personality traits and crime and neurosis are the consequences of some common cause (Eysenck, 1959a). Nevertheless, the available evidence suggests

that finger tapping as a measure of Eysenck's conception of extraverted-criminality is a viable method to test for this condition and that those predisposed to criminal behavior should exhibit more IRPs than noncriminals on this test of personality.

Activity Preference Questionnaire

High scorers on the Activity Preference Questionnaire (APQ) tend to be timid and make an effort to avoid most of the ordinary risks and stresses of everyday life because they find such experiences to be more aversive and distressing than the average person. People with low APQ scores, on the other hand, tend to be relatively daring and venturesome because they are less concerned than the average person with possibilities of physical danger or social embarrassment (Lykken et al., 1973).

Low trait-anxiety can find expression equally in the psychopathic criminal or in the brave policeman, in conscienceless hedonism or in moral heroism.

The revised APQ (Lykken et al., 1973) contains separate 30-item scales concerned with Physical Anxiety (apprehension of physical dangers), Social Anxiety (social timidity), respectively, and a 14-item Validity scale. The Validity scale is useful in detecting careless or random responding or misunderstanding of the instructions and is effective in detecting deliberate "faking." The APQ is self-administered and can be hand or machine scored. The revised scale takes from 10 to 20 minutes to complete and not the least of its virtues is the fact that most subjects rather enjoy responding to these items (Lykken et al., 1973).

A respondent who knows that the questionnaire is intended to measure his fearfulness or "trait anxiety" can easily increase or decrease his score as he chooses; the Validity Scale score will also increase, but many such invalid records will not be detected. If the respondent does not know the purpose of the questionnaire but is "faking good", then his anxiety scores will tend to be somewhat elevated, possibly because he thinks he can give an impression of virtue by pretending to prefer some of the onerous alternatives. "Faking good" is not well detected by

the V-scale. "Faking bad", on the other hand, tends to decrease anxiety scores but rather markedly elevates the V-score. In general, the Validity Scale offers only partial protection against calculated and systematic deception (Lykken et al., 1973). This questionnaire by a well-known researcher in the area of psychopathic trends has been found to be related to socially deviant activity.

Barratt Impulsivity Scale

The Barratt Impulsivity Scale (IS) consists of 45 "impulsiveness" items plus 35 filler items. The retest reliability of the IS is .87 at a one-month interval. The phi coefficients, computed using the top and bottom 27% of 300 students, indicated that the IS is not homogenous. The IS is significantly related to emotional instability (Barratt, 1959). This well researched questionnaire is related to the identification of psychopathic trends by definition: Psychopaths are impulsive.

Two personality tests (Porteus Maze and Eysenck's Finger tapping) and two personality

questionnaires (Lykken's Activity Preference Questionnaire and Barratt Impulsivity Scale) have been selected as the independent variables. From the preceding discussion it is expected that the tests will have a stronger relation to criminal behavior than the questionnaires.

Gold Deviancy Questionnaire

The dependent measure for the study consisted of self-reported criminal activity which the subject participated in during the last year. This questionnaire is a variant of Gold's (1970) deviancy questionnaire administered on a retrospective basis wherein subjects were asked how many times they had perpetrated a variety of offenses in the last two years. Items in the questionnaire were classified as follows:

Delinquencies	16 items
Misdemeanors	12 items
Property Offenses	9 items
Drug Offenses	3 items
Person Offenses	8 items

Crime Scale 48 items

The dependent variable is a self-report measure and the hypothesis rests on the idea that tests are better predictors of criminality than questionnaires. To offset the potential contaminating influences of self-report tendencies, elaborate mechanisms were established to avoid self-report tendencies on the deviancy questionnaire. Subject anonymity was guaranteed to the extent that double passwords were used, subjects were assured that the researcher would have no way of determining what a subject answered. Subjects were left entirely alone to complete all instruments. Volunteer subjects who had no reason to enhance their self-presentation were enlisted.

These mechanisms worked to the advantage of the questionnaire methods and thus the method of self-reported deviancy is a conservative test of the hypothesis as most factors are weighted in favor of questionnaires.

Nevertheless, the social desirability contaminants pervade questionnaires and it is

suspected that under these adverse circumstances the tests are better predictors of criminality.

CHAPTER IV

METHODS

Instrumentation

To test the hypothesis "Personality tests are better predictors of criminality than personality questionnaires," two well researched personality questionnaires and two well researched personality tests were selected. To assess personality via questionnaires the Barratt Impulsivity Scale (Barratt, 1967) and the Activity Preference Scale (Lykken, Tellegen, and Katzenmeyer, 1973) were used. Both of these measures have demonstrated consistent relationships with criminality. The concepts of high levels of impulsivity combined with low levels of anxiety are well documented as constructs which are related to the development and diagnosis of psychopathic trends (Hare, 1970).

Questionnaires

The first 29 items of the Barratt Scale (1967) were scored for impulsivity. Barratt found these items had point bi-serial correlation coefficients greater than .29 to the total test score.

The Activity Preference Questionnaire was scored according to Lykken, Tellegen, and Katzenmeyer's (1973) directions and resulted in three scores: Social Anxiety, Physical Anxiety, and Validity.

Tests

A computerized version of the Porteus Mazes (Porteus, 1959) and a variant of Eysenck's (1977) finger tapping test were used as personality tests. Both of these tests have been found to be strongly related to criminality (Porteus, 1959 and Eysenck, 1977).

Sample

The subjects in the study were thirty-six white, male, college students. The study was voluntary. Subjects were permitted to withdraw at any time. Subjects were solicited from undergraduate criminal justice classes and other social science classes. Students were given credit toward their course grade.

Procedure For Data Collection

Students who volunteered were instructed on how to use the keyboard and the hand-held device (mouse) of the IBM-PC. The subjects were briefed as follows:

> This is a study of computerized assessment procedures that might be of use in criminal justice. Your job will be to solve puzzles and answer multiple choice questions. This assessment does request information about some illegal activities in which you may have participated. For this reason all information is anonymous and even I will not know your responses. The computer will randomly assign you a subject number and subject file for your answers. There will be no risk to you because no one will know which answers are yours. Anytime you wish to drop out of this study you are free to do so. All of your existing data will be destroyed. Some of the benefits to

you are first-hand knowledge of social science research and familiarization with computers.

All other instructions for how to complete the puzzles will be presented by the computer.

The subject was placed at the computer. The experimenter then left the room after instructing subject that if he had any problems to call out. The remainder of the instructions were presented by the computer as follows:

INSTRUCTIONS

In the research study to follow you will complete some puzzles. You will also be asked some questions. It is important that you complete these puzzles and the questionnaires as honestly as possible. Because your honesty is VERY important a method was designed to insure that no one, not even the person conducting the research, will know how you answered. Subject numbers are randomly selected and assigned each time a new subject begins the study. You will be assigned a FILE NUMBER in a moment. All of your answers will be stored in this file and no one but you knows the FILE NUMBER. As far as the researcher is concerned your data is in one of the files numbered from 100 to 199. We do not know, and we do not want to know, which of the 100 data files contain your answers. In this way we hope that you will feel that you can be completely honest when answering questions.

VOLUNTARY PARTICIPATION

We do need your assistance. The information that you provide means a great deal to us. It is simply impossible to conduct research that we are doing without the help of people like yourself. While we cannot tell you exactly what the research is about right now, because it might affect the

way you answer questions. We can tell you that these studies are related to the ways in which criminal justice personnel collect information and how useful the information is when making decisions. To conduct these studies we will need to ask you about some kinds of behaviors you probably do not (or would not) want others to know about. Our studies are concerned with constructing tests that will allow us to tell if people have (or will) engage in deviant activities. To construct these tests we must give the tests to people who will tell us about deviant activities that they have engaged in. Knowing the test score and the amount of deviancy for the people in the study allows us to find out if the tests can be used to identify people who are not so willing to tell about the things they have done. So you can see that your honesty is very important. If at any time you feel that you cannot be honest please resign. We hope that you won't quit, but we can understand if you choose not to participate.

Because honesty is so important we will get the most difficult part of the study out of the way first. That is, the 'hard' questions will be asked first. That way you can decide more quickly if you want to continue to participate.

Are you willing to continue with the study?

1 = Yes, I would like to go on.

2 = No, I prefer not to participate at this time.

Use the numeric keypad on the right side of the keyboard to select a 1 or 2. Press the ENTER key after selecting.

THE NEED FOR TWO (2) IDENTIFICATIONS

Some people will return to complete this study in two sessions. We ask each person to select a four (4) digit password so that NO ONE else can access your file. If you need to return to complete the puzzles and questionnaires in this study, you will be asked for your file number which is ### (randomly assigned file number shown here) and you will be asked for your PASSWORD. The password is created by you when you answer the question below. Select any four numbers for your

PASSWORD. However, please do not use a number that is obvious, such as a part of your birthdate or the file number that has already been assigned. After you have selected a number write the file number and your password on the card you were given. Keep the card in your wallet. If you put it in a textbook you might forget the book the next time you return.

Please type a four (4) digit PASSWORD and press the ENTER key.

VERIFY THE PASSWORDS

Because your numbers are important, they will be verified. Please answer the questions below and press the ENTER key. If you do not remember the numbers enter any number and you will be shown the correct numbers.

Please enter your FILE NUMBER and press the ENTER key.
Please enter your PASSWORD and press the ENTER key.

If you need to return to complete the study you will be asked for these numbers. We have just verified that the machine and you know the FILE NUMBER and PASSWORD.

Gold's Deviancy Questionnaire (1970) was then loaded and the subject received the following instructions:

In this questionnaire you will be asked about your prior behavior. Answer each question with a number such as 0, 1, 5 where:

Key	Means
0	Never did this
1	One time
5	Five times
-	Backup. You can backup to the previous item with this key. It is on the RIGHT SIDE of the key board above + key.

+	Show/don't show your answer. Use this key like a light switch to turn the display of the answer `on' or `off'.
.	. or <Del> key will show these instructions at any time.
ENTER	Finished with the answer to a question. Always end you answer by pressing ENTER.

After completing Gold's Deviancy Questionnaire the subject was asked the following questions:

Credit hours completed

What is your college major

What is your GPA

What is your ACT score

For those students that had taken the SAT instead of the ACT the YSU conversion chart was used and all SAT scores were converted to the ACT equivalents.

The computerized variant of Eysenck's Finger tapping test was loaded and the subject was given the following instructions.

FINGER TAPPING

This test will show your fastest tapping speed and the length of time you can stay at the fastest speed when your hand is locked.
Before you begin, which hand is your best hand?

Your best hand is usually the hand you write your name with. It is the hand that works best when using small tools, and it is the hand that is most accurate when throwing a ball.
My best hand is my --
1 = Right Hand
2 = Left Hand

Select the 1 or 2 and press the ENTER key.

Place your (hand selected) thumb along the base of the keyboard and press lightly. Now place the heel of your (hand selected) hand on the base of the keyboard. Your first (index) finger is lightly touching the space bar, just below the `B' key. The rest of your fingers should be over, but not touching, the typewriter keys.

Before beginning this test you will have a practice session. Tap on the space bar with the tip of your first (index) finger as fast as you can possibly tap. Your finger should stay in contact with the space bar and there should be a click each time you tap with the tip of your finger. You will make 20 taps. The computer will count the number of taps and will ring a bell when you are finished.

After the subject completed the trial run he was asked if he would like more practice. If he answered "no" the actual finger tapping test instruction screen appeared. The instructions remained on the screen for the duration of the finger tapping test.

Now that you have the idea. Tap on the spacebar for 400 taps. The computer will keep track of the number of taps. A bell will sound when you have completed the test. Keep your finger in contact with the spacebar and your thumb and the heel of your hand touching the base of the keyboard. Keep watching the blue sign while you are tapping.

TAP AS FAST AS POSSIBLE.

BEGIN WHEN YOU ARE READY.

After completing the tapping the subject was asked to estimate the number of seconds needed to

complete the finger tapping test.

The computerized variant of the Porteus Maze test was loaded. The next screen to appear was instructions for the mazes. The subject was given two trial mazes to complete, then the two test mazes. Each maze was more difficult than the preceding maze.

MAZE GAME BUILT FOR SPEED AND ACCURACY

In this game you trace the shortest path through a maze shown on the screen. You are to trace a path through the maze from the point marked S to the point marked F. To trace the path you will use your (hand selected) hand and a computer mouse.

The mouse should be placed on the side of the computer keyboard. If the mouse and the mouse pad are not on the (hand selected) side of the keyboard, move the mouse and mouse pad so they are on the (hand selected) side.

The mouse pad should be about six (6) inches from the side of the keyboard.

The top of the mouse pad should be even with the top of the keyboard.

Place the mouse in the center of the mouse pad.

Be sure everything is in the right place now.

HOW TO PLAY THE GAME

The computer will draw a maze on the screen and then place your tracer point at the S mark. As soon as your tracer has been shown, a stopwatch will be started and shown on the screen.

To trace a line you must press and hold the left button on the mouse. Trace the shortest path through the maze's alleys by moving the mouse to the F mark. Go as fast as you can. When you

reach the F mark the watch will be turned off.

There are three rules that must be followed:

1. Solve the maze as quickly as possible.
2. Do not hit or ride on any walls.
3. Do not go into any blind alleys or make any mistakes.

Your score will be based on all three rules.

BUMPING WALLS

Every time you bump into a wall in an alley a bell will sound until you get off the wall. Do not hit or run along a wall. Points are taken off your score for every hit. If the bell rings constantly, you are constantly losing points.

When solving the maze, the mouse may move off of the mouse pad. When this happens, let go of the button and move the mouse to the center of the pad. To start drawing again, press and hold the left button, then move the mouse.

REMEMBER

Go as fast as you can.
Points are lost for going slow.
Make no mistakes.
Points are lost for going into blind alleys.
Do not hit or ride on the walls.
Points are lost for hitting or riding the walls.

Before playing the maze game you will have two practice runs with the mouse. These practices do not count. Then there will be some mazes to solve.

The Barratt Impulsivity Scale was loaded followed by the Activity Preference Questionnaire. The instructions for these two questionnaires are the same as the instruction for the Gold's Deviancy

Questionnaire. When the subject completed the questionnaires he was instructed to call the data collection supervisor. The subject was informed that he had completed all of the testing. Any questions he had were answered except those regarding the hypothesis. He was told that he could review the final report at the thesis cage by fall quarter 1988.

Scoring of instruments

The Gold Deviancy Questionnaire (1970) was scored for twelve variables. Six categories were created; delinquencies, misdemeanors, property offenses, drug offenses, person offenses, and prosocial activities. The six categories have two sub-categories ever and frequency.

Table 1.

Category;	item numbers
Delinquency;	1, 7, 12, 13, 17, 20, 21, 30, 31, 32, 33, 38, 40, 43, 44, 48, 50
Misdemeanor;	2, 3, 14, 16, 22, 24, 42, 46, 51, 52, 55, 56

Property; 6, 8, 18, 19, 26, 28, 34, 36, 41

Drug; 23, 53, 54

Person; 5, 9, 10, 15, 35, 45, 47, 49

Prosocial; 4, 11, 25, 27, 29, 37, 39 (see appendix A).

Table 2.

Gold Deviancy Questionnaire variables

Var1	Number of Delinquencies
Var2	Frequency of Delinquencies
Var3	Number of Misdemeanors
Var4	Frequency of Misdemeanors
Var5	Number of Property Offenses
Var6	Frequency of Property Offenses
Var7	Number of Drug Offenses
Var8	Frequency of Drug Offenses
Var9	Number of Person Offenses
Var10	Frequency of Person Offenses
Var11	Number of Prosocial Activities
Var12	Frequency of Prosocial Activities

The subject was asked (item 20) "In the last two years how many times have you taken something not belonging to you worth less than $2.00?" If the

subject responded that he had done this five times, "one" would be added to the count in Var1 and "five" would be added to the count in Var2.

The formula for the dependent variable was: Crime Scale (Var57): Var57 = Var1 + Var3 + Var5 + Var7 + Var9.

CHAPTER V

RESULTS

The dependent variable for the analysis was the Crime Scale. In a correlational analysis it was found that the fingertapping variables (see appendix D) were not significantly related to criminal activity. The scores derived from the Porteus Mazes, the Barratt Impulsivity Scale and the Activity Preference scores were significantly related.

The Pearson correlation coefficient (r) was used to measure the association of hypothesized relationships. Crime Scale (Var57) was correlated with the instrument variables. The strongest relationship is with Percent Of Wrong Moves In Maze 2 (Var47). The next strongest relationship is surprising yet irrelevant in testing the hypothesis. The relationship is that with Crime Scale and Credit Hours (Var13). It suggests that there is a decrease in criminality with an increase in credit hours

completed.

The other fairly significant correlations are with that of Barratt Impulsivity Scale (Var52) and Trait Anxiety Scale (Var56). As suggested by Eysenck (1967) and Lykken (1957) the individual who exhibits criminal behavior tends to be more impulsive and less anxious.

Table 3.

Correlation matrix

One-tailed significance: * - .01 ** - .001

	VAR11	VAR12	VAR13	VAR14	VAR15
VAR1	.122	.183	-.489*	-.224	-.211
VAR3	-.243	.025	-.374	.108	-.300
VAR5	-.002	.189	-.387*	.074	-.125
VAR7	-.203	-.002	-.124	-.051	-.340
VAR9	.372	.100	-.507*	.044	-.133
VAR57	.011	.147	-.515**	-.050	-.275

	VAR17	VAR19	VAR20	VAR21	VAR22
VAR1	-.038	-.013	-.014	.017	-.183
VAR3	-.048	-.228	-.229	-.021	-.138
VAR5	-.286	-.046	-.046	.178	-.044
VAR7	.179	.207	.207	.107	.169
VAR9	-.113	-.265	-.266	.101	.011
VAR57	-.114	-.107	-.107	.075	-.113

	VAR23	VAR24	VAR25	VAR26	VAR27
VAR1	-.102	-.108	-.235	-.197	.351
VAR3	-.020	-.048	-.073	-.116	-.141
VAR5	-.077	-.094	-.078	-.100	.063
VAR7	-.007	-.005	.087	.025	.118
VAR9	.047	.003	-.155	-.098	.203
VAR57	-.063	-.087	-.163	-.163	.175

	VAR28	VAR29	VAR30	VAR31	VAR32
VAR1	-.203	-.188	.051	.033	-.115
VAR3	.050	-.034	.088	.272	-.243
VAR5	.051	-.132	-.028	-.026	-.196
VAR7	.108	-.022	.055	.171	-.153
VAR9	-.158	-.063	-.114	-.072	-.105
VAR57	-.078	-.141	.032	.103	-.215

	VAR33	VAR35	VAR36	VAR38	VAR39
VAR1	-.184	.075	-.092	-.011	.007
VAR3	-.289	-.023	-.061	-.020	.155
VAR5	-.206	-.012	.174	.285	.124
VAR7	-.080	-.103	-.206	-.152	-.115
VAR9	-.097	.051	.180	.247	.106
VAR57	-.252	.019	-.018	.075	.082

	VAR41	VAR42	VAR43	VAR44	VAR46
VAR1	-.043	-.082	.010	-.051	-.276
VAR3	-.103	-.058	-.128	.116	-.118
VAR5	-.076	-.245	-.066	.155	-.026
VAR7	-.210	-.053	-.198	.156	-.146
VAR9	.129	-.158	.234	-.142	-.220
VAR57	-.078	-.145	-.042	.050	-.219

	VAR47	VAR49	VAR50	VAR51	VAR52
VAR1	.471*	.193	-.130	.163	.426*
VAR3	.527*	.175	.201	.096	.290
VAR5	.694*	.217	-.054	.091	.269
VAR7	.264	-.023	.000	-.127	.149
VAR9	.252	.296	-.166	.339	.450*
VAR57	.613**	.234	-.034	.159	.430*

	VAR53	VAR54	VAR55	VAR56	VAR63
VAR1	.079	-.279	-.278	-.365	-.095
VAR3	-.101	-.264	-.237	-.331	-.001
VAR5	.022	-.147	-.121	-.178	.203
VAR7	-.115	.077	-.260	-.092	-.101
VAR9	.267	-.444*	-.020	-.339	.085
VAR57	.036	-.297	-.261	-.369	.006

	VAR65	VAR66	VAR68	VAR69	VAR70
VAR1	-.104	.233	.066	-.127	.089
VAR3	-.057	.384	.018	.092	-.019
VAR5	.239	.439*	.056	-.171	.012
VAR7	-.182	.031	-.148	-.030	-.171
VAR9	.140	.210	.228	-.191	.300
VAR57	-.010	.364	.063	-.103	.059

Personality variables with a significant relationship to the Crime Scale were used in a stepwise multiple regression analysis to predict the Crime Scale. Due to the limited sample size and the theoretical nature of the analysis variable selection was stopped when the R square was increased by less than two percent.

Using this rule the following standardized regression equation was constructed:

Criminal activity = % Wrong Moves in Maze 2 x .56
+ Barratt Impulsivity Scale x .41

VAR57 = (VAR47 x .56) + (VAR52 x .41)

R = .706

R square = .498

F (2,33) = 16.353; $p<.001$

Each variable used to create the Crime Scale (VAR57) was also analyzed. Beginning with Number of Delinquency (VAR1) the following standardized regression equation was constructed:

Number of Delinquency = Credit Hours x -.48
+ % Time Longest Rest Spike
x .43
+ % Wrong Moves in Maze 2 x .38

VAR1 = (VAR13 x -.48) + (VAR27 x .43) + (VAR47 x .38)

R = .729

R square = .531

F (3,32) = 12.086; p<.001

It appears the biggest factor for a decrease in the number of deliquent acts is education and maturation. In all probability the delinquent drops out of school. With his personality traits he may find it difficult to adhere to the rules.

Number of Misdemeanors = % Wrong Moves in Maze 2 x .52
+ Trait Anxiety Scale x -.35

VAR3 = (VAR47 x .52) + (VAR56 x -.35)

R = .619

R square = .382

F (2,33) = 10.211; p<.001

The misdemeanant does not plan his path through Maze 2. This may be due to the fact of the

low Trait Anxiety Scale score. He becomes bored with the maze test and chooses to ignore the warning of a penalty for incorrect moves.

Number of Property = % Wrong Moves in Maze 2 x .69
Offenses + Time Motionless Maze 1 x .29
VAR5 = (VAR47 x .69) + (VAR38 x .29)

R = .744
R square = .553
F (2,33) = 20.411; p<.001

The property offender spent time motionless in Maze 1 to study the correct path. However in Maze 2 he became careless when selecting the path.

The variable Number of Drug Offenses (VAR7) was answered with 72.2% of the population responding with zero drug offenses. When a regression analysis was computed there was no significance at the .050 level.

Number of Person = Credit Hours x .-.43
Offenses + APQ Physical Scale x -.52
+ Mean Consecutive Hits/Hits . -.36

VAR9 = (VAR13 x -.43) + (VAR54 x -.52) + (VAR42 x -.36)

R = .709

R square = .502

F (3,32) = 10.767; p<.001

The person offender has a strong negative correlation -.507 with Credit Hours (VAR13). This shows that an increase in education decreases deviancy or the deviant individual discovers that he cannot adhere to the rules and structure of the university and drops out. This individual scored relatively low on the APQ Physical Scale (VAR54).

Katzenmeyer (1966) asked subjects that had taken the APQ to describe themselves in the terms of the Gough Adjective Check List (1957). Respondents who scored low on the APQ Physical Scale described themselves as: adventurous, calm, daring, frank, good-looking, headstrong, imaginative, informal, lazy, mischievious, rebellious, reckless, relaxed, restless, and spunky.

There is a stronger correlation, .228, between the person offender and Number of Hits in Mazes (VAR68). The other dependent variables have a

correlation of <.062.

It is ironic that the individuals that will harm other individuals have a tendency to hit the walls of the mazes with a greater frequency.

CHAPTER VI

DISCUSSION

The results obtained provide partial support for the hypothesis that personality tests are better than personality questionnaires in the prediction of social deviancy. The results of the Porteus Maze test and the Barratt Impulsivity questionnaire emerged as the two measures which account for the largest portions of variance in the crime scale score.

The present study is limited in several ways. The size of the sample was small. The target size was 100 subjects; 40 usable subject protocols were obtained. Four subjects had to be disqualified because they obtained a score of 6 or more on the validity scale of the APQ.

It was difficult to solicit subjects, due to lack of interest by students. All of the students that participated received bonus points toward their final grade in the course from which they were

solicited. In courses which offered no extra credit students did not volunteer.

Subjects should be monitored during the Fingertapping Test. In order for the Fingertapping Test to be reliable and valid the subjects must keep their hand in the position described in the instructions. This position combined with the fingertapping causes discomfort and slight muscle fatigue. It is believed that many subjects moved their hands to a different position to avoid discomfort.

The study partially confirmed the hypothesis. As a pilot study this thesis has opened the door to a new area of psychodiagnostic testing. There is a considerable amount of research that is needed.

A variety of populations should be tested and compared to one another. A study with a sample size of 100 or more is needed. A sample of females may give different results with the Fingertapping Test and the Maze Test due to the smaller size of hands and differences in manual dexterity.

A reliability study needs to be conducted. Reliability should be evaluated with a prison population. Instead of the Gold Deviancy

Questionnaire the dependent variable can be constructed from the inmates' criminal histories.

In this study the unique contributions of tests to the prediction of criminality were severely constrained. Student volunteers with no reason to hide their prior behaviors served as subjects. In addition, their responses were protected by Human Subjects policy for the provision of anonymity. Finally, criminal deviance was assessed via a questionnaire and the well-known ability of similar types of measuring devices to obtain higher correlations across independent dimensions was partially overcome by the Porteus mazes (see Campbell and Stanley, 1963). When one considers the handicap that personality tests were placed under, it can be concluded that tests of personality via the Mazes is a useful device that is not contaminated by the subject's need to present a socially desirable self presentation.

WORKS CITED

Barratt, Ernest S. "Perceptual Motor Performance Related To Impulsiveness and Anxiety." Perceptual and Motor Skills. Southern University Press. 1967. pp. 485-492.

Campbell Donald T. and Julian Stanley. Experimental and Quasi-Experimental Designs for Research. Rand McNally College Publishing Company: Chicago. 1963

Cattell, R.B., and J.M. Schruerger. Chicago IL: Institute For Personality and Ability Testing. 1971.

Chesno, F.A. and P.R. Kilmann. "Effect of Stimulation On Sociopathic Avoidance Learning." Journal of Abnormal Psychology. Volume 84. Number 2. 1975.

Coleman, J.C., J.N. Butcher and R.C. Carson. Abnormal Psychology and Modern Life. Scott, Foresman and Company: Glenview, Illinois. 1984.

Cronbach, Lee J. Essentials of Psychological Testing. Harper & Row, Publishers: New York. Third Edition. 1949.

David, Kenneth H. "Cross-Cultural Uses of the Porteus Maze." The Journal of Social Psychology. Volume 92. 1974. Pages 11 - 18.

Eysenck, H.J. The Dynamics of Anxiety and Hysteria. New York: Prager. 1957.

Eysenck, H.J. Maudsley Personality Inventory. London: University of London. 1959.

Eysenck, H.J. Behaviour Therapy and the Neurosis. London: Pergamon Press. 1960.

Eysenck, H.J. (ed.) Experiments With Drugs. Oxford: Pergamon Press. 1963.

Eysenck, H.J. Crime and Personality. Boston: Routledge and Kegan. 1964.

Eysenck, H.J. The Biological Basis of Personality. Charles C. Thomas, Publisher: Springfield, Illinois. 1967.

Eysenck, H.J. Crime and Personality. 3rd Edition. London: Routledge & Kegan Paul. 1977.

Gold, Martin. Delinquent Behavior in an American City. Brooks/Cole Publishing Company: Belmont, California. 1970.

Hare, R.D. "Psychopathy, Autonomic Functioning and the Orienting Response." Journal of Abnormal Psychology. Volume 73. 1968.

Hare, R.D. Psychopathy: Theory and Research. London: Wiley. 1970.

Katzenmeyer, C.G. Comparisons of Sky-divers and Non-sky-divers on the APQ and IPAT Anxiety Scales. Unpublished study, 1966.

Kipnis, David. Character Structure and Impulsiveness. Academic Press, Inc.: New York. 1971.

Lushene, R., H. O'Neil and T. Dunn. "Equivalent Validity of a Completely Computerized MMPI." Journal of Personality Assessment. Volume 38. pp. 353-361. 1974.

Lykken, D.T. "A Study of Anxiety in the Sociopathic Personality." Journal of Abnormal Social Psychology. Volume 55. Number 1. 1957.

Lykken, D.T., A. Tellegen and C. Katzenmeyer. Manual for the Activity Preference Questionnaire (APQ). University of Minnesota. 1973.

Porteus, Stanley D. The Maze Test and Clinical Psychology. Pacific Books: Palo Alto, CA. 1959.

Quay, H.C. "Psychopathic Personality As Pathological Stimulation Seeking." American Journal of Psychiatrics. Volume 122. Number 2. 1965.

Radelet, Louis A. The Police and The Community. Fourth Edition. Macmillan Publishing Company: New York. 1986. p. 350.

Riddle, Mary and Alan H. Roberts. "Delinquency, Delay of Gratification, Recidivism, and the Porteus Maze Tests." Psychological Bulletin. Volume 84, Number 3. 1977. Pages 417 - 423.

Scacco, Anthony. Rape in Prison. Charles C. Thomas, Publisher: Springfield, Illinois. 1975. p. 10.

Schmauk, F.J. "Punishment Arousal and Avoidance Learning In Sociopaths." Journal of Abnormal Psychology. Volume 76. Number 3. 1970.

Waldron, Joseph. Psychopathy: The Construction of a Scale to Assess Anxiety and Impulsivity As Related to Frequency But Not Seriousness of Deviancy Among an Incarcerated Population. Thesis. Ohio State University. 1973.

Waldron, Joseph. Microcomputers in Mental Health. Presented at the Western Reserve Psychiatric Habilitation Center. March, 1984.

Waldron, Joseph. Using Microcomputers for Psychodiagnosis in Criminal Justice. Presented at the Academy of Criminal Justice Sciences. April, 1985.

Waldron, Joseph. Automated Social History. Anderson Publishing Co.: Cincinnati, Ohio. 1984.

Waldron, Joseph et al. Microcomputers In Criminal Justice: Current Issues and Applications. Anderson Publishing Company: Cincinnati, Ohio. 1987.

Weiss, Sara Culver. "Some Observations on Porteus Maze Performance Among the Campa Indians of Eastern Peru." The Journal of Social Psychology. Volume 108. 1979. Pages 123 - 124.

Weiss, Sara Culver. "Porteus Maze Performances of Nonliterate and Literate Campas from Eastern Peru." The Journal of Social Psychology. Volume 112. 1980. Pages 303 - 304.

Wishnie, Howard. The Impulsive Personality. New York, New York: Plenum Press. 1977.

APPENDIX A

GOLD DEVIANCY QUESTIONNAIRE

In the last two years how many times have you:

1. skipped a day of school simply because you wanted to skip
2. gone onto someone's property when he did not want you there
3. gone into a house or building when you were not supposed to
4. played on an organized sports team (1 = one team)
5. told a person that you were going to hurt them
6. got something by saying that something bad would happen if you didn't get it
7. done something your supervisor would have fired you for if he knew
8. damaged or messed up something not belonging to you
9. hurt someone badly enough for him/her to need bandages
10. hurt someone badly enough for him/her to need to see a doctor
11. gotten on the honor roll for good grades
12. had serious arguments with your mother, father, spouse, or steady date
13. told serious lies to your mother, father, spouse, or steady date
14. taken part of a car or some gasoline
15. hit your mother, father, spouse, or steady date
16. taken something not belonging to you worth $2.00 to $5.00
17. been suspended from a job or school
18. gotten something by lying about who you are or were
19. gotten something by lying about what you would do for someone
20. taken something not belonging to you worth less than $2.00
21. gotten drunk to the point that you should not drive a car

22. driven a car when you should not have because of too much alcohol
23. used illegal drugs of any kind
24. used illegal drugs and driven a car when you should not have
25. been elected officer in a club
26. carried a gun or a knife
27. worked on a school newspaper or similar school group
28. taken something not belonging to you worth over $50.00
29. done some work around the house that really pleased the people you live with
30. taken part in a fight when a bunch of your friends were against another bunch
31. not done something important you were supposed to for the people you live with
32. argued or had a fight with a professor
33. cheated on a term paper or examination
34. set fire to someone's property
35. used or threatened to use to use a weapon to get something from somebody
36. taken something from a store without paying for it
37. worked free for a charitable organization
38. told lies about someone to make them look bad
39. won a prize for doing something outside of school
40. made so much noise that people were angry
41. taken a car without the owner's permission (even if it was returned)
42. carved or marked up public property
43. written on the walls in bathrooms or other public places
44. made someone of the opposite sex have sex with you
45. offered to have sex with someone for money
46. had sex with someone who was younger than 16 years old
47. had sexual intercourse with the opposite sex (not your spouse or steady date) who wanted to
48. made someone of the same sex have sex with you
49. had sexual contact with someone of the same sex who wanted to
50. paid someone to have sex with you
51. offered to fix someone up with a prostitute for money
52. given illegal drugs to someone
53. offered to sell drugs illegally

54. gotten a ticket for driving too fast or recklessly
55. caused an accident because you did not care (were careless)

APPENDIX B

ACTIVITY PREFERENCE QUESTIONNAIRE

DIRECTIONS
READ CAREFULLY

One way of understanding a person better is by studying the kinds of activities or experiences he likes or enjoys. This test employs the similar approach of studying the pattern of your dislikes. In each of the items on the following pages, and in the sample item below, two activities or experiences are described which most people would consider at least mildly unpleasant. Some of them are very unpleasant indeed. In some instances, you will find that similar things have actually happened to you; in the others, you can at least imagine what they would be like.

Your task is to try to imagine yourself in each of the two situtation and then, pretending that either one of the other had to happen to you, to decide which one you would prefer, which of the two you would take as the "lesser of evils." Mark the alternative you would prefer (a) or (b) in the space next to the item number on the answer sheet.

SAMPLE ITEM

(a) Having to work late one night.
(b) Being run over by a train.

Most people (!) will feel that "a" is the lesser evil in this case and would therefore make an "a" in the appropriate place on the answer sheet. Answer every item in the test. Work rapidly, but consider the alternatives in each item carefully. Please do not mark the test booklet.

REMEMBER: Indicate the alternative that you would prefer.

1. (a) Sitting around all Sunday afternoon with nothing to do.
   (b) Cutting out the spoiled parts of a bushel of potatoes.

2. (a) Watching an operation.
   (b) Your favorite hat is lost or stolen.

3. (a) Run a steam presser in a laundry for a week.
   (b) Being caught in a blizzard.

4. (a) Going to a party where no one knows you.
   (b) Cleaning out a basement.

5. (a) Cleaning up your house after floodwater have left it filled with mud.
   (b) Making a parachute jump.

6. (a) Having to tell someone you know they're lying.
   (b) Spending a hot summer afternoon painting a bedroom ceiling.

7. (a) Sitting through a long lecture with a runny nose and no handkerchief.
   (b) Having your date at a dance leave without you.

8. (a) Being cursed by an old friend.
   (b) Lick stamps for 1,000 letters.

9. (a) Attempting to beat a railroad train at a crossing.
   (b) Spraining your ankle so that you can't walk on it.

10. (a) You spend hours fixing a fancy barbeque for some guests but they eat very little and seem not to like it.
    (b) Distributing 1,000 handbills in mailboxes from door to door.

11. (a) Walking a mile when it's 15 degrees below zero.
    (b) Being near where a volcano erupts.

12. (a) Having a gabby old woman sit down next to you on the bus.
    (b) Catching a bad cold the day before a big party.

13. (a) Having to walk around all day on a blistered foot.
    (b) Sleeping out on a camping trip in an area where rattlesnakes have been reported.

14. (a) Balancing along the top rail of a picket fence.
    (b) Walking up four flights of stairs.

15. (a) Shining four pairs of shoes.
    (b) Having to blow your nose while in a group of strangers.

16. (a) You're in a bank and suddenly three masked men with guns come in and make everyone raise their hands.
    (b) Sitting through a two-hour concert of bad music.

17. (a) Having to walk half a mile through a soaking rain without a coat.
    (b) Walking near a whirling airplane propeller.

18. (a) Being called on in school.
    (b) Cleaning paint off your hands.

19. (a) Spending the day wearing tight, uncomfortable shoes.
    (b) Finding yourself in the midst of a fighting mob.

20. (a) You stumble in a crowded bus and drop your packages.
    (b) You're on stage in the school play and realize that you have forgotten your lines.

21. (a) Standing in a long line for something.
    (b) Being given an electric shock as part of a medical experiment.

22. (a) You walk into a public toilet and find that it's the wrong one.
(b) You must wait in line for two hours to pay a parking ticket.

23. (a) You have to stay in bed all day with the flu and a sick headache.
(b) Some fast-talking person at a party starts teasing you unmercifully and your face begins to burn and your hands tremble.

24. (a) Having the pilot announce that there is engine trouble and he may have to make an emergency landing.
(b) Working a week in the fields digging potatoes.

25. (a) Painting a large frame house.
(b) Shoveling the walks after a snowstorm.

26. (a) Being a guest on a sailboat during a great storm at sea.
(b) Having to stay home every night for two weeks with a sick relative.

27. (a) Your car is stolen and you don't have any theft insurance.
(b) You're riding a horse that suddenly starts galloping out of control.

28. (a) Getting your back badly sunburned.
(b) After a swim you come back to where you'd left your girlfriend on the beach and find three strange men sitting with her.

29. (a) Starting off in the morning, you step in a puddle and get your shoe and stocking soaking wet.
(b) Jumping feet first from the 20-foot diving tower at the beach.

30. (a) Scouring and cleaning a pot full of burned oatmeal.
(b) Knocking over a glass in a restaurant.

31. (a) Having someone get mad and tell you off.
(b) Playing cards with people who are more skilled than you are and then making a dumb mistake.

32. (a) Take a roller coaster ride.
(b) Wash three storm windows on the sides.

33. (a) Finding out people have been gossiping about you.
(b) Working all day in the hot sun.

34. (a) Tying up a trailer full of papers for the school paper sale.
(b) Seeing a tornado cloud moving toward you while you're driving in the country.

35. (a) Riding a long stretch of rapids in a canoe.
(b) Waiting for someone who is late.

36. (a) Being seasick every day for a week while on an ocean voyage.
(b) Due to a fire in your room, you must stand on the ledge of the 25th floor of the hotel.

37. (a) Belching in church during prayer.
(b) Copying four pages of the dictionary.

38. (a) Being chosen as the "target" for a knife throwing act.
(b) Being sick to your stomach for 24 hours.

39. (a) Having your grocery bag break and spill on a crowded street.
(b) Having your empty car smashed by a runaway truck.

40. (a) You have spent hours preparing for a picnic but it rains just as you start to eat.
(b) You overhear someone comment on how strangely you are dressed.

41. (a) Being a restaurant dishwasher for one week.
(b) Being interviewed on TV, you become tongue-tied and make a poor showing.

42. (a) Burning your arm by accidently leaning against a hot-water pipe.
(b) Swimming where sharks have been reported.

43. (a) While with a group of new people you try to tell a story but the others talk and no one listens to you.
(b) You have parked your car in a public lot and return to find a big dent in the door.

44. (a) Walking barefoot in a room where some glass has been broken.
(b) Walking barefoot across a burning hot sandy beach.

45. (a) Having to take a bath in cold water since the hot water heater is broken.
(b) Having to introduce two people whose names you've forgotten.

46. (a) Being at a circus when suddenly two lions get loose down in the ring.
(b) Arriving at the circus and discovering that you've forgotten your tickets.

47. (a) Banging your head on a cabinet door.
(b) Having to go out with a visiting relative.

48. (a) Out in the middle of a frozen lke, you realize that the ice is unsafe.
(b) You find that vandals have slashed all four tires on you car.

49. (a) Finding that you're the only one dressed up for a party.
(b) Mopping the floor of a hospital corridor.

50. (a) You must scrub the kitchen floor on hands and knees.
(b) You must make a speech to 100 people.

51. (a) Giving blood for the blood bank.
(b) You're in the back seat of a driverless car which suddenly starts rolling downhill.

52. (a) Rowing a boat across a large lake.
(b) Bouncing over rough water in a high-speed outboard being driven by a wild friend.

53. (a) Helping carry a dead body to the ambulance.
(b) Carrying a truckload of firewood into the basement.

54. (a) Having to spend half a day in a closet.
(b) Overhearing a friend say something sarcastic about your parents.

55. (a) Having to stay in bed with the flu and a sick headache.
(b) Having your hands shake and your mouth go dry as you try to talk in front of a group.

56. (a) Sneezing loudly during a quiet moment at the symphony concert.
(b) Accidentally dialing a wrong number twice in succession.

57. (a) People at a party are telling jokes. You tell a long drawn-out story but no one laughs.
(b) You've been looking forward to a party but get sick and can't go.

58. (a) You have to get out of bed an hour earlier than usual.
(b) You pass someone on the street and say "Hi, Charley" and then realize it isn't Charley.

59. (a) Whitewashing a long board fence.
(b) Washing 20 storm windows on both sides.

60. (a) Having someone say something insulting about a member of your family.
(b) Slipping in the mud and getting your new clothes soaked and dirty.

61. (a) Being in a flood.
(b) Carrying a ton of coal from the backyard into the basement.

62. (a) You return to your car parked downtown and find you've lost your only set of keys.
(b) Having someone walk in while you are absent-mindedly picking your nose.

63. (a) A doctor has examined a sore in your throat and you are waiting to find out whether it's cancer.
(b) Being wheeled into the operating room to have your appendix removed.

64. (a) Working outside all day when it's 90 in the shade.
(b) Saying "hello" to a friend and having him look at you and walk on without speaking.

65. (a) Spilling paint all over your shoes.
(b) Discovering your feet are dirty when you undress for a medical examination.

66. (a) Being chased by a huge and angry bull.
(b) Spending a month in bed.

67. (a) Having to run until your throat is sore and there's a pain in your side.
(b) Helping push a stalled car on a winter morning.

68. (a) Finding that you have been short-changed and must return to the store to ask for the rest.
(b) Sandpapering a wooden chair to get it ready for re-painting.

69. (a) Washing a car.
(b) Driving a car at 95 miles an hour.

70. (a) Asking someone to pay you money that he owes you.
(b) Sleeping one night on the floor.

71. (a) Having to stand up on the bus.
(b) Introducing yourself to a total stranger.

72. (a) Whitewashing a long board fence.
(b) Unscrewing a broken light bulb with your fingers from a "live" socket.

73. (a) Riding a motorcycle.
(b) Running out of ink while writing a note.

74. (a) Taking a long ride in a taxi and then finding you don't have enough money for a tip.
(b) Getting paint in your hair

APPENDIX C

BARRATT IMPULSIVITY SCALE

1. My friends consider me to be happy go lucky.
2. I like to be where there is something going on all the time.
3. I like work that has lots of excitement.
4. I change my plans often.
5. I like to take a chance just for the excitement.
6. My interests tend to change quickly.
7. I like to do things on the spur of the moment.
8. I consider myself always careful.
9. I scan newspaper rather than read them carefully.
10. I let myself "go" at a party.
11. I don't like changes.
12. As a youngster I enjoyed taking part in reckless stunts.
13. I like work requiring patience and carefulness.
14. I like a great deal of variety in my work.
15. I often make people laugh.
16. I like new situations.
17. I don't like to work with slow people.
18. I like to solve complex problems.
19. I easily become impatient with people.
20. I usually have a ready answer.
21. I don't like to wait for traffic light to change.
22. I usually think before I leap.
23. I like work in which I must change often from one task to another.
24. I like mathematics.
25. I make up my mind quickly.
26. I usually notice the furniture arrangements in a strange house.
27. I like to play chess.
28. I have more trouble concentrating than other people seem to have.
29. When I see a train I wish I were on it.
30. I like detailed work.
31. I like to work crossword puzzles.
32. I spend much of my leisure time out of doors.

33. I frequently feel "on top of the world".
34. I'm always on time for social events.
35. I like work involving competition.
36. I answer questions quickly.
37. In watching games, I often yell along with the others.
38. I remember the names of people I meet.
39. I keep a diary regularly.
40. In the morning I usually jump out of bed energetically.
41. I like prompt people.

APPENDIX D

VARIABLE LABELS

Gold Deviancy Questionnaire

Var1	Number of Delinquency
Var2	Frequency of Delinquency
Var3	Number of Misdemeanors
Var4	Frequency of Misdemeanors
Var5	Number of Property Offenses
Var6	Frequency of Property Offenses
Var7	Number of Drug Offenses
Var8	Frequency of Drug Offenses
Var9	Number of Person Offenses
Var10	Frequency of Person Offenses
Var11	Number of Prosocial Activities
Var12	Frequency of Prosocial Activities

Scholastic Information

Var13	Credit Hours
Var14	Major
Var15	Grade Point Average
Var16	Scholastic Aptitude Test
Var17	American College Test

Fingertapping Test

Var18	Total Finger Taps
Var19	Total Time to Finish Fingertapping
Var20	Mean Elapsed Time Between Fingertaps
Var21	Standard Deviation of Var20
Var22	Number of Rest Spikes (Rest > 1.96 Z of Mean Rest)
Var23	Number of First Rest Spike
Var24	Time From Start Until First Rest Spike
Var25	Length of First Rest Spike
Var26	Length of Time for Longest Rest Spike
Var27	Percent of Time for Longest Rest Spike
Var28	Mean Rest Time
Var29	Standard Deviation of Var28
Var30	Mean Time Between Rest Spikes
Var31	Standard Deviation of Var30
Var32	Number of Low Spikes (< 1.96 Z)
Var33	Number of Total Spikes (Low + High)
Var34	Handedness
Var35	Subject's Estimated Time to Complete Fingertapping

Porteus Maze Test

Var36	Total Time in Maze 1
Var37	Was Maze 1 Completed?
Var38	Time Motionless in Maze 1
Var39	Percent of Wrong Moves in Maze 1
Var40	Percent of Right Moves in Maze 1
Var41	Number of Hits Against the Walls in Maze 1
Var42	Mean Number of Consecutive Hits Per Hit in Maze 1
Var43	Percent of Moves in a Shaky Manner in Maze 1
Var44	Total Time in Maze 2
Var45	Was Maze 2 Completed?
Var46	Time Motionless in Maze 2
Var47	Percent of Wrong Moves in Maze 2
Var48	Percent of Right Moves in Maze 2
Var49	Number of Hits Against the Walls in Maze 2
Var50	Mean Number of Consecutive Hits Per Hit in Maze 2
Var51	Percent of Moves in a Shaky Manner in Maze 2

Barratt Impulsivity Scale

Var52	Barratt Impulsivity Scale

Activity Preference Questionnaire

Var53	APQ1 Validity Scale
Var54	APQ2 Physical Scale
Var55	APQ3 Social Scale
Var56	APQ Total Anxiety Scale (Var54 + Var55)

Dependent Variable

Var57	Crime Scale Var1 + Var3 + Var5 + Var7 + Var9

Combined Maze Scores

Var63	Total Time in Mazes
Var64	Were Both Mazes Completed?
Var65	Time Motionless in Mazes
Var66	Percent of Wrong Moves in Mazes
Var67	Percent of Right Moves in Mazes
Var68	Number of Hits in Mazes
Var69	Mean Number of Consecutive Hits per Hit in Mazes
Var70	Percent of Moves in a Shaky Manner in Mazes