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LIN, James Ying, 1934-
THE CLINICAL USE OF THE ORGANIC INTEGRITY TEST AS A COLOR-FORM PERCEPTION TEST WITH THE JUVENILE DELINQUENTS.

The University of Oklahoma, Ph.D., 1966
Psychology, clinical

University Microfilms, Inc., Ann Arbor, Michigan

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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

THE CLINICAL USE OF THE ORGANIC INTEGRITY TEST AS A COLOR-FORM PERCEPTION TEST WITH THE JUVENILE DELINQUENTS

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF PHILOSOPHY

BY

JAMES YING LIN

Norman, Oklahoma

1966

THE CLINICAL USE OF THE ORGANIC INTEGRITY TEST AS A COLOR-FORM PERCEPTION TEST WITH THE JUVENILE DELINQUENTS

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ACKNOWLEDGEMENTS

The writer wishes to express his appreciation to Dr. Percy T. Teska. Under his mentorship, this study was made possible.

For the constructive guidance and helpful criticism from all the committee members, for the preliminary suggestion of this study from Dr. Richard E. Sternlof, for the assistance on statistics given by Mr. Kenneth Mace, for the cooperation from St. John Vianney Training School, Weslyan Youth, Inc., Boys' Town Ranch, and Duncan High School, and for the participation of all subjects, the writer expresses his special thanks.

Further appreciation and gratitude is expressed to Dr. Marion H. Wilder and Mrs. Merrill G. Hastings for their constant sponsorship and deep interest in the education and future career of the writer.

Last, but not least, the writer's deep appreciation is expressed to his wife, Juliet, and daughter, Susanna, for their sacrifice, endurance, and encouragement given during the years of his educational achievement.

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THE CLINICAL USE OF THE ORGANIC INTEGRITY TEST AS A COLOR-FORM PERCEPTION TEST WITH THE JUVENILE DELINQUENTS

CHAPTER I

INTRODUCTION

A survey of human history shows that in all generations, in all societies and among all races, the problem of juvenile delinquency has concomitantly existed along with the stream of human civilizations. It has become a parasitic leech which exists at the expense of our culture. Stullken (1956), in review of literature, says that six thousand years ago an Egyptian priest wrote on the walls of a tomb, "Our earth is degenerate in these latter days. There are signs that the world is coming to an end because children no longer obey their parents." Socrates, in one of his dialogues, also testified 2400 years ago, "Children now love luxury, they have bad manners, contempt for authority, they show disrespect for elders, and love chatter in place of exercise. Children no longer rise when elders enter the room. They contradict their parents, chatter before company, gobble up dainties at the table, cross their legs and tyrannize over their teachers," (Stullken, 1956, p. 833). Today, the attitude of people in different parts of the world reflects the same complaint and condemnation concerning juvenile delinquents. Juvenile delinquency is no longer thought of in legal terms only, but also in social, medical, and psychological terms. In recent decades the problem of juvenile delinquency has been approached

scientifically from various disciplines and perspectives. It has been widely considered not merely as a penological and criminological problem, but also as a social and psychological problem. Furthermore, it is viewed as a disease of society as well as a psychological cancer of the individual.

Sociologists tend to define a juvenile delinquent as "the lonewolf" or "the misfit"; psychiatrists and psychologists usually define him as "the socially inadequate, intellectually distorted and emotionally infantile person"; educators often label him as "the menace" and "the irresponsible student"; lawmen define him as "the enemy of law and society." Regardless of the definition one uses, the juvenile delinquent is labeled by the way in which society reacts to him.

Stullken (1956) says that many people view juvenile delinquency in much the same way that they view some physiological disease; i.e., they think of it as something especially pathological in the body of society. This Stullken condemned as a misconception of juvenile delinquency. It is not a disease, but rather a symptom of underlying conditions the roots of which may be found in the family relationship, the school adjustment, the total physiological and psychological constellation of the individual personality. In other words, juvenile delinquency is much like a fever which is a symptom of some underlying disease.

Since the beginning of the nineteenth century, emphasis in the studies involved with juvenile delinquency has been shifted from the effectiveness of penocorrectional treatment to causation, prevention, and treatment of the juvenile delinquents. McCord and McCord (1964) say:

> Reviewing the history of 'psychopathy' shows that a small group of investigators, with only a few setbacks, have built an impressive ladder of knowledge: in the early 1800's Pinel, Pritchard, and Lombroso first described and labeled the "moral insane."

> In 1879, Gouster presented the first complete delineation of the psychopath's symptoms. In the early 1900's, Meyer, Birnbaum, and others excluded irrelevant disorders from the concept. In 1918, Glueck studied the behavior and characteristics of the psychopath in prison. In the 1920's and 1930's, numerous scientists empirically attacked the problem of causation. In the 1940's and the 1950's, many investigators experimented with the full-scale studies of the psychopath's psychology and introduced the modern concept of the disorder. In the 1940's and the 1950's, many investigators experimented with the treatment of the psychopath and connected his disorder with other social and political problems. (pp. 36-37)

But some studies reveal the misconception of a definite cause and a definite panacea. Some blame corrupted environment; others blame parental rejection; still others find cause within the diverse personalities and the typical somatotypes of juvenile delinquents. However, there is no single definite factor that can be singled out as the cause. Just as there is no single cause, so is it doubtful that there is any simple or single answer to the problem. Certainly, there is no panacea.

A recent treatise on juvenile delinquency developes an elaborate classification of types of juvenile delinquency and points out that various disciplines have heterogenuous conceptions relevant to delinquent behaviors. These heterogenuous concepts stem from different theories on juvenile delinquency. Review of literature reveals the following well-known theories.

Psychogenic Theory

Experts of psychoanalytical persuasion are divided into two groups, each one expounding one of two fundamental theories--either the orthodox Freudian theory or the neo-Freudian theory. The orthodox Freudian theory asserts that every human being is endowed with a fund of inborn or instinctual anti-social impulses known as the Id. Cohen (1955) states that most people in the course of growing up acquire a capacity for circumspection or prudence called Ego. This orthodox Freudian group also incorporates into

personality a moral code of society known as the Super-ego. Aichhorn (1935), Friedlander (1947), and Alexander (1956) agree with Freud that juvenile delinquency is either neurotic or lacking in superego development. Something has gone awry in the normal process of the criminal deviant's personality growth, and as a result, he is responding to various instinctual impulses in unconscious or disguised ways. This is to say that juvenile delinquents in their personality structure, possess imperious Id drives, infantile Ego, and underdeveloped Superego. On the other hand, the non-delinquents, although they possess the same innate, instinctual, anti-social impulses as does the delinquent, have Superegos which are efficiently keeping the total organism in a state of homeostasis.

Alexander (1956), therefore, writes:

> Within the innermost nucleus of the personality. . . it is impossible to differentiate normal from criminal impulses. The human being enters the world as a criminal, that is, socially not adjusted. . .The criminal carries out in his actions this natural, unbridled, instinctual drives; he acts as the child would act if it only could. The repressed, and therefore unconscious criminality of the normal man finds a few socially harmless outlets, like dreams and phantasy of life and some transitional forms of behavior. The only difference between the criminal and the normal individual is that the normal man partially controls his criminal drives and finds outlets for them in socially harmless activities. (pp. 30-31)

This theory of innate criminal instinct seems to have a common ground with Lombroso's concept of "born criminal" and "moral imbecile." Except Lombroso (1876) defines "born criminal" and "moral imbecile" not in terms of psychological causation, but in terms of biological, anthropological, and atavistic geneses. This theory is based on the assumption that delinquent behavior is often the natural activity of persons destined from birth by virtue of biological atavism.

Mannheim (1965) states:

> One fundamental difference (between Freud and Lombroso) obviously lies in the fact that to Freud all human beings alike enter life with immoral and anti-social instincts, whereas Lombroso distinguishes between the born criminal type and the rest of mankind. Moreover, Lombroso, at least in his earlier writings, attaches the greatest importance to inborn hereditary, or at least congenital factors, whereas Freud recognizes the import of external experience. (pp. 317-318)

The neo-Freudian theory, expounded by Ana Freud (1944), Grossbard (1962), and Healy and Bronner (1926, 1938), minimizes the assumption of inborn, instinctual, anti-social impulses. Rather, this theory views delinquency as a symptom of or a method of coping with some underlying problems of adjustment. Furthermore, it maintains that delinquents suffer from various deficiencies of personality. Ana Freud and Burlingham (1944) observed children without families in a wartime; they were deprived from familial love and from normal personality development. Ana Freud concluded that the love-deprived children showed more anti-social tendencies and distorted inner controls than those who had what is considered as the normal amount of love given to children with families. This seems to suggest that the anti-social delinquent behavior of the love-deprived children is manifested as their mechanism of adjustment in meeting their inner needs and in coping with the external threats. Lindner (1945) also says that the delinquent's aggressive behavior is an attempt to overcome anxious fearfulness; in so doing, they try to restore organismic balance.

Sontag (1955) confirms:

> . . .delinquent behavior--like any other behavior--is really an expression of defenses and devices. . .it is purposeful, just as is non-delinquent behavior. Its purpose, of course, is to attain greater emotional comforts. . .In fact, the defenses of the delinquent are the same as those of the non-delinquent. The differences are only in the nature and degree to which he acts them out. (p. 254)

Grossbard (1962) also says that the juvenile delinquents exhibit inefficient or underdeveloped Ego mechanism so that they act out conflicts rather than to handle them by symptom formation such as sublimation, rationalization, and withdrawal, as do the non-delinquents.

Besides the strong emphasis on the personality dynamics of the juvenile delinquent, both the orthodox and neo-Freudian theories recognize the importance of the child's social environment in producing the character structure or the problem of adjustment. Both theories also agree on the assumption that anti-social character formation of the juvenile delinquent is the consequence of the strength of unmodified instinctive urges, the weakness of the Ego, and the lack of independence of the Superego (Friedlander, 1947).

Sociogenic Theory

The sociogenic or cultural transmission theorists contend that many forms of unlawful conducts arise out of strains and defects in the family and social order to which illegal behavior is a normal response. Shaw (1931), Tannenbaum (1938), and Gough (1948) believe that the juvenile delinquent syndrome can be traced to early deficiency in affectual relations, emotional deprivation, social crises and social subcultural influences. The delinquent behavior is, therefore, believed to be not merely a giving expression to one's Id or the working out of a problem or adjustment, but also the internalization of a "delinquent Superego" that is identifying with the moral code of the subcultural group.

Sontag (1955) illustrates this concept when he writes:

> Hostility may be expressed aggressively in extralegal ways because the whole subcultural from which the delinquent comes approves such extralegal ways. . .or it may be expressed extralegally because of the child's identification with an individual or a gang which expresses its hostility by means of extralegal aggressiveness. (p. 258)

Friedlander (1947) states that the orthodox Freudian theory acknowledges the relevance of the social factor, but it tends to see it as a circumstance which triggers or precipitates a delinquent impulse which has been fully formed since birth, merely latent. On the other hand, the neo-Freudian concept of the interplay between the organism and the environment regards both the personality factors and the environment conditions as equally responsible for the precipitation of delinquent behavior. It is not merely the strains and defects in the family and social order which hatches delinquent behavior. Neither the prevailing criminal impulse of the organism alone that constitutes such behavior; but both of them, and equally in strength and in quality, which are responsible for the production of delinquent behavior. This concept has, therefore, received more popularity among the interdisciplinary and eclectic approaches to the problem of delinquency today.

Somatogenic Theory

In this broad classification, the hereditary, genetic, endocrinological and neurological approaches to the juvenile delinquents are included. Historically, the hereditary approach has been closely related with the constitutional theory. Hooten (1939), Kretschmer (1936), Sheldon (1949), and Glueck (1956) have attempted to domonstrate a relation between physique and character. McCord and McCord (1964) explain that although Sheldon (1949) and his collaborators do not necessarily presuppose heredity causation, most of them have postulated an hereditary basis for both physique and character. Based on this theory, they have established a typical criminal body type such as Sheldon's "mesomorphic" body type. In the recent work of Glueck and Glueck (1950, 1956) in which there was made a comparison between the body types of 500 juvenile delinquents with 500 non-delinquents, it was shown

that 60.1 percent of the delinquents had mesomorphic body type. This seems to support Sheldon's theory that delinquents frequently have superior physique. Hooten (1939), on the other hand, concluded that the criminal is physically inferior to the average person. Because of the inconsistent findings and contradictory concepts on the body types of delinquents, this theory has gained little attention in criminology.

Others such as Freeman and Watts (1945), Kennedy (1954), and Thompson (1953), in their neurological approach to delinquency suggest that prefrontal lobotomy and cerebral injury or neural damage often produce aggressive, irrational anti-social behavior. It has been speculated that there are similarities between the behavior of a brain damaged person and the delinquent in terms of their impulsive aggressive behaviors. Many scientists, therefore, believe that early brain damage might prove to be the cause of delinquency. This is confirmed by Hill and Watterson (1942), Bradley (1942), and Silverman (1944). Their studies indicated that on the average 70 percent of delinquent subjects give abnormal brain waves as shown on the electroencephalographic patterns--that is, they exhibit theta waves, rhythms which are commonly associated with aggressive behavior caused by brain damage (Ehrlich and Keogh, 1956).

Referent to the brain malfunction of the delinquent, defective endocrine systems and chemical imbalances are suggested as contributors. Schlapp and Smith (1929) and Grimberg (1928) explain all delinquent behavior from the point of view of endocrinology.

All of these theories that emphasize the physical and physiological factors stem from the early social Darwinism and Lombrosonism theories which are based on two assumptions. Johnson (1964) describes these two theories thusly: the first one is that the delinquent act itself is inherited. This

idea involves the belief that there must be some direct connection between the biological structure and the behavior which is assumed to be inherited. The second general assumption is that the inheritance of crime is viewed as mental predisposition which is part of the physical endowment.

Most of the studies based on the somatogenic theory have suffered from unsubstantiated speculation, poor definitions, and inadequate sampling. These weaknesses provide open ground for the proponents of the psychogenic theory to expand the modern concept of delinquency. In view of the diversities of definitions, theories, and concepts referent to delinquent behavior, there are researchers who only emphasize a single theory and place the others in a remote position if they do not totally ignore them. This type of unilateral and isolated study creates confusing and conflicting approaches to the problems. It is like the unsolvable "chicken-egg" controversy or the idiosyncratic descriptions of an elephant by the blind. As a result, the problems of typology increase in complexity. These problems are coupled with those of prediction and prevention and, to go a step further, the controversy in method of treatment and diagnosis.

Problems in Prediction and Diagnosis

In order to introduce the research project of this dissertation, it is necessary to single out the problems in predicitng potential delinquents and in diagnosing delinquent personality. Valid and reliable tools for prediction and diagnosis of juvenile delinquency seem to be the prerequisite of the efficient prevention and treatment of the problem.

In spite of the diversity of theories on delinquency, most of the authorities from the different disciplines agree upon the existence of a distinct psychopathic personality, peculier perception, and a definite set of

syndromes which exist among the delinquents. Healy and Bronner (1938) attempted to identify delinquent personality. They found one marked factor in the delinquent group; they evidence feelings of rejection, frustration, lack of parental affection, mental conflict, and inferiority. These emotional conflicts were dominant in 91 percent of the delinquents and in only 13 percent of the non-delinquents. McCord and McCord (1964) point out that recent studies have shown that psychological tools can successfully distinguish the delinquent from the non-delinquent. These studies have emphasized personality structure as the key to prediction and diagnosis. Various projective and personality tests have been used for appraising the personality dynamics of the delinquent. In so doing, it is hoped that the results of the tests will predict and offer some diagnosis of the delinquent personality.

Kutash (1943) cites Freud's definition of projection:

> Projection is as a special psychic mechanism used to settle an emotional conflict whereby a complex or reaction tendency of which the individual is ignorant and of which he does not wish to know and which is involved in that conflict is displaced from his inner perception into the outer world and thereby detached from the individual and attributed to another. . .such projection is a capacity which most human beings possess and which is particularly marked in psychopathic persons. They tend to project their own faults onto others. (pp. 319-320)

Along with this notion, speculations have been made that projection is used, especially by delinquents, as a special psychic mechanism which gives them temporary relief in reorganizing and settling their intra-psychic conflicts. This becomes the spontaneous, unconscious free self-expression. Experts on projective techniques, to a limited degree, are able to utilize people's projections as a criterion for inner-personality evaluation.

People in general, especially delinquents, tend to either consciously or unconsciously shield or protect their inner personality by using various defense mechanisms. In order to penetrate the "private universe" of such

people, indirect clinical observation through the use of projective tests is necessary.

Kutash (1943) administered the Thematic Apperception Test (T. A. T.) to 60 delinquents who had been diagnosed as psychopathic personalities by psychiatric interview. The results indicated that the T. A. T. is a valid tool in revealing facets of the delinquent personality. Most of the T. A. T. protocols given by the delinquents showed:

> . . .anxiety, ambition, conflicts involving family relationships, guilt feelings, and unconscious desire for punishment. . .unresolved psychic conflicts, death, depression, and despair, aggression and assault, eroticism, suicide, etc. Fantasies are fairly common. (p..340)

Holzberg and Haln (1952) compared 17 anti-social and aggressive psychopaths with 20 normals in terms of their reaction to frustration. The Picture-Frustration Technique was used as a measure of hostility and guilt reaction in psychopaths. An assumption was made that the psychopaths were more extrapunitively hostile than the normals. Likewise, the psychopaths were expected to project on the test more hostility and guilt than the normals. The findings showed no significant difference existing between responses obtained from the two groups. It is, therefore, speculated that either the sampling was poorly selected or the Picture-Frustration Technique was not capable of discriminating the two groups.

Tests such as the Minnesota Multiphasic Personality Inventory (M. M. P. I.) have been widely used as a rather valid and reliable personality test, especially when used in predicting delinquent tendency among the adolescents. Hathaway and Monachesi (1953, 1957) in their pioneer study of the juvenile delinquents with the M. M. P. I. demonstrated a vital and significant value of the M. M. P. I. as a test for differential study and for predicting the delinquency probability. In summary Hathaway and Monachesi

(1953) stated:

> The M. M. P. I. seems to provide useful categories into which a substantial number of delinquent adolescents will fall. . . the outstanding finding in positive relationship between recognized scale meanings and delinquency is that the M. M. P. I. Scales 4 (Psychopathic Deviate Scale) and 9 (Hypomania Scale) have an excitatory role in the actuarial numbers predicting the development of asocial behavior. . .Also, those adolescents whose M. M. P. I. profiles show no high deviation, and who are thus indicated to be normal, are very unlikely to be found delinquent. . .this prediction seems to be a more stable one than the positive prediction of delinquency itself. (Hathaway and Monachesi, 1953, pp. 136-138)

The confirmed validity of the M. M. P. I. in differential study on the delinquent and non-delinquent is later popularized by the experiment conducted by Monachesi (1950), Astin (1959), Wirt and Briggs (1959), and Clark (1948). Stanton (1956), who administered group form of M. M. P. I. to the prison inmates and normals, concluded with this recommendation:

> The prison population M. M. P. I. profile obtained is considered a discriminating one and one that might be employed as a guide in group screening. It is suggested that the group form of the M. M. P. I. might be used in routinely screening all recruits for military service in order to pick out potential offenders for a more thorough psychological examination. (p. 349).

The most popularly used projective test in differential study of delinquency is the Rorschach Projective Test. McCord and McCord (1964) mention that Lindner (1943) is one of the pioneers in employing Rorschach as a diagnostic tool. He administered Rorschach to criminals and found a-typical responses which indicated complete egocentricity, intense explosiveness, and superficiality.

Heuser (1946) followed Lindner and used the Rorschach in his study with 28 psychopathic soldiers. Their protocols indicated that the men were ruled by basic instinctual and sexual desires, lacking inner controls and having an underdeveloped conscience. Glueck and Glueck (1950) launched an ingenious differential study with juvenile delinquents. The main instrument used for

testing and measuring various aspects of emotion, temperament, personality, and other variables of the 500 matched pairs (delinquent and non-delinquent) was the Rorschach. The analysis revealed that:

> The delinquent group significantly exceed the non-delinquents in the degrees of socially assertive, defiant, and ambivalent to authority; they are more resentful of others, and far more hostile, suspicious, and destructive; the goals of their drives are to a much greater extent receptive (oral) and destructive--sadistic; they are more impulsive and vivacious, and decidedly more extroversive in their behavior trends. . .It is clear that the delinquent group is strikingly different from the non-delinquent in respect to those traits and dynanisms of personality character structure and function which the Rorschach Test is designed to reveal. . .Moreover. . .they (delinquents) are of a nature to facilitate uncontrolled, antisocial self-expression. (Glueck and Glueck, 1950, pp. 240-241)

These comparative results are indicated by the delinquent groups by their low R (total response), less Dd (small or rare) responses, fewer S (space) responses, significantly lower number of M (movement) responses, yet slightly wider spread and stronger C (color) reactions, and poorer F (form) perceptual responses.

Schmidl (1947) cited the Rorschach experiment with delinquents conducted by Zulliger (1938). He stated that the Rorschach protocols of delinquents seem to follow a certain pattern: small number of FC (form-color), a large number of CF (color-form) and C (color), few H (human) and Hd (human detail) and F (form). These patterns of responses suggested impulsive, liable, egocentric, and non-inhibitive personality traits. The typical dynamism of delinquent personality and character structure and function as projected on the Rorschach Test seems, to some significant degree, to follow a certain pattern. The receptive and susceptive perception to color of the delinquent is a projection of their liable, immature, and impulsive personality traits. On the other hand, their consistently poor form perception suggest the lack of rational thinking, poor ego control, and inability to postpone their

impulses. Lack of M and H responses also indicate the probability of guiltlessness and ineffectiveness in normal socialization. This is confirmed in other Rorschach experiments by Endacott (1941), Heuser (1946), and Bowlus (1947).

These and many other psychological tests have, to some degree, contributed vital values to the prediction of delinquent proneness and to the diagnosis of delinquent personality traits. Furthermore, these tests have substantially proved the existence of a distinct delinquent personality, syndrome, and perception. The Color-Form perception of the delinquents is the most striking discriminative perceptual pattern which has been used in differential study between the delinquent and the non-delinquent.

Color-Form Perception

Among the projective tests, Rorschach is popular for its clinical meaning of perceptual reaction to Color-Form stimuli as the criteria for personality appraisal with juvenile delinquents. Rorschach experts, especially of the psychoanalytical persuasion, viz., Sherman (1955), Shapiro (1956), Piotrowski (1957), Schachtel (1943), Rickers-Ovsiankina (1943), Beck (1945), and Klopfer, et. al. (1954), apply the clinical meaning of color response as related to indirect manifestation of Id, impulsivity, passivity, and emotionality. Form perception represent Ego control, and movement response corresponds to Superego functioning. Sherman (1955) cited Heuser (1946) as saying:

> The psychopath, who is impulse ridden and eminently lacking in ordinary superego values, gives a Rorschach that has crude, infantile color, poor or indifferent form and almost no human movement. (Sherman, 1955, p. 72)

This seems to emphasize the perceiver's personality dynamics as the determiner of his perceptual patterns. Based on this assumption, Rorschach projective technique gains a universal recognition. This is probably due to the

sensitivity of the Rorschach Test to one's perceptual pattern which is the projection of his inner dynamics.

Sternlof (1964) states:

> Perception has been an area of study from the early days of psychology, but it was not until the late 1950's that perception began to be studied from the point of view of the perceiving organism. (p. 11)

Prior to this new merging approach, studies in perception put their emphasis on the nature, characteristics, quantity, and quality of the external stimulus. This is reflected by Crumpton's statement (1956) in which he states that the influence of color stimuli on personality increases rating of aggressions and unpleasant affect as reflected in the content of Rorschach responses. This seems to stress the passivity of the perceiving organism and the stimulative influence of the external stimulus. Whether perception is studied from the "perceiving organism" point of view--subjective approach--or from the "external stimulus" point of view--objective approach--it is clear that the two approaches must be equally weighted; neither one of the two approaches would explain the total clinical meaning of projection. Thus, the two separate fields of perception and personality, the way they are thought of, are beginning to fuse into one inseparable discipline (Sternlof, 1964).

Color Perception

Since we live in a world of colors, our sense organs are perpetually stimulated, impressed, and threatened by different colors. Whether we are sensitive to colors or not, colors are a part of life to which we become receptive, susceptive, and reactive. The meaning and the stimulating power of colors have been, in various generations, interpreted differently. Some ancient and modern cults relate colors to mysticism and supernaturalism.

Different colors symbolize different spiritual meanings. Birren (1961) says:

> Color has expressed the asthetic more than the mystical. . . color provided hopeful symbols of unity, of command over nature, of regeneration within himself. (p. 13)

As the primitive scientific phenomenology developed, men like Hippocrates, Democritus, and Pythagoras related colors as an important entity in their medical and natural science researches.

Color therapy was pioneered by Pancoast (1877) and Babbitt (1896). Pancoast postulated that the red ray accelerates the nervous system and the blue ray relaxes it. Babbitt (1896) ascribed to the theory that red light not only has a rousing effect upon the blood and nerves, but it also cures paralysis. Furthermore, he stated that yellow and orange stimulate the nerve of the brain and can be used in curing bronchial and hemmorrhoid ailments; blue and violet have cold and contracting potencies which can cure headaches and ailments of the nervous system. From these ancient experiments, the electromagnetic spectrum, namely x-rays, infra-red rays, ultraviolet light, and many others were developed by modern scientists.

Psychological reaction to color is as dynamic as the physiological reaction to color, if not moreso. Colors undoubtedly affect one's psychic functions just as they exert an influence over the body. Individual experiences are rarely confined to a single organ or sense of the organism. The color perceptual experience should be, therefore, viewed from a Gestalt point of view. Birren (1959) says:

> It may be generalized that color affects muscular tensions, cortical activation, heart rate, respiration, and other functions of the autonomic nervous system--and certainly that it arouses definite emotional and esthetic reactions, likes and dislikes, pleasant and unpleasant associations. (p. 127)

Reeder (1944), in his studies of "psychogenic" color fields, discovered neurosis is a symptom of abnormally distributed color sensitivity over the retina. This leads to the theory of color shock as it is generally shown by a neurotic individual on the Rorschach response. Brosin and Fromm (1940) also advocated the idea that the neurotic individual shows more color shock than the normal. They assumed that the colors in the Rorschach Inkblots may, in mentally disturbed patients, cause distress, rejection, shyness, etc.; on the other hand, some mentally disturbed individuals who have gross emotionality would be most responsive to colors in general. This notion is endorsed by Goldstein (1942) who writes that the physiological and the psychological equilibrium of the human organism, especially that of the neurotic and psychotic, is drastically influenced by colors. Since these notions relate colors to the equilibrium of the total organism, an investigation should be directed to the psychic structure of the organism as affected by colors. As previously mentioned, color is related to indirect manifestations of Id, affect, emotionality, etc. This theory is universally agreed upon, especially by experts in Rorschach technique. Klopfer, et. al. (1954), relate the:

> color dynamics of Rorschach cards II, III, VIII, IX, and X with the representation of the emotional impact of the environment, and the way in which the subject handles these cards with the way he himself adjusts to emotional impact. (p. 338)

This idea obviously relates the individual's general readiness to respond to stimuli that are coming from without, such as color in this context. Along with this idea, Piotrowski (1957) also says that from the perceptanalytic point of view, color responses denote the projection of emotional or affectual impulses. This reflects one's capacity for feelings or natural impulses which directly influence his behavior.

Schachtel (1943), in his explanation of "subjective color perception", states that color perception represents or is related to one's affectivity, receptivity, and lability. Rickers-Ovsiankina (1943), states that color perceptual response is the indication of one's spontaneous and immediate process of impulsivity. Beck (1945), Phillips (1953), and many other authorities in Rorschach Technique have generally confirmed Rorschach's (1949) theory which ascribes predominant color perception (that is C + CF > FC), in general, as the typical projection of one's inner affective or emotional dynamics.

Furthermore, the color perception is also frequently related to one's maladjusted behavior, e.g., hypomania and impulsive anti-social behaviors. Clark (1948) empirically proved that color responses in Rorschach correlates with hypomaniac and impulsive personality trends as measured by the M. M. P. I. In this experiment with one hundred college students, group Rorschach and M. M. P. I. were administered. The results appear to indicate that a high C sum score is correlated with hypomaniac and hypochondriac tendencies as well as with a lack of social consciousness. It is concluded that the M. M. P. I. subscales indicate a correlation between maladjustment and high sum C scores. This would indicate that an individual who is impulsive and emotional tends to be more receptive and reactive to color stimuli.

Schachtel (1943) equates "affect" and "emotion" as synonyms. "Affect" in Latin is afficere which means to influence a person or something done to a person; "emotion" in Latin is emovere, literally meaning a condition in which one has been moved out of. Relating this principle to color perception, Schachtel propounds the theory that when a person perceives color and is stimulated by it, the person is virtually passive. He is moved or emoted by the external stimulus--color. In the process of this kind of perceptual experience, the Ego of the individual is assumed inactive and lacking con-

trol power. This is considered as the result of the prevailing power discharged from the Id.

As it is also presented by Rapaport (1945), the psychoanalytic theory of affects is centered on the drive cathexis which is generated from the Id or the instinctual drive. Freud (1946) states:

> If the instinct (Id) did not attach itself to an idea, or manifest itself as an affect state, we could know nothing about it. (p. 109)

Along with this idea, Freud further suggests that affective state is the symptom of both the prevailing drive cathexis from the Id and of the incapacitated Ego control. This theory is also supported by Fenichel (1945) who illustrates that "panic", the excessive drive-tension, is a result of the failure of Ego control, thus the affect becomes overwhelming. In other words, the affect attacks are due to pathological failure of Ego controls and produces labile, impulsive, and aggressive behaviors.

In looking further into the idea of color perception as it is related to Ego functions, Schachtel's (1943) "Ego passivity" theory, and Rickers-Ovsiankina's (1943), theory of "Ego permeability" should be briefly reviewed. Schachtel, in his approach to emotion, found two important common characteristics: "The passivity of the Ego and the immediacy of the relation object-subject." (p. 399) He further explains:

> These basic common factors in man's experience of color and affect may be viewed as a particular attitude, a readiness to respond affectively, or as Rorschach terms it, as the excitability of affect. Since this excitability of affect implies that readiness to be passively and immediately affected by something and since in the perception of color, in the susceptability to color impressions, this readiness to be affected passively and directly is equally essential, it becomes understandable why Rorschach found a definite correlation between the extent of emotional excitement--excitability--and the number of responses influenced by color perception, a correlation which he stated as an empirically acquired fact without theoretical explanation. (Schachtel, 1943, p. 399)

Schachtel is here obviously placing his emphasis on the function of Ego as the director of all affective reactions both from without and within the organism. When the organism's perception is so predominated by color--the external affective stimulus and the Id--the internal affective drive responds to the color without reservation. In the process of this object-subject relation, the Ego appears to be in no control. The Id and the color hence emote the organism into a visible affective and impulsive behavior.

Rickers-Ovsiankina (1943), on the other hand, expounds the theory of "Ego permeability". She explains that it is primarily not the Id as the internal affective drive that responds to color, but the Ego which is responsive to the outside world that will respond to color. In other words, she maintains that the individual who happens to have a "weak outside boundary", a less pronounced separation between the Ego and the outside world, tends to respond to color readily. Both Schachtel and Rickers-Ovsiankina have actually reached a common ground; that is, the individual who has a passive Ego and a high degree of Ego permeability tends to react to color affectively. This leads to the idea which suggests that this individual's emotional ties with the outside world, his ability to live outside himself and in emotional rapport with the world, is profoundly dynamic. This type of personality is labelled as "extratensive" by Eysenck (1948) and Hertz, et. al. (1943). These theories and researches lead this discussion back to the personality characteristics of the delinquent which was discussed earlier.

Form Perception

It has been previously mentioned that color perception is related to one's Id and affectivity. But form perception is associated with one's Ego and its conscious experience. Unlike the color perception theory in which

the organism is regarded as passive and susceptible to external stimulus, the form perception is a process of one's conscious experience with reality. The level of perceptual susceptibility in form perception is high, and the mental process is generally complex. The organism in relation to the external stimulus--form--is one that requires synthetic and analytic ability.

The definition of form response in the Rorschach Ink-Blots Test is generally described as reflect interests and tendencies which are under a relatively high conscious self control. Rorschach (1924) interprets form responses as the work of the conscious and intelligent part of personality. The purer the form, the more certain that the response will be determined by conscious thinking. The role of the unconscious in these interpretations is infinitely less than it is in the kinesthetic and color responses. The conscious thinking is the result of Ego in tact with reality. Beck (1946), Klopfer, et. al. (1954), Piotrowski (1957), and Phillips (1953), confirm Rorschach's theory of form perception.

It is obvious that human perception is highly selective. What one perceives is largely determined by what one wishes or what he fears to perceive. Different individuals with heterogeneous personality dynamics and needs perceive and interpret the same stimulus in different ways, especially in response to a form stimulus which is obscure, incomplete, or fragmental. This is considered to be the projective phenomena of the various individuals' psychic needs as projected through their individual dynamic perception. Some individuals may see the color of a stimulus as the predominant characteristic; others may be attracted by its form and size. Regardless of the predominant feature of the stimulus as perceived, the chain reaction between the perceiver's personality dynamics and the perceived stimulus is of vital importance.

With reference to form perception, Schachtel (1941) states:

> Actually form perception is an abstraction, not to be found in reality. Form, color, movement, mass, weight, and the like are inextricably interwoven in actual perception, and one may speak of form perception only in the relative sense of form as the prevailing or significant factor in an act of perception. (p. 93)

With this understanding, if an individual perceives form over color, his personality dynamics may be assumed to be characterized by high cognitive and sensory organization. Many Gestaltists, particularly Koffka (1935), suggest that an individual with normal organic and psychic functioning should have the capability of Gestalt perception. Although the individual may perceive a partial and unorganized stimulus, he is capable of organizing and analyzing the stimulus to the extent that he is able to produce organized and meaningful perception. However, when the individual's personality dynamics is overwhelmed with impulsivity and other uncontrolable emotional entities which are usually found among the delinquents' personality traits, he is bound to be unable to utilize his Gestalt perception effectively. Subsequently, his perception is determined by other stimuli such as color, shade, etc. Rickers-Ovsiankina (1943) supports this notion and states:

> We know from the psychology of perception that the perceiving of a separate form is the product of a Gestalt process, consuming energy. Without the activization of those organizational forces, no form perception is possible. With respect to perception of color, however, the situation is different: Apart from the fact that color differences within the visual field will demarcate different areas, and thus bring into play the factor of form with its organizational properties, the color perception as such is not correlated to complex processes of articulation and organization. Color experience, when it occurs, is thus a much more immediate and direct sense datum than the experience of the form. (p. 48)

To summarize, the color-form perception as related to personality dynamics, according to the psychology of perception, the susceptibility to the stimulation of color in the perceptual organism of a subject represents, or is related to, his uninhibited affectivity. This susceptibility has to pass a

certain threshold; the subject does not merely notice the presence of color, but the color becomes a determining effect on the subject's interpretation and comprehension of the stimuli. In other words, as Schachtel (1943) says, color perception is not merely a registration of the fact "I see color," but it has psychological and biological implications. The color has to have a certain impact in order to have a determining effect on a response to stimulus. It is an impulsive impelled reaction because the strong color response isolates the admixture of form perception. This suggests the lack of controlling or reflecting thought and the absence of analytical and synthetical Gestalt perception. This is the reflection of the incapacitated Ego control.

Form perception is, however, determined by one's conscious cognitive process. The Ego is able to utilize its Gestalt organizational forces to organize and to interpret the total configuration of the stimuli. This involves the adequate control of one's affectivity and thinking process. Although the color and form perceptions are not always mutually exclusive, the organism can react to both color and form of a stimulus at a given time; however, the sequential priority of the perceptual reaction to either color or form is counted as a significant indication of one's personality.

As it has been reviewed, the delinquent's personality dynamics is characterized by impulsivity, affectivity, and lack of ego-control. The delinquent is, consequently, more receptive and reactive to external stimuli such as color. His Ego is easily and passively emoted by the perceptual impact of colors. Thus, he has lower perceptual threshold for color than for form perception. Because delinquents have distinct syndrome and perceptual patterns, it is, therefore, posssible to study their personality pattern from the variation of their perception as the projection of their personality dynamics.

In recent years, educators have become interested in predicting juvenile delinquent proneness. In so doing, they have been able to gear their special education to the battle of "becoming juvenile delinquent." Sociologists are interested in recognizing juvenile delinquent behavior in relation to environment; criminologists and penologists are interested in the prevention of juvenile delinquency. Psychiatrists and psychologists study the method and tools to be used for clinical differentiation between the personality structure of the juvenile delinquent and the non-delinquent. Thus, they are able to determine how to deal with the problem. The projective test, such as the Rorschach, has been widely used as an efficient diagnostic tool in the differentiation of the delinquent and non-delinquent as well as a tool for forecasting delinquency. However, the test was subjected to skeptical criticism in the 1930's. For example, Vernon (1933), criticized the subjectivity and uncertainty of Rorschach scoring system. Harriman (1935), attacked the inadequate standardization and norms of the Rorschach Test. Greulich (1938) pointed out the ample controversies over the administration technique of the Rorschach Test.

These early skeptical attacks on the Rorschach Test have lost impetus during the past few years because many Rorschach experts worked on the problems of standardization, the scoring system, etc. The remaining problems of expense and time required for the administration of the test, however, have continued to act as deterrents to the wider use of the test. Above all, the test requires special and lengthy training in the administration and interpretation of the test results. Moreover, the interpretation of the Rorschach protocols still creates a multiple of heterogeneous controversies.

For all practical purposes, educators, counselors, court officers, and social workers have no special training in administering the Rorschach and consequently have no way of differentiating the juvenile delinquent from the non-delinquent in their professional frame of reference. Neither can they recognize the delinquency proneness. This necessarily handicaps their interest and ability in understanding the juvenile delinquent.

In view of such problems, many professional experts on juvenile delinquency, especially psychiatrists and psychologists, search for some other media or tools in an effort to find valid and reliable methods which require minimum expense and training in order to recognize, forecase, and even diagnose the juvenile delinquent. It is, therefore, the purpose of this study to explore the possibility of using the Organic Integrity Test (hereafter called the OIT) as a color-form perception test in the study with juvenile delinquents.

Review of Literature on the OIT

The OIT was developed by Dr. H. C. Tien in 1960. It was originally designed as a quick diagnostic aid for psychiatrists and psychologists to rule in a diffuse organic brain deficient because of any cause (Tien and Williams, 1965).

The OIT is a modified form of the Casagrandie Construct Test for color and form dominance. It measures color-form perception of children and adults as an indication of organicity and personality traits. The OIT consists of ten sets of three pictures each, one free single to be matched with one of the combined doubles. All of the pictures are incomplete, as parts of them are cut off to make identification more difficult. Two of the three pictures in each set show a similarity in form and two in color. The OIT score

for ten correct answers is 100. (The correct answers are form responses.) For each chromaphilia matching or color matching response, the subject loses a number of points, the value of which is statistically determined by the frequency of distribution of 70 normal adult subjects (Tien, 1960). It does not take more than three or four minutes to give and score the test.

Tien's theory of chromaphilia as shown on the OIT in adults was simply that form perception is a function of the intact central nervous system. In the brain damaged or retarded, this form dominated perception (morphophilism) is reduced and color dominated perception (chromaphilism) increases. The corollary theory of chromaphilia as applied to children is that form perception is a function of brain maturation as well as organic integrity as in the adult. A developmental lag of form perception can be demonstrated on the OIT as color dominated perception and, in addition, may show organic brain syndrome, psychosis, and/or definite mental deficiency as in the adult (Tien and Williams, 1965).

Tien also says that the theory of chromaphilia and the OIT technique have, therefore, succeeded in isolating a purely objective psychodiagnostic variable of Rorschach, namely, the color-naming response on inkblots by the deteriorated epileptic patient or the delapidated schizophrenic patient (Tien and Williams, 1965).

Clinical and Experimental Findings

Up to the present time, there have been only a few published articles on the OIT. The OIT is not yet widely used, but its introduction spreads over Europe. In order to verify the reliability and diagnostic accuracy of this test, Engelsmann and Drdkova (1964) of the Psychiatric Research Institute, Prague, Czechoslovakia, experimented with 322 subjects. These subjects

were divided into five groups: 107 normals, 59 neurotics and psychopaths, 55 mixed psychotics, 46 chronic, deteriorated schizophrenics, 55 psychiatric patients with organic brain disturbances. Each group was subdivided according to intelligence level: above average, average, decreased, and defective. Each subject was tested with the OIT on an individual basis. One hundred and five subjects from both the experimental and the control groups were retested after a recess of two weeks to two months. The obtained average OIT scores were: normals, 79.90 $\pm$ 13.20; neurotics, 74.32 $\pm$ 16.68; psychotics, 49.20 $\pm$ 21.60; schizophrenics, 31.50 $\pm$ 18.80; and organics, 36.30 $\pm$ 21.80.

The t Test was used for significant analysis at the 1 percent level of significance, except in the distribution of average scores in normals; in neurotic subjects it was significant at the 5 percent level. The results show no significance between the normals and the neurotics. Likewise, there is no significance between the chronic schizophrenics and the organics. Measured scores of the mixed psychotics are significantly different as compared to the normals and the neurotics and similarly so with the chronic schizophrenics and the organics. Of the normal subjects, 98.1 percent have OIT scores above 50 points; of the neurotics, 89.1 percent have OIT scores above 50. Of the chronic schizophrenics and the organics, 82.6 percent and 72.7 percent, respectively, have OIT scores of 49 points or less. The correlations with the intellect of the entire group, with the exception of the mixed psychoses, are significant. No significant difference was noted in the results of testing and retesting. Engëlsmann and Drdkova (1964) concluded that the OIT has a diagnostic value, and they established the validity of the OIT.

Astrom (1963), of Sweden, conducted an experimental study on the ability of the OIT to separate brain-damaged from non brain-damaged individuals. The study was also designed to prove how the OIT differentiates between such

groups in a comparison with other tests such as the SRB Scale which contains three sub-tests--synonym, figure classification, and Kohs Block Test--and the Benton's Visual Retention Test.

The sample consisted of 128 in-patients at the Polyclinic and Psychiatric Clinic in Linkoping, Sweden. The sample was broken into three groups: group A--72 non-psychotic, non-organic; group B--16 questionably organic; group C--12 organic. The results indicate that the OIT clearly differentiates between group A (OIT $\bar{x}$ 71.65) and group C (OIT $\bar{x}$ 37.85), as well as between group A and group B (OIT $\bar{x}$ 40.50), but not between groups B and C at the 0.01 significant level. The correlation between the OIT and the SRB results is R = 0.263. This is relatively weak, but there is a relatively strong agreement in the results between OIT and the Benton test. Nineteen subjects selected from the three groups were tested with the Benton's Visual Retention Test. This group was divided into two subgroups. One group evidenced an OIT value higher than 50 (N = 8), and the other group had an OIT value lower than 50 (N = 11). The Benton differential mean for the group with OIT higher than 50 was 1.13. In the group with OIT value lower than 50 the differential mean was 1.99. Astrom (1963) says this indicates the fact that both OIT and Benton are valid to a high degree in measuring a certain perceptual deficit which is common among brain-damaged persons. He further states that the OIT can show organicity which a clinical examination frequently fails to bring out, even after a complete neuropsychiatric examination together with the traditional psychometric tests for brain damage. Tien (1965) cited Astrom (1963) who concluded that OIT appears to be an excellent instrument for testing brain damage; furthermore, it has a retesting reliability of 0.775.

These preceeding experimental findings seem to confirm the experiment of Tien and Williams in 1965 in which they tested some 1300 public school children in Michigan. The groups consisted of 100 children from each grade, kindergarten through grade 12. A children's standardization was herein established, setting up the normal range of OIT values for each age group from five through seventeen, to compare with the adult OIT values (Tien and Clark, 1964). The following results were obtained: age 5, N = 100, $\bar{x}$ = 34, SD = 21; through age 17, N = 100, $\bar{x}$ = 77, SD = 18. The adult OIT values are N = 70, $\bar{x}$ = 82, SD = 16. This strongly supports the theory of chromaphilia in children, namely, that form perception is a continuous process of maturation (Tien, 1960). The OIT may be assumed to be as effective a screening test for children as it is for adults to rule in organicity, definite mental retardation, and as an objective indicator of developmental maturation of form perception (Tien and Williams, 1965).

Most recently, Tien (1965) has applied reading activity as a type of form perception. The OIT is, therefore, regarded applicable to the study of children who cannot read. In an experiment, 119 eighth graders were divided into three groups on the basis of their scores on the Iowa Reading Test. Seventeen of these subjects were grouped as non-readers, 51 as poor readers, and 51 as good readers. The OIT was administered to each of them individually. The Chi-square significance analysis at the 0.01 level of significance indicated the mean of the OIT value to be 38 in the case of the non-readers, 65 for the poor readers, and 67 for the good readers. Thus, the statistical analysis show that there is significant difference between the OIT values of the non-readers and the poor readers and between the non-readers and the good readers. But there is no significant difference between the OIT values of the poor readers and the good readers. The findings clearly show the loss

of form-perception in the non-readers. The poor readers do not seem to suffer from any loss of form-perception as shown on the OIT.

So far, as the review of the literature on the OIT indicates, the OIT has been used only for a quick diagnostic aid for psychiatrists, psychologists, and neurologists to rule in a diffuse organic brain deficit and acute psychotic syndrome due to any cause. Furthermore, the OIT is oriented to the study of reading impairment. The general assumption is that an individual who has organic impairment or acute psychological malfunction will lose form perception and, subsequently, susceptibility to color.

In the study of the delinquents' perception on the Rorschach Ink-Blot Test as reviewed earlier, the results were generaliy characterized by excessive color perception and lack of form perception. Based on these findings, the personality dynamics of the delinquents seem to be impulsive, affective, and show a lack of Ego control. If the color-form perception theory is applied to the OIT, it is predicted that the OIT, as a color-form perception test, may serve the purpose of differentiating the personality traits of the delinquents and the non-delinquents. To go a step further, the OIT is probably sensitive enough to predict one's proneness toward delinquency on the basis of his distinct color-form perception.

Because of the simplicity and the expediency of the OIT, professional training in the administration and interpretation of the test results is not required. The problems of time and expense is also eliminated. Another aspect of the OIT to be considered is that its appearance and characteristics seem to be less threatening to the subject than the Rorschach Ink-Blot Test. It is probable that the minimum amount of verbalization and non-inquiry testing procedures puts the subject at ease. In view of these advantages, it

is hoped that the OIT, when it is used as a color-form perception test, will yield efficiency and validity in the study of juvenile delinquents.

CHAPTER II

PROBLEM

The clinical implications of the color-form perception as the projection of personality dynamics have been discussed. It is a widely held opinion that one's perception is idiosyncratic and highly selective. Perception is, therefore, regarded as the expression of one's specific inner needs and wishes. It is also considered to be the analyzable evidence of one's hidden personality traits. In the field of psychology, the analysis of perception or perceptanalysis often serves as a window through which one may observe, interpret, and infer an individual's inner dynamics. Because of the fact that one's verbal expression or observable behavior is not always the total expression of his inner dynamics, they may not always be congruent with the unconscious dimension of one's personality traits. The perceptanalysis is, therefore, becoming a scientific tool with which psychologists are able to investigate one's specific personality traits, based on that which is beyond one's verbal expression and observable behavior. In other words, on the basis of what an individual may respond to ambiguous visual stimuli, perceptanalysis is able to function as a sensitive tool of detection. Specifically, individuals who tend to respond to colored stimulus readily are likely to be expressing specific personality traits disclosed by their perception to color. Likewise, individuals who have form dominated responses also indicate specific personality traits because of their perception.

The concept of distinct personality dynamics, syndrome, and perception of the juvenile delinquent was the second subject discussed. This concept seems to have been empirically proved by numerous experts on delinquency. Their findings appear to suggest that delinquency is not the disease itself, but it is the symptom of some specific underlying personality traits. Psychoanalytic schools contend that the delinquent's behavior is the manifestation of disturbed personality equilibrium. That is, the Id seems to prevail over Ego and Superego. The observable or the outward manifestation of such personality traits is likely characterized by impulsivity, passivity, and affectivity. When this type of behavior clashes with the existing social expectation, moral norms and other human values, the problems of antisocial and antimoral origin may be expected.

A review of the opinions of experts in Rorschach projective technique reveals the conclusion that juvenile delinquents who are impulse ridden usually give more color responses to the ink-blots, but less form responses. Color response is believed, as previously stated, to be the expression of one's Id, and form response is usually associated with the Ego control and intactness with reality. These are the criteria upon which the concept of distinct personality dynamics, syndrome, and perceptions of the delinquent are established.

The OIT, in its structure, is characterized with color and form stimuli. It seems feasible to apply the concept of color-form perception and the concept of distinct personality dynamics, syndromes, and perception of the juvenile delinquents to the clinical use of the OIT as a color-form perception test in the study with the juvenile delinquents.

Statement of Problem

The problem of the present study is to test the predictive validity of the OIT as applied in differentiating the juvenile delinquents from the non-delinquents on the basis of the different color-form responses that the two groups may yield.

It has been theoretically and empirically proved that because of their affectivity, passivity, and impulsivity, the juvenile delinquents' perception is usually more receptive to color than to form. This rationale leads to the following hypothesis:

(1) The juvenile delinquents of both sexes are expected to have more color responses than form responses.

The non-delinquents are usually found to have more Ego intactness to reality. Their Ego seems capable of keeping their impulses under control and thus their perceptual response is form dominated. This reflects their ability to utilize their conscious thinking in problem solving situations. This concept leads to the next hypothesis:

(2) The non-delinquents of both sexes are expected to have more form responses than color responses.

Thus, it is predicted in hypothesis 1 that the juvenile delinquent will give color dominated responses, and in hypothesis 2 that the non-delinquent will yield form dominated responses. The difference between the reaction time to color and form is found in Hamlin's (1955) study of color-form cards sorting tasks. He found that both his normal and psychiatric groups sorted color cards faster than they sorted form cards. This concept leads to the third hypothesis:

(3) The juvenile delinquents of both sexes are expected to show shorter perceptual reaction time than the non-delinquents of both sexes.

Terman, et al. (1936), state that the female is generally more sentimental and emotional than the male. Female behavior and thought are largely emotionally determined; female personality dynamics are also more external-directed, and Ego is more readily emoted by external stimulus such as color. This reasoning leads to the next hypotheses:

(4) The female juvenile delinquents will have more color responses as compared with those of the male juvenile delinquents.

(5) The female non-delinquents will have more color responses as compared with those of the male non-delinquents.

(6) The female juvenile delinquents' perceptual reaction time is expected to be shorter than that of the male juvenile delinquents.

(7) The female non-delinquents' perceptual reaction time is expected to be shorter than that of the male non-delinquents.

CHAPTER III

METHOD

Subjects

The experimental subjects consisted of thirty-five (35) male and fifty-four (54) female juvenile delinquents who were committed to and retained in private juvenile delinquent institutions in the State of Oklahoma. The male juvenile delinquents were selected from the Weslyan Youth, Inc., and from the Boys Town Ranch in Oklahoma City. The female juvenile delinquents were selected from the St. John Vianney Training School in Tulsa. The subjects were selected on the bases of their age range and ability to follow MMPI. In order to avoid having a scattered age group, those who were younger than eleven years old were eliminated from the experiment. Those who showed gross difficulty in reading and comprehending statements found in MMPI were also eliminated from the experiment.

Although this experimental group was not a homogeneous group in that the individuals were committed to the institutions for various types of delinquent behavior, the group is classified as commitable juvenile delinquents by the court jurisdiction based on the definition as stated in the state law of Oklahoma. Juvenile delinquency is defined by the state law of Oklahoma as follows:

> The words 'delinquent child' shall include any male child under the age of 16 years and any female child under the age of 18 years who violates any law of the United States, or of this State, or any city or town ordinance; or who is incorrigible at home or

> in school, or who knowingly associates with thieves, vicious or immoral persons, or who without just cause and without the consent of its parents or custodian, absents himself from home or place of abode, or who is growing up in idleness or crime; or who knowingly frequents a house of ill repute; or who knowingly frequents any policy shop or place where any gaming device is operated; or who patronizes or visits any public pool rooms or bucket shops; or who wanders about the streets in the nighttime without being on any lawful business or occupation, or who habitually wanders about any railroad yards or tracks, or who habitually uses vile, obscene, vulgar, profane, or indecent language; or who is guilty of immoral conduct in any public place or about any school house; or who is addicted to the use of intoxicating liquor, or any injurious drugs, or who is the user of cigarettes; any child committing any of the acts herein mentioned shall be deemed a delinquent child and shall be proceeded against as such in the manner herein provided. (Title 10, Section 101 of Oklahoma Statutes Annoted. 1910 law issued. (1941) St. Paul, Minnesota: West Publishing Co., p. 396)

The control group consisted of forty-four (44) male and forty-four (44) female high school students who were selected from the Duncan High School, Duncan, Oklahoma. The selection of the control group subjects was based on their age range, intelligence levels, and their behavioral records, all comparable to those of the experimental group. Each subject's behavioral record from the control group was checked by the school counselors and by Duncan Juvenile Officers. Those who were suspected of having delinquent proneness or those who had criminal records were eliminated from the experiment.

Subgrouping was formed within both the experimental group and the control group on the bases of sex, IQ range, and the Psychopathic Deviate Scale (Pd) and Hypomania Scale (Ma) as measured by the MMPI. They are as follows:

1. Sex subgroups: Male Juvenile Delinquents (M-JD)
   Female Juvenile Delinquents (F-JD)
   Male Non-Delinquents (M-ND)
   Female Non-Delinquents (F-ND)

2. IQ Subgroups: Both the experimental and the control groups were separately divided into three IQ subgroups:

Above Average (IQ > 110)

Average (IQ 90-110)

Below Average (IQ < 90)

3. Pd and Ma scales Subgroups: Both the experimental and the control groups were separately divided into two Pd and Ma scales subgroups:

High Pd and/or Ma Group (T score $\geq$ 70)

Low Pd and Ma Group (T score < 70)

These subgroups were used for intra-group and inter-subgroup comparisons in relation with their OIT values.

Experimental Design and Procedures

1. Since the OIT is a color-form perception test, each subject of both the experimental and the control groups responded either to color or to form. It was, therefore, important to test the color vision of each subject. The Dvorine Pseudo-isochromatic Plates developed by Israel Dvorine (1953) were used for screening out the color blind subjects who were then eliminated from the experiment. The Dvorine Pseudo-isochromatic Plates are similar in their structure to the Ishihara Color Blind Test. The first section of the Dvorine Pseudo-isochromatic Test consists of one demonstration plate and fourteen plates made up of eight different color combinations arranged in pairs of similar color. The color plates were shown to each subject individually under an adequate daylight illumination. According to the instructions, each plate was held about thirty inches in front of the subject. After the demonstration plate was shown to the subject, the subject was instructed to call off the numbers of the fourteen plates that followed. No

more than five seconds were allowed for the identification of each plate. The following oral instructions were given to each subject:

> "I am going to show you some plates in which you will see numbers like this one. (Demonstration plate is shown.) You see the number 48 here?. . . .Now, if you are ready, I'll show you the rest of the plates. Please tell me what number do you see on this plate?"

According to Dvorine's analysis, a subject who has 0 to 2 misses out of fourteen plates is considered to have normal color vision. A subject who misses more than two out of the fourteen plates is suspected of having partial or total color blindness. Such subjects were, therefore, eliminated from the experiment.

2. In order to cross validate the psychopathic and hypomaniac personality traits of the experimental group and to make a personality differential comparison between the experimental and the control groups, a group form MMPI was administered to both groups. Standard instructions, prescribed by Hathaway and McKinley (1943) and printed on the MMPI test booklet, were used. The MMPI results were scored by an IBM machine.

3. In order to equate the intelligence level of both experimental and control groups, subjects of both groups were given the Otis Quick Scoring Mental Ability Test in group form. The Beta Test: Form A was used for subjects who were in the 9th grade or below; Gamma Test: Form C was used for subjects who were in the 10th grade or above. The test was administered according to the standard instructions and procedures. All tests were hand scored by competent psychometrists. The intelligence levels of both groups were divided into three subgroups:

Above Average (IQ>110)

Average (IQ 90-110)

Below Average (IQ< 90)

4. Each subject from both the experimental and the control groups was individually given the OIT. The OIT cards were kept in a stack with the "A" set facing up. When the subject was ready, the double "A" card was turned over and pushed forward; the single "A" card was then pushed next to "A1" for a moment and then next to "A2 for a moment. In the process of doing so, oral instructions were given as follows:

> "Here are some pictures that I would like you to look at. Which two pictures are most alike? ("A" card was pushed to "A1" and then to "A2".) Please use your imagination. You may turn any card to any direction you wish."

Color-form responses were recorded on an OIT score sheet. (See Appendix D)

Reaction time to each set of cards was also recorded without subject's awareness and without using a timer. This allowed the subject to concentrate on the task. The subsequent cards, according to alphabetical order, were administered in the same manner as "A" set. The subject was not required to verbalize as to why he matched a certain set of pictures. This allowed the subject to respond spontaneously to either color or form without gross perceptual defense.

CHAPTER IV

RESULTS

Table 17 in Appendix C shows the individual subject's intelligence quotient, as measured by the group Otis Quick Scoring Mental Ability Test. The individual's chronological age is also shown in the same table. In order to avoid the possibility of differences in response resulting from differences in intelligence level and chronological age, the IQ and the age range of both the experimental and control groups were matched.

In order to cross validate the psychopathic and hypomaniac personality traits of the experimental group and to make personality differential comparisons between the experimental and the control groups, group MMPI was given to both groups. One hundred thirty-nine out of one hundred seventy-seven MMPI protocols were scorable and valid; the remaining protocols were either incompletely answered or the validity scales suggested a possible invalidity. Figures 1 and 2 show male and female MMPI profiles, respectively, given by both the experimental and the control groups.

Since differential responses to color and form were predicted between the juvenile delinquents and the non-delinquents, hypothesis 1 states that the juvenile delinquents of both sexes are expected to have more color responses than form responses. Table 16 in Appendix C shows the individual OIT color and form values given by the juvenile delinquents of both sexes. Table 1 shows the t test value of the

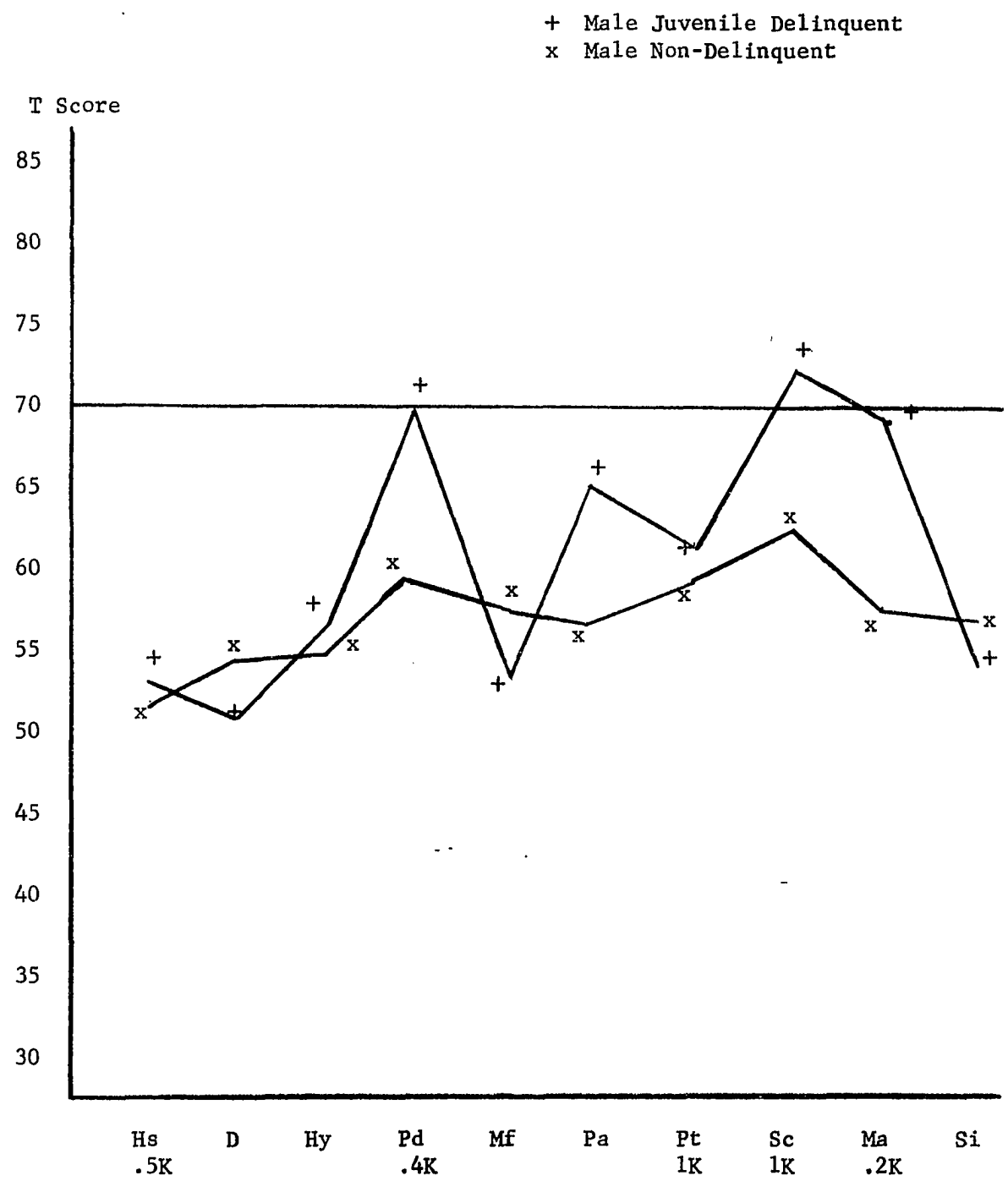


Figure 1. Minnesota Multiphasic Personality Inventory Profiles of male Juvenile Delinquent and male Non-Delinquent groups.

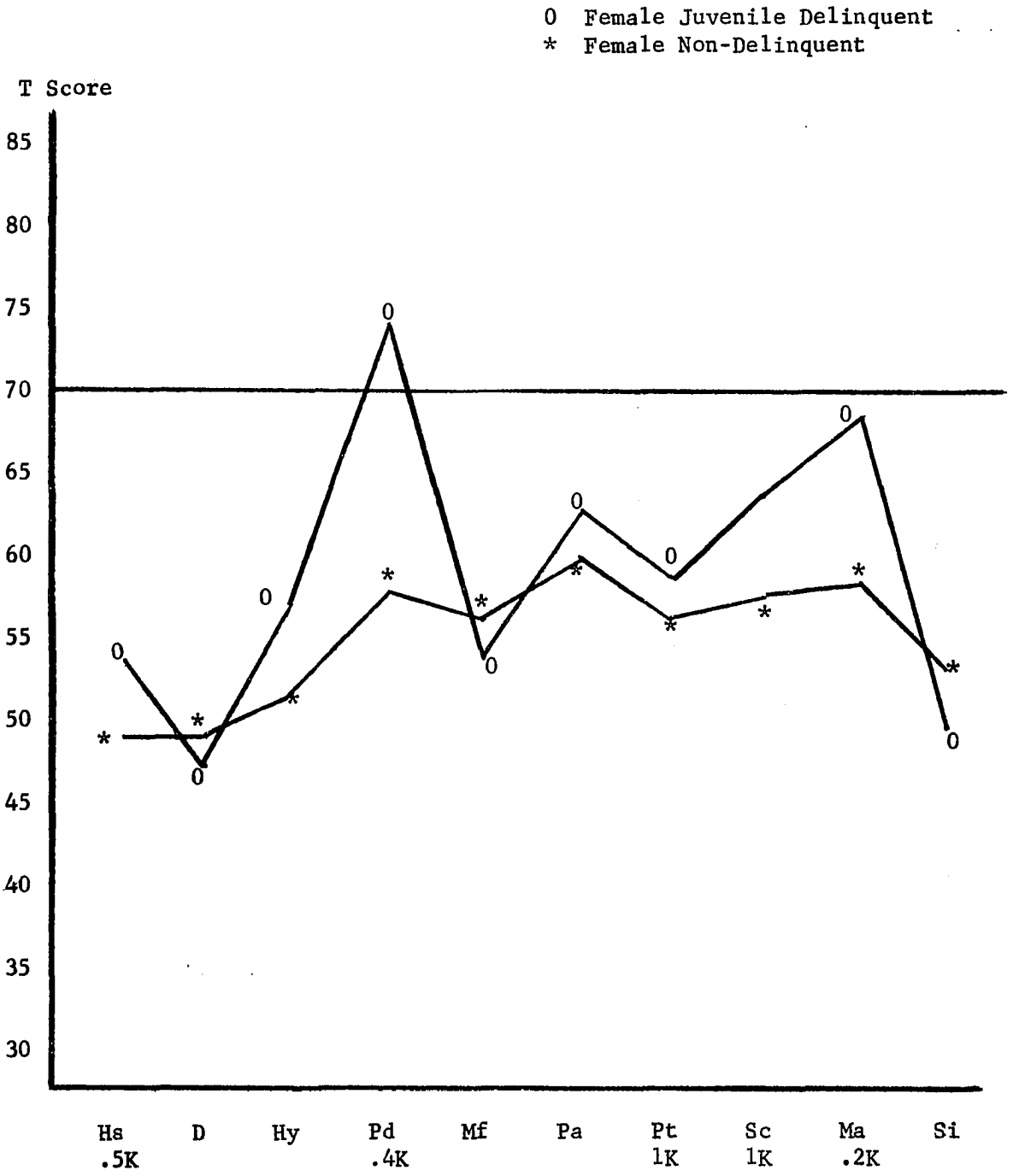


Figure 2. Minnesota Multiphasic Personality Inventory Profiles of Female Juvenile Delinquent and Non-Delinquent groups.

OIT color versus form values yielded by the juvenile delinquents. (Color value obtained by subtracting the form value or OIT value from the maximum OIT value, i.e., 100, color value = 100 — form value or OIT value.)

An analysis of this data reveals that there is significant difference between the response to color and to form given by the juvenile delinquents at the .01 level. Hypothesis 1 is, therefore, confirmed.

Figure 3 shows a graphical comparison between the color value and the form value given by the juvenile delinquents. This finding is also supported by larger color response frequency than form frequency as it is reflected in Figure 4.

TABLE 1

t TEST BETWEEN MEANS OF THE OIT COLOR VALUE AND FORM VALUE GIVEN BY THE JUVENILE DELINQUENT GROUP

Group	Mean Color Value	Mean Form Value	t	P
Juvenile Delinquents	60.8	39.2	4.57	$<.01$

In hypothesis 2 it is stated that the non-delinquent group of both sexes will have more form responses than color responses. Table 16 in Appendix C shows the individual's OIT color and form value given by the non-delinquent group. Table 2 shows the t test value which is significant at the .05 level. As a result, this hypothesis is confirmed. This comparison is also graphically explained in Figure 3 and Figure 4 shows the color and form response frequency.

In hypothesis 3 it is stated that the juvenile delinquent groups of both sexes are expected to show shorter total perceptual reaction time than those of the non-delinquents groups of both sexes. Table 16 in Appendix C shows

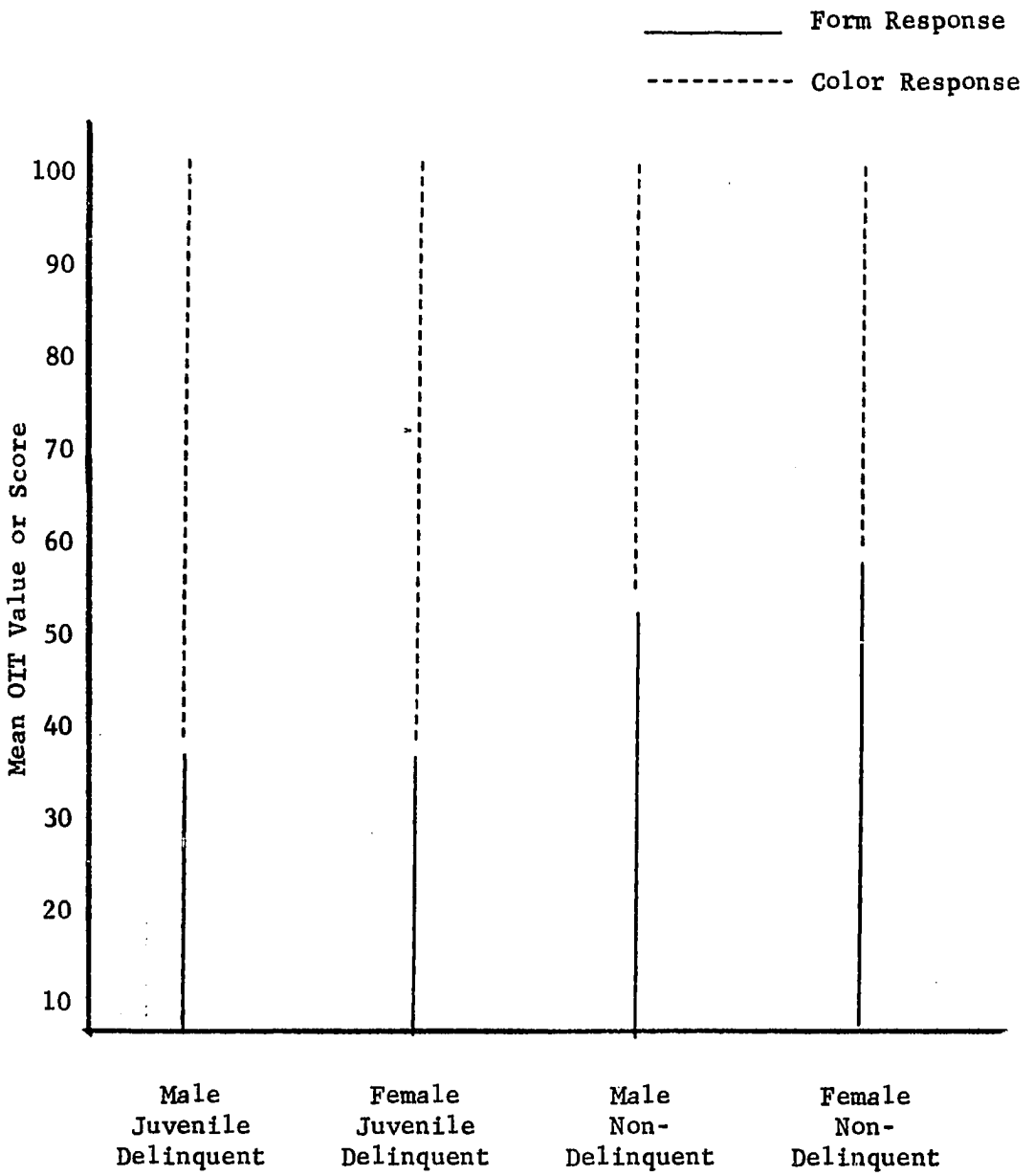


Figure 3. Mean OIT Value or Score given by Individual Groups. (The OIT Value or score is essentially the Form value. To obtain color value, subtract Form value from the maximum OIT value, that is 100. Color value = 100 − OIT value or Form value.)

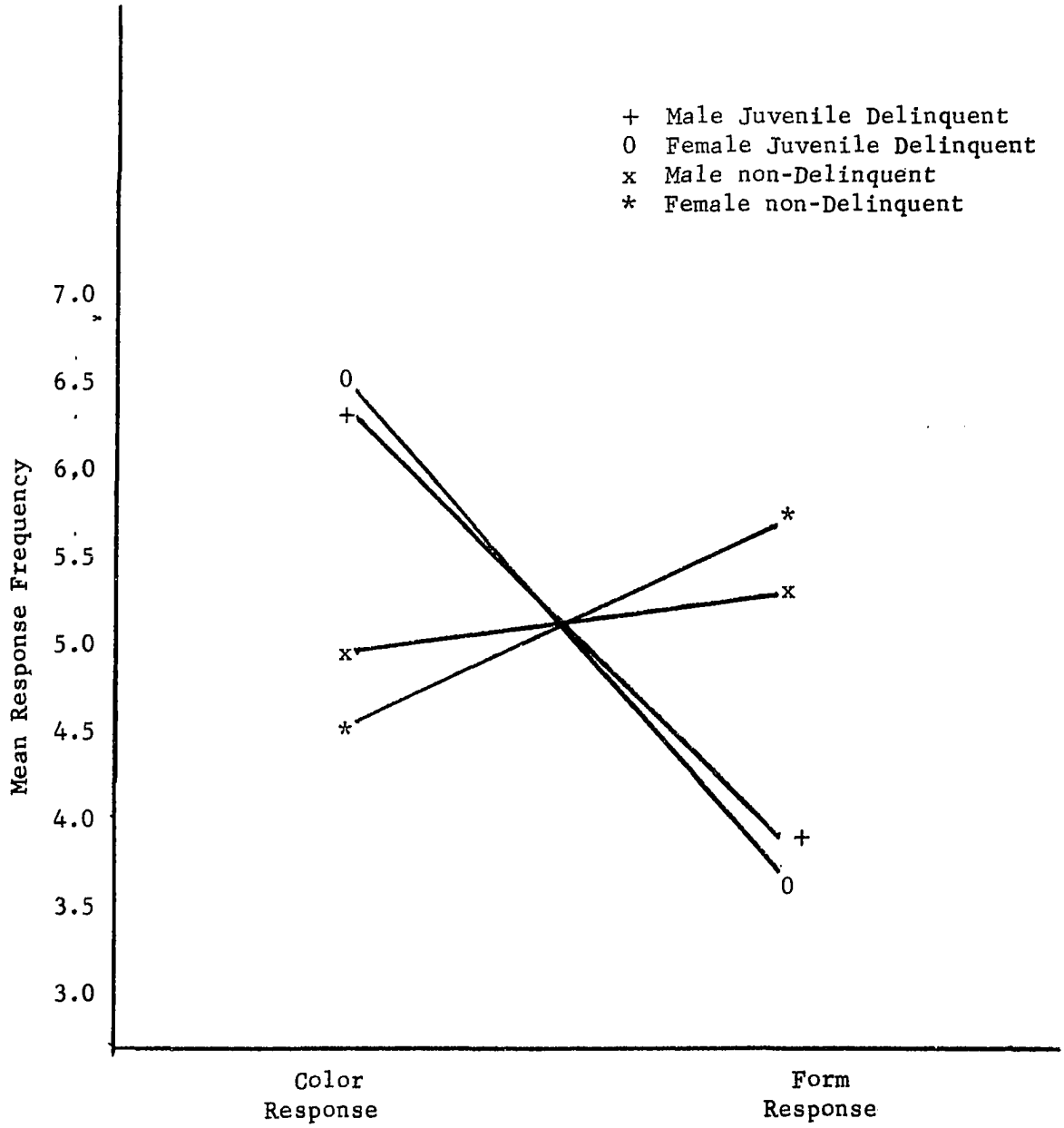


Figure 4. Mean Total Reaction Frequency to Color and Form given by the Sex Subgroups of the Juvenile Delinquent and the non-Delinquent groups.

TABLE 2

t TEST BETWEEN MEANS OF THE OIT COLOR VALUE AND FORM VALUE GIVEN BY THE NON-DELINQUENT GROUP

Group	Mean Color Value	Mean Form Value	t	P
Non-Delinquents	42.9	57.1	2.81	<.05

the individual's total reaction time to color and form given by the juvenile delinquents and the non-delinquent groups. Table 3 shows the t test value on the mean total reaction time to color and form given by both the juvenile delinquent and the non-delinquent groups. The analysis of this data shows no significant difference between the total reaction time given by the juvenile delinquent and by the non-delinquent groups. This hypothesis is, therefore, rejected.

TABLE 3

t TEST BETWEEN THE MEANS OF THE TOTAL REACTION TIME TO COLOR AND FORM GIVEN BY THE JUVENILE DELINQUENT AND NON-DELINQUENT GROUPS

	Juvenile Delinquent	Non-Delinquent	t	P
Mean Total Reaction Time	37.8	39.2	.68	NS

Hypothesis 4 states that the female juvenile delinquent subgroup will have more color response as compared with that of the male juvenile delinquent subgroup. Table 4 shows the t test value which indicates no significance. The above hypothesis is, therefore, rejected.

Figure 3 explains the comparisons of the juvenile delinquent sex subgroups' OIT color and form value.

TABLE 4

t TEST BETWEEN MEANS OF THE OIT COLOR VALUE GIVEN BY THE MALE AND FEMALE JUVENILE DELINQUENT SUBGROUPS

	M-JD	F-JD	t	P
Mean OIT Value	60.8	60.8	.11	NS

Hypothesis 5 states that the female non-delinquent subgroup will have more color response as compared with that of the male juvenile delinquent sub-group. Table 5 shows the t test value which indicates no significance. This hypothesis is, therefore, rejected. A graphical comparison between the OIT color and form values given by the male and female non-delinquent subgroups is shown in Figure 3.

TABLE 5

t TEST BETWEEN MEANS OF THE OIT COLOR VALUE GIVEN BY THE MALE AND FEMALE NON-DELINQUENT SUBGROUPS

	M-ND	F-ND	t	P
Mean OIT Value	45.2	40.7	.83	NS

Hypothesis 6 states that the female juvenile delinquent subgroup's total perceptual reaction time is expected to be shorter than that of the male juvenile delinquent subgroup. Table 16 in Appendix C shows the individual's total perceptual reaction time given by the male and female juvenile delinquent subgroups.

Table 6 shows the t test value which is not significant. The hypothesis of female juvenile delinquent subgroup's total perceptual reaction time is shorter than that of the male juvenile delinquent subgroup is, therefore, rejected. The graphical comparison between the male and female perceptual time is shown in Figure 5.

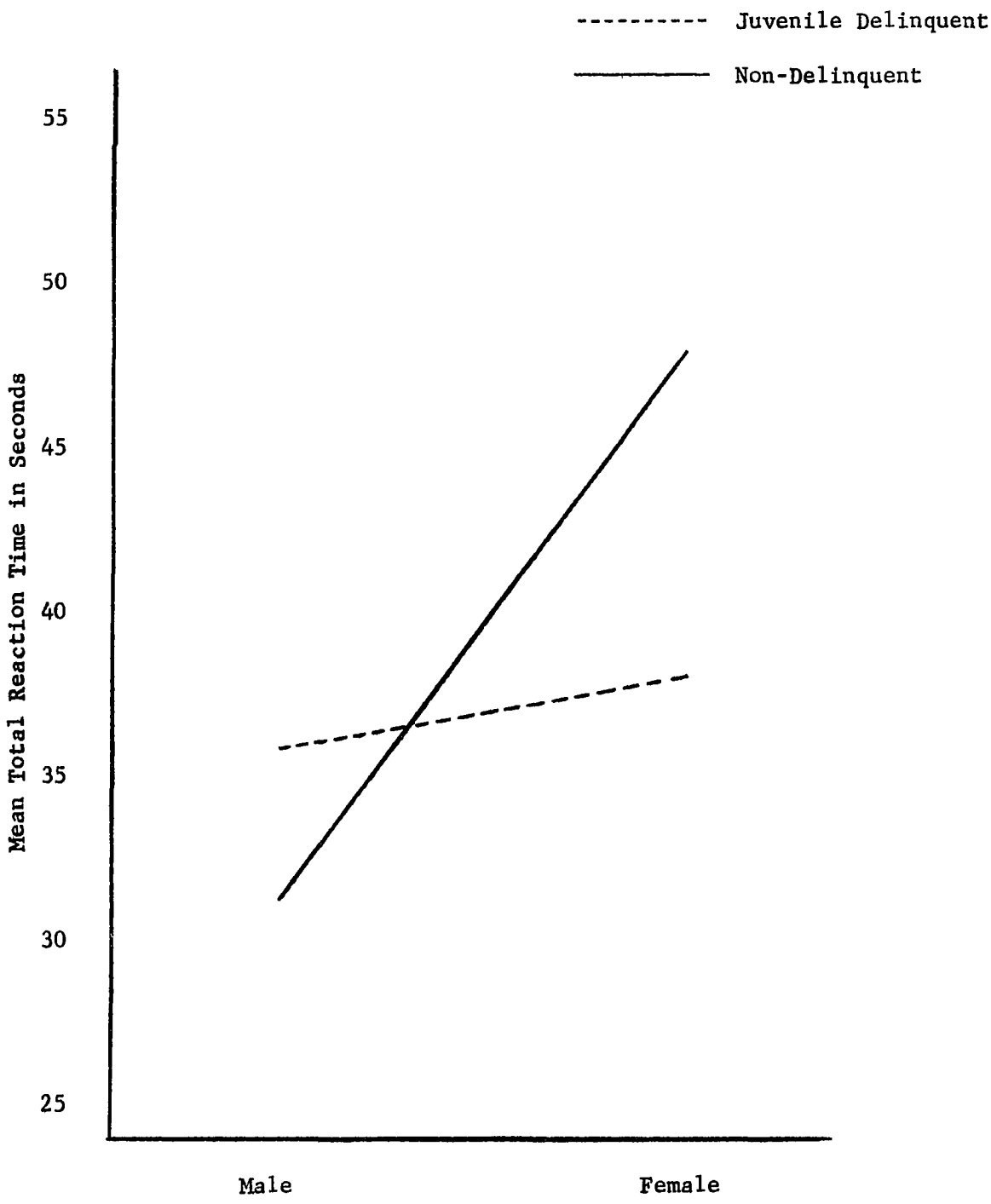


Figure 5. Mean Total Reaction Time given by Male and Female of the Juvenile Delinquent and the Non-Delinquent Groups.

TABLE 6

t TEST BETWEEN MEANS TOTAL REACTION TIME TO THE OIT GIVEN BY THE MALE AND FEMALE JUVENILE DELINQUENT SUBGROUPS

	M-JD	F-JD	t	P
Mean Total Reaction Time	36.1	39.0	.89	NS

Hypothesis 7 states that the female non-delinquent subgroup's total reaction time will be shorter than that of the male non-delinquent subgroup. Table 16 in Appendix C shows the individual's total reaction time given by the male and female non-delinquent subgroups. Table 7 shows the t test value which indicates a significance at the .05 level. This comparison is also explained graphically in Figure 5. Therefore, the hypothesis is accepted.

TABLE 7

t TEST BETWEEN MEANS TOTAL REACTION TIME TO THE OIT GIVEN BY THE MALE AND FEMALE NON-DELINQUENT SUBGROUPS

	M-ND	F-ND	t	P
Mean Total Reaction Time	31.8	47.5	2.78	$<.05$

Additional analyses reveal that the juvenile delinquent group responded significantly less to form than did the non-delinquent group. In essence, this means that the juvenile delinquent group has more color responses as compared to that of the non-delinquent group. A comparison of the mean OIT value given by both groups shows a significance at the .01 level. Table 8 shows the t test value.

TABLE 8

t TEST BETWEEN MEANS OIT VALUES GIVEN THE JUVENILE DELINQUENT AND THE NON-DELINQUENT GROUPS

	JD	N-JD	t	P
OIT Value	39.2	57.1	3.17	$<.01$

When the OIT value of male juvenile delinquent subgroup was compared with that of the male non-delinquent subgroup, the male juvenile delinquent subgroup showed less form responses than did that of the male non-delinquent subgroup. The same result was also found in the female subgroups. This essentially means that both male and female juvenile delinquent subgroups responded more to color than to form when compared to their appropriate sex subgroups of the non-delinquent groups. Table 9 gives the t test value.

TABLE 9

t TEST BETWEEN MEANS OIT VALUES GIVEN BY THE SEX SUBGROUPS OF THE JUVENILE DELINQUENT AND NON-DELINQUENT GROUPS

Group	JD	ND	t	P
Male	39.2	54.8	2.54	$<.01$
Female	39.2	59.3	3.24	$<.01$

Summary:

Appropriate statistical analysis was used for testing all the hypotheses. The following results are indicated:

Hypothesis 1 - The juvenile delinquents of both sexes are expected to have more color responses than form responses. This hypothesis is confirmed.

Hypothesis 2 - The non-delinquents of both sexes are expected to have more form responses than color responses. This hypothesis is confirmed.

Hypothesis 3 - The juvenile delinquents of both sexes are expected to show shorter perceptual reaction time than the non-delinquents of both sexes. This hypothesis is rejected.

Hypothesis 4 - The female juvenile delinquents will have more color responses as compared with those of the male juvenile delinquents. This hypothesis is rejected.

Hypothesis 5 - The female non-delinquents will have more color responses as compared with those of the male non-delinquents. This hypothesis is rejected.

Hypothesis 6 - The female juvenile delinquents' perceptual reaction time is expected to be shorter than that of the male juvenile delinquents. This hypothesis is rejected.

Hypothesis 7 - The female non-delinquents' perceptual reaction time is expected to be shorter than that of the male non-delinquents. This hypothesis is confirmed.

Other important findings that are relevant to the hypotheses mentioned are as follows:

1. The juvenile delinquent group of both sexes responded more to color than to form when compared to that of the non-delinquent group of both sexes.

2. Both male and female juvenile delinquent subgroups have more color responses compared to their appropriate sex subgroups of the non-delinquent group.

CHAPTER V

DISCUSSION

The clinical meanings of color-form perception have been widely interpreted as one of the ways through which an individual projects his inner personality dynamics. Specifically, experts of psychoanalytical persuasion relate color perception to the manifestation of Id, impulsivity, passivity, and emotionality. The form perception is usually related to the Ego intactness to reality and self control. This concept of color-form perception as related to personality dynamics, or traits, is endorsed by experts in Rorschach technique. (Rorschach, 1949, Sherman, 1955, Shapiro, 1956, Schachtel, 1943, Rickers-Ovsiankina, 1943, Piotrowski, 1957, Klopfer, et al., 1954, and Beck, 1944.) Experts of psychoanalytic persuasion also find the juvenile delinquents are generally more impulsive, lack Ego control, and usually have a poorly developed Superego. (Aichhorn, 1935, Friedlander, 1947, Abramson, 1945, and Freud, 1944.)

Studies on juvenile delinquents with the Rorschach Ink-blot Test reveal that the juvenile delinquents tend to have color dominated responses and poor form responses. (Heuser, 1946, Glueck, 1950, Lindner, 1943, and Bowlus and Shotwell, 1947.) This concept indicates the relationships between impulse ridden juvenile delinquent's personality and color dominated perception on the Rorschach. Using this concept as a basis, the present study was directed to test the predictive validity of the OIT when used as a color-form perception test with the juvenile delinquents.

Three significant t test values were obtained which showed that a relationship between the juvenile delinquents' personality traits and the color responses does exist when the OIT was used as the mean of eliciting color responses and form responses. The juvenile delinquent group of both sexes also gave more color responses than did the non-delinquent group of both sexes. This confirms the previous studies which showed a relationship between color perception and juvenile delinquents personality traits existing on the Rorschach. The present study demonstrates that such a relationship holds for another test, the OIT. Although the Rorschach may be more sensitive in eliciting the clinical meanings of color response than the OIT, the OIT is efficient enough to serve that purpose.

When considering the structure of the OIT as a color-form perception test, it seems, to a certain extent, to have more refining power which makes the subject respond either to color or form. There is no provision for FC or CF responses as found in the Rorschach. Pure C or pure F is the only alternative that may help the subject to refine the mixed feelings on color-form perception. Undoubtedly, there is no such thing as exclusively pure color or pure form perception in human perceptual experience. All perceptual experiences are mutually related, one with the other. Whether they are mutually exclusive or mutually complementary, they are, in some ways and to some extent, related in the constellation of the perceptual experience. But the sequential priority is rated important in the investigation of one's personality traits. This reflects the priority power of either the Id or the Ego, or simply stated, it reflects the prevailing power of either one's impulse or impulse control. (Rorschach, 1949) This concept is illustrated in Schachtel's (1943) theory of the passivity of the subject and the

immediacy of the relation object-subject. In this illustration, Schachtel seems to imply that color perception is of more spontaneous perceptual process; whereas, in form perception it appears to require more directed attention before the form can be perceived.

Schachtel (1943) illustrates this concept in an analogy: an individual enters a room in which there are two designs. On one wall is a large blob of color. On the opposite wall is a large design in black and white. The individual is likely to perceive the blob of color immediately, almost without conscious attention. The design in black and white, however, requires directed attention before it can be perceived.

Although there is no pure color blob or pure black and white design in the OIT pictures, the subject has to match two pictures out of three either by colors or by forms. In the process of matching the pictures, it does not only indicate the subject's like or dislike of colors, but it also reflects the degree of his Ego control exerted upon the impulse charge by the Id. Since the juvenile delinquent group in the present study gave color dominated responses, this may be explained that the juvenile delinquent group is characterized by impulse ridden and lack of Ego control. The non-delinquent group, however, yielded form dominated responses. This is probably related to their ability to control their impulses. It also leads one to believe that the non-delinquents have adequate ability in Gestalt perceptual organization. This is normally the characteristic of an adequate Ego function in the maintenance of the psychic equilibrium.

In a previous study by Hamlin (1955), reaction time to color was found to be shorter than that to form. Hamlin used color-form cards sorting experiment with the normal and psychiatric subjects. The results showed both

the normals and the psychiatric groups consistently sorted color cards faster than they sorted form cards. These findings suggest that the subjects need less time to react to color than to form. It is partly because the color reaction is usually characterized by impulsive and spontaneous perceptual reaction. The color is first perceived before any directed attention occurs. In form perception, directed attention is usually required before the form is perceived. (Schachtel, 1943)

When this concept is applied to the juvenile delinquent group which gave color dominated responses and to the non-delinquent group which gave form dominated responses on the OIT, it was assumed that the total reaction time given by the juvenile delinquent group would be shorter than that of the non-delinquent group. The findings of this study were not consistent with the findings of the previous study and assumptions. Although both juvenile delinquent and non-delinquent groups showed slightly longer reaction time to form than to color, their reaction times to color and form were the same when averaged. This may be explained that the non-delinquent group, although they responded to form more than to color, had a reaction time to form which was average when compared to the juvenile delinquent group and their reaction to color. This again reflects the adequate ability and speed in Gestalt perceptual organization of the non-delinquent group.

An association between sex differences and emotionality has long been an interesting subject to many people. People generally think that females are always more emotional than males. Their behavior and thought are largely emotionally determined. Their adjustment behavior is also believed to be more impulsive than that of males. Furthermore, the female's Ego is more readily emoted by external stimulus such as color. (Terman, et al., 1936)

Based on this reasoning, it is feasible to apply this concept to the female subjects of both the juvenile delinquent and the non-delinquent groups. It was then hypothesized that the female of both the juvenile delinquent and the non-delinquent groups would show more color dominated responses when compared with that of the male subjects, respectively, from the two groups. The results of the comparisons showed that there were no differences in their color responses in both the juvenile delinquent and the non-delinquent groups. Their total reaction time given by each sex subgroup was also undifferentiated, except for the female non-delinquent subgroup which showed significantly longer total reaction time when compared with that of the male non-delinquent subgroup. Nevertheless, the color responses given by the female non-delinquent subgroup remained the same from that of the male non-delinquent subgroup. These findings may be explained as follows: The female juvenile delinquent subgroup is probably no more impulsive or emotional than the male juvenile delinquent subgroup. This is also true with the non-delinquent sex subgroups' comparisons. It is, therefore, not the sex differences per se, but the basic personality dynamics or traits that differentiated their perceptual patterns. Another possible and pertinent explanation to these findings is that the OIT structure as a color-form test is probably not discriminative enough to differentiate the sex differences as related to their color-form perception.

Other relevant findings which are secondary to the major concern in this study are briefly mentioned as follows:

1. Both the juvenile delinquent and the non-delinquent groups were further divided into three subgroups on the basis of their different IQ levels: above average (IQ $>$ 110), average (IQ 90-110), and below average (IQ $<$ 90). Table 10 in Appendix A shows the mean IQ distribution in the three IQ groups.

Most authorities on Rorschach technique found that IQ is one of the variables which is often related to one's color-form perception. In fact, color-form perception is often used as a measure of intelligence and vice versa. Piotrowski (1957), Klopfer, et al., (1954), and Rorschach, (1949), suggest that in assessing one's intelligence level with the Rorschach, there are three major determinants: the quality and the quantity of movement response (M), whole response (W), and form response (F). Specifically, lack of good form response or given poor form response is often obtained from the less intelligent individual. An individual with color dominant response on the Rorschach is often of low intelligence. This is not always related to lack of innate intelligence, but it is more likely that the intelligence of such an individual is suppressed by his impulse and inadequate Ego functioning. Another possible factor may influence color response--IQ relationship, the presence of brain damage, or mental retardation. In the present study, three IQ subgroups from the juvenile delinquent and the non-delinquent groups were compared on the basis of their color-form responses. Table 11 in Appendix C shows the results which indicate no differences on the color-form responses were found between the three IQ subgroups. This is consistent with the reports given by Tien and Williams (1965). They say that although Astrom (1963) found a correlation between OIT value and IQ at R = +0.263, it is a relatively low correlation. They further clarify that the OIT shows a better correlation between its value and the very low intelligence level such as one that is often found among the moderately to severely retarded individuals. This is undoubtedly caused by brain damage or other types of mental deficiency. At the present time, there is no study which shows reasonable correlation between the OIT value and the average or above average intel-

ligence levels. Unlike the Rorschach, the OIT is simple in its structure and less ambiguous in its color-form features. The OIT is probably too simple a tool to be used for assessing intelligence levels. Again, it should be noticed that it is not the IQ differences, but the personality traits' differences that differentiate the OIT color-form perception. This explanation is further confirmed by the results shown in Table 12 in Appendix A. (Illustrated in Figure 6, Appendix B.)

Three significant t test values evidence the fact that there were differences between the OIT values of the juvenile delinquent and the non-delinquent groups, not on the basis of their IQ levels, but on the personality traits differences (juvenile delinquents versus non-delinquents).

2. Other important findings were on the relationship between the OIT values and the psychopathic deviate scale (Pd) and the hypomania scale (Ma) as measured in the Minnesota Multiphasic Personality Inventory. Previous studies on the delinquency with the MMPI by Hathaway and Monachesi (1953, 1957), Monachesi (1950), Astin (1959), Wirt and Briggs (1959), Clark (1948), and Stanton (1956) found that among other MMPI scales, the Pd and Ma scales are the most discriminating scales on which the delinquents consistently score higher than the non-delinquents. It is suggested that individuals who score high on the Pd and Ma scales probably have more impulsive, aggressive, and anti-authority personality traits than those who score low. This reasoning and experimental finding leads to the speculation that individuals who score high on Pd and/or Ma scales will also give more color-dominated responses on the OIT, compared to those who score low.

In the present study, two significant t test values were obtained. (Table 13 in Appendix C shows OIT value distribution in the Pd, Ma scales

subgroups; Table 14 in Appendix C shows the t test value on intergroup comparisons on the basis of Pa, Ma scales; Table 15 in Appendix C shows the inter-Pd, Ma scales subgroups comparisons. Table 14 is also graphically illustrated in Figure 7 in Appendix B.) These tables indicate significant different OIT values in the comparison between the juvenile delinquent and the non-delinquent groups with high Pd and/or Ma scores. Some significant result was also true in the comparison of the juvenile delinquent and the non-delinquent groups with low Pd and Ma scores. In essence, this indicates that the juvenile delinquent group, regardless of sex and Pd, Ma scale differences (that is, high or low), gave fewer form responses and more color responses. The reverse results are true with the non-delinquent groups. Further analysis such as comparing high and low Pd, Ma scales in the juvenile delinquent and the non-delinquent groups separately showed that there were no OIT value differences. This essentially means that despite the Pd, Ma score differences that the juvenile delinquent may have, his OIT values are comparatively undifferentiated. This is also true with the non-delinquent group.

To summarize this discussion, the results of this study show that the clinical use of the OIT as a color-form perception test with juvenile delinquents is of vital contribution to the exploration of new tools or techniques to be used for discriminating the juvenile delinquents from the non-delinquents. On the basis of the differential color-form responses, the OIT appears to be sensitive enough to show that the juvenile delinquents generally have color dominated responses and the non-delinquents have form dominated responses. These reflect their different personality dynamics or traits. Sex, IQ, and MMPI's Pd,Ma scales differences were found of no determinant

value to the color-form response on the OIT. In the light of the results of this study, it is concluded that the OIT is a color-form perception test which appears to be valid in the study with the juvenile delinquents. Since the use and the interpretation of the OIT do not require special training, the OIT may be used by people such as school teachers, social workers, counselors, court officers, etc., as a supplementary test in predicting and diagnosing juvenile delinquency.

Suggestions for Further Research

1. Futher research with a larger sample group is recommended to confirm the findings of the present study. Futher confirmative findings are also needed for establishing reliability information on the OIT.

2. The OIT may be of value in the comparative study between the uninstitutionalized and the institutionalized juvenile delinquents.

3. The OIT may also be used in the comparative study with cross cultural juvenile delinquent groups.

4. The exploration of the correlations between the OIT and other diagnostic tools such as the Rorschach Ink-blot Test would also be an interesting project.

CHAPTER VI

SUMMARY

From the time of the birth of human civilization to the modern epic of our contemporary world, the problems of juvenile delinquency have been brought to the attention of various experts and authorities in the field of human behavior. Some people attributed the etiology of the problems to moral decay, religious degeneration, and political and economical unrest; others found physiological and psychological causations of the problems. This resulted in diversities of theories and heterogeneous methods of dealing with the problems. Most recent inter-disciplinary approaches to the problems acknowledge the existence of a distinct juvenile delinquent personality dynamics, syndrome, and perception. Juvenile delinquent behavior is, therefore, not considered as the disease, but the symptoms of some underlying disease. Many ways of diagnoses and treatments of juvenile delinquency, especially those of the psychiatrists and psychologists, utilize a multitude of psychological and personality tests like the MMPI, TAT, Rorschach Inkblot Test, etc. These tests have been demonstrated as valid and reliable in the differentiated comparisons between the juvenile delinquents and the non-delinquents.

Rorschach authorities, especially of psychoanalytical persuasion, assert that clinical meanings of color-form perception are related to Id and Ego, respectively. A review of the literature reveals that the juvenile

delinquents, in general, show color dominated responses on Rorschach Inkblot Test. The non-delinquents, on the other hand, show form dominated responses. This, therefore, reflects the distinct personality traits of the juvenile delinquents which are characterized by impulse ridden, poor Ego control and underdeveloped Superego personality dynamics. In contrast to this, the non-delinquents personality traits are usually characterized by Ego control and Ego intactness to reality.

So far, the use and the interpretation of these psychological tests require special training and skills which many professional people, other than psychiatrists and psychologists, do not have. For practical purposes, therefore, people like counselors, social workers, teachers, and juvenile officers who have no special training to use the tests are handicapped in recognizing, forecasting, and diagnosing the juvenile delinquent personality. In view of this problem, many psychiatrists, psychologists, and educators search for some other media or tools in an effort to find valid and reliable methods which require minimum training and expense in order to deal with this problem.

In sharing with this effort, the writer of this study explored the possibility of using the Organic Integrity Test (OIT) as a color-form perception test in the study of juvenile delinquents. The purpose of this study is, therefore, to test the predictive validity of the OIT in differentiating the juvenile delinquents from the non-delinquents on the basis of their differentiated color-form responses on the OIT. Because of its expediency and simplicity, the OIT requires no special training in an extensive manner for one to be able to administer and interpret it. It may be given and scored in three to four minutes.

Eighty-nine legally defined and committed male and female juvenile delinquents served in the experimental group. Eighty-eight non-delinquent high school students served in the control group. The groups were equated on the relevant variables. Experimental procedures involved the administration of Dvorine Pseudo-isochromatic Plates, the group Otis Quick Scoring Mental Ability Test, and the group MMPI. The OIT was given individually. Subgroupings were done on the basis of sex, IQ levels, and Psychopathic Deviate (Pd) and Hypomania (Ma) scales of the MMPI.

The findings were:

1. The juvenile delinquent group of both sexes gave color dominated responses.

2. The non-delinquent group of both sexes gave form dominated responses.

3. No different length of total reaction time was found between the juvenile delinquent and non-delinquent groups.

4. The juvenile delinquent group of both sexes showed more color dominated and less form dominated responses when compared with the non-delinquent group.

5. Sex, IQ, and Pd, Ma scale differences in both the juvenile delinquent and the non-delinquent groups showed no determining effect upon the color-form responses.

These findings demonstrated that the clinical use of the OIT as a color-form perception test with the juvenile delinquents appears to have the necessary predictive validity. In essence, the OIT is expedient and simple, but also sensitive enough to differentiate the juvenile delinquents from the non-delinquents on the basis of their differentiated color-form perceptual responses. The OIT may be used as a supplementary test in predicting and

diagnosing juvenile delinquency. The relationship between the color-form perception and the distinct juvenile delinquent personality dynamics, syndrome, and perception was also shown on the OIT.

BIBLIOGRAPHY

Aichhorn, A. Wayward Youth. New York: Viking Press, 1935.

Alexander, F. The Criminal, the Judge, and the Public: A Psychological Analysis. Revised edition. Chicago: Free Press, 1956.

Astin, A. "A Factor Study of the MMPI Psychopathic Deviate Scale," Journal of Consulting Psychology, 23 (1959), pp. 550-554.

Astrom, J. "Organic Integrity Test in Clinical Use," Nord Psykiate T., 2 (1963), pp. 160-169 (Sweden).

Babbitt, E. The Principles of Light and Color. East Orange, New Jersey: Babbitt, 1896.

Beck, S. Rorschach's Test, II: A Variety of Personality Pictures. New York: Grune and Stratton, 1945.

Birren, F. Color Psychology and Color Therapy. New York: University Books, 1961.

_____. "The Effect of Color in the Human Organism," American Journal of Occupational Therapy, 13 (1959), pp. 125-129.

Bowlus, D., and Shotwell, A. "A Rorschach Study of Psychopathic Delinquents," American Journal of Mental Deficiency, 52 (1947), pp. 23-30.

Bradley, G. "E. E. G. Patterns of Children with Behavior Disorders," Connecticut State Medical Journal, 6 (1942), pp. 773-777.

Brosin, H., and Fromm, E. Rorschach Research Exchange, 4 (April, 1940), pp. 39-53.

Clark, J. "Some MMPI Correlates of Color Responses in the Group Rorschach," Journal of Consulting Psychology, 12 (1948), pp. 384-386.

Cohen, A. Delinquent Boys, the Culture of the Gang. Chicago: The Free Press, 1955.

Crumpton, E. "The Influence of Color on the Rorschach Test," Journal of Projective Technique, 20 (1956), pp. 150-157.

Ehrlich, S., and Keogh, R. "The Psychopath in a Mental Institution," A. M. A. Archive of Neurology and Psychiatry, 76 (1956), pp. 286-295.

Endacott, J. L. "The Results of 100 Male Juvenile Delinquents on the Rorschach Ink-Blot Test," Journal of Criminal Psychopathology, 3 (1941), pp. 41-50.

Engelsmann, F., and Drdkova, S. "Organic Integrity Test," Czechoslovakia Journal of Psychology, 8, No. 2, 1964.

Eysenck, H. Dimensions of Personality. London: Routledge and Kegan Paul, 1948.

Fenichel, O. The Psychoanalytic Theory of Neurosis. New York: Norton, 1945.

Freeman, W., and Watts, J. "Prefrontal Labotomy: The Problem of Schizophrenia," The American Journal of Psychiatry, 101 (1945), pp. 739-748.

Freud, A., and Burlingham, D. Infants without Families. New York: International University Press, 1944.

Freud, S., "The Unconscious," Collected Papers, 4 (1946), London: Hogarth, pp. 98-136.

Friedlander, K. The Psychoanalytic Approach to Juvenile Delinquency. London: Keegan, Paul, Trench, and Tribner, 1947.

Glueck, C., and Glueck, E. Physique and Delinquency. New York: Harpers, 1956.

_____, and _____. Unveiling Juvenile Delinquency. Cambridge: Commonwealth Fund, 1950.

Goldstein, K. "Some Experimental Observations Concerning the Influence of Colors on the Function of the Organism," Occupational Therapy and Rehabilitation, (June, 1942), pp. 147-151.

Gough, H. "A Sociological Theory of Psychopathy," American Journal of Sociology, 53 (1948), pp. 359-366.

Greulich, W., et al. "A Handbook of Methods for the Study of Adolescent Children," Washington, D. C.: Society for Research in Child Development, National Research Council, 1938, p. 307.

Grimberg, L. Emotion and Delinquency. New York: Brentano's, 1928.

Grossbard, H. Ego Deficiency in Delinquents. Social Casework, 43 (1962), pp. 171-178.

Hamlin, R., et al. "Rorschach Color Theories as Reflected in Simple Card Sorting Tasks," Journal of Projective Technique, 19 (1955), pp. 410-415.

Harriman, P. "The Rorschach Test Applied to a Group of College Students," American Journal of Orthopsychiatry, 5 (1935), pp. 116-120.

Hathaway, S., and Monachesi, E. Analyzing and Predicting Juvenile Delinquency with the MMPI. Minneapolis: The University of Minnesota Press, 1953.

_____, and _____. "The Personalities of Predelinquent Boys," Journal of Criminal Law, 48 (1957), pp. 149-163.

Healy W. and Bronner, A. Delinquents and Criminals: Their Making and Unmaking. New York: The MacMillan Company, 1926.

_____, and _____. New Light on Delinquency and Its Treatment. New Haven: Yale University Press, 1938.

Henser, K. D. "The Psychopathic Personality: Rorschach Patterns of 28 Cases," American Journal of Psychiatry, 103 (1946), pp. 105-112.

Hill, D. and Watterson, D. "Electro-encephalographic Studies of the Psychopathic Personality," Journal of Neurology and Psychiatry, 5 (1942), pp. 47-64.

Holzberg, J., and Hahn, F. "The Picture-Frustration Technique as a Measure of Hostility and Guilt Reaction in Adolescent Psychopaths," American Journal of Orthopsychiatry, 22 (1952), pp. 776-797.

Hooten, E. Crime and the Man. Cambridge: Harvard University Press, 1939.

Johnson, E. Crime, Correction, and Society. Chicago: The Dorsey Press, 1964.

Kennedy, A. "Psychopathic Personality and Social Responsibility," Journal of Mental Science, 100 (1954), p. 873.

Klopfer, B., et al. Development in the Rorschach Technique. New York: World Book Company, 1954.

Koffka, K. Principles of Gestalt Psychology. New York: Harcourt, Brace, and Co., 1935.

Kutash, S. "Performance of Psychopathic Defective Criminals on the T. A. T.," Journal of Criminal Psychopathology, 5 (1943), pp. 319-340.

Kretschmer, E. Physique and Character. Translated by W. J. J. Sprett. London: Keegan, Paul, Trench, and Tribner, 1936.

Lindner, R. "The Rorschach Test and the Diagnosis of Psychopathic Personality," Journal of Criminal Psychopathology, 5 (1943), pp. 69-93.

Lombroso, C. "L'Vomo Delinquents," 1876. Translated with Modification by H. P. Horton as "Crime, Its Causes and Remedies," Modern Criminal Science Series, 3 (1911), Boston: Little, Brown, and Co.

Mannheim, H. Comparative Criminology. New York: Houghton Mifflin Co., 1965.

McCord, W., and McCord, J. The Psychopath: An Assay on the Criminal Mind. New Jersey: D. Van Nostrand Company, 1964.

Monachesi, E. "Personality Characteristics of Institutionalized and non-Institutionalized Male Delinquents," Journal of Criminology, Law, Criminology, 41 (1950), pp. 167-179.

Pancoast, S. Blue and Red Light. Philadelphia: J. M. Stoddart and Co., 1877.

Phillips, L. Rorschach Interpretation Advanced Technique. New York: Grune and Stratton, 1953.

Piotrowski, Z. Perceptanalysis. New York: MacMillan Company, 1957.

Rapaport, D., et al. Diagnostic Psychological Testing. Chicago: The Year Book Publishers, Inc., 1945.

Reeder, J. "The Psychogenic Color Field," American Journal of Ophthalomology, 27 (April, 1944), pp. 358-361.

Rickers-Ovsiankina, M. Some Theoretical Considerations Regarding the Rorschach Method. Rorschach Research Exchange, 7 (1943), pp. 41-53.

Rorschach, H. "The Application of the Interpretation of Form to Psychoanalysis," Journal of Nervous and Mental Disease, 60 (1924), pp. 225-248 and 359-379.

_____. Psychodiagnostics. New York: Grune and Stratton, 1949.

Schachtel, E. "The Dynamic Perception and the Symbolism of Form," Psychiatry, 4 (1941), pp. 79-96.

_____. "On Color and Affect," Psychiatry, 6 (1943), pp. 393-409.

Schlapp, M., and Smith, E. The New Criminology. New York: Bons and Liveright, 1929.

Schmidl, F. "The Rorschach Test in Delinquency Research," American Journal of Orthopsychiatry, 17 (1947), pp. 151-160.

Shapiro, D. "Color Response and Perceptual Passivity," Journal of Projective Techniques, 20 (1956), pp. 52-69.

Shaw, C., and McKay, H. Social Factors in Juvenile Delinquency. Vol. II of National Commission on Law Observance and Enforcement, Report on the Cause of Crime. (Washington, D. C.: U. S. Government Printing Office, 1931).

Sheldon, W. Varieties of Delinquent Youth. New York: Harpers, 1949.

Sherman, M. "A Psychoanalytical Definition of Rorschach Determinants," Psychoanalysis, 3 (1955), pp. 68-75.

Siegel, S. Non-Parametric Statistics. New York: McGraw Hill, 1956.

Silverman, D. "The Electroencephalogram of Criminals," Archives of Neurology and Psychiatry, 52 (1944), pp. 38-42.

Sontag, L. "Psychodynamics of Child Delinquency Further Contributions," American Journal of Orthopsychiatry, 25 (1955), pp. 254-261.

Stanton, J. "Group Personality Profile Related to Aspects of Antisocial Behavior," Journal of Criminology, Law Criminology, 47 (1956), pp. 340-349.

Sternlof, R. Differential Perception in Paranoid Schizophrenia and Depression as a Function of Structure and Content. A Doctoral Dissertation. University of Oklahoma, 1964.

Stullken, E. "Misconception about Juvenile Delinquency," Journal of Criminal Law, 46 (1956), pp. 833-842.

Tannenbaum, F. Crime and Community. Boston: Ginn and Company, 1938.

Terman, L. M., and Terman, Miles. Sex and Personality. New York: McGraw-Hill Book Co., 1936.

Thompson, G. The Psychopathic Delinquent. Springfield, Illinois: Thomas Company, 1953.

Tien, H. C. "The Organic Integrity Test," Archives of General Psychiatry, 3 (1960), pp. 43-52.

_____. "Organic Integrity Test (OIT) in Children Who Can't Read," Unpublished A. P. A. paper #98, 1965.

_____, and Clark, G. "Organic Integrity Test Confirmed," American Journal of Psychiatry, 121 (1964), pp. 257-261.

_____, and Williams, M. "Organic Integrity Test (OIT) in Children," Archives of General Psychiatry, 12 (1965) pp. 159-165.

Vernon, P. "The Rorschach Ink-Blot Test," Journal of Psychology, 13 (1933) pp. 89-118, 179-205, and 271-295.

Walker, H. M., and Lev, J. Statistical Inference. New York: Holt, Rinehart and Winston, 1953.

Winer, B. J. Statistical Principles and Experimental Designs. New York: McGraw-Hill Company, 1962.

Wirt, R., and Briggs, P. "Personality and Environmental Factors in the Development of Delinquency," Psychological Monographs, 73 (1959), No. 485.

Zulliger, H. Fugendliche Diebe in Rorschach Formdeuteversuch. Bern and Leipzig: Paul Haupt, 1938.

APPENDIX A. SUPPLEMENTARY TABLES

TABLE 10

MEAN IQ DISTRIBUTION IN THE IQ SUBGROUPS*

IQ Subgroups	M-JD		F-JD		M-ND		F-ND	
	n	Mean	n	Mean	n	Mean	n	Mean
IQ > 110	7	114	13	115.3	11	116.9	14	119.5
IQ = 90-110	16	97.8	33	99.0	26	99.3	22	99.9
IQ < 90	12	81.7	8	82.1	7	80.0	8	80.6

* (Inter-IQ Subgroups Comparisons)

TABLE 11

t TESTS BETWEEN MEAN OIT VALUE GIVEN BY THE IQ SUBGROUPS

IQ	Above Average	Average	Below Average	t	P
Mean	51.3	47.6		.89	NS
OIT Value	51.3		44.6	1.43	NS
		47.6	44.6	.79	NS

TABLE 12

t TESTS BETWEEN MEANS OIT VALUE GIVEN BY THE IQ SUBGROUPS*

Group	Juvenile Delinquent	Non-Delinquent	t	P
Above Average IQ	42.6	58.2	2.43	$<.05$
Average IQ	38.3	57.4	2.97	$<.01$
Below Average IQ	36.4	55.6	3.17	$<.01$

*(Inter-groups Comparisons)

TABLE 13

MEAN OIT VALUE DISTRIBUTION IN THE PD, MA SCALES SUBGROUPS

	Juvenile Delinquent		Non-Delinquent	
Group	n	Mean	n	Mean
Pd and/or Ma Scales $\geqq$ 70 (High)	39	44.2	20	57.4
Pd and Ma Scales $<$ 70 (Low)	17	40.1	63	56.3
Total N	56		83	

TABLE 14

t TESTS BETWEEN MEANS OIT VALUE GIVEN BY THE JUVENILE DELINQUENT AND THE NON-DELINQUENT PD, MA SCALES SUBGROUPS (INTERGROUPS COMPARISONS)

Group	Juvenile Delinquent	Non-Delinquent	t	P
Pd and/or Ma Scales $\geq$ 70 (High)	44.2	57.4	2.28	$<$.05
Pd and Ma Scales $<$ 70 (Low)	40.1	56.3	2.76	$<$.01

TABLE 15

t TESTS BETWEEN MEANS OIT VALUE GIVEN BY THE JUVENILE DELINQUENT AND THE NON-DELINQUENT PD, MA SCALES SUBGROUPS (INTER-PD, MA SCALES SUBGROUPS COMPARISONS)

Group	Pd and/or Ma Scales $\geq$ 70 (High)	Pd and Ma Scales $<$ 70 (Low)	t	P
Juvenile Delinquent	44.2	40.1	.59	NS
Non-Delinquent	57.4	56.3	.21	NS

APPENDIX B. SUPPLEMENTARY FIGURES

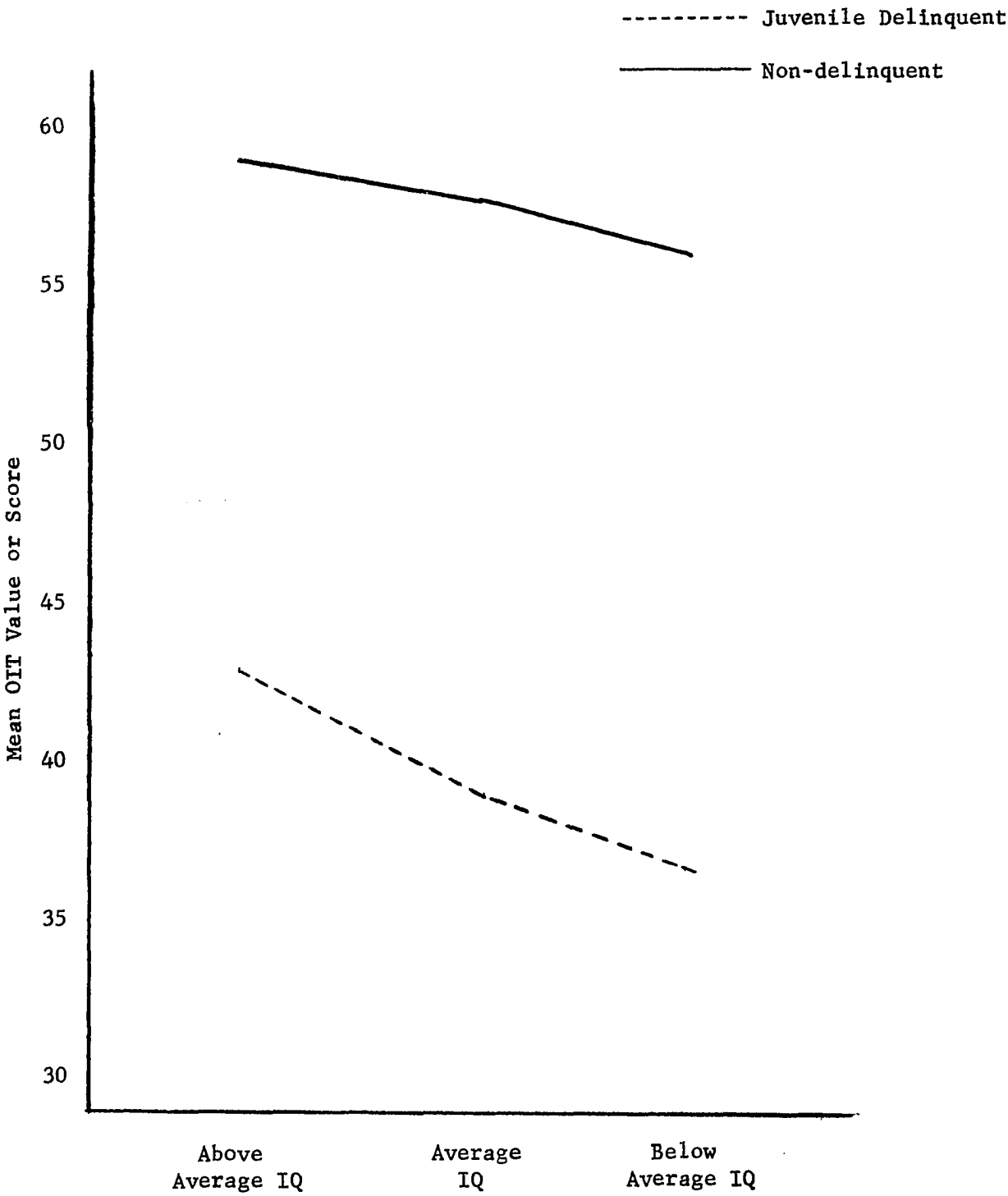


Figure 6. Mean OIT value given by the IQ subgroups of the juvenile delinquent and the non-delinquent groups.

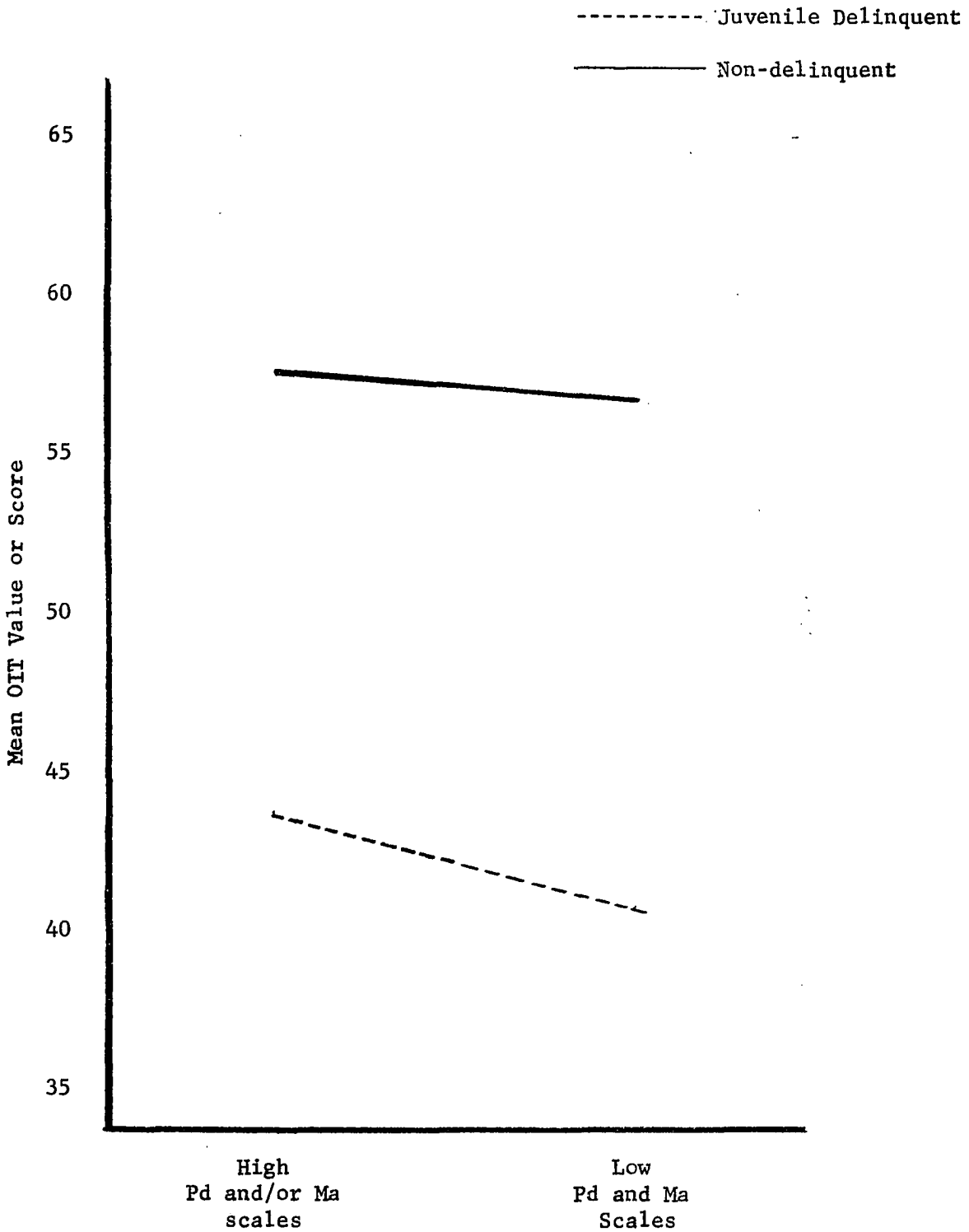


Figure 7. Mean OIT value given by the Pd, Ma scales subgroups of the juvenile delinquent and the non-delinquent groups.

APPENDIX C. INDIVIDUAL SCORES (RAW SCORES)

TABLE 16

INDIVIDUAL OIT VALUE, RESPONSE FREQUENCIES TO COLOR AND FORM, REACTION TIMES TO COLOR AND FORM, AND TOTAL REACTION TIME (IN SECONDS)

Ss	O.I.T. Value	Color Frequency	Form Frequency	Color Reaction Time	Form Reaction Time	Total Reaction Time
Male - Juvenile Delinquent						
1	48	4	6	22	34	56
2	71	3	7	28	103	131
3	70	3	7	8	37	45
4	55	5	5	12	12	24
5	46	5	5	14	25	39
6	46	5	5	13	25	38
7	49	5	5	17	25	42
8	34	7	3	17	12	29
9	34	7	3	15	9	24
10	46	6	4	27	26	53
11	45	5	5	28	36	64
12	46	6	4	14	18	32
13	13	9	1	21	3	24
14	45	6	4	13	11	24
15	59	4	6	7	33	40
16	43	5	5	16	20	36
17	62	4	6	12	17	29
18	49	5	5	9	27	36
19	53	5	5	12	37	49
20	13	9	1	18	2	20
21	16	8	2	28	14	42
22	17	8	2	17	20	37

TABLE 16.--Con't.

Ss	O.I.T. Value	Color Frequency	Form Frequency	Color Reaction Time	Form Reaction Time	Total Reaction Time
23	13	9	1	20	4	24
24	76	2	8	5	25	30
25	13	9	1	13	4	17
26	55	4	6	8	39	47
27	13	9	1	15	2	17
28	13	9	1	22	4	26
29	13	9	1	15	3	18
30	27	8	2	18	8	26
31	28	7	3	15	14	29
32	57	5	5	11	23	34
33	13	9	1	18	2	20
34	57	5	5	10	24	34
35	34	7	3	17	9	26
Female - Juvenile Delinquent						
36	55	5	5	41	52	93
37	22	8	2	17	11	28
38	52	5	5	70	95	165
39	21	8	2	18	10	28
40	59	6	4	15	12	27
41	41	6	4	27	35	62
42	17	8	2	16	6	22
43	45	6	4	12	10	22
44	40	6	4	12	12	24
45	24	8	2	17	12	29

TABLE 16.--Con't

Ss	O.I.T. Value	Color Frequency	Form Frequency	Color Reaction Time	Form Reaction Time	Total Reaction Time
46	35	7	3	17	12	29
47	13	9	1	9	2	11
48	55	5	5	7	20	27
49	58	4	6	9	29	27
50	13	9	1	31	1	33
51	39	6	4	15	8	23
52	24	8	2	15	7	22
53	51	4	6	15	33	48
54	46	6	4	12	25	37
55	46	6	4	14	14	28
56	46	6	4	38	57	95
57	45	6	4	17	23	40
58	60	4	6	9	16	25
59	57	4	6	15	29	44
60	57	5	5	13	33	46
61	13	9	1	16	2	18
62	13	9	1	9	1	10
63	34	7	3	13	9	22
64	50	4	6	8	95	103
65	13	9	1	9	1	10
66	43	6	4	12	15	27
67	32	7	3	8	22	40
68	50	4	6	14	39	53
69	50	5	5	10	24	34

TABLE 16.--Con't

Ss	O.I.T. Value	Color Frequency	Form Frequency	Color Reaction Time	Form Reaction Time	Total Reaction Time
70	48	5	5	11	21	32
71	35	7	3	21	9	30
72	49	4	6	12	14	26
73	51	5	5	26	34	60
74	13	9	1	18	2	20
75	55	5	5	17	29	46
76	39	6	4	13	18	31
77	23	8	2	15	6	21
78	46	5	5	19	31	50
79	53	5	5	18	23	41
80	13	9	1	19	5	24
81	31	7	3	21	25	46
82	37	6	4	16	37	53
83	51	5	5	10	20	30
84	44	6	4	11	11	22
85	35	7	3	28	35	63
86	57	4	6	12	29	41
87	50	6	4	25	23	48
88	24	8	2	23	14	37
89	43	6	4	15	20	35
Male Non-Delinquent						
90	30	7	3	14	7	21
91	30	7	3	14	7	21
92	35	5	5	12	13	25

TABLE 16.--Con't.

Ss	O.I.T. Value	Color Frequency	Form Frequency	Color Reaction Time	Form Reaction Time	Total Reaction Time
93	30	7	3	26	9	35
94	37	7	3	14	7	21
95	41	6	4	12	11	23
96	79	4	6	5	30	35
97	70	4	6	14	31	45
98	90	1	9	2	65	67
99	25	8	2	36	4	39
100	84	2	8	6	33	39
101	90	1	9	5	56	61
102	33	7	3	18	6	24
103	46	5	5	11	13	24
104	58	4	6	13	22	35
105	30	7	3	16	8	24
106	76	5	5	8	30	38
107	76	3	7	9	26	35
108	73	4	6	7	26	33
109	33	7	3	16	6	22
110	90	1	9	3	43	46
111	30	7	3	14	7	21
112	76	4	6	8	31	39
113	84	2	8	4	32	63
114	33	7	3	19	7	26
115	50	5	5	10	21	31
116	41	6	4	14	12	26
117	79	2	8	9	26	35

TABLE 16.--Con't.

Ss	O.I.T. Value	Color Frequency	Form Frequency	Color Reaction Time	Form Reaction Time	Total Reaction Time
118	33	7	3	20	8	28
119	74	3	7	6	24	30
120	85	2	8	4	27	31
121	76	3	7	14	35	49
122	55	4	6	9	16	25
123	41	6	4	15	9	24
125	90	1	9	2	45	47
125	33	7	3	18	6	24
126	30	7	3	18	7	25
127	75	5	5	10	29	39
128	33	7	3	14	7	21
129	42	6	4	12	8	20
130	94	1	9	2	37	33
131	33	7	3	19	8	27
132	30	7	3	16	7	23
133	36	7	3	20	7	27
Female Non-Delinquent						
134	87	3	7	13	39	52
135	37	7	3	17	13	30
136	42	6	4	30	19	49
137	84	2	8	10	42	52
138	59	5	5	12	22	34
139	59	5	5	13	21	34
140	59	5	5	15	22	37

TABLE 16.--Con't.

Ss	O.I.T. Value	Color Frequency	Form Frequency	Color Reaction Time	Form Reaction Time	Total Reaction Time
141	64	4	6	17	28	45
142	36	7	3	20	11	37
143	78	3	7	13	27	40
144	79	3	7	14	31	45
145	69	4	6	20	21	41
146	79	3	7	6	31	37
147	59	5	5	40	29	69
148	79	2	8	10	46	56
149	85	2	8	12	49	61
150	62	4	6	17	25	42
151	36	7	3	29	19	48
152	80	3	7	9	43	52
153	59	5	5	11	15	26
154	23	5	5	13	33	46
155	46	6	4	16	21	37
156	45	6	4	23	24	47
157	53	4	6	14	23	37
158	36	7	3	26	16	42
159	51	5	5	19	28	47
160	24	8	2	16	6	22
161	59	5	5	22	35	57
162	75	3	7	11	24	35
163	13	9	1	29	2	31
164	59	5	5	15	21	36
165	48	6	4	35	17	52

TABLE 16.--Con't.

Ss	O.I.T. Value	Color Frequency	Form Frequency	Color Reaction Time	Form Reaction Time	Total Reaction Time
166	90	1	9	4	45	49
167	90	1	9	3	50	53
168	47	7	3	15	21	63
169	36	7	3	46	13	59
170	65	3	7	11	32	43
171	22	5	5	44	22	66
172	68	4	6	22	33	55
173	89	2	8	13	87	100
174	58	5	6	11	32	43
175	74	3	7	19	68	87
176	85	2	8	15	73	88
177	59	5	5	17	25	42

TABLE 17

CHRONOLOGICAL AGE AND THE OTIS QUICK-SCORING MENTAL ABILITY TESTS I. Q. SCORES

CA	IQ	CA	IQ	CA	IQ	CA	IQ
Male Juvenile Delinquents							
15-5	113	15-7	95	12-2	91	15-0	79
14-0	115	13-11	102	13-11	92	14-0	73
15-7	111	14-3	101	13-6	90	15-5	82
14-11	116	13-7	97	15-8	82	14-4	83
15-9	112	15-0	91	15-3	81	14-5	83
15-5	112	14-5	94	13-3	88	16-11	85
14-9	119	15-1	103	13-6	80	14-3	104
15-6	105	12-6	98	16-1	81	15-5	100
15-10	96	15-8	106	13-1	83		
Female Juvenile Delinquents							
17-8	117	15-5	91	17-3	94	14-7	96
17-8	112	15-8	108	17-0	108	17-7	95
15-1	118	16-6	102	17-0	105	15-8	90
15-7	111	15-10	100	15-0	110	16-10	102
17-1	111	16-9	92	16-8	102	14-11	82
15-3	117	16-1	105	15-3	101	16-11	73
14-6	116	17-4	106	16-0	107	15-2	78
13-5	126	15-10	108	15-3	92	16-11	80
15-3	116	15-8	90	15-5	96	15-3	89
17-4	112	14-3	94	17-11	93	16-6	85
17-2	115	16-3	97	16-8	96	17-7	89

TABLE 17.--Con't.

CA	IQ	CA	IQ	CA	IQ	CA	IQ
15-7	116	16-5	110	15-4	98	16-7	81
13-11	112	16-7	90	14-3	93	17-3	106
17-10	90	15-11	101				
Male Non-Delinquents							
16-9	112	17-2	110	18-2	96	16-11	105
16-2	115	16-6	96	16-10	96	17-7	91
17-5	116	16-0	98	16-9	106	16-4	99
17-6	115	15-7	108	16-7	104	15-9	98
16-5	118	16-6	101	16-9	100	16-6	88
15-6	117	15-6	94	16-7	92	17-0	78
15-9	126	15-8	100	17-3	106	17-9	75
15-9	113	18-5	106	18-3	91	15-9	82
15-9	123	16-9	105	16-8	99	16-4	85
18-4	117	15-9	105	19-1	90	18-5	82
16-0	114	17-1	90	15-8	97	17-4	70
Female Non-Delinquents							
17-6	123	15-10	117	18-0	101	16-2	105
16-5	112	17-4	114	17-8	100	17-9	104
18-2	112	18-7	111	18-4	96	16-2	101
18-5	119	16-7	96	16-7	106	16-7	85
15-9	115	18-2	102	16-3	103	18-2	89
18-0	126	16-4	109	17-2	104	16-7	87
16-2	129	17-2	94	16-3	92	17-3	76

TABLE 17.--Con't.

CA	IQ	CA	IQ	CA	IQ	CA	IQ
17-9	122	16-8	100	16-3	90	18-5	68
15-10	120	17-7	97	17-3	97	19-5	82
16-11	128	17-5	93	17-0	106	16-3	74
15-8	125	17-0	95	17-2	107	17-6	85

APPENDIX D. SAMPLE OIT SCORE SHEET

O. I. T. SCORE SHEET

Name:_____
Last First

Birth Date:_____ Age:_____
Year Month Day

Sex: M F JD ND

School:

Grade:

I.Q.:

M. M. P. I.

OIT Card	Value C	Value F	Time
A	10	10	
B	13	13	
C	11	11	
D	12	12	
E	12	12	
F	5	5	
G	11	11	
H	9	9	
I	6	6	
J	11	11	