THE CAPACITY TO DELAY GRATIFICATION AND ITS RELATIONSHIP TO PERCEPTUAL DEVELOPMENTAL LEVEL, EGO STRENGTH AND ANXIETY LEVEL: A STUDY OF PRISONERS

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ABSTRACT

THE CAPACITY TO DELAY GRATIFICATION AND ITS RELATIONSHIP TO PERCEPTUAL DEVELOPMENTAL LEVEL, EGO STRENGTH AND ANXIETY LEVEL: A STUDY OF PRISONERS

by Walter A. Watman

This research examined individual differences among prison inmates in capacity to delay gratification. The relationships of perceptual developmental level, ego strength and, secondarily, anxiety level to delay of gratification were also studied. The hypotheses regarding relationships between delay capacity, perceptual functioning, ego strength and anxiety level have their basis in psychoanalytic theory. Empirical findings in regard to the relationship of each of the other variables to delay capacity and the reliability and validity of measurement techniques concerned with their assessment were presented.

Capacity to delay gratification was operationally defined in terms of a behavioral choice of and preference for immediate or delayed rewards. Pilot research revealed that subjects could be very reliably differentiated on the basis of this measure. Two groups of inmates who did not differ on the variables of age, I.Q., and length of imprisonment were sharply differentiated and identified

as low and high in the capacity to delay gratification, and were hypothesized to differ in the following ways:

1. Inmates low in the capacity to delay gratification will show less evidence of integrative and organized perceptual functioning than inmates who are high in the capacity to delay gratification.
2. Inmates low in the capacity to delay gratification will show less evidence of perceptual activity characteristic of the most mature levels of adult functioning than inmates high in the capacity to delay gratification.
3. Inmates low in the capacity to delay gratification will possess less ego strength than inmates who are high in the capacity to delay gratification.
4. Inmates low in the capacity to delay gratification will possess an anxiety level higher than those high in the capacity to delay gratification.
5. Inmates low in the capacity to delay gratification will express their anxiety more overtly than inmates high in the capacity to delay gratification.

Support was found for hypotheses 1 and 2 regarding the relationship between the Capacity to Delay Gratification and Perceptual Developmental level as assessed by the Rorschach Genetic Level Scoring System. Hypotheses 3, 4, and 5, which attempted to explore the relationship of the Capacity to Delay Gratification to Ego Strength, Anxiety level and Overt-Covert anxiety as assessed by the IPAT Scale, were not supported. The failure of hypothesis 3 to differentiate the groups was discussed in terms of the differences between the theoretical conception of ego strength on the one hand and the nature of the measuring technique used to assess it on the other, as well as the possible influence of a social desirability variable. The absence of support for hypothesis 4 was discussed in terms of the anxiety creating nature of the prison environment and its influence on inmates. The operation of a social desirability variable was felt to account for the absence of support for hypothesis 5.

Although the Ego Strength and Anxiety variables did not differentiate the groups they were found to correlate significantly with the production of the most perceptually mature responses. Anxiety and age were found to correlate significantly with the tendency to express anxiety overtly and on the basis of these findings inferences were made concerning the possibility that institutionalization adversely affects the psychological health of inmates.

In contrast to some previous research, I.Q. was found to be unrelated to the capacity to delay gratification.

Some of the findings made it possible to suggest that future research might make use of only the most perceptually mature responses on the Rorschach Genetic Level Scoring System as a shorter measure of the capacity to delay gratification. Research that would explore the differences between low and high delay capacity subjects with respect to oral and dependent needs as well as the length of time such individuals remained in psycho-therapy was also suggested. The implication that institutionalalization may result in decreased capacity to delay gratification and increased manifestation of symptoms of anxiety was thought to provide intriguing possibilities for future research.

Approved_____
Committee Chairman

Date_____

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To My Wife Adrienne and Our Children

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TABLE OF CONTENTS

Chapter		Page
	ACKNOWLEDGMENTS	iii
	LIST OF TABLES	vii
	LIST OF APPENDICES	ix
I.	INTRODUCTION	1
II.	THEORETICAL BACKGROUND	3
	The Relationship Between the Capacity to Delay Gratification and Perceptual Development	3
	The Relationship Between the Capacity to Delay Gratification and Ego Strength	11
	The Relationship Between the Capacity to Delay Gratification and Anxiety Level	13
III.	EMPIRICAL BACKGROUND	16
	Introduction	
	Traditional Assessment of the Capacity to Delay Gratification	17
	Critique and Comments	25
	Direct Assessment of the Capacity to Delay Gratification	34
IV.	THE ASSESSMENT OF PERCEPTUAL DEVELOPMENTAL LEVEL, EGO STRENGTH AND ANXIETY LEVEL	43
	Perceptual Developmental Level as Measured by the Rorschach Genetic Level Scoring System	43
	Summary	50
	Ego Strength and Anxiety Level as Measured by the IPAT Anxiety Scale	51
V.	METHODOLOGY	56
	Selection of Subjects	56
	Procedure	58
	Scoring of the Rorschach Protocols	65
	Scoring of the IPAT Anxiety Scale	69

Chapter		Page
VI.	STATEMENT OF PROBLEM AND INTERRELATIONSHIP AMONG VARIABLES	70
	Theoretic and Operational Hypotheses	71
VII.	RESULTS	74
	Reliability of the Scoring of the Rorschach Genetic Level Scoring System.	74
	Results of Hypotheses.	76
VIII.	ADDITIONAL FINDINGS AND DISCUSSION.	84
	Suggestions for Future Research.	107
IX.	SUMMARY	112
	APPENDICES.	116
	REFERENCES.	144

LIST OF TABLES

Table		Page
1.	Age, Intelligence and Length of Present Imprisonment of Subjects	59
2.	Chi Square Analysis Between Smoking and Choice of Immediate or Delayed Rewards . .	59
3.	Chi Square Analysis Between Race and Choice of Immediate or Delayed Reward	59
4.	A Comparison between the First and Last 33% of Ss with Respect to their Consistent Choice of Immediate or Delayed Rewards . .	64
5.	Chi Square Test for Relationship between Group and Ratings of Perceptual Developmental Level	68
6.	Rorschach Genetic Level Scoring System Results-Perceptual Developmental Level Scores	76
7.	Mann-Whitney U Test of the Proportion of Most Perceptually Mature Responses (MPM) produced by the Low and High Delay Capacity Groups on the Rorschach	77
8.	Chi Square Analysis of the Total Number of Rorschach Responses (R) produced by the Groups	78
9.	A Comparison of the Groups on Location Choice on the Rorschach	78
10.	A Comparison of the Groups on the Ego Strength Variable of the IPAT	79
11.	A Comparison of the Groups on each of the 2 factors (Q3 and C-) that together define the Ego Strength Variable of the IPAT. . .	80
12.	A Comparison of the Groups on the Anxiety Variable of the IPAT	81

Table | Page

13. A Comparison of the Groups on the Overt-Covert Anxiety Variable of the IPAT. . . . 81

14. Number of Subjects Choosing Immediate and Delayed Rewards on Each of the 7 Choices . 82

15. Intercorrelations among the Dependent Variables and between them and Relevant Control Variables. 85

16. Chi Square Analysis between the Use of Cigarettes for Trading and Smoking 117

17. Fisher Exact Test between Smoking and Choice of Delayed or Immediate Reward (Pilot Subjects). 118

18. Frequency Distribution of Scores Obtained by Pilot Subjects in Choosing Between Immediate and Delayed Rewards. 123

19. Number of Pilot Subjects Choosing Immediate and Delayed Rewards on Each of the 7 Choices. 124

LIST OF APPENDICES

Appendix		Page
A	Pilot Research.	116
B	Age, I.Q. and Length of Imprisonment (months) of subjects in the Low Capacity to Delay Gratification Group	125
C	Age, I.Q. and Length of Imprisonment of Subjects in the High Capacity to Delay Gratification Group.	126
D	Definitions and Examples for the Rorschach Genetic Level Scoring System.	127
E	Rationale for Level of Responses of Rorschach Genetic Scoring System.	133
F	Total number of responses (R), number and percentage of W, D and Dd responses on the Rorschach--Low Delay Capacity Group	136
G	Total number of responses (R), number and percentage of W, D and Dd responses on the Rorschach--High Delay Capacity Group.	137
H	Individual Judges' and Mean rating of Rorschach responses as scored by Genetic Rorschach Level Scoring System--Low Delay Capacity Group.	138
I	Individual Judges' and Mean rating of Rorschach responses as scored by Genetic Rorschach Level Scoring System--High Delay Capacity Group.	139
J	Rank and proportion of Most Perceptually Mature responses (levels 5 and 6) on Rorschach Genetic Level Scoring System--Low Delay Capacity Group.	140
K	Rank and proportion of Most Perceptually Mature responses (levels 5 and 6) on Rorschach Genetic Level Scoring System--High Delay Capacity Group.	141

Appendix Page

L Anxiety Scores, Overt-Covert ratios, Ego Strength Scores on IPAT Anxiety Scale for Low Delay Capacity Groups 142

M Anxiety Scores, Overt-Covert ratios, Ego Strength Scores on IPAT Anxiety Scale for High Delay Capacity Groups. 143

Chapter I

INTRODUCTION

Lay people make frequent use of the term "impulsive" in alluding to individuals who act on the spur of the moment without much forethought. References are often made to the importance of tolerance or preference for delayed rewards in a multitude of complex human situations. The concept of the capacity to delay gratification is implicitly involved in such descriptions, for behaviorally, people seem to differ in the extent to which they postpone immediate needs and desires for possible greater future reward.

Social scientists have noted this behavior and commented on what might be termed the capacity to postpone the satisfaction of present desires in favor of greater eventual benefits. Clinically, mental health workers have defined the psychodiagnostic category Sociopathic or Psychopathic Personality as having reference to a person for whom "the real meaning of life is the direct gratification of impulse" (White, 1956); one who is "unable to forego immediate pleasures for future gains and long range goals; who is hedonistic and lives in the present without consideration of past or future" (Coleman, 1956). Such individuals are thought to be found frequently in

prisons.

A researcher's desire to study behavior is facilitated when the phenomena of interest are boldly exhibited. People in general possess the capacity to delay gratification of their needs to varying degrees but the inmates of penal institutions by the very fact of their incarceration permit, indeed beckon the scientist to explore this personality variable. What are some characteristics of prisoners who, while seeking to satisfy their needs and urges, behave as though they choose to be immediately gratified? Are they different in their perceptual development from those who generally delay gratification? Is their capacity to delay gratification related to their ego strength and anxiety level? This study will explore and comment upon these questions.

Chapter II

THEORETICAL BACKGROUND

The Relationship Between the Capacity to Delay Gratification and Perceptual Development

The concept of delay of gratification as a basic ego function offers one important rapprochement between psychoanalytic theory and general experimental psychology. It is basic to Freud's theory of the development of thought and perceptual processes and occupies a central position in his explanation of the transition from primary to secondary process functioning. In spite of the separation of the processes of thought and judgment from those of perception for pedagogical purposes, the psychoanalytic theory of thinking reiterates the complex relationship between them. An examination of the theory is necessary in order to understand the relationship between delay capacity and perceptual development.

Freud (1911) discussed the question of how behavior and thought, while causally determined by drives, also serve the adaptation to reality. He was "confronted with the task of investigating the development of the relation of the neurotic and of mankind in general to reality and of bringing the psychological significance of the real outer world into the structure of theory." He conceptual-

ized ideation as the "hallucinatory" experience of a need satisfying object stimulated by a current need for impulse gratification. Ideation was said to be equivalent to drive representation and was accompanied by an affective discharge. In a later elaboration of the infant's mental functioning prior to development of reality considerations, Freud (1900) wrote: "First the apparatus strove to keep itself as free from stimulation as possible and therefore in its early structure adopted the arrangement of a reflex apparatus which enabled it promptly to discharge by motor paths any sensory excitation reaching it from without. But this simple function was disturbed by the exigencies of life . . . which . . . first confronted it in the form of the great physical needs. The excitation aroused by the inner need seeks an outlet in motility which we may describe as internal change or expression of emotions. The hungry child cries or struggles helplessly but its situation remains unchanged; for the excitation proceeding from the inner need has not the character of a momentary impact but of a continuing pressure. A change can occur only if in some way there is an experience of satisfaction which puts an end to the internal excitation. An essential constituent of this experience is the appearance of a certain percept, the memory image of which is henceforth associated with the memory trace of the excitation arising from the need."

By postulating a relationship between the excitation

and the memory image, the need and the idea of the need satisfying object, Freud was discussing drive compelled thought (ideation, drive representation and primary processes) before these were supplemented and partly supplanted by secondary process thought. That is, these hypothetical processes represented Freud's inferences about the infant's cognitive functioning before external reality became a consideration. In a further elaboration of this early psychic functioning Freud (1900) continued: "Thanks to the established connection (between the trace of excitation and the memory trace of the object affording gratification) there results at the next occurrence of this need, a psychic impulse which seeks to revive the memory image of the former percept and to re-evoke the former percept itself; that is, it actually seeks to re-establish the situation of the first satisfaction. Such an impulse is what we call a wish; the reappearance of the percept constitutes the wish fulfillment and the full cathexis of the percept by the excitation springing from the need constitutes the <u>shortest</u> path to the wish fulfillment. [This last statement contains the first reference to temporality made by Freud in connection with the infant's state of mental functioning.] We may assume a <u>primitive</u> state of the psychic apparatus in which this path is actually followed; that is, in which the wish ends in hallucination. [Freud's use of the term

"primitive" has reference to the as yet structurally undeveloped perceptual apparatus which does not act upon reality considerations.] This first psychic activity therefore, aims at an identity of perception; that is, at a repetition of that perception which is connected with the satisfaction of the need."

Freud (1911) had now set the theoretical stage for the introduction of the reality principle. "The attempt at satisfaction by means of hallucination was abandoned only in consequence of the absence of the expected gratification because of the disappointment experienced. Instead, the mental apparatus had to decide to form a conception of the real circumstances in the outer world and exert itself to alter them. A new principle of mental functioning was thus introduced; what was conceived of was no longer that which was pleasant but that which was real even if it should be unpleasant. This institution of the reality principle proved a momentous step." Freud could now turn toward exploring how the individual's sensory relationships to his environment developed. The perceptual qualities of the external rather than the internal world began to command his theoretical attention. He wrote: (1911) "The increased significance of external realities heightened the significance also of the sense organs directed toward the outer world and of the consciousness attached to them; the latter now learned

to comprehend the qualities of sense in addition to the qualities of pleasure and pain which hitherto had alone been of interest to it. A special function was instituted which had periodically to search the outer world in order that its data might be already familiar if an urgent need should arise; this function was attention. Its activity meets the sense impressions halfway instead of awaiting their appearance." These last statements offer possible clues to the way in which Freud felt the eventual complex human perceptual world was built. Rapaport (1951) has suggested in this context that prior to the functioning of attention, if the sense impression did not impinge upon the apparatus, affect discharge and hallucinatory image of the need satisfying object arose but there was no search for the need satisfying object in reality. "Meeting the sense impressions halfway is the attentive-purposive activity by which the organism, even when not in need, notices and organizes its world to provide for the time when the need will arise. It is the activity by which the human perceptual world acquires its richness as compared with the world of animals in which the few relevant objects are those which directly gratify instincts or are closely related to such objects."

The concept of delay, which stood in the center of Freud's (1911) theory of thought development, was introduced in the following way: "A new function was now

entrusted to motor discharge which, under the supremacy of the pleasure principle, had served to unburden the psychic apparatus of accretions of stimuli, and carried out this task by sending innervations (i.e., expressions of affect) into the interior of the body; it was now employed for the purposive alteration of reality. Restraint of motor discharge, of action, had now become necessary and was provided by means of the process of thought which developed from ideation. Thought was endowed with qualities which made it possible for the mental apparatus to support increased tension during the delay in the process of discharge. It is essentially an experimental way of acting accompanied by displacement of smaller quantities of cathexes together with less expenditure, i.e., discharge of them. For this purpose conversion of free cathexes into "bound" cathexes was imperative." Thought, in other words, brings reality considerations and the possibility of accurate perception into the picture but is possible only by virtue of delaying the discharge of need tensions. As the vivid hallucinatory experience and affective discharge is prevented by this delaying action the conserved energy is employed in seeking the need satisfying object in reality. The intricate interrelationship between thought and perception is clearly evident in these processes. Freud seems to here imply that parallel with the development of the

organism's capacity to delay gratification, it also begins to function more in terms of the reality principle.

In describing the organism's developmental state just prior to these occurrences (i.e., before the imperative conversion of free into bound cathexes) Rapaport (1951) stated: "The cathexes of drives are referred to as free in that they shift freely from one idea to another. Their mobility is inferred from the observation of displacement, condensation, etc., in dream work and symbol formation. This free mobility can be more readily understood by taking into consideration developmental conditions.

Since the infant's perception is global, diffuse, and undifferentiated, so is its percept and memory of the need satisfying object. In the course of development, differentiation takes place and discrete partial aspects of the need satisfying object crystalize. This transition is synonomous with the development of the secondary process out of the primary and is one aspect of the development of reality testing and the ego."

Hence, it can be seen that prior to the development of the capacity to delay gratification the infant's perception is thought to be undeveloped in the structural sense. More mature perceptual functioning comes with the organism's developing tendency to exercise the capacity to delay gratification.

Implied, in the view of the present writer, is the hypothesis that individuals who are less able to delay gratification will possess a perceptual structure that is relatively undeveloped in comparison to individuals more capable of delaying gratification and the present research will examine this inference.

Psychoanalytic theories have dealt with the idea that delinquents, and by extrapolation most individuals who find themselves regularly involved in violations of the law, have a characteristic impulsiveness, a tendency to disregard the history of a situation and the consequences of an act. Such impulsiveness is considered to be representative of a developmental lag or defect related to the failure in the development of those ego capabilities which, maturing from infancy on, allow for successive increases in the capacity to delay gratification. Ego development in such people is seen as retarded or impaired. Fenichel (1945) indicated that "such individuals are intolerant of tensions; whatever they need they must attain immediately. The overcoming of this state is based on two developmental factors, one of which is the ability to postpone immediate reaction. Individuals who cannot wait, act instead of thinking. They have not fully developed their reality principle and misjudge reality in terms of past experiences. They still act as if any tension were a dangerous trauma.

Any tension is felt as hunger was felt by the infant; that is as a threat to their very existence." Fenichel offers, as a reason for such individuals being intolerant of tension, a fixation on the early (oral) phase of development in which striving for sexual satisfaction and striving for security are not yet differentiated from each other. "Being fixated on the oral phase they tend to react to frustration with violence. Their main conflict is one between this tendency toward violence and a tendency to repress all aggressiveness through fear over loss of love; that is, fear of receiving still less in the future" (Fenichel, 1945). Such a fixation suggests that individuals who are less able to delay gratification should not have progressed to the level of perceptual activity characteristic of mature adult functioning.

Implied herein is the hypothesis that inmates who are low in the capacity to delay gratification will show less evidence of perceptual activity characteristic of the most mature levels of adult functioning than inmates who are high in the capacity to delay gratification.

The Relationship Between Capacity to Delay Gratification and Ego Strength

The mental apparatus's ability to support increased tension during a delay in the process of discharge, i.e., the capacity to delay gratification, develops concomitantly

with the organism's increased concern for the external world. This restraint of motor discharge was provided by the process of thought. As Freud (1911) indicated, motor discharge now had a new function. It was employed for the purposive alteration of reality. He implied that before the capacity to delay gratification could be exercised by the organism the role of motor discharge was related to affectivity, but when this capacity became functional, motor discharge became associated with the term motility. "Affectivity manifests itself essentially in motor (i.e., secretory and circulatory) discharge resulting in an internal alteration of the subject's own body without reference to the outer world: motility does so in action designed to reflect changes in the outer world." (Freud, 1915a) The relationship between motility and delay capacity was therefore established but the question of a connection between motility and ego strength remained. Freud wrote (1915b): "The capacity for making a first orientation in the world by means of its (the organism's) perceptions distinguishing between outer and inner according to their relation to actions of the muscles, occurs at first. A perception which is made to disappear by motor activity (motility) is recognized as external, as reality; where such activity makes no difference the perception originates within the subject's own body (presumably Freud refers here to the process of

affectivity). Freud continues: This function of orienting the individual in the world by discrimination between inner and outer must now after detailed dissection of the mental apparatus be ascribed to the system Cs (perceptual) alone. Consciousness must have at its command motor innervation which determines whether the perception can be made to disappear or whether it proves persistent. The capacity for testing reality may be nothing more than this function."

Motility then, first serves as the channel of discharge for tensions due to needs of drive origin; later it becomes the tool of reality testing by distinguishing between inner and outer sources of stimuli; that is to say between the I and not I. Finally it assumes the character of action altering the external world for the purposes of gratification. What is implied as a necessary though perhaps not sufficient condition for the accomplishment of the ego function of reality testing is the development of the capacity to delay gratification. Freud (1936) discussed ego strength in more specific terms when he wrote: "The ego controls the entrance into consciousness as well as the passage into activity directed to the environment. The instinct representative experiences the one, the instinctual impulse itself the other side of the ego's manifestation of authority." That is, the impulse seems to be handled by the control

function of the ego while its representative is managed by the synthesizing, organizing and unifying ability of the ego. "The ego," Freud continues, "is an organization; it is dependent on the free intercommunication of and the possibility of reciprocal interplay between its constituent elements; its desexualized energy still gives evidence of its origin and its striving for union and unification, and this compulsion to synthesis increases in direct proportion to the strength which the ego attains."

Implied, in the view of the present writer, is the hypothesis that inmates who are low in the capacity to delay gratification will possess less ego strength than inmates high in the capacity to delay gratification.

The Relationship Between the Capacity to Delay Gratification and Anxiety Level

Earlier in this chapter the psychoanalytic view of individuals who cannot postpone immediate reaction, that is, possess a low capacity to delay gratification, was offered. Fenichel (1945) indicated that such people experienced tensions as a "threat to their very existence." This tension is conceived of as representing intense anxiety thereby suggesting the hypothesis that the anxiety level of inmates low in the capacity to delay gratification should be higher than that of inmates high

in the capacity to delay gratification.

In a further statement of the psychoanalytic view, Fenichel (1945) wrote: "When the child learns to control his motility, purposeful action gradually takes the place of mere discharge reactions; the child can now prolong the time between stimulus and reaction and achieve a certain tolerance of tension. The characteristic capacity for "trying out" that is thus acquired changes the ego's relation to its affects . . . now the growing ego learns to "tame" affects and to use them for its own anticipating purposes. This holds true for anxiety." This seems to suggest that with the development of the ego's capacity to delay gratification, to exercise control, anxiety becomes less overt and panic producing and is utilized instead as a signal or protective measure. In view of this, it can be hypothesized that inmates who are low in the capacity to delay gratification should experience anxiety more overtly than inmates high in the capacity to delay gratification.

Chapter III

EMPIRICAL BACKGROUND

Introduction

This chapter is divided into three sections. In part one, research that has assessed the capacity to delay gratification in the traditional manner is reviewed. Most of this experimentation has used either the Rorschach Movement response (M) or estimations of the passage of time as measures of the capacity to delay gratification. These measures are considered indirect since they do not involve behavioral delay.

The second section of this chapter offers a critique of the traditional, indirect experimentation. It points up a lack of conceptual clarity, the partial failure of the measurement techniques to accurately reflect the theoretical conception of delay capacity, and the existence of alternative interpretations for some of the research findings, particularly those involving the Rorschach M response. Based on these comments, the need for a more appropriate measure of the capacity to delay gratification is made apparent.

A series of studies by Mischel is reviewed in section three of this chapter under the heading Direct

Assessment. They use direct behavioral measures of preference for immediate smaller or delayed larger rewards in the assessment of capacity to delay gratification. Absent from Mischel's experimentation are the failings of the traditional, indirect research referred to in previous sections of this chapter. The measures used by Mischel to assess delay capacity were, with some modification, (Appendix A), used in the present research.

Traditional Assessment of the Capacity to Delay Gratification

Studies using the same technique are best reviewed together. These involve for the most part, the use of the Rorschach Movement Response (M) as an indirect measure of the capacity to delay gratification. The rationale for its use came from Rorschach's (1942) observations that persons who saw numerous human figures in motion on inkblots tended to be inhibited in their own motor activity and given to considerable imagination or fantasy living. He suggested the presence of an inverse relationship between the tendency to give kinesthetic responses (M) and the degree of general motility, indicating that the greater amount of M the less motility and the more inhibition. M was also thought to be indicative in this context, of the capacity for rich fantasy living. As Singer (1955) indicated, "Rorschach, although lacking

a clearcut theory was formulating a triadic linkage of motor inhibition, perception of motion and imagination. Here is a possible linkage between the psychoanalytic concept of delay and the sensory tonic theory of vicarious functioning of motor activity and motion perception." A number of studies have shown interesting relationships between measures of impulse delaying ability (M) and various behavioral correlates. Such research has for the most part been based on the Freudian formulation that delay or inhibition of immediate gratification is a prerequisite for the development of cognitive processes such as thought, fantasy and imagination, as well as the above mentioned formulations of Rorschach. If blocked motor discharge could be shown to be related to the perception of movement then the Freudian conceptualization of the relationship between delay of discharge and thought and perceptual development would gain in validity. The findings of Singer, Meltzoff and Korchin (1952) support this view. Using university students, they obtained responses before and after periods of motor inhibition and hypothesized that M productivity prior to inhibition would be positively correlated with a measure of duration of inhibition; that is, Ss with high numbers of M responses would show longer inhibition times. It was also hypothesized that after a period of motor inhibition experimental Ss would show more M than control Ss

who had not undergone motor inhibition. Localized tasks of slow writing with only the hand and arm were used. The hypotheses were confirmed and were interpreted as support for Werner and Wapner's (1949) theoretical contention that the inhibition of motor performance may increase tonicity in a sensory area bringing about spatial displacement and illusory motion. Singer, Meltzoff and Goldman (1952) had the same hypotheses as above but used 24 students, and a more generalized condition of motor inhibition. Support was found for the hypothesis that the number of M responses produced after motor inhibition was greater than the number before. No support was found for the hypothesis that a greater number of M responses would be produced following motor inhibition than following hyperactivity or for the hypothesis that following hyperactivity fewer M responses would be produced than in a controlled administration. These failures were accounted for by such situational variables as "hot weather" and "fatigue." Singer and Spohn (1954) divided 50 mixed schizophrenics into two groups. One had two or more M responses on their Rorschachs, the other never had less than two. M served as the index of motor inhibition. High M Ss were found to have longer inhibition times and lower waiting room activity. Inhibition times were determined by slow writing tasks and waiting room activity was rated as to degree of gross motor behavior.

The results were equivocal for other kinds of M responses and the authors indicated that "previous research has yielded inconsistent results with respect to other types of movement responses, i.e., FM and m." Meltzoff and LeVine (1954) hypothesized, using 80 male and female university students, that Ss with greater ability to voluntarily inhibit motor activity would be able to inhibit learned associations and produce new ones quicker than those less adept at inhibiting motor activity. They suggested a direct relationship between motor inhibition and inhibition of a cognitive process. The 80 Ss were divided at the median on the basis of slow writing tasks. Differences between groups on cognitive inhibition time as measured by speed of inhibiting learned word association pairs and the production of new associations to stimulus words was significant, thereby supporting the hypothesis. Singer and Hermann (1954) using 60 schizophrenic Ss and dividing them into high and low M producers, found that the high M Ss had "longer delay capacity, less waiting room activity and more frequent introduction of characters or incidents not directly represented into TAT stimuli." In other words, Ss whose Rorschachs contained more M responses tended to tell more imaginative stories to TAT pictures. Meltzoff and Litwin (1956) attempted to extend the relationship of M and inhibitory ability to include the control of feelings

as well as actions and thoughts. With 68 college students as Ss it was hypothesized that a direct relationship between the production of M and affective control would exist. It was predicted that more Ss with high M than low M would be able to inhibit the overt expression of an experimentally induced affect. The impulse to laugh was induced and Ss were instructed to refrain from any affective expression. In support of the hypothesis, more high M than low M Ss were successful. The authors pointed out that there was a difference between inhibiting expression of an affect and controlling it; that is, modifying the affect itself by cognitive processes which alter autonomic reaction patterns. It was suggested that the ability of some Ss to control affective expression motorically and the ability of others to do so cognitively recapitulated the developmental process wherein the ability to use cognitive processes to control feelings appears at a later stage of personality development. Levine, Glass and Meltzoff (1957) in a further attempt to support the use of M as a measure of delay capacity used 274 veterans with varying diagnoses. The frequency of M responses was related to the frequency of reversal of the number 2 in the digit symbol sub-test of the Wechsler. Reproducing the number 2 as "N" was considered to be "a function of an insufficient delay or control of a response tendency." The hypothesis that

reversers would produce fewer M responses than controls was confirmed and it was also suggested that adequate delay capacity was an important factor in earning a high score on intelligence tests since reversers had a significant lower mean IQ than controls. The authors concluded that "the findings provide further evidence of the general significance of the inhibition process as measured by M and by specific tasks in that manifestations of the inhibition process can be identified in intelligence test performance." LeVine and Meltzoff (1956) hypothesized a relationship between the production of M and the ability to inhibit associations. Ninety-three neuropsychiatric veterans received the Rorschach and a task designed to measure the efficiency of cognitive inhibition. As predicted, high M producers were better able to inhibit associations. Further support for the interdependence of motion perception, motor inhibition and cognitive processes was claimed. Singer, Wilenski and McCraven (1956) used a large number of tests in behavioral situations that presumably tapped aspects of impulse control; i.e., delay capacity, planning ability and fantasy. The subjects were one hundred male VA patients all diagnosed as schizophrenics. It was hypothesized that "a battery of procedures which on the surface measured a wide variety of performances ranging from fantasy capacity as seen in story telling, perception

of humans in activities on inkblots, planning in a maze test, slow writing, and accuracy of judgments as to when a stated time interval had elapsed, would all be revealed as aspects of an underlying more general dimension in which the capacity for imaginal living and control of impulse motility were linked." The postulation of a fantasy-motility dimension of personality was supported but found to be oversimplified. Specifically, two types of persons produced a large number of M. One type consisted of Ss who restrained impulsive responses, planned ahead and cooperated for their own good in numerous hospital situations involving waiting or complying with routine. The other type, also high M producers, were very withdrawn and nearly autistic and "could not make effective use of their potentialities for effective motor control and planfulness." The authors suggested, as does this writer, that "qualitative exploration of the nature of movement responses is needed." Spivak, LeVine and Spiegel (1959) used 123 emotionally disturbed adolescents and attempted to demonstrate a relationship between three measures of the capacity to delay gratification and general intellectual level. Time estimation, Rorschach M and the Stroop color word test, the three delay measures, all correlated positively and significantly with IQ, thus supporting the hypothesis. However, M did not correlate with time estimation. Performance on the digit

span sub-test of the Wechsler, thought to reflect the ability to control or inhibit extraneous thoughts and stimuli, correlated significantly with none of the delay measures. LeVine, Spivak and White (1959) found that measures of delay such as motor inhibition, cognitive inhibition, time estimation and time perspective were all positively related to IQ although they did not all correlate among themselves. Time estimation and time perspective were unrelated while time estimation was related to motor inhibition although the latter was unrelated to time perspective. The authors suggested that there may be both motor and cognitive aspects to delaying ability with developmental differences present. As in a previous study, Spivak et al. (1959), there was no significant relationship between Rorschach M response and time estimation, both of which were used as measures of delay capacity. The findings of Goldman (1953) further support the view that blocked motor discharge is related to the perception of movement. Ss responded to the autokinetic phenomena under three conditions: mobilization, control and heightened motor activity. Readiness to perceive movement was greatest under immobilization, less under a controlled condition and least during activity. Under conditions of inhibitory motor expression perceptual activity increased and conversely when motor expression increased, perceptual activity decreased. Goldman

found in short, that with increasing degrees of motor inhibition there was increasing perception of motion. His research was based on the sensory tonic field theory of perception of Werner and Wapner (1952) who suggest that available energy which is not released in bodily movement expresses itself in perceptual terms. Goldman's non-clinical experimentation supports the Freudian theory of delay.

The ability to forego immediate gratification has also been shown to be related to the sense of time. Research on delinquency has focused on the orientation toward time which might explain impulsiveness; that is, a strong present orientation with limited awareness of the future. In this context Barndt and Johnson (1955) used a story completion method together with a scoring system which rated length of time span in the story told. They found that delinquents were more constricted in the length of time involved in their stories. This present orientation or constriction in future time perspective was suggested as a possible consequence of a low capacity to delay gratification. LeShan (1952) was interested in the effects of social class differences in child rearing practices on time perspective. His story technique revealed that among 8 to 10 year olds, middle-class children tended to use a longer time span in their stories than did lower-class children. A recent criticism

however tends to cast doubt on these findings. Green and Roberts (1961) recomputed the LeShan chi-square and found it to be nonsignificant. Moreover, there was no rationale for combining scores into meaningful categories for analysis so that no conclusions can properly be drawn from this study about the relationship between social class and time perspective. In a situation in which some members of adolescent groups disregarded the fact that their misbehavior would result in loss of privileges at a later date, LeVine and Spivak (1959) found that Ss who exhibited less behavioral control showed a trend toward longer judgment of shorter time intervals and a significant constriction of future time perspective. Laffey (1963) compared one group of inmates defined as low in impulse controls with another group presumed to be greater in impulse control and confirmed the hypothesis that the impulsive group would tend to overestimate time as compared to the less impulsive group, supporting the hypothesis that impulsive Ss are more present oriented. Actually, the relationship demonstrated was between a measure of delay capacity, namely time estimation and the behavioral criterion of delay capacity, namely impulsivity. The criterion for classification into low and high impulsive groups was based on the presence of "acting out" behavior and was generalized and global. It may not have represented the best available measure-

ment technique.

Thus a number of studies have demonstrated a relationship between time estimation, used as a measure of delay capacity and a number of other variables. However, the use of time estimation tasks as measures of impulsivity does not involve a reward and is more indirect than the measure to be used in the present research.

Critique and Comments

The relationship between any event under investigation and the methods used to explore them must represent the experimenter's best effort to measure what he says he is measuring. Before the dimension of delay capacity and its relationship to other variables can be characterized and its antecedents and correlates investigated, the experimental measures of this dimension must be the most reasonable ones available. The two concepts that are frequently confused in the literature reviewed are "capacity to delay gratification" and "impulsivity." At times the terms are used synonymously; at other times it is implied that one results from the other. Whether or not either of these characteristics of individuals are thought to exist as a function of development or as a function of situationally specific stimuli is not clarified. Impulsivity seems to be the term applied when

the issue is whether a person typically "acts without thinking." In this context however, reference can be made to the theoretical information dealing with the concept of capacity to delay gratification in the psychoanalytic sense. From this point of view it is clear that impulsivity is the behavioral manifestation of the capacity to delay gratification. Research has generally failed to utilize measures that as directly and appropriately as possible relate this behavior, thought to be a manifestation of the capacity to delay gratification, to the underlying theoretical concept.

Psychoanalytic theory also indicates that the capacity to delay gratification is a part of secondary rather than primary process functioning. Freud (1911) suggested that the transition from primary to secondary process functioning is not immediate, but rather is accomplished only after many years. "The supersession of the pleasure principle by the reality principle with all of the mental consequences of this . . . is not accomplished in reality all at once; nor did it take place simultaneously along the whole line. The primary processes are present in the apparatus from the beginning while the secondary processes only take shape gradually during the course of life inhibiting and overlaying the primary processes and gaining complete control over them perhaps only in the prime of life." Theoretically then, the capacity to delay grati-

fication used synonymously and partially incorrectly in the literature with the term impulsivity, seems to refer to an aspect of an individual's functioning that characterizes him generally and enduringly. That is to say, the person's capacity to delay gratification does not vary solely as a function of situationally specific stimuli. The experiments reviewed under the heading of traditional studies dichotomized their samples into those individuals who behaviorally are impetuous and immediate (impulsive) as opposed to those who are contemplative, thoughtful and deliberate (non-impulsive) without reference to a longitudinal or stimulus specific dimension.

None of the measures of delay capacity reviewed included the concept of a reward or a reinforcement and yet Hartman (1958), in discussing the psychoanalytic concept of delay capacity defines the "function of anticipation" as follows: "a momentary pleasure uncertain in its result is given up but only to gain in the new way an assured pleasure coming later." This statement implies that the extent to which a person is able to delay participating in need gratifying activities is at least partly a function of reward contingencies. In short, the concepts of reward and choice of same are an integral part of the theorizing about delay capacity but were not utilized in most research studies. Additionally, indirect measures of delay capacity, notably the Rorschach M

response, are not free of confounding factors. Lastly, various indices of delay capacity, particularly M, were conceptualized as products as well as measures of this ego function.

Until 1958 research using the human movement response M of the Rorschach represented the best operational and experimental study of the concept of delay. Its use has had two distinct heuristic implications. First, Freud's concept of delay as inhibition of motor response was tested by assuming that an increase in M responses would be a consequence of motor inhibition. Secondly, assuming that individual differences existed in ego organization and control, developmental patterns of motor inhibition or hyperactivity would be reflected in differential Rorschach patterns. The first implication offers support for Freud's theory of delay and many of the studies reviewed have reported increases in M responses following periods of motor inhibition. However, the greater frequency of M responses does not necessarily mean that delay capacity is being measured. Much of the research makes use of psychopathological individuals as subjects and if one conceives of psychotic behavior as an overelaboration of rational and symbolic processes, one might expect more fantasy in such individuals and therefore a greater number of M responses. Hence the increased frequency of M responses found in many studies may reflect the

degree of pathology of the subjects rather than their capacity to delay gratification. The second implication of the use of the M response offered the very important pragmatic possibility of developing measuring devices of the crucial ego function of delay of gratification. Implied in much of the research reviewed is the use of delay capacity in an independent variable sense, yet, Singer (1955) remarks: "The M response may be conceptualized as both a product and a measure of the capacity of the ego to delay gratification." The difficulties inherent in such reasoning may be seen in the research of Kelly and Veldman (1964). They tested the hypothesis that over and above social class differences delinquents and school dropouts would be more impulsive than nondeviants. Impulsivity was never defined but was tapped according to the authors by "psychomotor task performance which requires impulse inhibitions; symbolic task performance which requires maintenance of a convergent set and by a self-description as "surgent" (i.e., one who is less interested in detailed exacting undertakings). The deviant groups differed significantly from the nondeviant on the three psychomotor tasks (copying, writing, listening) and the two that required maintenance of a convergent set (language subtest scores). Support was found for the hypothesis that deviants are more impulsive than nondeviants. The dependent variable measures seemed

to have generated the hypotheses and were used to confirm them as well. In other words, impulsivity as a characteristic of delinquents was an hypothesis confirmed before it was tested. Although impulsivity was used in a independent variable sense, the measures of it encompassed the very factors it was supposed to correlate with. This criticism can also be leveled at some of the research using the M response as a measure of delay capacity. Singer (1955) remarks: "None of the linkages between M as a measure of delay and different dependent variables represent extremely high correlations. Considerable variability is present." This is not surprising, for a number of other authors have suggested that the M response itself is representative of other variables and is frequently effected by situational factors during the Rorschach procedure. Regarding other meanings of M, Rorschach (1942) felt that the content of M, like that of dreams, represented repressed tendencies. Yet Freud spoke of the capacity to delay gratification as a necessary requisite to the development of conscious and not unconscious thought. The type of M response is another factor. Mirin (1953) behaving as if he were a fellow subject in an alleged memory test deliberately contradicted schizophrenics in order to find out whether the subjects with extensor M would insist on acceptance of their version and whether Ss with flexor M would give

in to the experimenter even if they were right. Both type of subjects behaved as predicted indicating differential behavior based on type of M response. Piotrowski (1960) wrote: "When Rorschach discussed the M concept he had in mind the general idea that people who spend much time thinking are unlikely to engage in much motor activity. He concluded that the number of M was positively correlated with the habitual amount of thinking. However, the logical relation of number of M to thinking or overt motor behavior is a different problem from the logical relation of the textual content of specific M responses to overt motor behavior. The solution to one of these problems does not determine the solution of the other."

M responses are also related according to Piotrowski to greater originality, creativity and ability to establish intensive rapport. Finally, Rorschach (1942) himself stated that the absolute number of M varies in a test protocol under the influence of mood swings like depression, elation, fatigue and exuberance.

In summary the research reviewed offered some support for a psychoanalytic conception of the capacity to delay gratification (inhibit expression of impulses) and its relationship to the development of cognitive and perceptual processes. Criticisms have been made with respect to the absence of clear definitions of the variable of delay capacity, the failure to utilize the concept

of a reward in such definitions despite its inclusion in the theorizing about delay capacity and the use of response variables that are conceptualized as both products and measurements of the capacity to delay gratification.

A measure of delay capacity that is devoid of the above mentioned failings is required. A series of investigations now to be reviewed offer an experimental measure that has borne considerable empirical fruit. A modification of this measure was used in the present research (see Pilot Research and Procedure).

Direct Assessment of the Capacity to Delay Gratification

In the research reviewed in this section, superior measures of the capacity to delay gratification were used. These are behavioral measures of preference for immediate smaller (ImR) or delayed larger (DelR) rewards in particular choice situations. Individuals are defined as low or high in delay capacity on the basis of the choice of an immediate smaller or a delayed larger reward. The procedure was developed by Mischel (1958, 1961 a&b, 1962, 1964). For reasons previously discussed, this behavioral method of measuring delay capacity best fits the theoretical conceptions underlying the capacity to delay gratification. Empirical results have shown significant

correlations between this measure of delay capacity and a number of antecedent and consequent variables.

On the basis of anthropological observation Mischel (1958) suggested a major personality difference between the Negro and East Indian ethnic groups of the Island of Trinadad. This difference was that; "the Negroes are impulsive, indulge themselves, settle for next to nothing if they can get it right away, do not work or wait for bigger things in the future but instead prefer smaller gains immediately." In contrast, the Indian is said to "deprive himself and to be willing and able to postpone immediate gain and pleasure for the sake of obtaining greater rewards and returns in the future. In effect, when given a choice the Negro is said to be characterized by a preference for relatively smaller immediate reinforcements whereas the Indian is said to prefer larger delayed reinforcements." Using 53 Trinadadian children between the ages of 7 and 9 Mischel tested the hypothesis of differential preference for a larger delayed as opposed to a smaller immediate reinforcement between the two ethnic groups, predicting that the Indian group would show a greater preference for the larger delayed reinforcement than the Negro group. Mischel further assumed that a child's expectancies that delayed rewards would follow from new adult social agents are related to his past experiences in which reinforcement

followed delay from such major adult sources of learning as the parental figures within the home. He hypothesized a differential preference for a larger delayed reward as opposed to smaller immediate reinforcement by children whose fathers were present within the home, predicting that children who had a father or a father figure present within the home would more often prefer the larger delayed reinforcement. The first of these two hypotheses seemed supported but the X^2 after correction was not significant. The supposition of a relationship between preference for immediate as opposed to delayed reinforcements in relation to ethnic groups was not confirmed. When further data were collected from older children regarding the presence or absence of the father in the home and combined with the data of this study the second hypothesis was confirmed in the expected direction.

Mischel (1961a) attempted to relate preference for immediate smaller as opposed to delayed larger rewards (i.e., low versus high capacity to delay gratification) to a need for achievement as scored from TAT fantasy material. Using 112 Trinadadian children 11 to 14 years of age, he defined need achievement as "competition with a standard of excellence." Implied in such striving is the ability to postpone the immediately available for later more important outcomes. More specifically, it was argued that one of the crucial conditions facilitative

of the development of the ability to delay gratification is the acquired reward value of working itself. Work, thought to be a secondary process activity, is rewarded and eventually becomes rewarding in its own right. Liking work for its own sake is assumed to be a basic ingredient of high need achievement. "Presumably, persons high in need achievement have learned to like work and they have learned this in part as a response to demands to forego immediate gratification in favor of more long term goals." Hence a positive relationship between preference for delayed reward and need achievement was hypothesized and confirmed. In the same research, Mischel attempted to relate acquiescence (the agreeing tendency) to the preference for delayed reward and referred to the research of Couch and Keniston (1960). The latter researchers found that individuals with weak ego controls (Yeasayers) expressed impulses without reservation while other individuals suppressed impulse expression (Naysayers). Mischel (1961a) expected that delayed response preference would be related to Naysaying and immediate response preference to Yeasaying and to the personality syndromes associated with each. He hypothesized an inverse relationship between preference for a delayed reward and acquiescence and this was confirmed.

Mischel (1961b) studied the relationship between preferences for immediate smaller reinforcements as

opposed to delayed larger ones and social responsibility using 206 American delinquent and non-delinquent children. A social responsibility scale (SRS) which was independently validated and found to correlate well with other measures of personal and social adjustment, was utilized. The choice behavior displayed in the Ss preference for delayed larger rewards as opposed to immediate smaller ones was thought to represent "trust or belief that the agent promising delayed reinforcement would actually supply it." This willingness to postpone immediate gratification was regarded as a basic ingredient of social responsibility and as such should have been positively related to SRS scores and negatively to delinquent behavior. These hypotheses were confirmed. The delinquent groups preferred the immediate rewards and obtained lower SRS scores. Mischel assumed that ability to delay was an essential component of such concepts as ego strength and impulse control and he noted, importantly, that direct experimental measures of reinforcement preference involving immediate and delayed rewards may be used "to test often discussed but rarely tested relationships between maturity, adjustment and patterns of reinforcement preference with respect to delay."

Mischel and Metzner (1962) using 162 elementary school children from predominantly lower class urban backgrounds in the Boston area hypothesized that preference

for a delayed reward (high delay capacity) should be related positively to age and to intelligence and negatively to length of delay interval. The first two hypotheses were based on psychoanalytic views. The transition from primary to secondary process behavior, according to these views, is a continuing process that ranges from uncontrollable impulsivity to compulsive postponement; hence the ability to delay gratification can be presumed to increase with age. Learning to delay is thought to be intimately bound up with learning to think. One can therefore expect greater delaying capacity to be reflected in greater cognitive facility, i.e., intelligence. The third hypotheses was a deduction from expectancy theory which assumes that the effective value of an incentive is a joint function of its real value and the expectation of getting it and that the expectation of getting something decreases with temporal distance. Additionally, Mischel attempted to clarify the relationship of delaying capacity to length of future time perspective. He found that preference for delayed reward was related to accuracy, not length of time perspective. He assumed, on the basis of earlier findings, that high delay capacity subjects have greater reality contact and since temporal distance could realistically be over as well as underestimated he hypothesized a curvilinear relationship between length of time perspective and delay preference.

Mischel predicted that preference for immediate reward (characterizing Ss with low delay capacity and less ego strength) would be related linearly to length of delay interval. In support of all the hypotheses, the proportion of delayed response choices increased significantly with age, the mean IQ of Ss choosing delayed rewards was significantly higher than that of Ss choosing immediate responses, and the proportion of immediate response choices increased linearly with length of delay interval. It is interesting to note Mischel's assumption of greater and lesser reality contact for high and low delay Ss respectively. This is explored in a somewhat different form in the present experimentation by the use of the ego strength scales of the IPAT Anxiety scale. Mischel (1964) in a further investigation of the antecedents and correlates of the capacity to delay gratification, hypothesized that yielding to temptation would be a function of the strength of the motivation to obtain the prohibited gratification and the inability to delay immediate gratification. He theorized that a preference for immediate gratification and an unwillingness to defer or delay the immediate for larger but later reward would make it more difficult for a person to observe social prohibitions particularly if their violation would yield immediate rewards. If a person is to resist temptation or refrain from deviant behavior he must be able to defer immediate

gratification. Using 49 sixth grade boys and the same behavioral choice measures of immediate smaller or delayed larger rewards already discussed, these hypotheses were confirmed. Ss who showed greater preferences for immediate as opposed to delayed rewards were less able to resist the prohibited immediate gratification and showed less resistance to temptation. When the temptation persisted over a period of time Ss with the greater capacity to delay waited longer before yielding to the temptation. Mischel concluded that: "responses to temptation cannot be regarded simply as a function of internal controls . . . and that one should take into consideration the reward value of the prohibition as well as individual and situational differences and preferences for such immediate gratification."

It would seem that the measurement of the ability to delay gratification by direct behavioral choices between immediate and delayed rewards is positively related to crosscultural observations concerning differences in the ability to inhibit impulse expression, social responsibility, accuracy of time statements, intelligence, the need for achievement, and the ability to refrain from taking prohibited gratifications. Additionally, this measure of the ability to delay gratification seems to predict well to behavior representing manifestations of ego strength or impulse control. Using a modification

of Mischel's method, the present research will attempt to explore the relationship between the capacity to delay gratification and the dependent variables of perceptual developmental level, ego strength, and anxiety level.

Chapter IV

THE ASSESSMENT OF PERCEPTUAL DEVELOPMENTAL LEVEL, EGO STRENGTH, AND ANXIETY LEVEL

Perceptual Developmental Level as Measured by the Rorschach Genetic Level Scoring System

As evidenced by theory, perceptual development as well as ego strength appear to be logically relevant to the capacity to delay gratification. The use of the Rorschach Genetic Level Scoring System as an index of the level of perceptual development represents an attempt to utilize a measurement technique that possesses considerable empirical reliability and validity. This system, first developed by Friedman (1952) and used by Becker (1956) primarily emphasizes the structural or formal aspects of the Rorschach percepts without regard for the content of the responses. It has been related to degree of psychopathology (Pena, 1953), to form of symptom expression (Misch, 1954), to the process-reactive dimension in schizophrenia (Becker, 1956), to the characteristics of perceptual organization at various age levels (Hemmindinger, 1953), to the perceptual functioning of the aged (Rochwarg, 1954), and with some modification, to the personality of the mothers of schizophrenics (Winder and Kantor, 1958), as well as the perceptual

level of psychosomatic patients (Clemes, 1964). The last two studies involved the use of all the aspects of the Rorschach protocol rather than only the formal, structural components. In this regard, Winder and Kantor (1958) state: "The approach used in evaluating the Rorschach is apparently very similar to a system developed . . . and reported by Friedman (i.e., the Rorschach Genetic Level Scoring System), and others. Since the direct comparison of scoring one set of protocols by . . . these methods was not carried out no firm conclusion is justified as yet regarding the comparability of such scores."

Developmental theory and psychopathology have been partially integrated through the use of the Rorschach Genetic Level Scoring System. Werner's (1961) schema of development through differentiation and integration provided the theoretical framework for the empirical use of the Rorschach test as an indicator of structural changes in perception. As development occurs, according to the theory, it proceeds from a state of relative globality and lack of differentiation to a state of increasing differentiation, articulation and hierarchic integration. "The development from a diffuse perceptual organization characterized primarily by qualities of the whole into an organization in which the essential feature is a decisiveness of parts standing in clear relation can be observed in the child's mentality" (Werner, 1961, p. 111).

Werner (1961) views psychopathological phenomena as inhibitions of genetically advanced levels rather than as unique distinct functions which bear no relation to mental structure and functioning at large. This principle of developmental parallelism suggests that various clinical groups and "normals" are similar in mental structure in a purely formal sense despite particular differences in their behavior and he defines the principle as follows: "Just as any developmental stage preserves the early stages from which it has emerged so will any degeneration bear signs of the higher level from which it retrogressed." In this context "primitiveness" (or immaturity) represents thinking on an ontogenetically low level of mentality while "maturity" means the relative absence of this.

Developmental psychology according to Werner has two basic aims; "One is to grasp the characteristic patterns of each genetic level and the structure particular to it. The other is to establish the genetic relationship between these levels, the direction of development and the formulation of any general tendency revealed in developmental relationship and direction" (Werner, 1961, p. 5). As Hemmindinger (1960) has noted, mental development and psychopathology are not a matter of either or, but of more or less. Wyatt (1953) has commented on the studies which use the Rorschach as a means of isolating genetic development and its reversal in psychopathology.

"The dimension is that of differentiation and organization in the perception of blot areas. The theoretical premises are those of psychoanalytic ego psychology and of the organismic psychology of development of Werner."

The Rorschach Genetic Level Scoring System, first developed by Friedman (1952), is based on location categories, the form of the outline responded to, and, minimally, the quality of organization. The system, as used by Becker (1956) and this researcher is reproduced in detail in Appendices D and E and in part in Methodology. It is concerned essentially with the arrangement of the parts of the percept with little regard for content, and this insistence on assessment of structural changes has permitted more accurate scoring.

Friedman (1952) hypothesized that schizophrenic patients in the structural aspects of their perception were functioning at a genetically lower level similar to but not identical with that of young children. The Rorschach protocols of 90 males between 85 and 120 in IQ including 30 hebephrenics, 30 normal adults between the ages of 20 and 40 years and 30 normal children between 3 and 5 years were analyzed according to the Genetic Scoring System. The hypothesis that schizophrenics exhibit a regression in their perceptual functioning was confirmed. Their performance was marked by relative lack of differentiation and hierarchic integration and was

of a global and diffuse nature analogous to that of children. The theoretical definitions of the various scores allow them to be distinguished as representing genetically low or immature functioning and genetically high or mature performance. This distinction, of course, is utilized in comparing the performance of any groups of individuals on the Rorschach and will be utilized in the comparison of individuals high in delay capacity (HDC) and low in delay capacity (LDC) in the present research. Upon analysis of 227 Rorschachs of 30 paranoid, 30 hebephrenic, 10 catatonic schizophrenics, 30 normal adults and 127 children, Seigel (1953) confirmed the hypothesis that paranoid schizophrenics maintain a relatively greater degree of personality intactness than other psychotic patients. Specifically it was found that in comparison to hebephrenic and catatonic schizophrenics, paranoids had a higher proportion of genetically mature features though less than normals. Pena (1953) analyzed the Rorschach protocols of 30 patients with cerebral pathology, 30 hebephrenic or catatonic schizophrenics, 30 normal adults and 169 normal children and confirmed the hypothesis that cerebral damage (irreversible) was accompanied by the appearance in perceptual structuralization of a relative increase in qualities seen in developmentally earlier levels than normal adulthood with the simultaneous retention of traces of all of the phases traversed in the

course of development. Becker (1956) tested the hypothesis that "process" schizophrenics would show more regressive and immature thinking processes than those characterized as "reactive" as measured by the Rorschach Genetic Level Scoring System. His results were confirmed and the concept of a developmental levels of personality organization first proposed by Werner was once again supported.

Hemmindinger (1953) checked on the reliability and assumptions of the system first developed by Friedman by using the Rorschach responses of children from 3 to 10 years of age and normal adults. He found that developmental growth proceeds from globality to differentiation and integration, as developmental theory suggests. Rochwarg (1954) hypothesized that the perceptual developmental pattern is reversed in old age; that is, there is a lessening of differentiation and hierarchic integration and a reappearance of some processes which appeared genetically earlier. An aged group, as compared to younger adults ages 23 to 45, displayed thought processes which were similar to the latter group as well as thought process which manifested a general developmental decline. A reversal in the developmental pattern of perception away from the maximum hierarchic integration and organization found in normal adults and a reappearance of genetically earlier perceptual processes was found.

Winder and Kantor (1958) hypothesized that the level of perceptual organization aspect of the complex pathology called schizophrenia would be more evident in mothers of schizophrenic sons than among mothers of normals. Fifty Rorschach protocols, half of which belong to mothers of young adult males diagnosed as schizophrenic and the other half of which belong to a control group of mothers of normal sons, were coded according to an "Age Level scoring system." The hypothesis was supported. Specifically, "It was concluded that among mothers of schizophrenic sons there was a disproportionate number who manifested pathology. This pathology is tentatively defined as immaturity of perceptual organization. It is assumed that this immaturity is associated with detrimental conditions and is manifest in pathogenic conduct in parent-child relationships which has contributed significantly to the schizophrenic reactions of the sons." Winder and Kantor continued; "Ratings are based on the viewpoint that the Rorschach performance can be scored for maturity of personality development by rating the protocol on a scale on which points are defined by the average perceptual organization levels of successive representative, chronological age groups beginning with very young children and extending to the adult group. In other words it is assumed that the level of organization of Rorschach responses is associated with the level

of organization of adjustment in life."

More recently, Clemes et al. (1964) investigated the relationship between developmental levels of perceptual organization as measured by Age Level scores and the occurrence of psychosomatic illness. It was hypothesized that the Rorschach responses of psychosomatic patients would show a lower Age Level score than would the responses of patients with organic illness. This was confirmed. Patients with functional disturbances did manifest a genetically lower perceptual level of organization than patients with organic illnesses.

Summary

Based on Werner's theory of mental development which indicates that there are changes in both the content and the structure of mental organization as the human organization develops toward psychological maturity, a reliable scoring system based on the Rorschach was developed. Inspection of its use in research indicated that across many varied adult groups, both normal and pathological, perceptual functioning can be reliably assessed. While most of the research reviewed emphasized the structural aspects of perception some writers included both structure and content in their system (e.g., Winder and Kantor 1958, Clemes 1964). In the present research

only the formal, structural aspects of the Rorschach will be utilized as measures of perceptual functioning.

Ego Strength and Anxiety Level as Measured by the IPAT Anxiety Scale

The IPAT Anxiety Scale consists of forty items distributed among five anxiety measuring factors which, as personality components, represent a source of anxiety (Cattell, 1957, 1963). The five factors which group together as anxiety components are:

1. Lack of Self Sentiment Development or Defective Integration (Q3).
2. Ego weakness (C-).
3. Suspiciousness or paranoid insecurity (L).
4. Guilt Proneness (O).
5. Frustrative Tension or Id Pressure (Q4).

For the total Anxiety Scale score the reliability coefficient for dependability (immediate retest) is +.93 and for stability (test-retest) +.87. The homogeneity reliability coefficient (split-half) again for total Anxiety Score ranges from +.84 to +.91. Two types of validity are reported: 1. Construct, the correlation of the test items and components with the anxiety factor. 2. External Concrete Validity on the criterion of psychiatric evaluations of anxiety. The former is estimated

at +.85 to +.90 for the entire scale. The average correlation between all 40 individual items and total test scores was almost +.40 with no cases of inconsistent direction of relation and the multiple correlation between all items in the total score exceeded +.92. The scores on the factors measured by the scale were correlated directly with psychiatric evaluations of anxiety on these same people. Cattell (1957) states that "the consensus of psychiatrists' diagnoses as to anxiety level correlates higher with scores on this anxiety test factor than with any other known personality factor." The correlation between clinical consensus and the IPAT Anxiety Scale scores range from .30 to .40. "Although," says Cattell (1963), "This may not seem high . . . diagnostic disagreements between clinicians being what they are, the area of consensus is simply not large enough to permit values much larger than +.40; that is, low interclinician reliability limits the maximum value obtainable."

Norm tables for all components as well as total anxiety score are available for men and women in the general population, a college student population and a teenage high school population. The samples were based on N's of 935, 1392 and 525 respectively. Cattell (1963) claims that: "The IPAT Anxiety Scale is primarily designed to measure free floating, manifest anxiety level whether it be situationally determined or relatively independent

of the immediate situation."

Three kinds of scores are possible:

1. A single total Anxiety score based on all forty items.
2. A breakdown into an (a) Overt, conscious anxiety score, score B, for the twenty right hand page items and (b) an unrealized, Covert anxiety score, score A, for the twenty left hand page items. Scores A plus B sum to the total score. When used separately these scores can be presented for interpretation as a ratio of overt to covert anxiety (B/A).
3. A breakdown of total anxiety into the five personality components in anxiety described previously.

The total anxiety score and the component scores are converted from raw scores into stens according to tables 4a and 5 respectively (Cattell, 1963). The ratio of overt to covert anxiety is based on raw scores. Very little research has been done using the overt-covert ratio, however Rawn (1958) found that "those least prone to verbal indications of hostility show the most covert anxiety." He assumed that "the control function of the ego, according to psychoanalytic theory provides the

intervening variable linking anxiety and hostility. When ego control fails anxiety becomes overt and direct expression of physical hostility a likely accompaniment." This assumption is tested in a slightly different manner in this research.

The rationale provided by theory for the use of the total Anxiety score and the Overt-Covert ratio is apparent but the use of factors (Q3 and C-) taken together as measures of Ego Strength deserves some comment. Cattell (1963) defines (Q3) Lack of Self Sentiment Development or Defective Integration, as follows: "At the healthy, nonanxious (low score) pole this component represents the individual's motivation to integrate his behavior about an approved, conscious self sentiment and socially approved standards. The (Q3) component score may thus be considered a measure also of the extent to which anxiety has become bound in socially approved character structures and habits with more binding indicated by a lower (Q3) score." Cattell (1957) continues: "Q3 with all its emphasis on socially approved behavior and self control is the major measure of the individual's success in binding anxieties through effectively stabilized habits."

(C-) Ego Weakness is defined as: "At its low score, non-anxious pole, this component represents the well known concept of ego strength--the capacity to control and express frustrative tensions in a suitably realistic

way."

The definitions of (Q3) and (C-) appear to make it possible to assess the synthesizing and control characteristics respectively described in Freud's (1936) conception of Ego Strength.

Chapter V

METHODOLOGY

Selection of Subjects

Fifty-seven men incarcerated for various crimes at the State Prison of Southern Michigan served as subjects (Ss) for this research. They were chosen in the following way. Pilot data (Appendix A) indicated that it would be necessary to offer the choice of an immediate or delayed reward to approximately 120 Ss in order to obtain 30 Ss in each of two groups defined as low and high in the capacity to delay gratification. Each of 123 Ss was asked to make seven choices between an immediate smaller reward (one package of cigarettes received today) or a delayed larger reward (two packages of cigarettes received 2, 3, 4, 5, 6, or 7 days from today). A Kuder-Richardson estimate of internal consistency reliability (Walker and Lev, 1953 Formula 20), based on the seven choices made by each S, was found to be .94 with a standard error of measurement of .70 as compared to values of .93 and .76 respectively in the pilot research. Each time an S chose the immediate reward he received a score of 1 and each time a delayed reward was chosen the S received a score of 0. Hence scores could range from 0 to 7. Given

the standard error of .70, it is extremely unlikely that any subject obtaining a measured score of 1 would have a true score higher than the true score of any subject obtaining a measured score of 6 in this study.

The criterion for inclusion in the experimental or low delay capacity group (LDC) and the control or high delay capacity group (HDC) was based on the consistent response made by the subject with regard to choosing and receiving either an immediate or delayed reward. Twenty-eight Ss with scores of zero and two with scores of one defined the HDC group and 30 Ss with scores of 7 defined the LDC group. Two of the 30 Ss in the LDC group and one of the 30 in the HDC group were released from prison before they could be tested further. The final sample consisted therefore of 28 Ss in the LDC group and 29 Ss in the HDC group.

The variables of age, I.Q. (as measured by AGCT scores) and length of present imprisonment could, according to previous research, be related to the capacity to delay gratification. According to psychoanalytic theory the capacity to delay gratification is expected to increase with age (Mischel, 1962). Intelligence has been found to correlate with delay capacity in a positive fashion (Mischel 1962, LeVine 1957, Spivack 1959). Since length of institutionalization might also effect the capacity to delay gratification the groups were compared for the

amount of time they had served on their present sentence. Rather than delimiting the size of the sample by matching on these variables and thereby decreasing the generality of conclusions, Ss were randomly selected from the general population of the prison (approximately 2100 men) and the two groups were tested for differences on the three variables. Table 1 indicates that the LDC and HDC groups did not differ significantly on age, I.Q., or length of imprisonment. Correlations between these variables and the dependent variable measures of perceptual developmental level, anxiety, and ego strength were also computed (Table 15).

Since cigarettes were given to the Ss as a result of their choice of an immediate or delayed reward it was necessary to show that no relationship existed between smoking and the choice of reward. Table 2 confirms the absence of such a relationship. Since both the Caucasian and Negro races are represented in the sample it was also necessary to demonstrate that race was unrelated to choice of immediate versus delayed reward. Table 3 confirms the absence of such a relationship.

Procedure

Each S was tested individually and was told that he was being asked to participate in an experiment, the

Table 1. - Age, Intelligence and Length of present imprisonment of Subjects

	Low Delay Capacity Group			High Delay Capacity Group			* F	* t
	Range	Mean	Var	Range	Mean	Var		
Age	23-58	33.92	69.58	23-54	33.24	47.61	1.54	.211
IQ	77-132	102.75	194.86	72-136	105.06	383.07	1.95	1.10
Length (mos.)	2-207	41.32	2187.34	2-184	39.27	1517.63	1.39	.054

* Non Sig.

Table 2. - Chi Square Analysis between smoking and choice of delayed or immediate rewards

	Delayed Reward (High Delay Capacity)	Immediate Reward (Low Delay Capacity)
Smokers	21	24
Non-Smokers	8	4

$X^2 = 1.52$ Non Sig.

Table 3. - Chi Square Analysis between race and choice of delayed or immediate reward

	Delayed Reward	Immediate Reward
White	21	19
Negro	8	9

$X^2 = .132$ Non Sig.

results of which would have no bearing on his status in prison. Ss were further assured that their offense played no part in their selection, that their participation was strictly voluntary and their answers confidential although the experiment did not deal with very personal material. Each S was also told he could decline to participate with no prejudicial aftereffects and that he might be asked to give more of his time on some future date. A special effort was made to provide each S with a clear indication of lack of duplicity with regard to their being called to the psychiatric clinic of the prison for an experiment. Any who still remained doubtful were told that if at the end of the experimental session they felt, for any reason, that they wished to withdraw the cooperation already offered, their data sheets would be destroyed in their presence and no record of what had transpired would remain. The importance of not discussing anything that occurred during the procedure was emphasized. Men were excluded as Ss if there was reason to believe that they were psychotic or severely mentally retarded. No subject who had been seen at the psychiatric clinic was included.

With these introductory remarks each subject was asked to make seven choices between an immediate or delayed reward and was given the following instructions:

"I'm going to ask you a few questions about your preferences for cigarettes. I want you to make some choices between different amounts of cigarettes and I want to emphasize to you that you will receive cigarettes in this experiment."

The seven choices were as follows:

1. Which one of these two would you like to take, one package of cigarettes today or two packages of cigarettes tomorrow.
2. Which one of these two would you like to take, one package of cigarettes today or two packages of cigarettes two days from now.
3. Which one of these two would you like to take, one package of cigarettes today or two packages of cigarettes three days from now.
4. Which one of these two would you like to take, one package of cigarettes today or two packages of cigarettes four days from now.
5. Which one of these two would you like to take, one package of cigarettes today or two packages of cigarettes five days from now.
6. Which one of these two would you like to take, one package of cigarettes today or two packages of cigarettes six days from now.
7. Which one of these two would you like to take, one package of cigarettes today or two packages one week from today.

Another choice was presented first to all subjects in order to ascertain whether the larger reinforcement would be uniformly preferred in a straight choice situation. This choice was as follows:

> "Which one of these two would you like to take, one package of cigarettes or two packages of cigarettes?"

After the S responded to each statement he was told to completely disregard the choice he had just made and to choose on the next one he was offered as if he had never received the previous choice. This last instruction was repeated after each choice. In order to decrease the likelihood of a subject knowing how to choose based on discussion with other subjects outside the experimental situation, the following procedure was followed: The last choice made, the one between one package of cigarettes today or two packages of cigarettes one week from today determined whether or not an S received one package or two packages of cigarettes. If the last choice made was a delayed one the subject was given a pass to return on any randomly decided day from one to seven days in the future. In this way even the Ss who had delayed on all seven choices could not know which choice was responsible for their receiving two rather than one package of cigarettes. In the infrequent instance of an S making a

delayed choice on the seventh stimulus and an immediate choice on one of the preceding six, this person was to return seven days later to receive his two packs. This did not occur. When the choice made on the seventh stimulus was for the immediate reward the S received one package of cigarettes at that time. After a subject had completed this part of the experimental procedure and received either one package of cigarettes or a pass to return for two packages, he was told that he might be contacted once again and if so would again receive cigarettes. In addition to telling each S not to discuss the experience he had had with anyone else, another attempt to insure confidentiality was made by asking each S what he had heard about the experiment after he had made the choices. Most reported knowing that "some guy was giving away cigarettes" but that was all. There are two indicators of the successful attempt to insure lack of knowledge on the part of the Ss regarding the way to "beat" the experiment. First, the number of Ss who chose either the delayed or immediate rewards conformed to the estimates made on the basis of the pilot study. Second, a comparison, by means of a Chi Square test, between the first and last 33% of the Ss with respect to their placement in the low or high delay capacity group was not significant (Table 4). Apparently, the amount of time elapsed between the testing of the first and last 33%

of the Ss did not introduce confounding variables into their choice of immediate or delayed rewards.

Table 4. - A Comparison Between the First and Last 33% of Ss with Respect to their Consistent Choice of Immediate or Delayed Rewards

	Number Choosing Immediate Reward	Number Choosing Delayed Reward
First 33%	18	6
Last 33%	18	11

$X^2 = 1.001$ Non Sig.

On the basis of the obtained internal consistency reliability estimate it is clear that Ss with total scores of seven (consistent choice of the immediate reward) are very different from Ss with scores of zero or one (consistent choice of delayed reward). The final selection of Ss thus provided a low delay capacity group (N=28) and high delay capacity group (N=29). The two groups did not differ on the variables of age, IQ, or time served on present sentence, nor was smoking or race related to the choice of immediate versus delayed rewards. These Ss were asked to return to the clinic and received an individually administered Rorschach test and the IPAT Anxiety Scale.

Scoring of the Rorschach Protocols

All the Rorschach protocols were scored independently by the author and an experienced judge in accordance with the system first developed by Friedman (1952) and used by Becker (1956). Neither judge knew whether a protocol belonged to an LDC or HDC subject. The system reflects levels of perceptual development as suggested by Werner's (1961) theory. Perceptual development, according to Werner, is said to move away from a fused unity of functions in the direction of articulation and integration into an ordered whole. The scores in the Rorschach Genetic Level Scoring System represent an attempt to set up perceptual parallels to this general schema. All scores in the system are based on location choice (W and D only); the definiteness of the blot outline that the response requires, and organizational quality. The four highest response types (W++, D++, W+, D+) are also based on the adequacy of the form level (whether or not the form elements are plus or minus). The scores in the Rorschach Genetic Level Scoring System with examples and definitions in order of genetic level from the least (level 1) to the most (level 6) mature levels of perceptual functioning are detailed in Appendix D. In quantifying the data Friedman (1952) used two gross groupings representative of genetic early (immature) and genetic late (mature)

perception. Each genetic group was further divided into three progressive levels, giving a total of six levels. These may be briefly described as follows:

Level 1 is characterized by diffuse global undifferentiated perceptions. Wa is a direct indicator of the diffuse global nature of perception at this level. W- indicates the lack of differentiation of inner and outer world and the syncretism in mental organization. Dw is a clear example of a type of diffuse perception Werner has described by the phrase "pars pro toto."--any part has the quality of the whole. The contaminated and fabulized responses reflect both the concrete and syncretic nature of primitive perception. In these responses there is an observed fusion of percepts on the basis of spatial identity and spatial contiguity. Perseveration is presumed to reflect the dynamic rigidity of the personality at this level.

Level 2 is characterized by an attempt at differentiation in which the diffuse and syncretic nature of perception is still apparent. Dv lacks integrative effort and is therefore placed at level 2. D- and Dd- again are indicative of an unsuccessful attempt at differentiated perception. Because Wv shows some integrative effort involving consideration of the formal aspects of the blot, it is placed at level 3.

Level 3 is characterized by the achievement of fair

differentiation with only rudimentary integrative efforts. Developmentally, the scores at this level (with the exception of Wv) are most characteristic of children from ages 7 to 10. In some ways Adx-Hdx responses are like the Dm of the fourth level. However, they are placed at this lower level because they clearly indicate a failure at integration where integration is usually easily achieved. With Beck's (1961) tables as a guide, Dd+ responses were placed at level 3 while the more immature Dd- responses were placed at level 2.

Level 4 is a stage of accurate differentiation with the ability to make simple integrations. The mediocre responses scored at this level indicate the ability to meet certain constant typical requirements in form necessary for adult perception.

Level 5 is indicative of clearly integrative activity with the ability to subordinate differentiated parts to the whole.

Level 6 is characterized by the highest form of differentiation and hierarchic integration which is found only in mature perception.

In regard to the scoring of the responses, additional responses given during the inquiry were included. If a subject rejected a response on inquiry it was excluded. The focus was on how well the subject could do rather than on how poorly.

In order to derive an overall score to reflect average level of perceptual organization each Rorschach response was given a weight from 1 to 6 corresponding to the genetic levels of responses, and the sum of the weights was divided by the number of responses. A mean rating based on the two judges' ratings for each protocol was adopted as the best available score and a t test of the difference between the means was made to test Hypothesis 1. In order to determine the extent of overlap of these ratings, a test of the relationship between group and rating was performed. As can be seen in Table 5 virtually no overlap exists. Perceptual developmental level, as rated by the Rorschach Genetic Scoring System, accurately reflects both quantitative and qualitative differences in the low and high delay capacity groups.

Table 5. - Chi Square test for Relationship Between Group and Ratings of Perceptual Developmental Level

	Low Delay Capacity Group	High Delay Capacity Group
# Above Mdn.	4	23
Rating (Combined Mdn.=3.27) *		
# Below Mdn.	24	5

*One S at mdn. discarded $X^2=25.82$ $p<.0001$ Sig.

A product moment correlation between the two sets of judges' ratings was computed as a reliability estimate. (Chapter VII). To test Hypothesis 2 the proportion of the most perceptually mature responses (only levels 5 and 6 responses) obtained by each subject was examined by means of the Mann-Whitney U Test.

Scoring of the IPAT Anxiety Scale

After introductory remarks for good rapport each S was given the test booklet and asked to complete it according to the instructions printed on the front page. All the time needed was given but an S generally completed the questionnaire in ten minutes. The raw scores on factors (Q3) and (C-) taken together as the measure of Ego Strength were converted into sten scores according to the Manual of the IPAT. The mean sten scores obtained by both groups were compared by a t test to test Hypothesis 3. As a test of Hypothesis 4, the difference between the two groups with respect to their mean total sten score on anxiety level was examined by a t test. To examine Hypothesis 5, the combined median of the Overt-Covert scores was used as a cutting point and the groups were compared for differences by a X^2 test.

Chapter VI

STATEMENT OF PROBLEM AND INTERRELATIONSHIP AMONG VARIABLES

In order to study the personality variable of the capacity to delay gratification in a setting where its manifestations were most apparent, a large penal institution was chosen. The writer's clinical experience and observations suggested that inmates seemed to differ in the extent to which they were able to postpone their needs for immediate gratification and that this seemed to be related to the way their environment was perceived.

The purpose of this research is to examine the differences in perceptual development, ego strength and secondarily, anxiety level of prisoners as a function of their capacity to delay gratification. An attempt was made to demonstrate the theoretical basis, provided by psychoanalytic views, for the hypothesized relationships between delay capacity, ego strength and anxiety level. Empirical findings in regard to the antecedent and consequent variables effecting delay capacity and the reliability and validity of measurement techniques concerned with the assessment of the variables of interest were presented.

Pilot research revealed that prisoners could be

reliably differentiated on the basis of their capacity to delay gratification, operationally defined here in terms of a behavioral choice of and preference for an immediate or delayed reward. It was hypothesized that two groups of inmates, one low in delay capacity (LDC), the other high in delay capacity (HDC) would differ in the following ways:

Theoretic and Operational Hypotheses

1. Inmates low in the capacity to delay gratification will show less evidence of integrative and organized perceptual functioning than inmates who are high in the capacity to delay gratification.

Operational - As measured by the Rorschach Genetic Level Scoring System, the mean developmental level of perceptual functioning of inmates low in the capacity to delay gratification will be significantly lower than that of inmates high in the capacity to delay gratification.

2. Inmates low in the capacity to delay gratification will show less evidence of perceptual activity characteristic of the most mature levels of adult functioning than inmates high in the capacity to delay gratification.

Operational - Inmates low in the capacity to delay gratification will obtain proportionately fewer level 5 and 6

responses (MPM responses) as scored by the Rorschach Genetic Level Scoring System than inmates high in the capacity to delay gratification.

3. Inmates low in the capacity to delay gratification will possess less ego strength than inmates who are high in the capacity to delay gratification.

Operational - Inmates low in the capacity to delay gratification will obtain a significantly higher mean sten score on the IPAT Anxiety Scale's factors (Q3) + (C-), the measure of Ego Strength, than inmates high in the capacity to delay gratification.

4. Inmates low in the capacity to delay gratification will possess an Anxiety level higher than those high in delay capacity.

Operational - The mean total Anxiety score on the IPAT Anxiety Scale will be significantly higher in the low delay capacity group than the high delay capacity group.

5. Inmates low in the capacity to delay gratification will express their anxiety more overtly than inmates high in the capacity to delay gratification.

Operational - Inmates in the low capacity to delay gratification group will obtain significantly more scores that exceed the median Overt-Covert score of the IPAT Anxiety

Scale than inmates in the high capacity to delay gratification group.

Chapter VII

RESULTS

In this chapter, the reliability of the Rorschach Scoring System as well as the results of the hypotheses will be reported.

Reliability of the Scoring of the Rorschach Genetic Level Scoring System

The reliability of the Genetic Rorschach Level Scoring System was assessed by Friedman (1952) in the following manner. A sample of 20 records from each of three groups was selected and the mean percent of agreement between judges on 1138 responses, approximately two-thirds of the total number of responses, was found to be 93.1. Siegel (1953), Pena (1953) and Rochwarg (1954) found a similar percentage of agreement based on still fewer responses. Two scoring categories, Perseveration and the distinction between Dd+ and Dd- were excluded from the Friedman study while Siegel and Hemmindinger (1953) used the Dd responses but, presumably because of their infrequent occurrence (they actually comprised an average of 9.1 percent of the responses, an amount not to be disregarded), did not include them in the assessment of rater agreement. Becker (1956) has

indicated that "Dd is most characteristic of a level of development where the primary focus is analytical" and he placed the Dd+ and Dd- responses at levels 3 and 2 respectively of the scoring system. Unfortunately, because he felt that "previous studies with the Rorschach have indicated that the scoring system could be very reliably rated" Becker did not offer a reliability estimate.

In terms of the present research, analytical ability is clearly relevant to the capacity to delay gratification and the omission of Dd responses from previous studies raises the question of possible over-estimates of the scoring system's reliability. Indeed, Beck et al. (1961) whose location tables were used by all authors, has noted that approximately 9 percent of responses in an average protocol can be expected to be Dd. Additionally, the aforementioned methods of obtaining a percentage of rater agreement were based on considerably less than all of the responses given. This also contributes, to an unknown degree, to an over-estimate of reliability.

The product moment correlation between the two sets of judges' ratings in the present research is .75. It is based on all the responses given (1456) including Dd's. In view of the failure of previous research to incorporate in their reliability estimates the total number of responses given and the Dd responses, it is

felt that the present rater agreement correlation coefficient of .75 is highly reliable.

Results of Hypotheses

Hypothesis 1 - The mean score obtained by the low delay capacity group on the Rorschach Genetic Level Scoring System used to assess perceptual developmental level was significantly lower than that obtained by the high delay capacity group. The hypothesis that inmates low in the capacity to delay gratification would show less evidence of integrative and organized perceptual functioning than inmates who were high in the capacity to delay gratification was supported as seen in Table 6.

Table 6. - Rorschach Genetic Level Scoring System Results-Perceptual Developmental Level Scores

Low Delay Capacity Group		High Delay Capacity Group		
Mean	Var.*	Mean	Var.	t
2.997	.06	3.471	.08	6.771**

*pooled variance = .07 **p<.0001

Hypothesis 2 - The low delay capacity group obtained a significantly smaller proportion of the responses indicative of the most mature levels of perceptual

functioning (MPM responses) than the high delay capacity group. The hypothesis that inmates low in the capacity to delay gratification would show less evidence of perceptual activity characteristic of the most mature levels of adult functioning than inmates high in the capacity to delay gratification was supported as seen in Table 7.

Table 7. - Mann-Whitney U Test of the Proportion of most Perceptually Mature responses (MPM) produced by the Low and High Delay Capacity Groups on the Rorschach

	Low Delay Capacity Group	High Delay Capacity Group
Range	.000-.166	.000-.350
Median Proportion	.057	.100
Sum of Ranks	599	1024
U=619		
Z=3.40		
p<.0006		

Because of the possibility that the low delay capacity and high delay capacity groups could have differed on the total number of responses produced on the Rorschach they were compared on this variable by a chi-square test. No differences were found between the two groups on total productivity (R) as seen in Table 8.

The test of Hypothesis 2 involved the use of responses scored 5 and 6 which are representative of the most mature levels of perceptual functioning on the Genetic Rorschach

Table 8. - Chi Square analysis of the total number of Rorschach responses (R) produced by the groups

	Low Delay Capacity Group	High Delay Capacity Group
# exceed Mdn	13	13
R = 25 (combined median)		
# do not exceed median	15	16

X^2 = .150 Non Sig.

Level Scoring System. Only W and D responses can be so scored and it was necessary to compare the groups on the variable of location choice to determine if they differed in the frequency with which subjects produced responses to W, D (and Dd) areas. As seen in Table 9 no differences were found.

Table 9. - A comparison of the groups on Location Choice on the Rorschach

	Low Delay Capacity Group	High Delay Capacity Group	X^2
# above mdn	13	14	.070
W% (combined mdn) 21.4*			Non Sig.
# below mdn	15	14	
*one S at median discarded			
# above mdn	14	13	.070
D% (combined median) 73.3*			Non Sig.
# below median	14	15	
*one S at median discarded			
# having at least one Dd%	17	15	.468
			Non Sig.
# having none	11	14	

Hypothesis 3 - The low delay capacity group did not differ significantly in terms of mean score on factors (Q3) + (C-), (which taken together comprise the Ego Strength variable of the IPAT Anxiety Scale), from the high delay capacity group. Support was not found for the hypothesis that inmates low in the capacity to delay gratification would possess less ego strength than inmates high in the capacity to delay gratification as seen in Table 10.

Table 10. - A comparison of the groups on the Ego Strength variable of the IPAT

	Low Delay Capacity Group	High Delay Capacity Group	t
Mean	12.36	11.69	.842**
Var*	9.127	8.936	

pooled var = 9.029 ** Non Sig.

Since the measure of ego strength was composed of the combined scores of the factors (Q3) + (C-), the groups were compared for possible differences on each of these variables. As can be seen in Table 11, none were found.

Table 11. - A comparison of the groups on each of the 2 factors (Q3 and C-) that together comprise the Ego Strength variable of the IPAT

Lack of Self Sentiment Development (Q3)		
Low Delay Capacity Group		t**
Mean	5.571	
Var*	2.62	
		** .170 Non Sig.
High Delay Capacity Group		
Mean	5.310	
Var	4.08	

*pooled variance = 3.36

Ego Weakness (C-)		
Low Delay Capacity Group		t**
Mean	6.785	
Var*	4.10	
		** .246 Non Sig.
High Delay Capacity Group		
Mean	6.379	
Var	3.67	

*pooled variance = 3.88

Hypothesis 4 - The mean total anxiety score on the IPAT Anxiety Scale obtained by the low delay capacity group was not significantly higher than that obtained by the high delay capacity group. The hypothesis that inmates low in the capacity to delay gratification would possess an anxiety level higher than that of

inmates high in the capacity to delay gratification was not supported as seen in Table 12.

Table 12. - A Comparison of the Groups on the Anxiety Variable of the IPAT

	Low Delay Capacity Group	High Delay Capacity Group	t
Mean	6.535	6.068	**.915
Var*	3.51	3.92	

*pooled variance = 3.71 **Non Sig.

Hypothesis 5 - The low delay capacity group did not obtain significantly more scores that exceeded the median Overt-Covert score on the IPAT Anxiety Scale than the high delay capacity group. The hypothesis that inmates low in the capacity to delay gratification would express their anxiety more overtly than inmates high in the capacity to delay gratification was not supported as seen in Table 13.

Table 13. - A Comparison of the Groups on the Overt-Covert Anxiety Variable of the IPAT

	Low Delay Group	High Delay Group
# Exceed Median	16	12
Overt-Covert Anxiety Score (Combined mdn.= .89)		
# Do Not Exceed Median	12	17

X^2 = 2.06 Non Sig.

As indicated in Methodology, from the 123 subjects, each of whom were asked to make seven choices between an immediate and a delayed reward, two groups were formed. These were designated as low and high in the capacity to delay gratification, the former group containing 28 subjects, the latter 29. The Kuder-Richardson Estimate of Internal Consistency Reliability on the choices made was .94 with a standard error of measurement of .70.

Table 14, analogous to table 19, indicates the distribution of the 123 subjects with respect to their choices of immediate versus delayed reward on each of the seven choice situations presented.

Table 14. - Number of subjects choosing Immediate and Delayed Rewards on Each of the 7 Choices

Choice	Number choosing Immediate Reward (one package of cigarettes now)	Number choosing Delayed Reward (2 pkgs. of cigarettes 1-7 days from now)
1	68	55
2	77	46
3	84	39
4	84	39
5	88	35
6	87	36
7	91	32

The distributions represented in Tables 14 and 19 are basically similar. It became increasingly difficult for many Ss to choose the delayed larger reward as the number of days necessary to wait to receive it increased from 1 to 7. When one compares the number of Ss choosing the immediate reward as opposed to the delayed reward on any of the seven choices it can be seen that the pilot and experimental distributions differ. In the latter proportionately more subjects chose the immediate reward. For example on choice 2, the number of pilot Ss choosing the immediate reward as opposed to the delay reward was the same, but in the experimental distribution on the same choice 77 Ss chose the immediate reward and 46 the delayed reward. This would tend to maximize the differences at the extremes of interest. That is to say, those subjects who did make the consistent choice of a delayed reward and who comprised the high delay capacity group were quite different from those subjects who consistently elected the immediate reward and defined the low delay capacity group.

Chapter VIII

ADDITIONAL FINDINGS AND DISCUSSION

The correlations among the variables examined in this study and between them and relevant control variables appear in Table 15. The finding of a significant correlation between perceptual developmental level scores and those indicative of the most mature and integrative perceptual functioning (most perceptually mature scores are abbreviated as MPM) suggest that Ss who are more capable of delaying gratification tend to produce a greater number of responses indicative of the highest form of perceptual differentiation and hierarchic integration. The perceptual developmental level scores failed to correlate with the measures of ego strength and anxiety level although the responses indicative of the highest levels of perceptual functioning (MPM) correlated significantly and negatively with these two variables. It will be recalled that high scores on the ego strength and anxiety measures are indicative of less ego strength and greater anxiety respectively. The negative correlations suggest that the tendency to produce proportionately more of the MPM responses is related to the production of low ego strength scores, i.e., greater ego strength, and lower

Table 15. - Intercorrelations among the dependent variables and between them and relevant control variables

	Perceptual Developmental Level	Most Perceptually Mature	Ego Strength	Anxiety	Overt-Covert	Age	I.Q.	Length of Imprisonment
Perceptual Developmental Level	--	.675*	-.155	-.098	-.032	.096	.173	-.072
Most Perceptually Mature	.675*	--	-.344**	-.288***	.003	-.068	.045	-.202
Ego Strength	-.155	.344**	--	--	.232	-.101	-.031	.017
Anxiety	-.098	-.288***	--	--	.308***	-.045	-.142	.028
Overt-Covert	-.032	.003	.232	.308***	--	.365**	-.135	.083
Age	.096	-.068	-.101	-.045	.365**	--	--	--
I.Q.	.173	.045	-.031	-.142	-.135	--	--	--
Length of Imprisonment	-.072	-.202	.017	.028	.083	--	--	--

* $p<.001$

** $p<.01$

*** $p<.05$

anxiety scores, i.e., less anxiety.

The positive, significant correlations between the Overt-Covert Scores and the Anxiety and Age variables suggest respectively that the more anxious inmates become the more they tend to express their anxiety overtly and that the overt expression of anxiety increases with age. Some interesting hypotheses concerning the effects of institutionalization occur as a result of these correlations. Cattell (1962) indicates that the twenty overt items serve first as a record of actual symptoms and that therefore higher overt anxiety scores reflect greater morbidity. The correlation between the anxiety variable and the overt expression of anxiety makes it possible to infer that the prison environment operates to produce greater psychological problems as manifested by overt symptomatic expression of anxiety. The significant correlation between age and the tendency to express anxiety overtly is interpretable in at least two ways. It suggests first, that the older one gets while in prison the more he displays symptoms of greater psychological difficulties. However it is also possible that the age at which one is first incarcerated is related to the production of more symptoms indicative of psychological problems. Inmates who are older when first incarcerated might have had less contact with an anti-social environment and therefore more positive socialization experiences. The inference

that institutionalization as it is presently conceived does not contribute to psychological health should not, then, be drawn too conclusively. Although the present writer attempted to insure the omission of inmates with obvious psychological difficulties from this research by excluding as a subject any inmate who had contact with the Psychiatric Clinic, it is possible that some subjects might have possessed serious psychological difficulties. Also, although the subjects in this research did not differ with respect to how long they were incarcerated on their present offense, information concerning the total amount of time any given subject had been incarcerated in a prison environment of one kind or another is not known. In other words, the total number of life years spent incarcerated could be differentially responsible for the production of more symptoms indicative of psychological problems. If the variables of total amount of time incarcerated in any prison environment as well as age at first incarceration were controlled in future research, the conclusions drawn in this study with respect to the deleterious effects of institutionalization per se could be evaluated.

Another finding of interest is the failure of I.Q. to correlate with any of the dependent variable measures of the capacity to delay gratification. Laffey (1963) found that time estimation, used as a measure of delay

capacity, did correlate in a low but nevertheless significant way with I.Q. Mischel (1962) "expected greater delaying capacity to be reflected in greater cognitive facility, i.e., intelligence" and, using children, found this to be the case. These disparate findings may be a function of the global nature of the measure of intelligence. That is to say, the various aspects of intellectual functioning such as understanding, judgment, reasoning, etc., may be differentially responsible for the presence or absence of correlations with the capacity to delay gratification. On the other hand, it is possible that the measure of capacity to delay gratification used in this research was considerably more accurate conceptually and methodologically than previous measures and that intellectual functioning and delay capacity can best be viewed as separate and unrelated ego functions.

At this juncture, the results of all the hypotheses will be discussed. The support found for hypothesis 1 of this research justifies the conclusion that the perceptual functioning of inmates who are low in the capacity to delay gratification is less integrated and organized than that of inmates high in the capacity to delay gratification. One implication of this finding can be considered in relation to the meaning that is attributed to the various response levels of the Genetic Rorschach Scoring System. Becker (1956) states that: "Level 3 is char-

acterized by the achievement of fair differentiation with only rudimentary integrative efforts. Developmentally, the scores at this level are most characteristic of children from ages 7 to 10." Hemmindinger (1953) notes that children 6 to 8 years of age have a common quality in that "these are the ages in which the proportion of mature percepts come into ascendancy. In this (6 to 8 years) transitional group the proportion of genetically high scores become significantly larger than the proportion of genetically low scores. The distinguishing mark of the 6 to 8 year olds then is the proportionate part played in their perceptual behavior by analytic operations. In reacting to the larger details of their world these children do often synthesize parts into wholes, but by and large their perception reflects analysis alone. It is almost as if these children were going out of the way to react to parts qua parts and only later on (9, 10 years, adulthood) will they turn to the work of synthesizing these details and parts into larger percepts."

The mean perceptual developmental level scores of the LDC and HDC groups was 2.997 and 3.471 respectively. This would seem to suggest that the subjects low in the capacity to delay gratification are most similar to the groups of children 6 to 8 years of age who primarily, according to Hemmindinger, are capable of analysis perceptually speaking but not synthesis. The latter group,

the high delay capacity subjects, would seem to be composed of inmates who tend to synthesize and integrate their percepts after the process of analysis. In terms of the capacity to delay gratification, it seems reasonable to infer that if one can only analyze his perceptual surroundings and is at a loss to synthesize and integrate these perceptions he is most likely going to act without benefit of the best possible information. A not uncommon occurrence in prison may serve to illustrate this. A man, let us say, is caught in a minor violation of prison rules such as "skating"--being in a given place without permission--and is told he will receive a "ticket," i.e., be administered disciplinary action that may involve spending time in solitary. A frequent reaction to such a situation involves the inmate "acting out" by insulting the officer, running away, perhaps even fighting, all of which usually results in more severe punishment. The low delay capacity inmate finding himself in such a situation, might presumably analyze it by realizing that he was in violation of the rules and that this would in all probability mean punishment. He might, however, be at a loss to do anything further about his predicament except perhaps "act out" in the ways just mentioned. The inmate who possesses a high delay capacity is presumably capable of going beyond mere analysis of the situation; that is, realizing that he is in violation of the rules

and could receive a ticket for this, he might take into consideration such important factors as how close he was to making parole, the possible effects of having a disciplinary report on his record, who might "go to bat for him" if he needed them, and how adamant the officer seemed to be at the time. All of these might produce an attempt on his part to explain by one means or another why he was in the particular unauthorized place rather than acting rashly.

Hypothesis 2, which was highly significant, predicted that inmates low in the capacity to delay gratification would show less evidence of perceptual activity characteristic of the most mature levels of adult functioning (MPM responses) as compared to inmates high in the capacity to delay gratification. The support of this hypothesis and the significant correlations obtained between the production of MPM responses and the perceptual developmental level, ego strength, and anxiety scores suggest the future use of the MPM responses of the Rorschach Genetic Level Scoring System as a shorter way of assessing the capacity to delay gratification in different clinical and "normal" groups. In terms of the previously described illustration, inmates could be identified as high or low in the capacity to delay gratification and prison officials would then be afforded valuable information concerning a man's behavior tendencies. Rochwarg

(1954) has already developed an Index of Integration which was composed only of the most perceptually mature responses as assessed by the Genetic Rorschach System and found that it successfully measured the changes in the perceptual functioning of the aged.

Hypotheses 3, 4, and 5, were not supported. They predicted respectively that inmates low in the capacity to delay gratification would possess less ego strength, a higher anxiety level, and a greater tendency to express anxiety overtly than inmates high in the capacity to delay gratification. The failure of the Ego Strength variable (hypothesis 3) to differentiate the groups is discussed in terms of factors that are indigenous to the measurement technique used (IPAT) including the possible operation of a social desirability variable as well as the theoretical conception of ego strength itself. Absence of support for hypothesis 5 regarding the Overt-Covert Anxiety variable is interpreted in terms of the influence of a social desirability variable. The non-significant finding with respect to the Anxiety variable (hypothesis 4) is accounted for in terms of an interaction between the type of anxiety measured by the IPAT Scale and an inmate's institutional life experience.

In attempting to explain the failure of the ego strength variable to differentiate the groups it would be well to review Freud's meaning of the concept and its

apparent similarity to the variables of the IPAT Anxiety Scale (Q3 and C-) that were used to assess it. In discussing ego strength, Freud (1936) wrote: "The ego controls the entrance into consciousness, as well as the passage into activity directed toward the environment. The instinct representative experiences the one, the instinctual impulse itself the other side of the ego's manifestation of authority." Two aspects of ego strength seemed to be delineated in this statement. One, the control function, manages the impulse and the other, the synthesizing, organizing and unifying ability of the ego, manages the instinct representative.

The (Q3) and (C-) factors, (labeled Lack of Self Sentiment Development and Ego Weakness respectively) of the IPAT Anxiety Scale are defined as follows: (Q3) - "At the healthy, low score pole this component represents the individual's motivation to integrate his behavior about an approved conscious self sentiment and socially approved standards." (Q3) places great emphasis on the motivation for socially approved behavior. (C-) - At its low score pole this component represents the well known concept of ego strength - the capacity to control and express frustrative tensions in a suitably realistic way."

Taken together, these two factors seemed to this writer to provide a measure of ego strength as Freud

conceived of it. (Q3) seemed to tap the integrative, synthesizing and unifying dimension while (C-) appeared to measure the control function. As noted in Tables 10 and 11 both the ego strength variable and its components taken separately, failed to differentiate the groups. Upon examination of the definition of the (Q3) factor it can be seen that performance is said to be primarily dependent on the individual's motivation to integrate his behavior about socially approved standards. Failure to behave in socially approved ways and according to social standards is by definition characteristic of all men in prison. By virtue of the fact that the subjects in this research are inmates of a penal institution, it seems reasonable to assume that their motivation in this regard has been low. In the absence of evidence indicating that the subjects in this study differ in the extent to which they were motivated to integrate their behavior about socially approved standards and that this is related to their capacity to delay gratification, it also appears appropriate to take the position suggested by the null-hypothesis and assume equally low motivation of the two groups. In this regard it is to be noted that the mean (Q3) scores of the LDC and the HDC groups were nearly identical (5.57 and 5.31 respectively). It seems possible then that (Q3) was not measuring the integrative and synthesizing dimension of ego strength alone, but was

also measuring the motivation to behave according to socially approved standards and it has been suggested that in the absence of other evidence one can presume the subjects to be equally motivated in this regard. From this point of view, one might not expect the groups to differ on the (Q3) factor. In order to assess more accurately the integrative aspect of ego strength the relationship between the items composing (Q3) and the motivation of the subjects to behave according to socially approved standards need examination.

Freud's reference to one dimension of ego strength as involving integrative and synthesizing activity and Cattell's definition of (Q3) as also involving integrative activity but in relation to the motivation to behave in accord with socially approved standards, can be conceived of as similar in one basic respect: both speak of integrative ability. It follows then that there should be some evidence to indicate that the LDC and HDC groups differ in spite of the failure to support Hypothesis 3. It has been shown that the ego strength scores correlate significantly with the occurrence of the most perceptually mature responses (Table 15), those that require maximum integrative and synthesizing activity, and that this variable in turn does differentiate the low and high delay capacity groups.

When one examines in greater detail the meaning that

Cattell attributes to the Ego Weakness (C-) factor and Freud's description of this dimension, importance differences become apparent. Cattell (1963) describes a factor said to be identical to ego weakness in the following way: "The essential nature of (this factor) might be designated as an inability to coordinate and control responses of almost all kinds in immediate activities. One is strongly tempted to call it lack of integration but this would invite confusion for there is no evidence of lack of true dynamic integration, that is, of harmony of goals and self sentiment values but only of inability to effect immediate integration in muscular control, psychological impulse, etc. The word immediate is italicized (underlined) to emphasize that the lack of integration is not of a wider character, visible in purposes and values, but simply represents inability to control immediate motor activity, thoughts, productivity and impulses in mobilization toward immediately effected goals. Now this may well be the correct meaning of ego strength in Freud's (1936) description, though some clinicians have allowed the meaning to drift into general dynamic integration."

Cattell has thus made it plain that Ego Weakness as a factor is to be sharply distinguished, in terms of its meaning, from lack of integrative and synthesizing ability. The latter, it will be recalled, is a developing,

longitudinal function. Freud is not this clear in making the distinction between the control and integrative dimensions of the concept of ego strength. Indeed, he appears to blur the distinction between these two dimensions in his most recent remarks, seemingly omitting reference to an Ego Weakness factor per se, completely. He states "(the) compulsion to synthesis (of the ego) increases in direct proportion to the strength which the ego attains." (Freud, 1936) A further lack of clarity also is present for Cattell describes the Ego Weakness factor as separate from the integrative aspect of the concept of ego strength and then states that it (the Ego Weakness factor) "may well be the correct meaning of ego strength in Freud's (1936) description . . ." As previously indicated, that description makes no mention of an Ego Weakness factor per se.

In an attempt to clarify the meaning of ego strength and weakness Freud (1936) suggests in effect that one must ask the question: ego strength or weakness in relation to what? He writes: "The apparent contradiction . . . arises from the fact that we take abstractions too rigidly and from out of a complicated state of affairs we pick now one aspect and now another exclusively. The separation of the ego from the id seems justified, indeed is forced upon us by certain findings. Yet on the other hand the ego is identical with the id, is only

a specially differentiated portion of it. If in our thinking we contrast this portion with the whole or if an actual disjunction of the two has come about, then the weakness of this ego becomes evident. If however the ego remains one with the id and indistinguishable from it, then it is its strength that is apparent."

It will be recalled that in Chapter II of this research an attempt was made to demonstrate how, theoretically, ego strength was related to the capacity to delay gratification. The numerous references to this capacity by Freud and many other authors make it clear that it does not come into existence suddenly. That is to say, a person does not change from being unable to delay gratification to being able to do so all at once, nor for that matter in every situation. Rather, this capacity is a developmental process and people can be described as high or low in this capacity because they behave in one way or the other most of the time. In this respect, the capacity to delay gratification is not unlike most psychological variables.

It has been pointed out that the ego strength variable taken as a whole (the total scores of the (Q3) + (C-) factors) does correlate significantly with the MPM responses and that these do successively differentiate the LDC and HDC groups. Perhaps, in view of Freud's cautioning not to impose separateness when interrelation-

ships seem to exist, the matter ought to end here. Nevertheless, a possible explanation of the failure of the Ego Weakness (C-) factor itself to differentiate the groups will be offered. The control function of the ego has been described by Freud as being intimately related to the capacity to delay gratification and the latter is surely a developing, longitudinal process. Cattell's (1957) definition of the Ego Weakness factor of the IPAT, which this writer thought to be similar to the control function and used to assess it, refers to "an inability to coordinate and control responses of almost all kinds in immediate activities . . . and is not of a wider character . . ." Because the LDC and HDC groups do differ markedly on other variables, particularly perceptual developmental level and MPM responses, it seems likely that their differences are of a "wider", that is, developmental character. Hence, since the Ego Weakness factor is meant to assess responsivity in situational and immediate respects, perhaps the longitudinal or developmental differences between the groups could not be tapped.

Another possibility regarding the failure of the Ego Strength variable to differentiate the groups concerns the operation of a social desirability variable. Bendig (1960) suggested that overt items of the IPAT scale may be more influenced by social desirability than covert items. If this was the case, he reasoned, then the overt

items, composed of more obvious indications of psychological difficulty than the covert items, would tend to be responded to in a socially desirable manner, i.e., in a manner indicative of no psychological difficulties. Ss responding in this way would therefore have lower scores. The (Q3) and (C-) factors which comprise the measure of Ego Strength contain items, half of which are overt and half covert in nature. If the Ss responded to the overt items in terms of this social desirability hypothesis then their over-all scores on the Ego Strength variable would be correspondingly lowered. In partial support of this possibility, the mean sten scores on the (Q3) and (C-) factors for the LDC and HDC groups respectively are 5.57 and 5.31 for (Q3), 6.78 and 6.38 for (C-). These are all below the sten level defined by Cattell as indicative of morbidity. Hence, it seems possible that the subject's tendency to attribute socially desirable characteristics to themselves may have prevented the Ego Strength variable from differentiating the groups. By similar reasoning, the social desirability variable also seems to have prevented the Overt-Covert anxiety variable from differentiating the groups. Half of the 40 items on the IPAT scale are considered overt and therefore if the social desirability hypothesis was operative the scores on the Overt-Covert variable would be correspondingly lowered. It will be recalled that

Rawn (1958) hypothesized and found support for the relationship between increased expression of physical, hostile responses and greater overt relative to covert expression of anxiety. He assumed, in line with psychoanalytic theory, that ego control provided the intervening variable linking anxiety and hostility, stating that "when ego control fails, anxiety becomes overt and direct expression of physical hostility a likely accompaniment." Although the present research did not concern itself with measures of physical hostility, no evidence was found in this research for Rawn's assumption of a relationship between decreased ego control and the overt expression of anxiety since the low delay capacity inmates did not tend to express their anxiety more overtly.

An attempt will now be made to explain the absence of support for hypothesis 4 involving the total Anxiety scores of the IPAT scale. Although it might appear at first glance that the operation of the social desirability variable on the IPAT could also account for the non-significant findings obtained, closer examination of the data reveals this to be untenable. It will be recalled that in order to invoke the operation of the social desirability hypothesis as an explanatory construct it was necessary to assume that subjects would respond to the overt items of the IPAT in a socially desirable manner, i.e., in a manner indicative of no psychological diffi-

culties. Ss responding in this way would therefore have lower scores. If this was the case, the correlation between the Overt-Covert scores and total Anxiety scores of the IPAT would be negative. In point of fact, the correlation between Overt-Covert and total Anxiety scores is significantly positive, suggesting that rather than an inverse relationship between the two variables, required to assume the operation of the social desirability variable, a direct relationship exists. In view of this, alternative interpretations of the failure of the total Anxiety scores of the IPAT to differentiate the groups must be made.

The failure of the total Anxiety scores of the IPAT to differentiate the groups can be conceived of as the result of an interaction between the nature of the prison environment, the meaning of anxiety as measured by the IPAT, and the distinction between "neurotic" and "true" or "objective" anxiety according to Freud. The prison environment is an unusual one in many ways. An inmate quickly learns upon entering it that his fate is largely in the hands of others and he is reminded of this daily by the actions of prison authorities both indirectly and directly. From the time he is sentenced to the time he leaves prison there are crucial aspects of his life that he cannot control but which influence how comfortably he will live and most importantly, when he will be released.

Every felon in the State Prison of Southern Michigan receives a minimum and a maximum sentence (e.g., 2-1/2 to 5 years). The latter is fixed by statute, the former by the court on what is an arbitrary basis that may be a function of the man's previous criminal history, his income, employment record, etc. Ambiguity for the inmate exists in this respect from the start. Once incarcerated he can earn "good time," that is a reduction of sentence, at the rate of approximately two months per year of his sentence. Therefore, on a five year sentence he would be eligible for release in approximately 4 years and 2 months. This is referred to as "regular good time." The warden and his subordinates, however, have the power to make a man eligible for parole sooner than his regular good time depending upon the inmate's record while in prison. This is referred to as "special good time" and can amount to half as much again of regular good time, and makes the inmate eligible to leave prison in 3 years and 9 months in the above example. An inmate is guaranteed neither of these reductions in sentence however and the granting of either or both in whole or in part seems to be made on the basis of no consistent criteria. An inmate can also obtain a "special parole" after serving approximately two-thirds of his sentence but must be recommended for this by prison officials. The only ways he can leave prison apart from these is to discharge on his maximum,

be found not guilty of his charge by court proceedings, or die. Very few inmates leave in any of the three last mentioned ways. The power to control what inmates want most, release, is clearly in the hands of the prison officials and the exercise of it is, like the imposing of a minimum sentence and the granting of good time, discretionary.

Discipline in prison is maintained in a number of ways but most commonly by the issuance of a "ticket" given for an infraction of rules and usually resulting in the inmate spending some time in a punishment block. The infractions for which a man can receive a ticket may range from the relatively minor one of being "off limits," to fighting, which is fairly frequent and viewed very dimly indeed. Another form of punishment involves being removed from a work assignment, a major source of a man's income. This of course prevents him from supplying himself with cigarettes, extra food, cards, and so on, not to mention a way in which he can pass time. Of course, disciplinary reports, work record, block behavior, all have a bearing on the inmates being granted "good time" and in turn this influences the most important matter of when he will be released. Other factors that contribute to the helplessness of the inmate with respect to his fate being determined by others include the fact that he must always ask for permission to do most anything,

operates in an environment where the possibility of physical harm is greatly increased and where those in authority believe that his word can be taken for nothing. The common plea made by inmates in trouble with authorities that they can do nothing because "I'm only an inmate" is in large part quite realistic. Succinctly put, there are a great many reasons for assuming that the prison environment provides the basis for the elicitation of "true," "objective," or "real" anxiety from the inmates' vantage point.

Freud (1936) in discussing anxiety comments: "For there arises the question why it is that not all anxiety reactions are neurotic, why we recognize so many of them as normal; and finally the distinction between true anxiety (Realangst) and neurotic anxiety needs to be properly evaluated"; and, "we know the difference between (true and neurotic anxiety); a real danger is one which threatens from some external object, neurotic danger from an instinctual demand." He continues: "A real danger is a danger which we know, a true anxiety the anxiety in regard to such a known danger. Neurotic anxiety is anxiety in regard to a danger which we do not know. The neurotic danger must first be sought: analysis has taught us that it is an instinctual danger. By bringing into consciousness this danger of which the ego is unaware we obliterate the distinction between true and

neurotic anxiety and are able to treat the latter as we would the former." In response to the question of the true significance of the danger situation Freud (1936) writes: "It is the estimation of our strength* in comparison with its magnitude, the admission of our helplessness in the face of it--of material helplessness in the case of true danger, of psychic helplessness in that of instinctual danger."

Although this research can offer no evidence in regard to the degree of neurotic anxiety operative in the Ss beyond the fact that none of them were seen at the psychiatric clinic (approximately 1500 men a year are seen) it is unlikely that this is of any major import, for neuroses are not diagnostically prevalent among prisoners. There can be little question that the inmate subjects in this research are both materially helpless in many ways in relation to their environment and most likely psychically helpless as well. All are exposed to the same surroundings and it is reasonable to infer therefore that they are equally materially helpless at any rate. It is not unlikely then that the anxiety expressed

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*The use of the term strength raises the possibility that Freud could have meant "capacity to cope." The ego is the organization usually spoken of in this regard and ego strength has been conceived of in this way. Perhaps ego strength could be gauged in terms of its relationship to the degree of psychic and material helplessness of the individual.

by the subjects in this research was objective or real anxiety, a reaction to an environment that controls both their immediate and future destinies. While this was probably the kind of anxiety expressed by the Ss, was this the kind that the IPAT Anxiety Scale purports to measure? Cattell (1963) writes: "The IPAT Anxiety Scale is primarily designed to measure free-floating manifest anxiety level whether it be situationally determined or relatively independent of the immediate situation. The scale does not purport to be primarily a measure of any of the other varieties of anxiety discussed clinically . . ."

Thus it would seem that objective anxiety was measured by the scale and since the Ss are confronted by a commonly dangerous environment their scores might be expected to neither differ markedly nor differentiate the LDC and HDC groups. The scores should be elevated however in comparison to that of the general unselected population since the prison environment is thought to be more anxiety provoking in the ways previously described. In support of this, the average sten level for the general unselected population is fixed at 5.5 and that of the two groups in this research is 6.3.

Suggestions for Future Research

The hypotheses which were supported in this research

provide another successful link in the chain of attempts to integrate developmental theory and clinical theory. Much of the research reviewed in this paper, beginning with the work of Freidman, has emphasized the ways in which perception seemed to have developed in both normal and various clinical groups. Rather than continuing to emphasize the differences in perceptual development between various groups or kinds of people it would appear more fruitful to conceive of perceptual functioning as reflecting the kind of psychological processes characteristic of different kinds of people. The successful separation of the low delay capacity and high delay capacity groups in this research, by the perceptual developmental level scores, and the MPM responses, makes for the intriguing possibility of studying the psychological functioning of these groups in other ways and by other means. For example, is will be recalled that psychoanalytic theory viewed individuals who were low in the capacity to delay gratification as fixated on the early oral phase of development in which striving for sexual satisfaction and security were not yet differentiated from each other. This writer found support for the hypothesis that such a fixation would suggest that individuals who were less able to delay gratification would not have progressed to the level of perceptual activity characteristic of

mature adult functioning and hence would produce fewer MPM responses than would individuals high in the capacity to delay gratification. The psychoanalytic view of people who have low capacity to delay gratification as having failed to achieve, developmentally speaking, the highest levels of perceptual functioning rather than regressing from them to lower levels, thus gains in validity. In terms of future research it would certainly seem interesting to explore the variable of dependency in high and low delay capacity subjects in terms perhaps of their preferences for becoming involved in situations that produce dependency gratification or the speed with which they recognize dependency themes in projective and objective situations. Manifestations of oral and dependent characteristics should be more prevalent in low delay capacity individuals.

Berg (1963) describes one paradigm of conflict resolution in terms of the distinction between alloplasticity and autoplasticity. The former course of action primarily involves the modification of the environment, the latter a modification of one's self. He notes that "although both normals and character disorders* utilize a predominance

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*Character disorders according to Fenichel (1945) possess ego functions that are inflexible and are reflected in poor judgment, inadequate reality testing, and rigid undifferentiated perception. This last characteristic makes them similar to the subjects in this study described as low in the capacity to delay gratification.

of alloplastic devices there are some important differences in the quality of their drives. Whereas the drives of autoplasts are ego alien and those of alloplasts are ego syntonic the drives of normals are both ego syntonic and reality syntonic. The distinction between the drives of normals and alloplasts reside not in the direction of plasticity nor in the congruency of drives with the ego, but in the congruency of drives with the world; i.e., with reality (after Hartmann 1958)." With the use of a normal (non-inmate) group it would seem possible to explore the differences in low delay capacity and high delay capacity subjects in terms of the extent to which their drives for dependency gratification are congruent with reality.

One can also speculate that differences between individuals who are low and high in the capacity to delay gratification might be manifested in the length of time both groups of people remain in psychotherapy. Berg (1963) has stated in this regard that "on a clinical level the greater automatization and inflexibility of character disorders as opposed to neurotics has been noted in their differential potential for and response to psychotherapy. Character disorders show more character defenses, resistance to change, alloplastic devices to avoid insight or self-evaluation." Other things being equal, it would seem reasonable to infer that individuals low in the capacity

to delay gratification might tend to terminate psychotherapy sooner than individuals high in the capacity to delay gratification.

Chapter IX

SUMMARY

The purpose of this research was to examine the differences in the perceptual developmental level, ego strength and secondarily, anxiety level of inmates as a function of their capacity to delay gratification. An attempt was made to demonstrate the theoretical basis, provided by psychoanalytic views, for the hypothesized relationships between delay capacity, ego strength and anxiety level. Empirical findings in regard to the antecedent and consequent variables effecting delay capacity and the reliability and validity of measurement techniques concerned with the assessment of the variables of interest were presented.

Pilot research revealed that inmates could be reliably differentiated on the basis of their capacity to delay gratification, operationally defined in terms of a behavioral choice of and preference for immediate or delayed rewards. Two groups of inmates who did not differ on the variables of age, I.Q. and length of imprisonment were sharply differentiated and identified as low and high in their capacity to delay gratification, and were hypothesized to differ in the following ways:

1. Inmates low in the capacity to delay gratifi-

cation will show less evidence of integrative and organized perceptual functioning than inmates who are high in the capacity to delay gratification.

2. Inmates low in the capacity to delay gratification will show less evidence of perceptual activity characteristic of the most mature levels of adult functioning than inmates high in the capacity to delay gratification.
3. Inmates low in the capacity to delay gratification will possess less ego strength than inmates who are high in the capacity to delay gratification.
4. Inmates low in the capacity to delay gratification will possess an anxiety level higher than those high in the capacity to delay gratification.
5. Inmates low in the capacity to delay gratification will express their anxiety more overtly than inmates high in the capacity to delay gratification.

Support was found for hypotheses 1 and 2 regarding the relationship between the Capacity to Delay Gratification and Perceptual Developmental level as assessed by the Rorschach Genetic Level Scoring System. Hypotheses

3, 4, and 5, which attempted to explore the relationship of the Capacity to Delay Gratification to Ego Strength, Anxiety level and Overt-Covert anxiety as assessed by the IPAT Scale were not supported. The failure of hypothesis 3 to differentiate the groups was discussed in terms of the differences between the theoretical conception of ego strength on the one hand and the nature of the measuring technique used to assess it on the other as well as the possible influence of a social desirability variable. The absence of support for hypothesis 4 was discussed in terms of the anxiety creating nature of the prison environment and its influence on inmates. The operation of a social desirability variable was felt to account for the absence of support for hypothesis 5.

Although the Ego Strength and Anxiety variables did not differentiate the groups they were found to correlate significantly with the production of the most perceptually mature responses. Anxiety and age were found to correlate significantly with the tendency to express anxiety overtly and on the basis of these findings inferences were made concerning the possibility that institutionalization adversely affects the psychological health of inmates. In contrast to some previous research, I.Q. was found to be unrelated to the capacity to delay gratification.

Some of the findings made it possible to suggest

that future research might make use of only the most perceptually mature responses on the Rorschach Genetic Level Scoring System as a shorter measure of the capacity to delay gratification. Research that would explore the differences between low and high delay capacity subjects with respect to oral and dependent needs as well as the length of time such individuals remained in psychotherapy was also suggested. The implication that institutionalization may result in decreased capacity to delay gratification and increased manifestation of symptoms of anxiety was thought to provide intriguing possibilities in terms of future research.

APPENDIX A

PILOT RESEARCH

The Use of Cigarettes as a Reward Value

A stimulus that was of importance to all inmates had to be discovered in order to use it as the reward value in the measure of high and low capacity to delay gratification. Cigarettes seemed clearly to be such a stimulus. They are the medium of exchange in prison and are generally traded on a value equal basis in units of no less than one package costing twenty-five cents. Comments from inmates verify the importance of cigarettes as bartering material: "They are the same as money"; "to us they are money"; "anything for sale can be bought with cigarettes." Similar comments from custodial officers as well as longtime employees of the prison itself further verify the importance of cigarettes.

In order to use cigarettes as the reward value, however, it was necessary to first show that they were not differentially preferred by either smokers or non-smokers for trading purposes. If one can be certain that the importance of cigarettes for trading purposes over-rides whether or not a man smokes then one can be fairly sure that the fact that a man smokes will not cause him

to choose cigarettes in a choice situation simply because of his tobacco habit. One hundred eighteen randomly selected inmates received questionnaires designed to elicit information concerning their use of cigarettes for trading purposes and whether or not they smoked. Seventy-eight responded "yes" to the question "Do you use cigarettes for trading purposes," suggesting some empirical support for the anecdotal information given to the writer by inmate acquaintances, fellow employees, and through self observations. Ninety-seven of these 118 responded "yes" to the statement "I do smoke" as opposed to "I do not smoke." Whether or not an inmate smoked was not related to his use of cigarettes for trading purposes as seen in Table 16.

Table 16. - Chi Square analysis between the use of Cigarettes for Trading and Smoking

	Use Cigarettes For Trading	Do Not Use Cigarettes For Trading
Smokers	61	36
Non-Smokers	17	4

$X^2 = 2.27$ Non Sig.

As a check on the possibility that smoking might be related to choice of immediate versus delayed reward the frequency of the choices made by 21 of the 40 pilot subjects was examined by means of the Fisher Exact Test.

There was no evidence of a significant relationship between smoking and choice of rewards as seen in Table 17.

Table 17. - Fisher Exact Test between Smoking and Choice of Delayed or Immediate Reward (Pilot Subjects)

	Delayed Reward	Immediate Reward
Smokers	9	8
Non-Smokers	2	2

p = .413 Non Sig.

Eleven of the 21 represented those Ss who always chose the immediate reward on all 7 choices (Low Delay Capacity) and the other 10 represented those who always chose the delayed reward on all 7 choices (High Delay Capacity). This comparison was also made for the actual Ss used in this study and was found to be non-significant (Table 2, Methodology).

The Determination of the High Delay Capacity and Low Delay Capacity Groups Based on Pilot Subjects

The procedure used was a modification of that first developed by Mischel (1958) with the additional exceptions that cigarettes rather than candy was utilized as the reinforcement and a larger pilot sample (40 Ss as opposed to 20) was used. Mischel chose twenty Ss at

random from a group presumably similar in characteristics to those who would be in the actual experimental sample. Each was seen in individual sessions and their preferences for various specific reinforcements were elicited. As a result, two reinforcements (both candy but varying markedly in price, size and packaging, i.e., a five-cent and a twenty-five cent candy bar) were selected. These met his desired requirements inasmuch as the larger reinforcement was uniformly preferred in a straight choice situation ("Which one of these two would you like to take"), but when the choice was "You can have this one (i.e., the smaller, immediate reward) today or this one (i.e., the larger delayed reward) in one week," approximately 50% of the group chose the former and approximately 50% the latter. The purpose of this procedure was "to select a reinforcement pair that would as closely as possible dichotomize the choices of subjects in the experimental groups without actually testing within the experimental group setting to avoid the anticipated contamination effects arising from pre-experimental discussions by the subjects" (1958).

The actual stimulus chosen for use in the experimental situation by Mischel was the one that involved the immediate choice of the smaller candy bar today (immediate reward) as opposed to the larger candy bar two days in the future (delayed reward) since this was the

choice that caused approximately 50% of the subjects to take the one candy bar immediately and the other 50% to wait the two days for the larger candy bar. In Mischel's research then, Ss were assigned to the low delay capacity or high delay capacity groups on the basis of this one choice. He did not offer any estimate of the reliability of such choices, nor does this writer feel that a subject's choice on one stimulus provides sufficient basis for characterizing him as either low or high in the capacity to delay gratification. The inmate Ss in this pilot research were asked to make seven distinctly different choices with respect to their preferences for cigarettes. These were as follows:

1. Which one of these two would you like to take, one package of cigarettes today or two packages of cigarettes tomorrow?

2. Which one of these two would you like to take, one pack of cigarettes today or two packages of cigarettes two days from now?

3. Which one of these two would you like to take, one pack of cigarettes today or two packages three days from now?

4. Which one of these two would you like to take, one package of cigarettes today or two packages four days from now?

5. Which one of these two would you like to take, one pack of cigarettes today or two packages five days from now?

6. Which one of these two would you like to take, one pack of cigarettes today or two packages six days from now?

7. Which one of these two would you like to take, one pack of cigarettes today or two packages one week from today?

Another choice was presented first to all Ss in order to ascertain whether the larger reinforcement would be uniformly preferred in a straight choice situation. This choice was as follows:

> "Which one of these two would you like to take, one package of cigarettes or two packs of cigarettes?" *

Each S had to make a choice on each of the seven statements as well as the one just described. They were presented with the following introduction:

"I'm going to ask you a few questions about your preference for cigarettes. You are really going to receive the amount of cigarettes you prefer and I want you to choose on that basis; is that clear? Let me emphasize to you again that you actually will be given the amount of cigarettes you prefer." After the S had responded to each statement he was told to completely disregard the choice he had just made and to choose on the next choice he was offered as if he had never received the previous choice. Because it was not possible to actually give each of the pilot Ss the amount of cigarettes he had chosen, the experimenter told all the subjects, after all the pilot data had been collected, that it was necessary to say that cigarettes would be received for

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*In regard to the straight choice situation (i.e., one pack or two packs) 38 of 40 pilot Ss (95%) chose the larger reward. Mischel's (1958) research indicated that 19 of 20 Ss (95%) also chose the larger reward.

the purposes of the research but that none would actually be given. In order to prevent this situation from occurring in the actual experiment the instructions were changed to the form indicated in Methodology. All subjects in the experiment did receive cigarettes for participating.

The forty pilot Ss were asked to participate in an experiment and were assured that it was entirely voluntary. They were informed that their cooperation was needed and that they were not to speak with anyone after leaving the experimental situation concerning what had gone on. If an S decided that he did not want to cooperate he was excused and asked not to mention anything about the situation. None of the men declined to participate and all were happy to cooperate.

In order to determine whether the seven stimulus choices involving preferences for immediate versus delayed rewards were measuring the same variable reliably, it was necessary to apply some form of internal consistency estimate. Kuder-Richardson Formula 20 (Walker and Lev, 1953) was applied to the data of the forty pilot Ss. Each time an S chose the immediate reward he received a score of one and each time a delayed reward was chosen a score of zero was given. Hence scores could range from zero to seven. The reliability estimate obtained was .93 with a standard error of measurement of .76. Given

this standard error, it was extremely unlikely that any S obtaining a measured score of one could have a true score higher than the true score of any S obtaining a measured score of six in this pilot research. The frequency distribution of the scores obtained by the forty pilot subjects is reproduced below.

Table 18. - Frequency distribution of scores obtained by pilot subjects in choosing between Immediate and Delayed Rewards

Score	Number of Subjects
7	11
6	4
5	6
4	2
3	2
2	3
1	2
0	10

The distribution of the seven choices made by the 40 pilot Ss was as shown in Table 19.

High scores reflected choice of immediate reward on all seven stimuli and low scores, delayed reward choices. Because the estimate of reliability is so high it is possible to say that Ss scoring very highly on the seven stimulus choices are clearly different from Ss obtaining low scores. The information contained in the above described frequency distribution (Table 18) indicated

Table 19. - Number of pilot subjects choosing Immediate and Delayed Rewards on each of the 7 choices

Choice	Number Choosing Immediate Reward	Number Choosing Delayed Reward
1	12	28
2	20	20
3	19	21
4	21	19
5	26	14
6	27	13
7	28	12

that it would be necessary to obtain a random sample of approximately 120 Ss in order to obtain 30 Ss in a low delay capacity group and 30 Ss in a high delay capacity group.

Appendix B - Age, I.Q.* and Length of Imprisonment (months) of subjects in the Low Capacity to Delay Gratification Group

Subject #	Age	I.Q.	Length
1	24	110	61
2	33	97	47
3	44	102	42
4	36	88	100
5	58	95	75
6	43	99	2
7	25	85	25
8	29	104	22
9	25	77	11
10	45	94	36
11	28	80	33
12	23	108	18
13	35	93	23
14	30	98	43
15	29	106	34
16	43	132	165
17	24	112	26
18	25	121	2
19	42	102	44
20	38	115	3
21	26	116	7
22	32	114	13
23	29	93	13
24	36	111	24
25	36	123	38
26	39	121	207
27	30	80	17
28	28	101	26

*AGCT Scores

Appendix C - Age, I.Q. and Length of imprisonment of subjects in the High Capacity to Delay Gratification Group

Subject #	Age	I.Q.	Length
1	35	80	10
2	29	81	28
3	40	112	123
4	27	72	30
5	30	115	12
6	34	96	52
7	41	127	15
8	27	74	8
9	29	93	48
10	46	129	89
11	30	80	46
12	34	86	23
13	30	89	39
14	29	120	16
15	33	120	9
16	40	112	23
17	36	126	23
18	23	136	11
19	54	81	11
20	24	123	2
21	37	110	184
22	25	128	18
23	33	105	68
24	35	123	64
25	32	83	38
26	24	95	37
27	31	115	13
28	38	111	36
29	38	125	63

APPENDIX D

Definitions and Examples for the Rorschach Genetic Level Scoring System

The genetic Scoring System derives from Werner's description of developmental stages and both he and subsequent authors have used the following schema to outline perceptual development. Development is said to move away from a fused unity of functions in the direction of articulation and their integration into an ordered whole. The scores in the Genetic Scoring System represent an attempt to set-up perceptual parallels to this general schema.

All scores in the system are based on location choice (W, D, and Dd only); the definiteness of the blot outline that the response requires and organizational quality. The four highest response types (W++, D++, W+, D+) are also based on the adequacy of the form level (whether or not the form elements are plus or minus). The scores in the system, with examples and definitions, are as follows, in order of genetic level from the least (level 1) to the most (level 6) mature levels of perceptual functioning.

Level 1 Responses

Classification	Definition and Examples
Amorphous Whole (Wa)	Responses are classed as amorphous if their location is W, if no specific form is required,

	the responses being based solely on chromatic or achromatic blot features. Amorphous responses encompasses color, shading in all its varieties and the black-white continuum. Shape plays no determinable role. Example - Card I. Black paint; II Fire and Smoke.
Minus Whole (W-)	Responses are classed as minus if their location is W, if the response requires a specific form and if that form requirement is not met by the blot, i.e., if the form element is F-.** Examples - Card I. A fly; IV A starfish.
Confabulatory Response (DW)	Responses are classed as confabulatory if their location is W; if the only basis given for the response is that some portion, less than half the total blot area included in its percept is described as being the entire basis for what has been seen; if a single detail is the basis for interpretation of the whole. Example would be Card VI (W) described as a squashed cat solely because of the Dd whiskers.
Contaminated Response (ConR)	Responses are classed as contaminations if their location is W or D; if they involve the fusion of two separate responses given to the same area into a single response in which the elements of the two responses now intermingle. An example is Card X D9 interpreted first as a caterpillar, then as a man, then as a caterpillar man. These are very rare responses even within pathological groups. Another example is Card VI: Turtle skin rug.

Fabulized Combination (FabC)	Responses are classified as fabulized combinations if their location is W or D, if the response involves the inappropriate and arbitrary combination of two or more sub-units on the basis of sheer spatial contiguity. An example would be Card V D_1 and Dd_{22} both interpreted as penises. Then the lateral half of the card from which D_1 and Dd_{22} project was interpreted as a boy's head with two penises growing out of the top. Another example - Card X. Rabbit with worms coming out of its eyes.
Perseveration (Per)	Same content is given to three or more cards with little regard for form requirements. For example Cards I, IV and V seen as a spider and Cards VIII, IX and X seen as internal organs.

Level 2 Responses

Classification	Definition and Examples
Amorphous Detail (Da)	Analogous to Wa except that location is D. Examples: Card II D_2 Fire; Card VIII D_6 Flesh.
Confabulatory Detail (DdD)	Analogous to confabulatory Responses (DW) except location is D. Examples: Card VI D_3 as cat's head solely because of whiskers; another example: Card III D_9 as men solely because D_{10} looks like a foot.
Minus Detail (D-)	Analogous to (W-) except location is D.** Example: Card II D_2 Kittens.
Vague Detail (Dv)	Responses are classed as vague if their location is D; if the demand made on the blot structure is so minimal that is, the form element is so unspecific, that almost any form could encompass

	the content. Whether the form level is plus or minus has no bearing on whether a response is classified as vague. Some form element must be present (to distinguish it from an amorphous response) but it cannot be a very specific form element (to distinguish it from a mediocre or minus response). Vagues fall between amorphous and mediocre response types as regard to specificity of their form requirements. Examples: Card II D_2, D_3 as Blood Stains; Card X D_9 as Island.
Minus Unusual Detail (Dd-)	Analogous to (W-)** Example: Card VI Dd_{25} as Pig's foot.

Level 3 Responses

Classification	Definition and Examples
Vague Whole (Wv)	Analogous to Dv except location is W. Examples: Card I: Piece of puzzle. Card X: Design, Map.
Oligophrenic Detail (Adx-Hdx)	Response to part of an A or H percept usually seen as a completed figure. Examples are Card III D_6, head of a person. Card V D_4, wing.
Plus Unusual Detail (Dd+)	Content is a reasonable match to blot area isolated.** Example: Card X D_{26} as Funny face.

Level 4 Responses

Classification	Definition and Examples
Mediocre Detail (Dm)	Response is classed as mediocre if its location is D, if the response requires a specific form, and if that form requirement is met by the blot. In short, the form implied in outline and articulation matches blot area

	at level of "populars." Example: Card III D_3, Bow tie; Card X D_{15}, Little Bird.
Mediocre Whole (Wm)	Analogous to Dm but applies only to unbroken Cards.* Examples: Card I, Bat, fox's head; Card VI Mud turtle. In practice however certain exceptions must be made. These are the cases in which a broken blot area, for example Card VII, elicits a whole response based almost entirely on the schematic outline of the blot, in this particular case the U-shape. The response "harbor" for instance given to the whole of Card VII will be scored (Wm).

Level 5 Responses

Classification	Definition and Examples
Plus Detail (D+)	A response is classed in the "plus" category if its location is D, if the response requires a specific form, if that form requirement is met by the blot and if the response involves the synthesis of two or more discrete D areas into one appropriately organized unit, that is; "good form" percept. Example: Card II D_1's Bears fighting. Certain difficulties arise in the application of the scoring system to responses which may potentially be D+ but might appear to be Dm. The reason for this is that certain areas which are scored as unitary D areas by Beck contain within them other D areas which are segregated and discrete. The clearest example is D_9 on Card III which contains within it D_{10}, D_5, D_6 and D_{11}. In such cases, a D+ is scored whenever two or more of the elements are successfully combined into a single response. Thus

for example whenever a human figure is seen in the D_9 area on Card III the response is scored D+.

Plus Whole (W+)

All D portions of a broken card are combined into one "good form" percept.** W+ responses can only be given to the broken cards.* Thus for example the response two fellows toasting each other at a bar to the whole of Card II is scored W+.

Level 6 Responses

Classification	Definition and Examples
Plus-Plus Whole (W++)	A response is classed in the plus-plus category if its location is W, if the response requires a specific form, if that form requirement is met by the blot, that is, if the form elements are F+, and if the response involves breaking down a solid blot area into component parts and resynthesizing these parts into an appropriately organized unity. In short, an unbroken blot is perceptually articulated and reintegrated into a "good form" percept. W++ responses can only be scored to the unbroken cards.* Thus for example the response fountain with a statue of an angel on each side given to the whole of Card I would be scored W++. Another example: Card IV, a giant sitting on a stump.
Plus-Plus Detail (D++)	Analogous to W++. A D area is articulated and reintegrated into a "good form" percept. D++ responses can only be scored to the unbroken cards.* Examples: Card IX D_1, a guy on a motorcycle. Card X D_8 (left) guy riding a horse.

*Unbroken cards are I, IV, V, VI and IX; broken cards are II, III, VII, VIII and X.

**Beck's tables are used as guide in scoring.

APPENDIX E

Rationale for Level of Responses of Rorschach Genetic Scoring System

Level 1

Level 1 is characterized by diffuse, global, undifferentiated perceptions. Wa is a direct indicator of the diffuse global nature of perception at this level. W- indicates the lack of differentiation of inner and outer world and the syncretism in mental organization. DW is a clear example of a type of diffuse perception Werner has described by the phrase "pars pro toto" - any part has the quality of the whole. The contaminated and fabulized responses reflect both the concrete and syncretic nature of primitive perception. In these responses there is an observed fusion of percepts on the basis of spatial identity and spatial contiguity. Perseveration is assumed to reflect the dynamic rigidity of the personality at this level.

Level 2

Level 2 is characterized by attempted differentiation in which the diffuse and syncretic nature of perception is still apparent. Dv lacks integrative effort and is therefore placed at level 2. D- and Dd- again are indicative of an unsuccessful attempt at differentiated per-

ception. Because Wv shows some integrative effort involving consideration of the formal aspects of the blot, it is placed at level 3.

Level 3

Level 3 is characterized by the achievement of fair differentiation with only rudimentary integrative efforts. Developmentally, the scores at this level (with the exception of Wv) are most characteristic of children from ages 7 to 10. In some ways Adx-Hdx responses are like the Dm of the fourth level. However, they are placed at this lower level because they clearly indicate a failure at integration where integration is usually easily achieved. With Beck's tables as a guide, Dd+ responses placed at level 3 while the more immature Dd- responses were placed at level 2.

Level 4

Level 4 is a stage of accurate differentiation with the ability to make simple integrations. The Mediocre responses scored at this level indicate the ability to meet certain constant typical requirements in form, necessary for adult perception.

Level 5

Level 5 is indicative of clearly integrative activity with the ability to subordinate differentiated parts to the whole.

Level 6

Level 6 is characterized by the highest form of differentiation and hierarchic integration which is found only in mature perception.

In regard to the scoring of the responses additional responses given during the inquiry were included. If a subject rejected a response on inquiry it was excluded. If the subject included a response on inquiry he was given appropriate credit. The focus was on how well the subject could do rather than on how poorly.

Appendix F - Total number of responses (R), number and percentage of W, D and Dd responses on the Rorschach - Low Delay Capacity Group

Subject #	R	#W	%W	#D	%D	#Dd	%Dd
1	28	5	17.8	21	75.0	2	7.1
2	25	6	24.0	19	76.0	0	0.0
3	28	10	35.7	17	60.7	1	3.5
4	22	8	36.3	13	59.0	1	4.5
5	22	3	13.6	15	68.1	4	18.1
6	25	12	48.0	13	52.0	0	0.0
7	22	5	22.7	17	77.2	0	0.0
8	32	2	6.2	26	81.2	4	12.5
9	26	8	30.7	18	69.2	0	0.0
10	31	5	16.1	25	80.6	1	3.2
11	30	4	13.3	26	86.6	0	0.0
12	44	3	6.8	37	84.0	4	9.0
13	27	5	18.5	20	74.0	2	7.4
14	9	3	33.3	6	66.6	0	0.0
15	22	4	18.1	17	77.2	1	4.5
16	53	3	5.6	44	83.0	6	11.3
17	32	10	31.2	20	62.5	2	6.2
18	22	9	40.9	13	59.0	0	0.0
19	23	13	56.5	9	39.1	1	4.3
20	30	7	23.3	21	70.0	2	6.6
21	22	4	18.1	18	81.8	0	0.0
22	17	3	17.6	14	82.3	0	0.0
23	40	8	20.0	29	72.5	3	7.5
24	20	7	35.0	13	65.0	0	0.0
25	34	8	23.5	26	76.4	0	0.0
26	24	5	20.8	17	70.8	2	8.3
27	17	3	17.6	12	70.5	2	11.7
28	22	2	9.0	18	81.8	2	9.0
	749						

Appendix G - Total number of responses (R), number and percentage of W, D and Dd responses on the Rorschach - High Delay Capacity Group

Subject #	R	#W	%W	#D	%D	#Dd	%Dd
1	21	8	38.0	12	57.1	1	4.7
2	36	15	41.6	21	58.3	0	0.0
3	28	6	21.4	20	71.4	2	7.1
4	34	7	20.5	27	79.4	0	0.0
5	14	7	50.0	7	50.0	0	0.0
6	27	8	29.6	19	70.3	0	0.0
7	38	9	23.6	27	71.0	2	5.2
8	23	7	30.4	16	69.5	0	0.0
9	19	10	52.6	9	47.3	0	0.0
10	36	4	11.1	29	80.5	3	8.3
11	11	3	27.2	7	63.6	1	9.0
12	29	6	20.6	21	72.4	2	6.8
13	15	4	26.6	11	73.3	0	0.0
14	20	9	45.0	11	55.0	0	0.0
15	18	3	16.6	14	77.7	1	5.5
16	14	5	35.7	9	64.2	0	0.0
17	18	5	27.7	11	61.1	2	11.1
18	25	14	56.0	11	44.0	0	0.0
19	16	3	18.7	12	75.0	1	6.2
20	27	11	40.7	16	59.2	0	0.0
21	45	2	4.4	43	95.5	0	0.0
22	24	2	8.3	21	87.5	1	4.1
23	26	3	11.5	22	84.6	1	3.8
24	14	2	14.2	12	85.7	0	0.0
25	16	4	25.0	12	75.0	0	0.0
26	30	3	10.0	26	86.6	1	3.3
27	19	2	10.5	16	84.2	1	5.2
28	29	4	13.7	22	75.8	3	10.3
29	33	5	15.2	25	75.7	3	9.0
	707						

Appendix H - Individual Judges' and Mean rating of Rorschach responses as scored by Genetic Rorschach Level Scoring System - Low Delay Capacity Group

Subject #	Judge W	Judge S	Mean Rating
1	2.79	2.93	2.86
2	2.64	3.40	3.02
3	2.75	2.89	2.82
4	3.04	2.72	2.88
5	2.95	3.36	3.16
6	2.92	3.12	3.02
7	2.73	3.00	2.87
8	2.93	3.47	3.20
9	2.54	2.73	2.64
10	2.81	3.13	2.97
11	3.13	3.47	3.30
12	2.77	3.11	2.94
13	2.78	3.13	2.95
14	3.33	4.00	3.67
15	2.73	3.14	2.94
16	2.92	3.45	3.19
17	2.59	2.59	2.59
18	2.77	3.27	3.02
19	2.61	3.26	2.94
20	2.93	3.23	3.08
21	2.82	3.18	3.00
22	3.12	4.00	3.56
23	2.48	3.25	2.87
24	2.80	3.20	3.00
25	2.24	2.68	2.46
26	2.67	3.08	2.88
27	2.88	3.41	3.15
28	2.82	3.05	2.94

Appendix I - Individual Judges' and Mean rating of Rorschach responses as scored by Genetic Rorschach Level Scoring System - High Delay Capacity Group

Subject #	Judge W	Judge S	Mean Rating
1	3.38	3.95	3.67
2	3.28	3.33	3.31
3	3.54	3.29	3.42
4	3.15	2.79	2.97
5	3.50	3.43	3.47
6	2.81	2.89	2.85
7	3.79	3.71	3.75
8	3.44	3.61	3.53
9	3.53	3.47	3.50
10	3.58	3.36	3.47
11	3.27	3.36	3.32
12	3.45	3.31	3.38
13	4.13	3.80	3.97
14	4.00	3.60	3.80
15	3.67	3.89	3.78
16	3.36	3.29	3.33
17	3.47	3.53	3.50
18	3.12	3.20	3.16
19	3.13	3.38	3.26
20	3.52	3.59	3.56
21	3.24	3.29	3.27
22	3.29	3.33	3.31
23	3.50	3.35	3.43
24	3.64	3.79	3.72
25	4.06	4.06	4.06
26	3.33	3.53	3.43
27	3.74	3.79	3.77
28	3.72	3.73	3.73
29	3.24	3.27	3.26

Appendix J - Rank* and proportion of Most Perceptually Mature responses (levels 5 and 6) on Rorschach Genetic Level Scoring System - Low Delay Capacity Group

Subject #	Proportion MPM Responses	Rank
1	.035	8.5
2	.120	42.0
3	.035	8.5
4	.159	47.0
5	.068	24.0
6	.120	42.0
7	.000	2.5
8	.046	15.0
9	.038	11.0
10	.032	6.0
11	.066	22.5
12	.034	7.0
13	.092	34.0
14	.166	48.0
15	.000	2.5
16	.056	19.0
17	.062	21.0
18	.113	40.0
19	.086	32.0
20	.050	16.5
21	.045	14.0
22	.147	45.0
23	.050	16.5
24	.075	27.0
25	.044	13.0
26	.041	12.0
27	.058	20.0
28	.000	2.5

*Combined for both groups

Appendix K - Rank* and proportion of Most Perceptually Mature responses (levels 5 and 6) on Rorschach Genetic Level Scoring System - High Delay Capacity Group

Subject #	Proportion MPM Responses	Rank
1	.214	53.0
2	.083	30.0
3	.053	18.0
4	.073	26.0
5	.250	55.0
6	.037	10.0
7	.171	49.0
8	.152	46.0
9	.078	28.0
10	.138	44.0
11	.090	33.0
12	.103	37.0
13	.233	54.0
14	.350	56.0
15	.083	30.0
16	.000	2.5
17	.105	39.0
18	.100	36.0
19	.093	35.0
20	.203	52.0
21	.066	22.5
22	.104	38.0
23	.076	27.0
24	.071	25.0
25	.187	51.0
26	.083	30.0
27	.184	50.0
28	.120	42.0
29	.030	5.0

*Combined for both groups

Appendix L - Anxiety Scores, Overt-Covert ratios, Ego Strength Scores on IPAT Anxiety Scale for Low Delay Capacity Groups

Subject #	Total Anxiety Score (Stens)	Overt Covert Ratio	Sten Scores (Q3)	Sten Scores (C-)	Ego Strength (Q3)+(C-)
1	4	.77	5	4	9
2	6	.53	5	4	9
3	5	2.14	4	6	10
4	4	1.14	5	4	9
5	7	1.05	4	6	10
6	6	.86	5	6	11
7	7	.94	7	7	14
8	10	.67	8	8	16
9	7	.68	4	10	14
10	7	1.43	5	6	11
11	10	1.00	5	10	15
12	7	.73	6	8	14
13	5	1.10	5	7	12
14	4	.50	4	5	9
15	6	.53	5	8	13
16	8	1.20	8	9	17
17	7	1.20	4	5	9
18	6	.71	7	6	13
19	4	1.22	3	4	7
20	8	1.05	7	8	15
21	6	.61	5	8	13
22	4	1.00	7	4	11
23	7	1.36	4	9	13
24	8	1.16	8	6	14
25	9	1.08	8	10	18
26	7	.73	4	7	11
27	4	.33	5	5	10
28	10	1.11	9	10	19

Appendix M - Anxiety Scores, Overt-Covert ratios, Ego Strength Scores on IPAT Anxiety Scale for High Delay Capacity Groups

Subject #	Total Anxiety Score (Stens)	Overt-Covert Ratio	Sten Scores (Q3)	Sten Scores (C-)	Ego Strength (Q3)+(C-)
1	5	.92	4	6	10
2	6	.68	6	6	12
3	7	1.00	5	8	13
4	10	1.08	7	7	14
5	4	.77	3	4	7
6	4	.31	3	6	9
7	4	.90	3	4	7
8	9	1.50	9	8	17
9	6	.75	6	8	14
10	7	1.53	9	7	16
11	4	1.13	3	4	7
12	9	.80	7	10	17
13	7	.88	5	8	13
14	2	.75	2	4	6
15	7	1.00	9	6	15
16	6	.68	5	7	12
17	7	.75	5	8	13
18	4	.45	5	4	9
19	6	1.07	3	8	11
20	10	1.16	5	10	15
21	7	.81	7	6	13
22	4	.25	4	6	10
23	7	1.43	4	10	14
24	5	.83	4	6	10
25	7	1.19	7	4	11
26	5	.60	5	6	11
27	8	.76	9	4	13
28	4	.89	4	6	10
29	5	.50	6	4	10

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