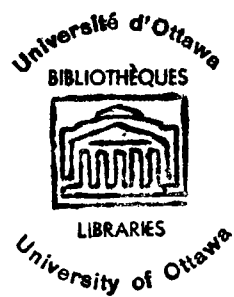


ON DELAYED GRATIFICATION PREFERENCE IN DELINQUENTS
ITS MEASUREMENT AND SOME CORRELATES

by

Burkhard Hasenpusch

Thesis submitted to the School of Graduate Studies in
partial fulfillment of the requirements for the degree
of Master of Arts in Criminology



UNIVERSITY OF OTTAWA
OTTAWA, CANADA, 1976

UMI Number: EC56114

INFORMATION TO USERS

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleed-through, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

UMI[®]

UMI Microform EC56114
Copyright 2011 by ProQuest LLC
All rights reserved. This microform edition is protected against
unauthorized copying under Title 17, United States Code.

ProQuest LLC
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106-1346

ACKNOWLEDGEMENTS

The author would like to express his gratitude to the Canada Council and the German Academic Exchange Service, whose generous financial and organizational support made it possible for him to study for two years at the Department of Criminology of the University of Ottawa.

The author is indebted to Dr. Justin Ciale of the Department of Criminology for his supervision and guidance during the preparation of this study. Without his patience, his theoretical suggestions and his invaluable help in obtaining access to the subjects for the empirical part of the study, this thesis would not have been completed. The author is especially grateful for the freedom and independence he enjoyed during the preparation of his work, while at the same time always being able to seek advice and direction for his progress.

The author would also like to thank the Chairman of the Department of Criminology, Dr. Cleobis Jayewardene, for his helpful comments on an earlier paper written in preparation of this thesis, and Dr. Frank Blum, Dr. Michael Langley, Dr. Jacques Laplante, and Mr. Bryan McKay of the Department of Criminology and Mr. Stephen Wormith of St. Patrick's College in Ottawa for their critique of the first draft of this thesis.

The author is indebted to Dr. Wilfried Hommers and Dr. Max Steller of the Department of Psychology of the Christian-Albrechts-Universität in Kiel, Germany, for their help and guidance during the work on an earlier study on the delayed gratification preference of young offenders.

The author recognizes that this study would not have been possible without the active support and the permission to administer the questionnaire which was given by Mr. A. Bootheroyd, Assistant Director Socialization of Warkworth Institution, Mr. M. Doraty, Executive Director of the Friendship Concept, M. Y. Guindon, Executive Director of the Chimo House, and Mr. B. Hemsley, Executive Director of the Union Mission for Men in Ottawa. The author also gratefully acknowledges the cooperation of the participating inmates of Warkworth Institution and the residents of the Friendship Concept, the Chimo House, and the Union Mission for Men.

TABLE OF CONTENTS

	page
I. INTRODUCTION: THE CONCEPT OF DELAYED GRATIFICATION PREFERENCE	
ITS DEFINITION AND SOCIO-CULTURAL RELEVANCE	1
REFERENCES	4
II. THEORIES ON THE ORIGIN AND ANTECEDENTS OF DELAYED GRATIFICATION PREFERENCE	6
II. 1. The Psychoanalytic Theory on the Development of Delayed Gratification Preference	7
II. 2. The Social Learning Theory on Delayed Gratification Preference	10
II. 3. Comparison of the Psychoanalytic and the Social Learning Theory on Delayed Gratification Preference	13
REFERENCES	15
III. THE ASSESSMENT OF DELAYED GRATIFICATION PREFERENCE	19
III. 1. The Measurement of Impulse Control	20
III. 2. The Observation of Behavior in Choice Situations	22
III. 3. Questionnaires and Hypothetical Choices	27
III. 4. Comparison of Different Methods to Measure Delayed Gratification Preference	29
REFERENCES	32
IV. DELAYED GRATIFICATION PREFERENCE IN RELATION TO SOCIOCULTURAL VARIABLES	37
IV. 1. Socioeconomic Status and Delayed Gratification Preference	38
IV. 2. Delinquency, Criminality and Delayed Gratification Preference	42

	page
IV. 3. Delayed Gratification Preference and Criminality - A Spurious Relationship ?	46
REFERENCES	49
V. METHODOLOGY	56
V. 1. The Questionnaire	57
V. 2. Subjects and Administration of the Questionnaire	61
V. 3. Statistical Procedures	64
V. 4. Operationalization of the Hypotheses	67
REFERENCES	69
VI. FINDINGS	71
VI. 1. The Relation Between Incarceration, Self-Reported Criminality and Delayed Gratification Preference	72
VI. 2. Social Desirability, Self-Reported Offences and Delayed Gratification Preference	81
VI. 3. Tattoos as Indicators of Low Delayed Gratification Preference	85
VI. 4. Itemanalyses of the Choice-List and the Self-Report Questionnaire	87
REFERENCES	93
VII. CONCLUSIONS	96
VII. 1. Ex-Post-Facto Research in Criminology	97
VII. 2. Some Explanations for the Lack of a Relation Between Incarceration and Delayed Gratification Preference	99

	page
VII. 3. Modifying the Delayed Gratification Preference of Offenders - Should it Be Done ?	101
VII. 4. Suggestions for Further Research	103
REFERENCES	104

BIBLIOGRAPHY

APPENDIX I: Reproduction of the Questionnaire

APPENDIX II: Data

LIST OF TABLES

	page
Table 1: Relation between Incarceration and Delayed Gratification Preference in Subjects Matched on Self-Reported Offences	75
Table 2: Relation between Self-Reported Criminality and Delayed Gratification Preference in Non-Incarcerated Subjects	76
Table 3: Multiple Regression of Present Incarceration and Self-Reported Offences on Delayed Gratification Preference	78
Table 4: Multiple Regression of Present Incarceration, Previous Incarceration, and Self-Reported Offences on Delayed Gratification Preference	79
Table 5: Statistics of the Choice-Lists (N = 51)	88
Table 6: Statistics of the Self-Report Questionnaires (N = 58)	91

LIST OF FIGURES

Figure 1: Distributions of Choice-List Scores (N = 51)	87
Figure 2: Distributions of Self-Reported Offences (N = 58)	90

IINTRODUCTION: THE CONCEPT OF DELAYED GRATIFICATION PREFERENCEITS DEFINITION AND SOCIO-CULTURAL RELEVANCE

The concept of delayed gratification preference was introduced into psychology by FREUD in connection with his theory on the development of thinking (1, pp. 598). In psychoanalytic studies, delayed gratification preference is sometimes referred to as "impulse control" or "time binding" and is defined as

"the ability to delay gratification and to inhibit a direct approach to a desired object Intimately associated with this delaying capacity is the ability to resort to thought or ideation as 'experimental action' in a behavioral medium free of temporal and spatial boundaries." (10, p. 375)

SCHNEIDER & LYSGAARD (8, p. 142) coined the expression "deferred gratification pattern" which is usually found in sociological studies. This pattern is observed in such postponements of gratification as the abstinence from short-run temptations and the conformity to long-run duties or the abstinence from consuming immediately the total of one's production (4, p. 364).

In the framework of social learning theory, "delayed gratification preference" or "goal directed waiting" is defined as

"the ability to postpone immediate gratification for the sake of future consequences, to impose delays of reward on oneself and to tolerate such self-initiated frustration ..." (6, p. 249)

For the purpose of this study, delayed gratification preference is defined as the willingness to postpone the immediate satisfaction of a need for the sake of a later, but larger satisfaction of the same need. Alternatively, delayed gratification preference may be expressed by forfeiting the satisfaction of one need in order to obtain the more highly valued satisfaction of a different need later.

Delayed gratification preference is at the core of concepts such as "will power" and "ego strength". The achievement of long-term goals often depends on delay of gratification, and it is difficult to imagine socialization and civilization without delay of gratification (7, p. 437). Several forms of deviance such as delinquency or neurotic behavior have been related to low delayed gratification preference (7, p. 459; 9, p. 426).

In most sociological and psychoanalytic studies, delayed gratification preference is conceived of as a unitary personality trait which manifests itself in different areas of behavior. On the other hand, studies based on social learning theory show that the decision to delay gratification is influenced mainly by the person's expectations concerning the probable consequences of the particular decision (7, p. 447).

HARTIG (3, p. 28) maintains that the actual decision to delay gratification is always determined by both personality- and situational variables as well as by interactions of these groups of variables. Quoting a study by MISCHEL (5) which found that institutionalized juvenile delinquents chose a smaller immediate reward more often than

school children of the same age, HARTIG says that this result may be due either to a personality trait "low delayed gratification preference" or to the uncertainty as to whether the promised reward would actually be handed out. A further possibility is that the delinquents experienced the breaking of such promises too often and are willing to wait for a delayed reward only if the uncertainty of obtaining this reward is extremely low (3, p. 28). A similar explanation for the psychopaths' preference for immediate gratification is suggested by HARE (2, p. 107).

REFERENCES

1. FREUD, S., (1958) The Interpretation of Dreams. in The Standard Edition of the Complete Psychological Works of Sigmund Freud; Translated from the German under the General Editorship of James Strachey, in Collaboration with Anna Freud, Volume V. London: Hogarth Press & Institute of Psycho-Analysis, 339 - 621.
2. HARE, R.D., (1970) Psychopathy: Theory and Research. New York: John Wiley & Sons.
3. HARTIG, M., (1973) Selbstkontrolle. München: Urban & Schwarzenberg.
4. LYSGAARD, S., (1954) Social Stratification and the Deferred Gratification Pattern. in International Sociological Association, Transactions of the Second World Congress of Sociology, Volume 2. London, 364 - 377.
5. MISCHEL, W., (1961) Preference for Delayed Reinforcement and Social Responsibility. Journal of Abnormal and Social Psychology, 62, 1 - 7.
6. MISCHEL, W., (1974) Processes in Delay of Gratification. in L. Berkowitz, Advances in Experimental Social Psychology, Volume 7. New York: Academic Press, 249 - 292.
7. MISCHEL, W., (1976) Introduction to Personality (second Edition). New York: Holt, Rinehart & Winston.

8. SCHNEIDER, L., LYSGAARD, S., (1953) The Deferred Gratification Pattern: A Preliminary Study. American Sociological Review, 18, 142 - 149.
9. SHAW, F.J., (1948) Some Postulates Concerning Psychotherapy. Journal of Consulting Psychology, 12, 426 - 431.
10. SINGER, J.L., WILENSKY, H., McCRAVEN, V.G., (1956) Delaying Capacity, Fantasy, and Planning Ability: A Factorial Study of Some Basic Ego Functions. Journal of Consulting Psychology, 20, 375 - 383.

IITHEORIES ON THE ORIGIN AND ANTECEDENTS OF
DELAYED GRATIFICATION PREFERENCE

Most of the empirical studies on the origin and antecedents of delayed gratification preference have been conducted in the framework of psychoanalytic or social learning theory.

The operational definitions of delayed gratification preference which were developed on the basis of these theories will be discussed in chapter III. These operational definitions show a considerable degree of divergence and may have had their own impact on the results of the studies and hence on the theoretical explanations of the concept. Because of these differences in the operational definitions, comparisons between studies with different theoretical backgrounds are very difficult.

II. 1. The Psychoanalytic Theory on the Development of Delayed

Gratification Preference

According to some psychoanalytic authors (5; 6; 15) the inhibition of motor impulses during the "experimental action" of thinking and the acceptance of the reality principle instead of the pleasure principle are crucial for the development of delayed gratification preference. Other authors (21; 25) stress the importance of the child's identification with high-delay parental figures.

In "The Interpretation of Dreams" (5, pp. 598) FREUD describes the development of thinking as a result of frustrations imposed on the infant by his environment. At first, these frustrations are coped with by a hallucinatory image of the need-satisfying object and a hallucinatory revival of earlier satisfactions, accompanied by a discharge of the tension into movement. This process is called the primary process.

Soon this hallucinatory gratification proves to be insufficient, and the so-called secondary process evolves. This process prevents the tension produced by the need from free discharge and leads it to a detour of "experimental action" (thinking) in order to find a possibility of need-gratification. Once such a possibility is discovered, the tension is discharged and the environment is changed to obtain the need-satisfying object.

WALLACE & RABIN (26, pp. 214) summarize FREUD's formulations as follows:

- "1. Immediate frustration when need is not gratified.
2. Suppression of need and of emotional reaction to the experience of frustration.
3. Development of anticipation of later gratification on the basis of:
 - a. past experiences,
 - b. 'hallucination' (imagination) of gratification.
4. Projection into the future - expectancy.
5. Expectancy is possible providing the distinction between reality and non-reality experience can be made.
6. Development of symbolization - via words.
7. Development of the time sense expressed by conventional language - now, later, today, tomorrow, etc...."

In a later essay (6, pp. 223) FREUD maintains that giving up a short-term gratification for the sake of a postponed one which is sure to come does not mean the negation of the pleasure principle, but rather the securing of the pleasure principle.

RAPAPORT (15) further develops FREUD's formulations about the connection between delayed gratification preference and thinking. In his view, the ability to wait for need-satisfaction or to work for it is a precondition for the development of Ego-Strength. He points to the importance of the inhibition of motor impulses while the individual tries to find access to the need-satisfying object by the "experimental action" of thinking. This notion resulted in the assessment of delayed gratification preference by measuring the control of motor or cognitive impulses. Examples of such measurement procedures are the length of motionless waiting time, the slow tracing of lines with a pencil, and

human movement responses (M) in the Rorschach-Test.

Other psychoanalytic studies (2; 21) explain the development of delayed gratification preference by referring to the conduct of parental figures. They emphasize the opportunity for identification in early childhood with benign and loving adults who show delay of gratification. Furthermore, the parents' lifestyle plays a role in the development of delayed gratification preference by providing the child with clues about the likelihood of future satisfactions:

"In family constellations where relatively strict patterns of eating, toileting, washing, napping, and recreation are the rule children may more readily, in order to master their tensions, learn to accept delay since the sequence or pattern is consistent. In thus delaying and striving to imitate the adults they find that resort to the level of fantasy gratification is possible and is frequently rewarded by parental figures or leads to new possibilities for mastering the reality situation."
(21, pp. 263)

This view is supported by studies (25) which found low delaying capacity in children who had had little opportunity to identify with delaying parental figures - either because of family disorganization or because the parents did not delay gratification themselves.

LESHAN (10, pp. 591) writes that a strong Super-Ego is necessary for the individual to frustrate himself and to renounce present pleasure for future gains. The Super-Ego, which rewards the person for self-control and punishes him for transgressions, is built up out of the child's image of the parents in his early years - it also depends on the presence of consistent, delaying parents.

II. 2. The Social Learning Theory on Delayed Gratification Preference

The basic tenet of social learning theory is that "the potential for a behavior to occur in any specific psychological situation is a function of the expectancy that the behavior will lead to particular reinforcement in that situation and the value of that reinforcement" (16, p. 57). Self-controlling behavior such as delay of gratification is seen as determined by manipulable social-stimulus events (11, p. 108). Extensive experimental research has been done on the variables which influence the individual's expectancy for and his evaluation of a given reinforcer in a choice between an immediately available small reward and a larger delayed one.

Expectancy is defined as "the probability held by the individual that a particular reinforcement will occur as a function of a specific behavior on his part in a specific situation" (17, p. 12). In the context of delayed gratification preference, this expectancy is influenced by the trust the individual has in the person promising the delayed reward, his expectancy of success if the delayed reward is contingent upon further work-performance, and perceived internal control over the occurrence of reinforcers as opposed to perceived external control (12, pp. 257).

The belief in internal control is defined as the perception that an event is contingent upon one's own behavior or relatively permanent characteristics (16, p. 57). This belief is related positively to

delayed gratification preference according to some studies (1; 27), but other authors did not find a consistent relation between the two variables (23; 28). MISCHEL (12, p. 257) suggested that preference for delayed gratification may be related only to perceived internal control over positive events and only if the person's delay behavior is seen as instrumental for attaining the desired but delayed contingent outcome. This specification could explain the inconsistent results obtained in studies using global measures of internal control without eliminating other interacting factors.

The relative reinforcement value of the immediate and the delayed gratification is defined as the degree of the person's preference for this particular gratification to occur if the probability of occurrence of all alternatives were equal (17, pp. 13). The relative reinforcement value is influenced by the subjective value of the alternative rewards and the person's affective experiences preceding the choice (12, p. 261).

Delay of gratification is essentially a frustration situation in which the person experiences an interference with the occurrence of an expected and desired event (4, p. 7; 12, pp. 267). It has been shown that a person's affective state has a significant influence on his willingness to frustrate himself by delaying gratification: Subjects chose fewer delayed rewards after exposure to aversive experiences such as the announcement of unpleasant tasks (7), rejection of a drawing made for an art show (19), or criticism of the subject's performance on a task (20). These findings seem to indicate that the willingness

to delay gratification is part of a dynamic response pattern by which an individual maintains a certain level of satisfaction.

Both determinants of the decision to delay gratification, namely expectancy and relative reinforcement values, are influenced by the length of the delay period (8, pp. 86) and by the individual's future time perspective, i.e. his ability to think of future events and to take them into account in decision making (9, p. 323).

Finally, exposure to models also has a large impact on a person's choice of delayed gratifications (12, p. 261; 24).

In their more recent work, MISCHEL and his co-workers explored the conditions which enable an individual to successfully complete his voluntary goal-directed waiting after choosing the delay of gratification. In the case of mere passive waiting, the most effective strategy to reduce the aversiveness of the self-imposed frustration was found to be the involvement in some pleasurable distraction and an occasional non-arousing, abstract reminder of what one is waiting for (12, p. 287). This result is supported by the finding of a psychoanalytic author that highly imaginative children are able to wait quietly for longer periods than less imaginative children (22). On the other hand, if the waiting is perceived as instrumental in obtaining the delayed reward, cognitive attention on the contingent reward and on the elapsing of time facilitates the waiting behavior (14; 18).

II. 3. Comparison of the Psychoanalytic and the Social Learning Theory on Delayed Gratification Preference

In psychoanalytic theory, delayed gratification preference is regarded as a permanent characteristic of a person - it is part of the individual's Ego-Strength. Social learning theory, on the other hand, sees the choice between immediate and delayed rewards primarily as a function of situational conditions which the individual takes into account in his decision-making.

Apart from this difference in conceptualization, the two theories coincide on several points:

1. The development of delayed gratification preference begins in early childhood. According to BLUM (3, pp. 62) the ability to postpone gratifications is acquired as part of the development of the Ego when the child is between one and three years old. MISCHEL & EBBESEN (13, p. 331) observed that the capacity to wait for long-term goals and to inhibit both immediate gratification and motoric activity seems to develop markedly at the age of three to four years.
2. Delayed gratification preference is strongly influenced by imitation. SINGER (21, p. 259) and WAGNER (25, p. 537) refer to the importance of the child's identification with delaying parental figures, and STUMPHAUZER (24, pp. 16) and MISCHEL (12, p. 261) point to the effects of delaying models on a person's decision to delay gratification.

3. Effective goal-directed waiting is dependent on certain cognitive processes during the delay period. If a person merely has to wait for a delayed reward, pleasurable distractions such as daydreaming have been found to facilitate the waiting (22, pp. 401; 12, p. 287). If the delayed reward is contingent upon some activity, cognitive attention on this activity as well as on the forthcoming reward have been suggested as helpful strategies (15, pp. 162; 14).
4. The decision to delay gratification depends on the perceived probability of obtaining the delayed reward (6, p. 233; 21, p. 263; 12, p. 257). However, the emphasis on this condition is considerably stronger in social learning theory than in psychoanalytic theory.

REFERENCES

1. BATTLE, E., ROTTER, J.B., (1963) Children's Feelings of Personal Control as Related to Social Class and Ethnic Group. Journal of Personality, 31, 482 - 490.
2. BLOCK, J., MARTIN, B., (1955) Predicting the Behavior of Children under Frustration. Journal of Abnormal and Social Psychology, 51, 281 - 285.
3. BLUM, G.S., (1953) Psychoanalytic Theories of Personality. New York: McGraw-Hill.
4. DOLLARD, J., MILLER, N.E., DOOB, L.W., MOWRER, O.H., SEARS, R.R., FORD, C.S., HOVLAND, C.C., SOLLENBERGER, R.T., (1939) Frustration and Aggression. New Haven: Yale University Press.
5. FREUD, S., (1958) The Interpretation of Dreams. in The Standard Edition of the Complete Psychological Works of Sigmund Freud; Translated from the German under the General Editorship of James Strachey, in Collaboration with Anna Freud, Volume V. London: Hogarth Press & Institute of Psycho-Analysis, 339 - 621.
6. FREUD, S., (1958) Formulations on the Two Principles of Mental Functioning. in The Standard Edition of the Complete Psychological Works of Sigmund Freud; Translated from the German under the General Editorship of James Strachey, in Collaboration with Anna Freud, Volume XII. London: Hogarth Press & Institute of Psycho-Analysis, 213 - 226.

7. GRUSEC, J., (1968) Waiting for Rewards and Punishments: Effects of Reinforcement Value on Choice. Journal of Personality and Social Psychology, 9, 85 - 89.
8. HASENPUSCH, B., (1974) Ueber die Bevorzugung aufgeschobener Bedürfnisbefriedigung (Spannungsbogen) und ihre Beziehung zur Delinquenz. Unpublished Thesis, Kiel: Christian-Albrechts-Universität.
9. JESSOR, R., GRAVES, T.D., HANSON, R.C., JESSOR, S., (1968) Society, Personality and Deviant Behavior: A Study of a Tri-Ethnic Community. New York: Holt, Rinehart & Winston.
10. LESHAN, L.L., (1952) Time Orientation and Social Class. Journal of Abnormal and Social Psychology, 47, 582 - 592.
11. MISCHEL, W., (1965) Theory and Research on the Antecedents of Self-Imposed Delay of Rewards. in Maher, B.A., Progress in Experimental Personality Research, Volume 3. New York: Academic Press, 85 - 132.
12. MISCHEL, W., (1974) Processes in Delay of Gratification. in Berkowitz, L., Advances in Experimental Social Psychology, Volume 7. New York: Academic Press, 249 - 292.
13. MISCHEL, W., EBBESEN, E., (1970) Attention in Delay of Gratification. Journal of Personality and Social Psychology, 16, 329 - 337.
14. MISCHEL, W., UNDERWOOD, B., (1974) Instrumental Ideation in Delay of Gratification. Child Development, 45, 1083 - 1088.

15. RAPAPORT, D., (1950) On the Psychoanalytic Theory of Thinking. International Journal of Psychoanalysis, 31, 161 - 170.
16. ROTTER, J.B., (1975) Some Problems and Misconceptions Related to the Construct of Internal versus External Control of Reinforcement. Journal of Consulting and Clinical Psychology, 43, 56 - 67.
17. ROTTER, J.B., CHANCE, J.E., PHARES, E.J., (1972) Applications of a Social Learning Theory of Personality. New York: Holt, Rinehart & Winston.
18. SCHACK, M.L., MASSARI, D.J., (1973) Effects of Temporal Aids and Frustration on Delay of Gratification. Developmental Psychology, 8, 168 - 171.
19. SEEMAN, G., SCHWARZ, J.C., (1974) Affective State and Preference for Immediate versus Delayed Reward. Journal of Research in Personality, 7, 384 - 394.
20. SHYBUT, J., (1968) Delay of Gratification and Severity of Psychological Disturbance among Hospitalized Psychiatric Patients. Journal of Consulting and Clinical Psychology, 32, 462 - 468.
21. SINGER, J.L., (1955) Delayed Gratification and Ego-Development: Implications for Clinical and Experimental Research. Journal of Consulting Psychology, 19, 259 - 266.
22. SINGER, J.L., (1961) Imagination and Waiting Ability in Young Children. Journal of Personality, 29, 396 - 413.

23. STRICKLAND, B.R., (1972) Delay of Gratification as a Function of Race of the Experimenter. Journal of Personality and Social Psychology, 22, 108 - 112.
24. STUMPHAUZER, J.S., (1972) Increased Delay of Gratification in Young Prison Inmates through Imitation of High-Delay Peer-Models. Journal of Personality and Social Psychology, 21, 10 - 17.
25. WAGNER, N.N., (1960) Developmental Aspects of Impulse Control. Journal of Consulting Psychology, 24, 537 - 540.
26. WALLACE, M., RABIN, A., (1960) Temporal Experience. Psychological Bulletin, 57, 213 - 216.
27. WALLS, R.T., SMITH, T.S., (1970) Development of Preference for Delayed Reinforcement in Disadvantaged Children. Journal of Educational Psychology, 61, 118 - 123.
28. ZYTKOSKEE, A., STRICKLAND, B.R., WATSON, J., (1971) Delay of Gratification and Internal versus External Control among Adolescents of Low Socioeconomic Status. Developmental Psychology, 4, 93 - 98.

IIITHE ASSESSMENT OF DELAYED GRATIFICATION PREFERENCE

An operational definition should be intersubjective, logically consistent with the ideal definition of the construct, as quantitatively precise as possible, practically feasible, and based on explicitly designated observables (17, p. 465).

The methods which have been used to measure delayed gratification preference may be cast into three different groups:

1. The first group consists of procedures which measure the control of motoric or cognitive impulses. These methods are derived from the assumption of psychoanalytic theory that the inhibition of impulses is a necessary condition of effective delay of gratification. The validity of these procedures rests largely on this assumption.
2. The second group is made up of procedures in which the subject's actual choices between small immediate or large delayed rewards are recorded. These methods are used most often in the framework of social learning theory.
3. Finally, there are questionnaires on attitudes towards delay of gratification and on dispositions in hypothetical choice-situations.

III. 1. The Measurement of Impulse Control

In several psychoanalytic studies delayed gratification preference or impulse control has been measured in terms of the human movement response (M) in the Rorschach-Test (6, pp. 343; 24). The production of such responses is assumed to be related to the ability and tendency to inhibit motor activity and to the capacity and tendency to use ideational and fantasy defences. These defences in turn are assumed to be related to delayed gratification preference. While there are studies reporting a correlation between human movement responses and impulse control and future time perspective (6, pp. 343), there seems to be no direct evidence for the validity of such responses as a measure of delayed gratification preference. However, the human movement response has been related to fantasy (6, pp. 345) and in the light of MISCHEL's findings on the role of daydreaming in goal-directed waiting (9) it seems possible that persons with rich fantasy find it easier to wait for a delayed reward than persons with poor fantasy.

Another frequently used measure of impulse control or planning ability is the PORTEUS Maze-Test (12). This test yields two scores: A Test Quotient and a Qualitative Score. The Test Quotient is said to measure nonverbal foresight and planning ability and is based on the number of mazes the subject solves without exceeding a certain number of errors (13, p. 835). The Qualitative Score is used to assess impulse control and is based on the number of indicators of careless drawing

such as touching or crossing the printed "walls" of the maze or cutting corners (10, pp. 11).

Further procedures to assess impulse control include the slow tracing of lines or slow writing of words, the estimation of the duration of short time intervals, the Stroop-color-word Test, and the length of motionless waiting time (22; 23; 24; 25).

The correlations between different measures of impulse control are usually low, although they often reach statistical significance. For example, SPIVACK et al. (25, p. 429) found a significant correlation of $r = .27$ ($N = 123$) between human movement responses and scores in the Stroop-color-word Test. They also found significant correlations of $r = -.28$ to $r = -.45$ between the accuracy of the estimation of short time intervals and scores in the Stroop-color-word Test. The time estimation scores and the human movement responses, however, were not related to each other. On the basis of these findings, it seems doubtful that the different measures tap an identical variable.

III. 2. The Observation of Behavior in Choice Situations

The basic paradigm in most of these procedures is to offer the subject a choice between a small, immediately available reward and a larger, delayed reward. This choice is often presented as a reward for the subject's cooperation. Examples of such choices include one record immediately versus three records in three weeks (26, p. 109), or a discotheque-dance the same week versus a dance-band a month later (4, p. 311). While most of these behavioral choices only provide a dichotomy into "high-delay" and "low-delay" subjects, some authors achieved a further differentiation by allowing the subject to vary the length of the delay interval and the size of the delayed reward, so that those subjects who waited longer for a larger reward obtained a higher score (4, p. 311; 24, p. 463).

It was soon realized that these simple behavioral choices were insufficient for research purposes. Irrelevant factors such as the unattractiveness of a given reinforcer for an individual subject or his momentary financial status seemed to affect the choices (8, p. 8). Furthermore, a higher degree of differentiation was desirable in order to form extreme groups with relatively high and low delayed gratification preference, so that differences with respect to other variables might be detected more easily (8, pp. 3). Also, the construction of an instrument providing several choices was necessary to explore differences in delayed gratification preference regarding different kinds of rewards.

These considerations led to the development of choice-lists which consists of several items, each of which confronts the subject with a choice between a small, immediate reward and a larger, delayed reward of the same kind. For example, an item may offer a choice between three packs of cigarettes now or five packs of cigarettes in three weeks. The subject is assured of obtaining one of his choices as a reward for his cooperation. This instruction is to ensure that the choice-list is filled out according to the subject's real preferences (27, p. 12). However, there seems to be no study comparing choice-lists administered with and without this instruction which would justify the rather expensive procedure of promising and distributing the rewards.

In order to make the choices sufficiently realistic, the subjects must believe that the experimenter is free to hand out any of the rewards mentioned in the items. This excludes from the choice-list items dealing with rewards the subject is not allowed to obtain (for example alcoholic beverages for inmates of penal institutions) as well as items involving rewards over which the experimenter obviously has no control (for example Temporary Absence Passes for inmates or substantial amounts of money). These restrictions lead to the apparently trivial values of the alternative rewards in the choice-list items.

MISCHEL (8, pp. 7) describes the construction of choice-lists and reports correlations in the order of .60 between scales offering choices between small amounts of money (monetary choices) and scales offering choices between other reinforcers (material choices). Because of these

consistently high intercorrelations, MISCHEL and other authors combined monetary and material choices into one scale. The item-intercorrelations and the correlations between single items and the total choice-list score are said to be low but often statistically significant (8, p. 12). STUMPHAUZER (27) reports highly significant correlations ranging from .87 to .94 between percentages of delay choices in four choice-lists he developed and administered to adolescent inmates of a penal institution. Similarly, WATMAN (29, p. 122) found an internal consistency of .93 for a choice-list he administered to adult prisoners.

In an earlier study by the present author (2; 3) some of the psychometric qualities of a German version of STUMPHAUZER's (27) choice-lists were examined. The subjects were 234 adolescent inmates of a maximum security institution in Germany. The distribution of the choice-list scores was found to be U-shaped, which is probably due to a lack of differentiating power of the items. Similar distributions were found in other studies of delayed gratification preference in incarcerated subjects (29; 30). This kind of a distribution artificially increases the statistical indices of internal consistency, for example item-intercorrelations and split-half reliabilities.

The split-half reliabilities of the entire scale and of the subscales of monetary and material choices ranged from .89 to .92 when computed for the total sample of 234 inmates. These coefficients are comparable to those reported by STUMPHAUZER (27) and by WATMAN (29). We felt that these correlations were inflated because of the U-shaped distribution

and computed new split-half reliabilities for the 102 subjects between the first and the third quartile of the raw-score distribution. In this reduced sample, the coefficients ranged from .51 for the total choice-list to .73 for the monetary items (3, p. 605).

A probabilistic item-analysis based on the theory of testing by RASCH (1; 11) revealed that the choice-list consists of two distinct subscales: A scale of monetary choices and a scale of well-defined material choices. Well-defined material items offer a choice between clearly defined quantities of a given reinforcer (for example: Two packs of cigarettes now or five packs of cigarettes next week) as opposed to items with choices over less clearly defined quantities (for example: A small jar of instant coffee now or a large jar of instant coffee next week). It should be noted that most of the well-defined material items involved choices between different numbers of cigarettes, which may be considered as a second unofficial currency in penal institutions (3, p. 610; 29, p. 116).

The psychological difference between the two scales may lie in the differential variability of the items' reinforcement values. For those subjects who did not make a general decision to delay or not to delay, the inter-individual evaluation of the difference in the value of the alternative rewards varies more in the material than in the monetary items (3, p. 609).

There are three major shortcomings of the choice-lists used up to now:

1. They merely require passive waiting for the delayed reward rather than some work-performance. Items which made the delayed reward contingent upon the subject's performance would be more realistic, however, it would be difficult to separate the impact of expectancy of success and of need achievement from the impact of delayed gratification preference on such choices.
2. They do not contain choices between the satisfaction of different needs in view of the difficulties in establishing interindividually equal evaluation of the different reinforcers.
3. The choice-lists attempt to measure delayed gratification preference without assessing the subjective reward values of the alternative reinforcers as well as the subjective expectancies of reward attainment.

These shortcomings could be remedied only by constructing a separate choice-list for each subject, which for all practical purposes would be uneconomic.

Further methods of assessing delayed gratification preference are the measurement of the time a subject waits for a larger, delayed reward (9, pp. 265) and behavior ratings of the subject's ability to delay immediate satisfactions for long range goals (28).

III. 3. Questionnaires and Hypothetical Choices

The first questionnaire on delayed gratification preference was developed by SCHNEIDER & LYSGAARD (20) in 1952 for a sample of high-school students. Their items covered several areas in which delayed gratification preference of the students or their parents may be expressed, for example

- the use of physical violence (item 34: Since school started last fall, how many of your arguments have led to fights ?);
- free expression of sexuality (item 32: If I heard that some friends of mine had not followed the morals and rules relating to the behavior of unmarried people, a) I would not consider them good friends any more; b) it would not make any difference to our friendship.);
- the pursuit of one's education (item 11: If you could do as you like, would you stop school now ?); and
- financial planning (item 23: If you won a big prize, say two thousand dollars, what would you do ?).

Several authors asked their subjects what they would do if they were given large amounts of money (4; 13) or how much they would save out of 25 ¢, \$ 2.- or \$ 20.- (27).

Further hypothetical choice-situations were used among other measures by JESSOR et al. (4, pp. 311: a choice between a half-day sight-seeing trip today or a full-day trip next week) and by ROBERTS et al. (13, p. 835) who asked inmates of a training-school: "If a boy were to be released

next week and he could be guaranteed that he would not get into any further difficulty if he remained at Loysville for six more months, what do you think he would do ?".

These hypothetical choices have been criticized by MISCHEL (8, p. 11; 9, p. 254) because they tend to correlate with answers on other questionnaires but are not likely to be predictive of actual behavior because of their "make-believe" character.

III. 4. Comparison of Different Methods to Measure Delayed Gratification Preference

Depending on one's own theoretical orientation, the various methods to measure delayed gratification preference described here have different face-validity. To compare and evaluate studies with different operational definitions of delayed gratification preference, one has to know whether the different procedures measure the same construct. This could be determined by an analysis based on RASCH's theory of testing (11) or by showing that the different procedures consistently show substantial intercorrelations.

Several studies report correlations between measures of impulse control and questionnaires on delayed gratification preference. SAUNDERS et al. (18, p. 791) found a significant correlation of $r = .22$ ($N = 122$) between the BARRAT impulsivity questionnaire and the Matching Familiar Figures Test in one study and a non-significant correlation of $r = -.01$ ($N = 62$) in another study (18, p. 792). ROBERTS & ERIKSON's hypothetical choice yielded a significant correlation of $r = -.52$ ($N = 48$) with the Qualitative Score in the PORTEUS Maze Test, but the correlation of $r = .35$ between the Test Quotient and the hypothetical choice fell short of significance (12, p. 453).

ROBERTS & ERIKSON (12, p. 453) also report a significant correlation of $r = -.47$ ($N = 48$) between a behavioral choice and the Qualitative Score of the PORTEUS Maze Test. Several other studies, however, failed

to produce significant correlations between measures of impulse control and behavioral delay of gratification (15; 16; 19).

Hypothetical delay choices and actual choice behavior also show only moderate intercorrelations. Some studies report significant correlations ranging from $r = .15$ ($N = 93$) to $r = .58$ ($N = 93$) between the two kinds of procedures (4, pp. 311; 7; 8; 12; 21), in other studies correlations between hypothetical choices and delay behavior were not significant (2, pp. 90; 5).

Two studies explored the interrelations between measures of impulse control, behavioral choices, and questionnaires. In a factor-analytic study of eleven procedures, one author (14) found eight orthogonal factors and concluded that most of the instruments were measuring discrete, unrelated abilities. Similarly, ROSENBLATT (16) stated that the concept of impulse control can not be generalized across different situations and must be defined in terms of the way it is measured.

Such a strategy of extreme operationalism makes generalization of results impossible and eliminates the possibility of constructing general theories or of applying results to practical situations (31, pp. 3). In an effort to avoid such a dilemma and to overcome the imperfect validity of the various measurement procedures, WORMITH & HASENPUSCH (31) combined techniques which assess attitudinal, behavioral and cognitive aspects of delayed gratification preference. Multiple regression analysis was used to relate a number of scales to two naturalistic, non-reactive measures of saving and planning and yielded significant

multiple correlation coefficients of $R = .67$ ($F = 4.62$, $df = 7, 40$) and $R = .62$ ($F = 3.50$, $df = 7, 40$). Several suggestions were made for the construction of combined measures of delayed gratification preference, such as the use of situation-specific rating scales instead of standardized tests and the inclusion of a social desirability scale in a multidimensional measure of delayed gratification preference.

REFERENCES

1. FISCHER, G.H., SCHEIBLECHNER, H., (1970) Algorithmen und Programme für das probabilistische Testmodell von RASCH. Psychologische Beiträge, 12, 23 - 51.
2. HASENPUSCH, B., (1974) Ueber die Bevorzugung aufgeschobener Bedürfnisbefriedigung (Spannungsbogen) und ihre Beziehung zur Delinquenz. Unpublished Thesis, Kiel: Christian-Albrechts-Universität.
3. HASENPUSCH, B., HOMMERS, W., (1975) Ein Beitrag zur Messung des Spannungsbogens von jugendlichen Delinquenten. Zeitschrift für experimentelle und angewandte Psychologie, 22, 600 - 612.
4. JESSOR, R., GRAVES, T.D., HANSON, R.C., JESSOR, S., (1968) Society, Personality and Deviant Behavior: A Study of a Tri-Ethnic Community. New York: Holt, Rinehart & Winston.
5. KLINEBERG, S.L., (1968) Future Time Perspective and the Preference for Delayed Reward. Journal of Personality and Social Psychology, 8, 253 - 257.
6. LERNER, P.M., (1975) Handbook of Rorschach Scales. New York: International University Press.
7. MISCHEL, W., (1961) Preference for Delayed Reinforcement and Social Responsibility. Journal of Abnormal and Social Psychology, 62, 1 - 7.

8. MISCHEL, W., (1962) Delay of Gratification in Choice Situations.
Progress Report to the National Institute of Mental Health,
Early Draft. Mimeographed Paper, Boston: Harvard University.
9. MISCHEL, W., (1974) Processes in Delay of Gratification. in
Berkowitz, L., Advances in Experimental Social Psychology,
Volume 7. New York: Academic Press, 249 - 292.
10. PORTEUS, S.D., (1942) Qualitative Performance in the Maze Test.
Vineland: Smith Printing House.
11. RASCH, G., (1966) An Itemanalysis which Takes Individual Differences
into Account. British Journal of Mathematical and Statistical
Psychology, 19, 49 - 57.
12. ROBERTS, A.H., ERIKSON, R.V., (1968) Delay of Gratification,
Porteus Maze Performance and Behavioral Adjustment in a
Delinquent Group. Journal of Abnormal Psychology, 73,
449 - 453.
13. ROBERTS, A.H., ERIKSON, R.V., RIDDLE, M., BACON, J.G., (1974)
Demographic Variables, Base rates and Personality Characteristics
Associated with Recidivism in Male Delinquents. Journal
of Clinical and Consulting Psychology, 42, 833 - 841.
14. ROBIN, D.S., (1966) Delay of Gratification in Children.
Dissertation Abstracts, 27, 2862-B.
15. ROGALA, R.E., (1968) Delay of Gratification and Time Estimation.
Dissertation Abstracts, 29, 1509-B.

16. ROSENBLATT, J.B., (1968) Measures of Impulse Control as Related to First Grade Children's Socio-Economic Class and Ethnic Group Background. Dissertation Abstracts, 29, 1510-B.
17. ROTTER, J.B., (1967) Personality Theory. in Helson, H., Bevan, W., Contemporary Approaches to Psychology. Princeton: Van Nostrand, 461 - 498.
18. SAUNDERS, J.T., REPUCCI, N.D., SARATA, B.P.V., (1973) An Examination of Impulsivity as a Trait Characterizing Delinquent Youth. American Journal of Orthopsychiatry, 43, 789 - 795.
19. SCHACK, M.L., (1973) The Effects of Temporal Operations and Time Instructions on Delay of Gratification. Dissertation Abstracts, 34, 899-B.
20. SCHNEIDER, L., LYSGAARD, S., (1953) The Deferred Gratification Pattern: A Preliminary Study. American Sociological Review, 18, 142 - 149.
21. SHYBUT, J., (1968) Delay of Gratification and Severity of Psychological Disturbance among Hospitalized Psychiatric Patients. Journal of Consulting and Clinical Psychology, 32, 462 - 468.
22. SIEGMAN, A.W., (1961) The Relationship between Future Time Perspective, Time Estimation, and Impulse Control in a Group of Young Offenders and in a Control Group. Journal of Consulting Psychology, 23, 470 - 475.

23. SINGER, J.L., (1961) Imagination and Waiting Ability in Young Children. Journal of Personality, 29, 396 - 413.
24. SINGER, J.L., WILENSKY, H., McCRAVEN, V.G., (1956) Delaying Capacity, Fantasy, and Planning Ability: A Factorial Study of Some Basic Ego Functions. Journal of Consulting Psychology, 20, 375 - 383.
25. SPIVACK, G., LEVINE, M., SPRIGLE, H., (1959) Intelligence Test Performance and the Delay Function of the Ego. Journal of Consulting Psychology, 23, 428 - 431.
26. STRICKLAND, B.R., (1972) Delay of Gratification as a Function of Race of the Experimenter. Journal of Personality and Social Psychology, 22, 108 - 112.
27. STUMPHAUZER, J.S., (1972) Increased Delay of Gratification in Young Prison Inmates through Imitation of High-Delay Peer-Models. Journal of Personality and Social Psychology, 21, 10 - 17.
28. WAGNER, N.N., (1960) Developmental Aspects of Impulse Control. Journal of Consulting Psychology, 24, 537 - 540.
29. WATMAN, W.A., (1966) The Capacity to Delay Gratification and its Relationship to Perceptual Developmental Level, Ego Strength, and Anxiety Level: A Study of Prisoners. Unpublished Thesis, Michigan State University. Xerox University Microfilms No. 67-07619.

30. WORMITH, J.S., (1976) Converting Prosocial Attitude Change to Behavior Change through Self-Management Training.
Unpublished Manuscript, Project No. 101, Ontario Ministry of Correctional Services.
31. WORMITH, J.S., HASENPUSCH, B., (1976) Multidimensional Measurement of Delayed Gratification Preference with Incarcerated Delinquents. Unpublished Manuscript, Ottawa; University of Ottawa.

IVDELAYED GRATIFICATION PREFERENCE
IN RELATION TO SOCIOCULTURAL VARIABLES

There are two sociocultural variables which are frequently discussed in connection with delayed gratification preference: Socioeconomic status and delinquency or criminality. Several studies on the class-specificity of delayed gratification preference, its character as a middle-class value and its adaptivity in disadvantaged subcultures will be discussed in this chapter.

Hedonistic behavior is usually seen as typical of delinquents or criminals, and some explanations of deviant behavior involve the concept of immediate gratification preference. The question will be raised whether the low delayed gratification preference commonly observed in inmates of penal institutions is related to their delinquency or criminality or rather to their being incarcerated.

IV. 1. Socioeconomic Status and Delayed Gratification Preference

Low delayed gratification preference is frequently mentioned as a working class characteristic (26, p. 253; 46, p. 119), but there are only a few empirical studies which directly support this notion (19; 35; 46). On the other hand, there are several studies which found socioeconomic status to be unrelated to delayed gratification preference (36; 40) or in which lower class subjects chose delayed gratification more often than middle class subjects (17, p. 315; 24, p. 18).

The inconsistency of these results may be explained by the complexity of a comparison of the delay behavior of groups with different socioeconomic status. MILLER et al. (23, p. 421) suggest that such a comparison is valid only if the following four conditions are met:

1. The delayed gratification must be of equal value to both groups.
2. The two groups must have an equal opportunity to defer the immediate satisfaction and an equal understanding of the delayed reward.
3. The two groups must be equally affected by the postponement of gratification.
4. The two groups must have the same probability of obtaining the delayed reward.

The authors concede that it is almost impossible to satisfy these criteria. The major importance of their enumeration lies in making researchers and readers aware of the extraneous factors which, if not recognized,

controlled or accounted for, may lead to erroneous conclusions about differences in the preference for delayed gratification of different socioeconomic groups.

One major problem in examining differences in delayed gratification preference of middle class and working class subjects is the extent to which the two groups are adversely affected by the postponement of gratification. The "delayed gratification alternative" may include immediate satisfactions for the middle class subject which may not be readily available for the working class subject. For example the pursuit of a prolonged education, which is often cited as an expression of the middle class deferred gratification pattern, may be rewarded immediately by social reinforcement for the fulfillment of normative expectations (21, p. 367). Going to college may be perceived by the middle class youth as "having a good time" rather than as a postponement of independence from the parents. LYSGAARD (21, p. 364) argues that any self-imposed delay of a satisfaction which is available in the immediate situation should be considered as a delay of gratification, regardless of whether the postponement is seen by the person as a "sacrifice". On the other hand, CARO (7, pp. 333) maintains that the concept of delay of gratification is applicable only if the individual experiences a "time-conflict", i.e. the incompatibility of delayed gratification with immediate gratification.

While delayed gratification preference may or may not be a middle class characteristic, it clearly is a middle class value (21, p. 370;

35, p. 142), Several authors report that their subjects' choice behavior was determined partly by the social desirability of waiting for delayed rewards (25, p. 100; 29, p. 27). It has been suggested, though, that with the establishment of the welfare state, delay of gratification lost its functionality for social mobility and that the middle class will therefore abandon the norm of delayed gratification as anachronistic (40, p. 327).

The moral evaluation of delayed gratification becomes problematic when the researcher himself is unaware of his own value-judgement and describes delay of gratification as "mature", "rational" and "adaptive" (28, p. 1089; 36, p. 345; 37, p. 394). Such a notion overlooks that adjustment is a value-concept and that the relationship between adjustment and any other variable depends on the definition of adjustment and on the individual's socio-cultural circumstances (34, p. 60). This is highlighted by anthropological studies of aboriginal parasitic cultures in which immediate gratification was found to prevail and in which intelligence and delayed gratification preference were correlated negatively (5, p. 301). On the other hand, in the horticultural Hopi-tribe, a large majority of children were found to choose delayed rather than immediate gratification. Finally, actions that may be classified by a western researcher as expressing immediate gratification preference may actually be a means of planning for the future: For a Hawaiian-American, spending his money for immediate consumption with his family and his friends is an investment in the social exchange system that

characterizes the Hawaiian culture, it is a way of securing future gratifications (10, pp. 78).

Within the Western civilization, the unskilled worker lives in and adapts to a different environment than the skilled or middle class worker (9, pp. 394). For the unskilled worker, a fatalistic outlook towards an unpredictable future may be quite realistic (20, p. 589; 33, p. 42; 42, p. 182). Given the low probability of obtaining a delayed reward in the lower class subculture, waiting for delayed rewards does not seem to be an intelligent procedure, rather, the consumption of immediate gratifications "while the getting is good" must be regarded as the adaptive response (10, p. 72; 20, pp. 590; 23, p. 418). As ROSENQUIST & MEGARGEE put it:

"The lower-class child has learned that he who eats his candy today has a piece of candy, while he who saves it for the future is likely to have it stolen." (33, p. 49)

Apart from anecdotal observations, there is only little empirical evidence for a negative relation between measures of adjustment and delayed gratification preference in the lower class. In a study of German prisoners, it was found that subjects older than 21 chose an immediate reward in a behavioral choice more often than their younger, less "con-wise" fellow-inmates (15, p. 607), and the more intelligent inmates tended to choose more immediate gratifications in a choice-list than the less intelligent inmates (14, pp. 97).

IV. 2. Delinquency, Criminality and Delayed Gratification Preference

"A reform school will neither be a deterrent in the future nor a lesson from the past in an individual who has learned to respond only in terms of what is immediately present. It may well be that in order to control delinquency it will be necessary first to change the time orientation of the delinquents. At present, very little is known concerning the management of such learning and it would appear to be a fruitful subject for research." (21, p. 592)

Delinquents and criminals are often described as more impulsive and less ready to delay gratification than the general population (26, p. 253; 41, p. 10). It has been shown that even in subjects with equal socioeconomic background the delinquents' delayed gratification preference is lower than the non-delinquent subjects' (33, p. 229). The assumed relationship between criminality and low delayed gratification preference is also supported by studies which found recidivists to be more impulsive and to show less delayed gratification preference than subjects classified as "non-recidivists" (4, pp. 50; 32, pp. 836).

While the concepts of criminality and psychopathy are by no means identical, they are traditionally seen as overlapping to some degree. The psychopath has often been described as being highly impulsive and choosing immediate gratification (13, p. 5; 21, p. 592). HARE (13, pp. 107) attributes the psychopath's low delayed gratification preference to his generally low expectancy for delayed rewards. Besides the modeling and reinforcement of low-delay behavior by the parents, HARE (13, pp. 109)

cites the parents' child-rearing practices as a possible cause of the psychopath's low delayed gratification preference: By continuously giving in to the child's demands, they deny him the opportunity to learn to wait for delayed rewards. The parents of psychopaths are also reported to be inconsistent in disciplining the child, which diminishes the impact of delayed consequences of the child's behavior.

In psychoanalytic studies, the low delayed gratification preference of delinquents and criminals has been explained by their difficulties in identifying with the father (33, p. 270). It is suggested that the result of an insufficient identification with a father-figure is the development of a "Delinquent Ego" which supports the Id in its striving for unrestricted drive-satisfaction instead of mediating between the Id and the environment (30, pp. 167).

In social learning theory, the low delayed gratification preference of delinquents and criminals is explained partly by a lack of exposure to models with high delayed gratification preference (41, pp. 16). A number of factors which according to social learning theory tend to decrease a person's preference for delayed gratification have been found to be associated with delinquency: Delinquents were found to be more suspicious than non-delinquents (1, p. 312), their perceived internal control over reinforcement is lower and their expectations about the future less realistic than those of non-delinquents (22, pp. 13; 39, p. 262), and their future time perspective is shorter than that of non-delinquents (2, p. 345).

Some theories refer directly to the concepts of delayed gratification preference and delayed reinforcement for the explanation of deviant behavior:

JESSOR et.al. (17, pp. 108) assumed that preference for immediate gratification, together with tolerance for deviance and short future time perspective leads to a weakening of personal control against the use of illegitimate means. This weakened personal control, together with a feeling of alienation, perceived external control over reinforcers, and the realization of an unfavorable opportunity structure was assumed to lead to deviant behavior. This hypothesis is supported by the finding that children with low delayed gratification preference are more likely to yield to temptation than children with high delayed gratification preference (27, pp. 412).

RENNER (31, p. 358) suggests that preference for immediate rewards renders delayed behavior consequences ineffective for the modification of behavior. The deterrent effect of future punishment is also reduced by the delinquent's unrealistic, wishful thinking about his future (39, p. 262). In a study of self-reported theft, it was found that a boy's belief that he will not be apprehended correlates with the amount and the variety of stealing he admits (8, p. 564).

TRASLER (44; 45) tries to explain criminality as an interaction of child-rearing practices with the inherited responsiveness of the autonomic nervous system to conditioning. The acquisition of social norms is described as learning to avoid conditioned anxiety, which

inhibits the occurrence of formerly punished behavior. The effectiveness of conditioning is much reduced if there is a delay or inconsistency in the administration of reinforcement or punishment, and TRASLER suggests that criminal behavior is partly due to such inconsistent socialization techniques. Another variable which affects the individual's acquisition of conditioned responses is his position on the extraversion-introversion continuum: Extraverts are resistant to conditioning, introverts are readily conditioned. Because of their resistance to conditioning, extraverts are less susceptible to delayed behavior consequences than introverts, which often brings them into conflict with normative expectations such as customs, mores, and laws.

IV. 3. Delayed Gratification Preference and Criminality - A Spurious
Relationship ?

In most studies which report delinquents to have a lower delayed gratification preference than non-delinquents, delinquency is operationally defined as "being an inmate of a penal institution". This operational definition was probably chosen because inmates are the most easily accessible subgroup of those persons that violate the law (33, pp. 4). If one adopts TAPPAN's legalistic position that the only persons who can be scientifically studied as criminals are those found guilty by the judicial system and that prison inmates are truly representative of all criminal offenders (43, p. 39), then "being an inmate of a penal institution" is a suitable operational definition of criminality. However, when the research into self-reported criminality started to reveal the vast amount of "hidden crime" (8), this legalistic position became less and less tenable.

In the context of research into the relationship between criminality and delayed gratification preference, the confounding of "incarceration" and "criminality" has at least two serious short-comings:

1. Inmates of penal institutions are by no means a random sample of the criminal population. There are several selection-processes involved in determining which members of the delinquent population are institutionalized and finally included in a "sample" for some research. Far from operating at random, these selection processes are influenced

by variables such as socioeconomic status and race (8, pp. 559; 33, pp. 192). However, in order to generalize to the characteristics of the delinquent population, an unbiased sample is required in which each member of the population has an equal chance of being included (18, pp. 118). Since incarcerated delinquents are not truly representative of non-incarcerated delinquents, differences between inmates of penal institutions and "control-groups" taken from the general population should be interpreted in terms of "incarcerated versus non-incarcerated" rather than in terms of "criminal versus non-criminal" (11, p. 264; 48, pp. 107).

2. The conditions accompanying incarceration may have their own impact on delayed gratification preference:
 - a) The ongoing frustration of a number of needs which is an inevitable consequence of incarceration might decrease the inmate's general frustration tolerance and thereby decrease his willingness to delay gratification.
 - b) The highly regimented life in a "total institution" may result in the inmate's perception that he has no control over the occurrence of reinforcers (47, pp. 104). Perceived external control over reinforcers tends to decrease delayed gratification preference (26, p. 257).

There are only a few studies to explore the relationship between self-reported delinquency and impulsiveness or delayed gratification preference. In a study of middle-class high-school students, HINDELANG

(16, p. 77) found a significant correlation of $r = -.33$ ($N = 337$) between self-reported delinquency and the self-control scale of the California Personality Inventory. This self-control scale is said to measure the degree and adequacy of self-control and freedom from impulsivity and self-centeredness (16, p. 76). JESSOR et al. (17, p. 344) on the other hand did not find a significant correlation between self-reported deviant behavior of high-school students and their delay of gratification.

In view of these inconsistent findings on the relationship between delayed gratification preference and self-reported delinquency and the confounding of criminality and incarceration in studies which report a relationship between preference for immediate gratification and criminality, it seems possible that the relationship between the two variables is a spurious one. The present study was designed to investigate this possibility.

REFERENCES

1. BANDURA, A., WALTERS, R.H., (1959) Adolescent Aggression: A Study of the Influence of Child-Training Practices and Family Interrelationships. New York: Ronald Press.
2. BARNDT, R.J., JOHNSON, D.M., (1955) Time Orientation in Delinquents. Journal of Abnormal and Social Psychology, 51, 343 - 345.
3. BEILIN, H., (1956) Patterns of Postponability and its Relations to Social Class Mobility. Journal of Social Psychology, 44, 33 - 49.
4. BLACK, W.A.M., GREGSON, R.A.M., (1973) Time Perspective, Purpose in Life, Extraversion and Neuroticism in New Zealand Prisoners. British Journal of Social and Clinical Psychology, 12, 50 - 60.
5. BOCHNER, S., DAVID, K.H., (1968) Delay of Gratification, Age, and Intelligence in an Aboriginal Culture. International Journal of Psychology, 3, 167 - 174.
6. CANADIAN PENITENTIARY SERVICE, (June 5, 1972) The Living Unit Concept. Mimeographed Paper, Ottawa: CPS Information Services.
7. CARO, F.G., (1965) Deferred Gratification, Time Conflict, and College Attendance. Sociology of Education, 38, 332 - 340.
8. DOLESCHAL, E., (1970) Hidden Crime. Crime and Delinquency Literature, 2, 546 - 572.

9. FERMAN, L.A., KORNBLUTH, J.L., HABER, A., (1969) Poverty in America. Ann Arbor: University of Michigan Press.
10. GALLIMORE, R., WEISS, L.B., FINNEY, R., (1974) Cultural Differences in Delay of Gratification: A Problem of Behavior Classification. Journal of Personality and Social Psychology, 30, 72 - 80.
11. GOERLITZ, A., (1972) Handlexikon zur Rechtswissenschaft. München: Ehrenwirt Verlag.
12. GRANZBERG, G., (1973) A Note on Delay of Gratification among the Hopi. Journal of Social Psychology, 91, 151 - 152.
13. HARE, R.D., (1970) Psychopathy: Theory and Research. New York: John Wiley & Sons.
14. HASENPUSCH, B., (1974) Ueber die Bevorzugung aufgeschobener Bedürfnisbefriedigung (Spannungsbogen) und ihre Beziehung zur Delinquenz. Unpublished Thesis, Kiel: Christian-Albrechts-Universität.
15. HASENPUSCH, B., HOMMERS, W., (1975) Ein Beitrag zur Messung des Spannungsbogens von jugendlichen Delinquenten. Zeitschrift für experimentelle und angewandte Psychologie, 22, 600 - 612.
16. HINDELANG, M.J., (1972) The Relationship of Self-Reported Delinquency to Scales of the CPI and MMPI. Journal of Criminal Law, Criminology and Police Science, 63, 75 - 81.

17. JESSOR, R., GRAVES, T.D., HANSON, R.C., JESSOR, S., (1968)
Society, Personality and Deviant Behavior: A Study of a
Tri-Ethnic Community. New York: Holt, Rinehart & Winston.
18. KERLINGER, F.N., (1973) Foundations of Behavioral Research
(Second Edition). New York: Holt, Rinehart & Winston.
19. KLINEBERG, S.L., (1968) Future Time Perspective and the Preference
for Delayed Reward. Journal of Personality and Social
Psychology, 8, 253 - 257.
20. LESHAN, L.L., (1952) Time Orientation and Social Class. Journal
of Abnormal and Social Psychology, 47, 582 - 592.
21. LYSGAARD, S.; (1954) Social Stratification and the Deferred
Gratification Pattern. in International Sociological
Association, Transactions of the Second World Congress
of Sociology, Volume 2. London, 364 - 377.
22. MEGARGE, E.I., PRICE, A.C., FROHWIRTH, R., LEVINE, R., (1970)
Time Orientation of Young Prison Inmates. Journal of
Counseling Psychology, 17, 8 - 14.
23. MILLER, S.M., RIESSMAN, F., SEAGULL, A.A., (1969) Poverty and
Self-Indulgence: A Critique of the Non-Deferred Gratification
Pattern. in Ferman, L.A., Kornbluth, J.L., Haber, A.,
Poverty in America. Ann Arbor: University of Michigan Press,
416 - 432.

24. MISCHEL, W., (1962) Delay of Gratification in Choice Situations.
Progress Report to the National Institute of Mental Health,
Early Draft. Mimeographed Paper, Boston: Harvard University.
25. MISCHEL, W., (1965) Theory and Research on the Antecedents of
Self-Imposed Delay of Rewards. in Maher, B.A.,
Progress in Experimental Personality Research, Volume 3.
New York: Academic Press, 85 - 132.
26. MISCHEL, W., (1974) Processes in Delay of Gratification. in
Berkowitz, L., Advances in Experimental Social Psychology,
Volume 7. New York: Academic Press, 249 - 292.
27. MISCHEL, W., GILLIGAN, C., (1964) Delay of Gratification,
Motivation for the Prohibited Gratification, and Responses
to Temptation. Journal of Abnormal and Social Psychology,
69, 411 - 417.
28. NISAN, M., (1974) Imposed Inhibition and Delay of Gratification.
Child Development, 45, 1089 - 1092.
29. PRICE-WILLIAMS, R.R., RAMIREZ, M. III., (1974) Ethnic Differences
in Delay of Gratification. Journal of Social Psychology,
93, 23 - 30.
30. REDL, F., WINEMAN, D., (1969) Children who Hate. New York:
The Free Press.
31. RENNER, K.W., (1964) Delay of Reinforcement: A Historical Review.
Psychological Bulletin, 61, 341 - 361.

32. ROBERTS, A.H., ERIKSON, R.V., RIDDLE, M., BACON, J.G., (1974)
Demographic Variables, Baserates and Personality
Characteristics Associated with Recidivism in Male
Delinquents. Journal of Clinical and Consulting Psychology,
42, 833 - 841.
33. ROSENQUIST, C.M., MEGARGE, E.I., (1969) Delinquency in Three
Cultures. Austin: University of Texas Press.
34. ROTTER, J.B., (1975) Some Problems and Misconceptions Related
to the Concept of Internal versus External Control of
Reinforcement. Journal of Consulting and Clinical Psychology,
43, 56 - 67.
35. SCHNEIDER, L., LYSGAARD, S., (1953) The Deferred Gratification
Pattern: A Preliminary Study. American Sociological Review,
18, 142 - 149.
36. SEAGULL, A.A., (1966) Subpatterns of Gratification Choice within
Samples of Negro and White Children. Papers of the
Michigan Academy of Science, Arts, & Letters, 51, 345 - 351.
37. SEEMAN, G., SCHWARZ, J.C., (1974) Affective State and Preference
for Immediate versus Delayed Reward. Journal of Research
in Personality, 7, 384 - 394.
38. SINGER, J.L., (1955) Delayed Gratification and Ego-Development:
Implications for Clinical and Experimental Research.
Journal of Consulting Psychology, 19, 259 - 266.

39. STEIN, K.B., SARBIN, T.R., KULIK, J.A., (1968) Future Time Perspective: Its Relation to the Socialization Process and the Delinquent Role. Journal of Consulting and Clinical Psychology, 32, 257 - 264.
40. STRAUS, M.A., (1962) Deferred Gratification, Social Class, and the Achievement Syndrome. American Sociological Review, 27, 326 - 335.
41. STUMPHAUZER, J.S., (1972) Increased Delay of Gratification in Young Prison Inmates through Imitation of High-Delay Peer-Models. Journal of Personality and Social Psychology, 21, 10 - 17.
42. TAYLOR, I., WALTON, P., YOUNG, J., (1973) The New Criminology: For a Social Theory of Deviance. London: Routledge & Kegan Paul.
43. TAYLOR, I., WALTON, P., YOUNG, J., (1975) Critical Criminology in Britain: Review and Prospects. in Taylor, I., Walton, P., Young, J., Critical Criminology. London: Routledge & Kegan Paul, 6 - 62.
44. TRASLER, G.B., (1962) The Explanation of Criminality. London: Routledge & Kegan Paul.
45. TRASLER, G.B., (1970) Criminal Behavior. in Eysenck, H.J., Handbook of Abnormal Psychology. London: Pittman Medical Publications, 67 - 96.

46. WALLS, R.T., SMITH, T.S., (1970) Development of Preference for Delayed Reinforcement in Disadvantaged Children. Journal of Educational Psychology, 61, 118 - 123.
47. WATMAN, W.A., (1966) The Capacity to Delay Gratification and its Relationship to Perceptual Developmental Level, Ego Strength, and Anxiety Level: A Study of Prisoners. Unpublished Thesis, Michigan State University. Xerox University Microfilms No. 67-07619.
48. WILKINS, L.T., (1969) Evaluation of Penal Measures. New York: Random House.

VMETHODOLOGY

The question to be studied here is whether the commonly observed low delayed gratification preference of incarcerated offenders is related to their being offenders or rather to their being incarcerated.

This question can be expressed in two supplementary hypotheses:

- (1) The delayed gratification preference of incarcerated offenders is lower than that of non-incarcerated subjects who, in a self-report questionnaire, admit a similar amount of offences as the incarcerated offenders do.
- (2) The delayed gratification preference of non-incarcerated subjects with a high number of self-reported offences does not differ from the delayed gratification preference of non-incarcerated subjects with a low number of self-reported offences.

These two hypotheses will be restated in an operationalized form after the presentation of the questionnaire, the subjects, the administration of the questionnaire, and the statistical procedures.

V. 1. The Questionnaire

The questionnaire used in this study (see Appendix I) consisted of two parts: a questionnaire on self-reported offences including a lie-scale and a choice-list to measure delayed gratification preference. Besides these scales, the questionnaire contained some biographic questions.

A self-report questionnaire consists of several items in which the respondent is asked to indicate whether or not he ever committed a given act. Sometimes the respondents are asked as well how often they committed a given act.

The self-report questionnaire used here was a modified form of the self-reported delinquency scale published by FARRINGTON (7). The self-report questionnaire has 22 items and includes subscales on offences against property (7 items marked with a "P" in Appendix I), on aggressive acts (6 items marked with an "A" in Appendix I), and on the illegal use of drugs (2 items marked with a "D" in Appendix I).

Most items in questionnaires on self-reported offences describe relatively trivial acts because serious offences would probably not yield sufficiently high admission rates and would therefore not have sufficient differentiating power in samples taken from the general population. However, the exclusion of these serious acts produces a bias in the item-pool of self-report questionnaires - they are no longer representative of the universe of offences (7, pp. 99). Also,

it has been found that while perpetrators of infrequent minor offences have a low probability of being detected, persons who commit a large number of relatively serious offences are likely to come to the attention of social control agencies (6, p. 552). It seems likely, therefore, that incarcerated offenders committed more serious acts than the average non-incarcerated respondent. This means that items with low admission-rates in the general population may still differentiate among incarcerated subjects. Thus it would be desirable to select items with reportedly low admission rates for this study.

Admission rates for different offences were available for a sample of 397 English lower-class school-boys at the age of 16 - 17 (7, pp. 109) and for 45 sociology students of an American university who had a mean age of 20 years (4, p. 519). Because of the greater sociological similarity to the subjects available for this study and because of the larger sample, FARRINGTON's (7) data appeared to be more suitable for this study.

Out of the 38 items in FARRINGTON's (7) self-report questionnaire the twenty items with the lowest admission rates (between 5.0 % and 23.4 %) were selected. Some of the items had to be modified, for example by changing English into Canadian currency, by substituting some terms which are not common in Canada, and by omitting abbreviations such as "etc." as was suggested by FARRINGTON (7, p. 109). The question on illegal use of drugs was divided into one question on the use of marijuana and other soft drugs and one question on the use of heroin and other

hard drugs. Similarly, the original item on theft from automats was divided into one question on the theft of money and another question on the theft of goods from an automat.

The subjects were asked to indicate whether they had committed a given act not at all (0 points), one to three times (1 point), four to ten times (2 points) or more often (3 points). Each subject was given a total score for all offences and scores for offences against property, for aggressive acts, and for illegal use of drugs.

The items of the lie-scale of the Minnesota Multiphasic Personality Inventory (MMPI) were interspersed among the items of the self-report questionnaire in order to detect subjects who conceal their offences to present themselves in a socially desirable light (8, p. 15). Underreporting by forgetting acts committed a long time ago as well as deliberate overreporting (boasting) can of course not be detected by a social desirability scale such as the one used here (7, pp. 107).

The second part of the questionnaire consisted of a choice-list as described earlier in this study to measure the subjects' delayed gratification preference. Twenty items were selected from a choice-list developed for adolescent inmates of a medium-security institution in Florida (13). Ten of these items offered choices between small amounts of money (monetary items), the other ten items offered choices between well-defined quantities of material reinforcers (material items).

The questionnaire also contained a number of biographical questions. Subjects were asked to indicate their age, the number of previous

incarcerations, and whether they had any tattoos. In addition, the respondents were asked for their parents' and their own present or last occupation. This information was used to determine the subjects' socioeconomic background. The respondent's occupation and his father's occupation were rated on BLISHEN's (1) socioeconomic index. If the father's occupation was not known, the mother's occupation was used instead. The subject's score was the median of these two ratings and was grouped into eight intervals with a size of 5 (26 - 30, 31 - 35, etc.).

V. 2. Subjects and Administration of the Questionnaire

The group of incarcerated subjects consisted of inmates of Warkworth Institution, a modern medium-security penitentiary near Campbellford, Ontario, with a population of some 400 inmates. Out of the 82 inmates of Warkworth Institution on February 27, 1975 who were born after 1953, 33 participated in the study. Of the remaining 49 inmates, some 35 did not come to the classroom where the questionnaire was administered, and some 15 inmates refused to fill out the questionnaire when they were told that participation in the study was not compulsory. In addition to these 33 inmates, 4 inmates dropped in on their own and asked permission to participate in the study.

The questionnaire was filled out in groups of 4 to 10 inmates, the administration of the questionnaire took about 45 minutes per group. Subjects were asked to write their age as well as their own and their parents' present or last occupation on the front page of the questionnaire. Responses to the questionnaire items were made by check-marks and did not require additional writing. The instruction for the self-report questionnaire was read to the subjects. When all inmates had completed the self-report questionnaire, the instruction for the choice-list was read to the subjects. Both instructions were included in the questionnaire. Subjects were encouraged to ask for explanations in case they did not understand an instruction or question. After completion of the questionnaire, subjects were offered a behavioral choice between 50 ¢ immediately or

\$ 1.- after one week as a reward for their cooperation, and questions regarding the purpose of the study were answered. During these questions the author learned that the administration of the questionnaire fell on the inmates' biweekly payday, on which they receive between \$ 5.- and \$ 7.-. This may very well have increased the inmates' willingness to choose delayed gratification in the choice-list and in the behavioral choice by reducing the attractiveness of the smaller, immediate rewards.

The group of non-incarcerated subjects consisted of 21 residents of three halfway houses in Ottawa: The Friendship Concept, the Chimo House, and the Union Mission for Men. These three halfway houses were selected because of the characteristics of their residents (adolescent males) and because the directors of these halfway houses granted permission to administer the questionnaire. Except for some five residents, all of the residents present in the halfway houses during the administration of the questionnaire participated in the study. In the Chimo House and in the Union Mission for Men, the questionnaire was administered in groups of 6 - 8 residents, in the Friendship Concept the questionnaires were filled out individually. In all other aspects, the procedure was similar to the one used in Warkworth Institution.

In order to eliminate respondents who were likely to underreport the number of their offences, 4 inmates of Warkworth Institution and 3 halfway house residents with lie-scores above $T = 55$ were excluded from the sample. The remaining 33 inmates were between 17 and 25 years old with a mean age of 19.5 years. The remaining 18 halfway house

residents were between 19 and 29 years old with a mean age of 20.3 years. There was no difference in the lie-scores of the inmates and the residents (MANN-WHITNEY-U-Test, $z = .06$).

The subjects in this study are obviously a highly selected group - a "convenience sample" (3, pp. 169) rather than a random sample. This fact alone, besides the small sample size, limits the confidence one can place into the results of this study.

V. 3. Statistical Procedures

The question whether the commonly observed low delayed gratification preference of incarcerated offenders is related to their being offenders or rather to their being incarcerated should be studied in an analysis of variance design with the two predictor-variables "incarceration" and "self-reported criminality" and the criterion-variable "delayed gratification preference".

Such a design was not feasible in the present study for two reasons:

- (1) In a 2 x 2 factorial design, one would have needed four groups of subjects: institutionalized offenders, non-institutionalized offenders, institutionalized non-offenders, and non-institutionalized non-offenders. While institutionalized and non-institutionalized offenders were obtained for this study through Warkworth Institution and the three halfway houses, non-offenders of a similar age and socio-economic background (for example army recruits as used by SIEGMAN (12)) were not available for this study.
- (2) Because of the U-shaped distribution of choice-list scores observed in incarcerated samples and because of the J-shaped distribution of criminality (2), a parametric analysis of variance which assumes normal distribution of the variables would have been highly problematic. In future studies it may be possible to use non-parametric analysis of variance techniques which have been developed in recent years (10).

Another possibility to analyze the influence of several predictor-variables on a criterion-variable is multiple regression analysis. This procedure is especially well suited for ex-post-facto research as it is conducted here, where experimental manipulation of the predictor-variables is impossible (9, p. 7). Multiple regression analysis was therefore chosen as the closest approximation to an analysis of variance design.

There are several programs available to compute a multiple regression analysis, and the one to be used here is the program BMD 02R provided in the BMD Biomedical Computer Program Package (5).

In order to meet the procedure's requirement of interval scale measurement, the variables "self-reported offences", "previous incarceration", and "present incarceration" were transformed into so-called "dummy variables" with values of either "1" or "0".

The significance tests performed in multiple regression analysis assume normal distribution of the variables, and, as mentioned previously, this assumption can not be made here. Therefore, multiple regression analysis will be used only to describe the relative importance of incarceration and self-reported offences for the explanation of the variations in the subjects' delayed gratification preference. The significance of the relations between incarceration, self-reported offences and delayed gratification preference will be determined by non-parametric inferential procedures.

The WILCOXON Matched-Pairs Signed-Ranks Test (11, pp. 75) will be used to test hypothesis (1) that incarcerated offenders show less delayed gratification preference than non-incarcerated subjects with similar numbers of self-reported offences. If other variables such as age and socio-economic background are significantly related to delayed gratification preference in this sample, subjects will be matched for these variables as well. While matching is a rather weak method for controlling the impact of the variance of self-reported offences, it seems to be the only possible way to do so in this study.

The MANN-WHITNEY U-Test (11, pp. 116) will be used to test hypothesis (2) that the delayed gratification preference of non-incarcerated subjects with a high number of self-reported offences does not differ from the one of non-incarcerated subjects with low numbers of self-reported offences.

V. 4. Operationalization of the Hypotheses

The two hypotheses stated at the beginning of this chapter can now be restated in operational terms.

- (1) The delayed gratification preference of incarcerated offenders is lower than that of non-incarcerated subjects who, in a self-report questionnaire, admit a similar amount of offences as the incarcerated offenders do.

H_0 : The monetary and material choice-list scores of incarcerated subjects do not differ from the choice-list scores of non-incarcerated subjects who are matched with the incarcerated subjects on the number of self-reported offences.

H_1 : The monetary and material choice-list scores of incarcerated subjects are lower than the choice-list scores of non-incarcerated subjects who are matched with the incarcerated subjects on the number of self-reported offences.

The null-hypothesis will be rejected if its probability is equal to or less than $p = .05$ in a one-tailed test.

- (2) The delayed gratification preference of non-incarcerated subjects with a high number of self-reported offences does not differ from the delayed gratification preference of non-incarcerated subjects with a low number of self-reported offences.

This hypothesis states the lack of a difference - usually the function of the null-hypothesis. However, as the low delayed gratification

preference of incarcerated offenders is seen here as related to their being incarcerated rather than to their being offenders, the homogeneity of the choice-list scores of two groups with different numbers of self-reported offences has to be tested. In such a comparison, the conventional levels of significance would not be sufficiently conservative, the level of significance suggested here is $p = .25$ in a one-tailed test.

H_0 : The monetary and material choice-list scores of non-incarcerated subjects with numbers of self-reported offences below the median tend to be higher than the choice-list scores of non-incarcerated subjects with numbers of self-reported offences above the median.

H_1 : The monetary and material choice-list scores of non-incarcerated subjects with numbers of self-reported offences below the median do not differ from the choice-list scores of non-incarcerated subjects with numbers of self-reported offences above the median.

The null-hypothesis will be rejected if its probability is equal to or less than $p = .25$ in a one-tailed test. If its probability is less than $p = .05$ in a one-tailed test, hypothesis H_2 will be accepted:

H_2 : The monetary and material choice-list scores of non-incarcerated subjects with numbers of self-reported offences below the median are significantly higher than the choice-list scores of non-incarcerated subjects with numbers of self-reported offences above the median.

REFERENCES

1. BLISHEN, B.R., (1967) A Socio-Economic Index for Occupations in Canada. Canadian Review of Sociology and Anthropology, 4, 41 - 53.
2. CARR-HILL, R.A., PAYNE, C.D., (1971) Crime: Accident or Disease: An Exploration Using Probability Methods for the Generation of Macro-Criminological Data. Journal of Research in Crime and Delinquency, 8, 133 - 155.
3. CHAMBLISS, W.J., (1975) The Political Economy of Crime: A Comparative Study of Nigeria and the USA. in Taylor, I., Walton, P., Young, J., (eds.), Critical Criminology. London: Routledge & Kegan Paul, 167 - 180.
4. CLARK, J.P., TIFFT, L.L., (1966) Polygraph and Interview Validation of Self-Reported Deviant Behavior. American Sociological Review, 31, 516 - 523.
5. DIXON, W.J., (1973) BMD Biomedical Computer Programs (2nd ed.). Berkeley: University of California Press.
6. DOLESCHAL, E., (1970) Hidden Crime. Crime and Delinquency Literature, 2, 546 - 572.
7. FARRINGTON, D.P., (1973) Self-Reports of Deviant Behavior: Predictive and Stable ?. Journal of Criminal Law and Criminology, 64, 99 - 110.

8. HATHAWAY, S.R., MONACHESE, E.D., (1953) Analyzing and Predicting Juvenile Delinquency with the MMPI. Minneapolis: University of Minnesota Press.
9. KERLINGER, F., PEDHAZUR, E., (1973) Multiple Regression in Behavioral Research. New York: Holt, Rinehart & Winston.
10. PURI, M.L., SEN, P.K., (1971) Nonparametric Methods in Multivariate Analysis. New York: Wiley & Sons.
11. SIEGEL, S., (1956) Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill.
12. SIEGMAN, A.W., (1961) The Relationship Between Future Time Perspective, Time Estimation, and Impulse Control in a Group of Young Offenders and in a Control Group. Journal of Consulting Psychology, 23, 470 - 475.
13. STUMPHAUZER, J.S., (1972) Increased Delay of Gratification in Young Prison Inmates Through Imitation of High-Delay Peer-Models. Journal of Personality and Social Psychology, 21, 10 - 17.

VIFINDINGS

In the first section of this chapter, the findings on the relation between incarceration, self-reported criminality and delayed gratification preference will be presented. Additional results on the relationships between social desirability on the one hand and self-reported criminality and delayed gratification preference on the other hand will be given in the second section. In the third section, differences in the delayed gratification preference of subjects with and without tattoos will be reported. Finally the psychometric qualities of the choice-lists and the self-report questionnaire with its sub-scales will be described.

Apart from the program BMD 02R (4) for the multiple regression analyses and the program for the SPEARMAN rank correlations SPSS NONPAR CORR (16), all programs used in this study were developed by the author. The calculations were performed on the IBM 360 of the University of Ottawa Computing Centre.

In presenting the findings, the following conventions on levels of significance will be used: Results with a probability of no more than $p = .05$ will be referred to as "significant", and results with a probability of $p = .01$ or less will be referred to as "very significant".

The subjects' scores and responses on the different scales and biographic variables are listed in Appendix II.

VI. 1. The Relation Between Incarceration, Self-Reported Criminality
and Delayed Gratification Preference

Three procedures were used to assess the relative impact of incarceration and self-reported criminality on the delayed gratification preference of offenders.

- (1) Incarcerated and non-incarcerated offenders were matched once on the number of self-reported offences and a second time on the number of self-reported offences as well as on socioeconomic background, and their choice-list scores were compared in a WILCOXON Matched-Pairs Signed-Ranks Test (19).
- (2) The choice-list scores of non-incarcerated subjects with a high number of self-reported offences were compared in a MANN-WHITNEY U-Test (19) with the choice-list scores of non-incarcerated subjects with a low number of self-reported offences.
- (3) Multiple regression analyses (12) were computed with the choice-list scores as criterion variable and present incarceration, previous incarceration and high vs. low self-reported criminality as predictor variables.

These analyses are based on the responses of 51 subjects with lie-scores below $T = 55$.

In all three procedures, the monetary and material choice-list scores were used separately as measures of delayed gratification preference. In addition to the total score on the self-report questionnaire, the

number of admitted property offences was also used as a measure of criminality because the choice-lists deal with material reinforcers similar to those obtained in property offences.

- (1) To decide which variables besides self-reported criminality the incarcerated and non-incarcerated subjects would have to be matched on, the relations between age and delayed gratification preference as well as between socioeconomic background and delayed gratification preference in the present sample were determined.

The rank correlation between age and monetary choices was $\rho = -.09$ ($N = 51$), the rank-correlation between age and material choices was $\rho = -.03$ ($N = 51$), both correlations are not significant.

There was no significant difference in the age of subjects choosing the delayed or immediate reward in the behavioral choice (MANN-WHITNEY U-Test, $z = .86$) either, and subjects were therefore not matched on age.

Socioeconomic background did not correlate significantly with monetary choices ($\rho = .06$, $N = 51$) nor with material choices ($\rho = .12$, $N = 51$), but subjects with higher socioeconomic background did prefer the delayed reward in the behavioral choice (MANN-WHITNEY U-Test, $z = 1.98$). Because of these inconclusive results regarding the relation between socio-economic background and these 3 measures of delayed gratification in this group, the incarcerated and non-incarcerated subjects were matched once on the number of self-reported offences only and a second time on the number of self-reported offences as well as on socioeconomic background.

Matching of subjects, particularly without subsequent random assignment to treatments, is a very weak method of controlling extraneous variables (11, p. 309). Unfortunately, in the present case, other procedures such as holding the extraneous variables (self-reported criminality and socioeconomic background) constant or randomly assigning subjects to treatments (incarceration) were not feasible.

Subjects were matched by pairing incarcerated and non-incarcerated offenders whose score on the total self-report questionnaire or on the subscale for property offences differed by no more than one point. If more than one combination of subjects was possible, the pair with the most similar code numbers (which had been assigned arbitrarily before) was chosen. When the subjects were matched on self-reported offences as well as on socioeconomic background, only pairs within the same interval on the socioeconomic background scale were formed.

The WILCOXON Matched-Pairs Signed-Ranks Test (see Table 1) shows that only one of the eight comparisons yields a significant difference: The monetary choice-list scores of incarcerated offenders differ significantly from those of non-incarcerated offenders with equal numbers of self-reported offences. The direction of this difference, however, is contrary to expectation: The mean choice-list score of the incarcerated offenders is $\bar{X} = 5.0$, the one of the non-incarcerated offenders is $\bar{X} = 1.4$. In the remaining seven comparisons, the mean

choice-list score of the incarcerated offenders is also higher than the one of the non-incarcerated offenders, although not significantly so.

Table 1: Relation between Incarceration and Delayed Gratification Preference in Subjects Matched on Self-Reported Offences

<u>Choice List</u>	<u>Self-Reported Offences</u>	<u>Sample Size</u> *	<u>T</u>
1. Subjects matched for self-reported offences			
Monetary Choices	Total Offences	N = 13	T = 13.0 **
Material Choices	Total Offences	N = 14	T = 23.0
Monetary Choices	Property Offences	N = 13	T = 21.0
Material Choices	Property Offences	N = 16	T = 46.0
2. Subjects matched for self-reported offences and socioeconomic background			
Monetary Choices	Total Offences	N = 11	T = 15.5
Material Choices	Total Offences	N = 13	T = 26.5
Monetary Choices	Property Offences	N = 10	T = 21.0
Material Choices	Property Offences	N = 12	T = 30.0

* Samplesizes vary according to the number of tied choice-list scores of matched subjects.

** p = .05.

In view of the large number of comparisons made here, it seems safe to conclude that there is no difference between the choice-list scores of incarcerated and non-incarcerated offenders with equal numbers of self-reported offences. The one significant difference may have occurred by chance alone.

- (2) The second procedure used to assess the impact of incarceration and self-reported criminality on the delayed gratification preference of offenders was to compare the choice-list scores of non-incarcerated subjects with high vs. low self-reported criminality.

The monetary and material choice-list scores of non-incarcerated subjects above and below the median of the total number of offences and of the property offences admitted were compared in a MANN-WHITNEY U-Test (see Table 2).

Table 2: Relation between Self-Reported Criminality and Delayed Gratification Preference in Non-Incarcerated Subjects

Choice List	Self-Reported Offences	U	p	N ₁	N ₂
Monetary Choices	Total Offences	37.5	.50	7	11
Material Choices	Total Offences	35.5	.43	7	11
Monetary Choices	Property Offences	35.5	.43	7	11
Material Choices	Property Offences	36.0	.43	7	11

The results shown in Table 2 allow to reject the hypothesis that there is a relation between delayed gratification preference and the number of self-reported offences in this group - the probabilities associated with the four U-values are well above the level of $p = .25$ suggested earlier for these comparisons.

- (3) To determine the relative importance of incarceration and self-reported criminality in explaining the variance of delayed gratification preference of offenders, several multiple regression analyses were computed.

First, the monetary and material choice-lists were related to present incarceration and high vs. low numbers of total offences or property offences admitted by the subjects. In the absence of theoretical or empirical indications for more complex relationships, linear relations were assumed to exist between the predictor- and criterion-variables. The results of these four multiple regression analyses are listed in Table 3. Because of the small sample size and the lack of a validation of the equations on a separate sample, the original multiple correlation coefficients (R) are listed together with a coefficient (R_{corr}) which is corrected for the shrinkage to be expected on validation (13,p. 184).

Three tentative conclusions may be drawn from the results presented in Table 3:

- (a) Self-reported criminality and present incarceration taken together account for only 3 % to 6 % of the variance of the choice-list scores in this sample.

Table 3: Multiple Regression of Present Incarceration and Self-Reported Offences on Delayed Gratification Preference

Predictor Variables	b weights	t df = 48	R	R ²	R _{corr}	R _{corr} ²	F df ₁ = 2 df ₂ = 48
1. Criterion Variable: Monetary Choices							
Present Incarceration	2.12	1.71	.24	.06	.20	.04	1.46
Total Offences	-0.71	.49					(Constant: 2.32)
2. Criterion Variable: Monetary Choices							
Present Incarceration	1.92	1.63	.24	.06	.20	.04	1.48
Property Offences	-0.60	.53					(Constant: 2.22)
3. Criterion Variable: Material Choices							
Present Incarceration	1.43	1.22	.18	.03	.10	.01	.76
Total Offences	-0.73	.53					(Constant: 3.39)
4. Criterion Variable: Material Choices							
Present Incarceration	1.23	1.11	.17	.03	.09	.01	.71
Property Offences	-0.45	.42					(Constant: 3.20)

Table 4: Multiple Regression of Present Incarceration, Previous Incarceration, and Self-Reported Offences on Delayed Gratification Preference

Predictor Variables	b weights	t df = 47	R	R ²	R _{corr}	R _{corr} ²	F df ₁ =3 df ₂ =47
1. Criterion Variable: Monetary Choices							
Present Incarceration	1.88	1.43	.26	.07	.17	.03	1.11
Previous Incarceration	-0.40	.26					
Total Offences	-0.82	.67					(Constant: 2.63)
2. Criterion Variable: Monetary Choices							
Present Incarceration	1.99	1.60	.28	.08	.20	.04	1.31
Previous Incarceration	-0.16	.10					
Property Offences	-1.21	1.00					(Constant: 2.59)
3. Criterion Variable: Material Choices							
Present Incarceration	1.08	.89	.23	.05	.12	.02	.90
Previous Incarceration	-0.26	.18					
Total Offences	-1.23	1.09					(Constant: 3.85)
4. Criterion Variable: Material Choices							
Present Incarceration	1.35	1.14	.20	.04	.03	.00	.67
Previous Incarceration	-0.36	.24					
Property Offences	-0.81	.71					(Constant: 3.57)

(b) Present incarceration is of higher importance in explaining this part of the variance than self-reported criminality is.

(c) Contrary to expectation, present incarceration is related positively to delayed gratification preference in this sample.

If one includes the information on previous incarceration into the analysis, the results are essentially the same (see Table 4).

The variance explained by the three predictor-variables amounts to only 4 % to 8 % of the total variance of the choice-list scores. Previous incarceration contributes even less to the explanation of the variance of delayed gratification preference than self-reported criminality. It may be noted that in the third equation (Regression of present incarceration, previous incarceration, and high vs. low total number of self-reported offences on material choices), self-reported criminality rather than present incarceration makes the most important contribution to the explanation of the variance of the choice-list scores.

VI. 2. Social Desirability, Self-Reported Offences and Delayed
Gratification Preference

Some authors suggest that questionnaires on self-reported offences should contain a lie-scale to detect subjects who try to present themselves in a socially desirable light by not reporting all of their offences (6, pp. 107).

The questionnaire used here therefore contained the 15 items of the MMPI Lie-scale (3), and seven subjects with lie-scores over $T = 55$ were excluded from the sample. In this section, the relationship between social desirability as measured in the MMPI Lie-scale and the number of admitted offences will be discussed. Furthermore, the relation between social desirability and delayed gratification preference as measured in the choice-list will be explored.

The MMPI Lie-scale has several apparent short-comings. Some of the items contain double negations and thus are difficult to understand. Also, the validity of the scale in a group of adolescent offenders seems questionable at first sight: concepts such as social desirability may not only have changed since the construction of the scale some 30 years ago, but they may also be class specific - the focal concerns of the lower class (14) are different from the middle class protestant work ethic. On the other hand, the MMPI is widely used in penal settings in Canada and the MMPI Lie-scale is reported to discriminate adequately between "honest" and "fake good" responses of prisoners

comparable to the subjects in this study (7) and the MMPI Lie-scale was therefore chosen as the measure of social desirability for this study.

Under the condition that the subjects' other relevant characteristics are equal, one may assume that subjects with high lie-scores who are thought to underreport their offences should have lower scores in the self-report questionnaire than the more "honest" subjects. To test this assumption, the total number of offences admitted by two groups of subjects were compared: The 7 subjects who had been excluded from the sample because their Lie-score was higher than $T = 55$, and the remaining 51 subjects with Lie-scores below or equal to $T = 55$.

The assumption that subjects with high lie-scores admit fewer offences than subjects with low Lie-scores is not supported by the data. A MANN-WHITNEY U-Test shows that the 7 subjects with high Lie-scores do not report fewer offences than the 51 subjects with low Lie-scores ($z = .08$). The SPEARMAN rank correlation in the total sample of 58 subjects between the Lie-scores and the total number of admitted offences is not significant, either ($\rho = .12$).

The finding that the MMPI Lie-scale is not related to the number of offences a person admits is similar to one reported by CLARK & TIFFT (2, p. 522). They found that scores in the MMPI Lie-scale were not related to inaccuracy in reporting deviant behavior which was later admitted in a polygraph examination. This is not to say that the inclusion of a lie-scale into a self-report questionnaire is unnecessary: While

it may not detect underreporting, it may still be useful as a means of detecting subjects who fill out the questionnaire carelessly.

The inclusion of the MMPI Lie-scale into the questionnaire allowed to explore the possible relationship between social desirability and delayed gratification preference. Several authors report anecdotal observations according to which their subjects' choosing delayed rewards was determined partly by considerations of social desirability (15, p. 100; 18, p. 27), but there seems to be no systematic study of the relation between social desirability and delayed gratification preference.

To examine the relationship between social desirability and delayed gratification preference, the SPEARMAN rank correlations between the MMPI Lie-scale and the monetary and material choice-lists in the total sample of 58 subjects were computed. The correlation is significant for the monetary choices ($\rho = .28$), but not significant for the material choices ($\rho = .15$).

A division of the sample according to the response in the behavioral choice shows that in the group that chose the socially less desirable immediate reward ($N = 35$), the correlation between lie-scores and monetary choice-list scores is very significant ($\rho = .40$). In the group choosing the socially accepted delayed reward ($N = 23$), there is no significant correlation between the two scales ($\rho = -.08$). In both subgroups, the material choice-list scores are not significantly related to the lie-scores (immediate reward: $\rho = .12$; delayed reward: $\rho = -.00$).

These correlations indicate that at least for those subjects with relatively low delayed gratification preference, as indicated here by their behavioral choice, social desirability has some impact on their paper-pencil-responses in the monetary choice-list.

A similar result was obtained in a recent study on the delayed gratification preference of inmates of an Ontario minimum security institution. There the MMPI Positive Malingery scale consistently emerged as a predictor variable in multiple regression equations relating several questionnaires and behavioral measures to two naturalistic measures of delayed gratification preference and to a monetary choice-list (20).

On the basis of these findings it seems advisable to include in future instruments for the assessment of delayed gratification preference measures of social desirability. These measures could take the form of a lie-scale as in the present study, but special choice-list items with identical or almost identical immediate and delayed rewards might also be helpful in assessing social desirability in the context of delayed gratification preference (8, p. 89).

VI. 3. Tattoos as Indicators of Low Delayed Gratification Preference

The practice of tattooing has often been interpreted as a means to define one's identity. Especially in groups such as prisoners who are more or less deprived of the opportunity to display symbols of their personality, tattooing is seen as a useful and inexpensive way of identifying oneself and of displaying masculinity and opposition to authority (5, p. 153). Tattoos can also serve as signs of actual or desired group membership or as status symbols (9, p. 61; 1, p. 345).

Because of the important social needs that tattoos apparently satisfy in some groups and inspite of their permanent character, tattoos are often put on without much thought for the future (5, p. 345). Tattooed persons are reported to be more impulsive than persons without tattoos (10, p. 35; 21, p. 367). Only later the tattooed person realizes that his tattoos may decrease his opportunities for employment (17, p. 522) and that his tattoos are negative status symbols in a group he wants to join (1, p. 345).

As tattoos seem to indicate an orientation towards the immediate satisfaction of social needs without consideration for the future, it may be that persons with tattoos show less delay of gratification than persons without tatoos. To test this assumption, the subjects in the present study were asked to indicate whether they had any tattoos, and the choice-list scores and the response in the behavioral choice of subjects with and without tattoos were compared.

In a MANN-WHITNEY U-Test subjects with tattoos were found to have significantly lower choice-list scores than subjects without tattoos (Monetary choice-list: $z = 2.16$; Material choice-list: $z = 2.19$). There is no relation between the behavioral choice and the presence of tattoos ($\chi^2 = 0.26$, $df = 1$).

These results seem surprising in view of the significant relations between the choice-lists and the behavioral choice on the one hand (see section VI. 4. of this study) and between the choice-lists and the presence of tattoos on the other hand. It may be that the choice-lists measure at least two different areas of delayed gratification preference: One related to material reinforcers, which may also be measured in the behavioral choice, and another one related to social reinforcers such as social approval, which may be at the basis of the choice-lists' relation to the presence of tattoos.

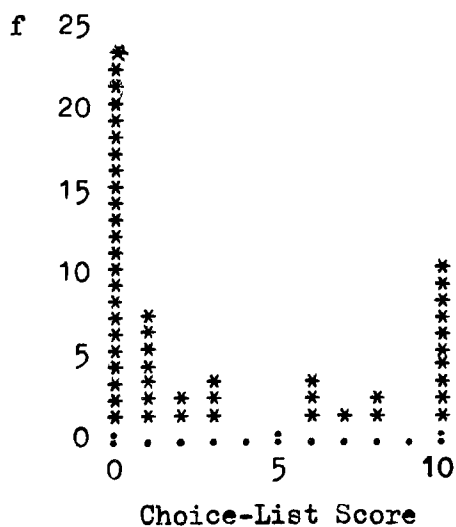
VI. 4. Itemanalyses of the Choice-List and the Self-Report Questionnaire

The itemanalyses of the monetary and material choice-list are based on the responses of the 51 subjects with MMPI Lie-scores below $T = 55$.

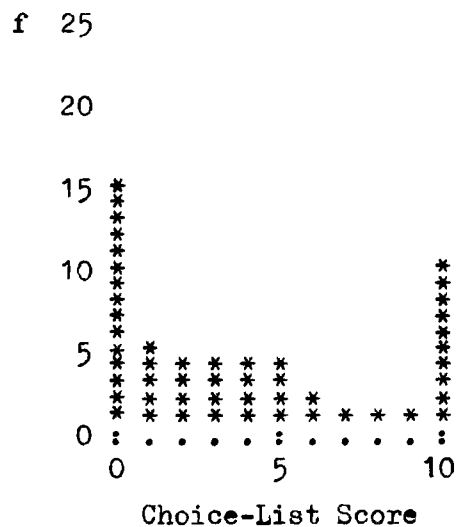
The responses to the 10 monetary and the 10 material choice-list items show U-shaped frequency distributions (see Figure 1), which both deviate significantly from an equal distribution as well as from a normal distribution (see Table 5). Deviation from the equal distribution was tested by a one-sample chi-square test, deviation from the normal distribution was tested by the KOLGOMOROV-SMIRNOV Test (19).

Figure 1: Distributions of Choice-List Scores (N = 51)

a) Monetary Items



b) Material Items



Statistics of the two raw-score distributions and of the choice-lists' item-characteristics are given in Table 5.

Table 5 : Statistics of the Choice-Lists (N = 51)

<u>Statistic</u>	<u>Monetary Choice-List</u>	<u>Material Choice-List</u>
Number of Items	10	10
Mean of Raw-Score Distribution	3.16	3.86
Standard Deviation of Raw-Score Distribution	4.01	3.78
Test for Equal Distribution	$\chi^2 = 93.90$ df = 9, p = .001	$\chi^2 = 32.73$ df = 9, p = .001
Test for Normal Distribution	D = .29 p = .01	D = .17 p = .10
Mean Percentage of Delay Responses	31.3 %	38.4 %
Mean Item-Scale Correlation	$\bar{r}_{pbis} = .84$	$\bar{r}_{pbis} = .73$
Mean Item-Intercorrelation	$\bar{r}_{phi} = .74$	$\bar{r}_{phi} = .59$
Internal Consistency KUDER-RICHARDSON Formula 8	$r_{tt} = .97$	$r_{tt} = .94$
Correlation with Behavioral Choice	$r_{pbis} = .49$	$r_{pbis} = .41$
Intercorrelation of the two Choice-Lists	r = .88	

Overall, the two choice-lists seem to be of satisfactory internal consistency and sufficient validity for research purposes.

The itemanalyses of the questionnaire on self-reported offences and its subscales on property offences and on aggressive acts are based on the responses of all 58 subjects.

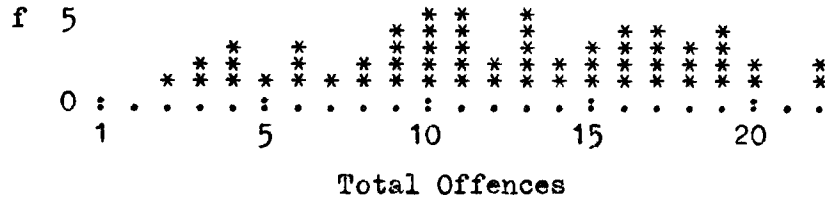
As the program for the itemanalysis is laid out for dichotomous items only, the subjects' responses were transformed by disregarding the admitted frequency of a given act. Thus the itemanalyses only describe diversity scales of offences a subject admitted.

The raw-scores of the self-report scales do not show the J-shaped distribution expected (see Figure 2), probably because the present sample is not taken from the general population but rather from an extreme group which already had considerable contact with criminal justice agencies. The statistics of the three raw-score distributions and of the self-report scales' item-characteristics are given in Table 6. The correlations among the three scales and their correlations with the number of previous incarcerations are SPEARMAN rank correlations and are based on the frequency as well as the diversity of the offences admitted.

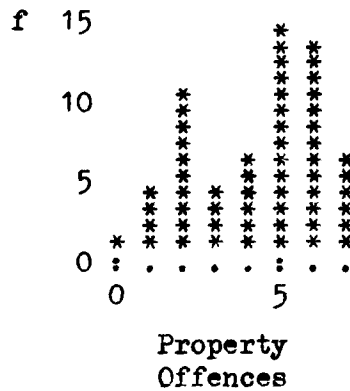
The mean admittance rate for the total self-report questionnaire is 56 % - a result which justifies the initial selection of items with relatively low admittance rates. An admittance rate higher than the one obtained here would have decreased the scales' differentiating power. Eighty-eight percent of the subjects stated that they had used marijuana or other soft drugs - an indication that the use of such drugs is the rule rather than the exception in this group.

Figure 2: Distributions of Self-Reported Offences (N = 58)

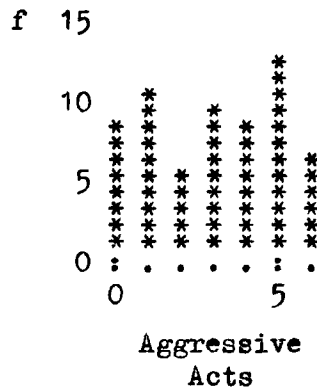
a) Total Offences



b) Property Offences



c) Aggressive Acts



The item-intercorrelations of the self-report questionnaire are generally quite low and only 40 % of them are significant. The scale should therefore be broken up into more homogenous subscales and the number of items should be increased.

The total questionnaire's correlation with the number of previous incarcerations is $\rho = .31$, which corresponds quite closely to the correlation of FARRINGTON's total self-reported delinquency scale with subsequent conviction of $r_{pbis} = .38$. Similarly, the coefficients of internal consistency and the scales' intercorrelations are of the same order as the split-half reliability of $r_{12} = .90$ reported by FARRINGTON (4).

Table 6: Statistics of the Self-Report Questionnaires (N = 58)

Statistic	Total Offences	Property Offences	Aggressive Acts
Number of Items	22	7	6
Mean of Raw-Score Distribution	12.33	4.31	3.02
Standard Deviation of Raw-Score Distribution	5.18	1.90	1.98
Test for Equal Distribution	$\chi^2 = 13.39$ df = 10 p = .30	$\chi^2 = 20.62$ df = 7 p = .01	$\chi^2 = 4.03$ df = 6 p = .70
Test for Normal Distribution	D = .07 p = .20	D = .15 p = .15	D = .16 p = .10
Mean Admittance Rate	56 %	62 %	54 %
Mean Item-Scale Correlation	$\bar{r}_{pbis} = .47$	$\bar{r}_{pbis} = .37$	$\bar{r}_{pbis} = .52$
Mean Item- Intercorrelation	$\bar{r}_{phi} = .21$	$\bar{r}_{phi} = .23$	$\bar{r}_{phi} = .38$
Internal Consistency KUDER-RICHARDSON Formula 8	$r_{tt} = .87$	$r_{tt} = .76$	$r_{tt} = .84$
Correlation with Previous Incarcerations	rho = .31 p = .01	rho = .51 p = .001	rho = .18 p = .09
Intercorrelations of the Total Scale and the Subscales		rho = .84 p = .001	rho = .88 p = .001
Intercorrelations of the Subscales		rho = .62 p = .001	

It seems interesting that the number of admitted property offences correlates quite substantially with the number of previous incarcerations, while the number of admitted aggressive acts shows only a low correlation with the number of previous incarcerations. This may be due either to differences in the seriousness of the offences sampled in the two subscales or to differences in the judicial evaluation of property offences and aggressive acts.

In sum, the self-report questionnaire seems to be adequate for research purposes, but its internal consistency should be improved for future studies.

REFERENCES

1. BURMA, J.H., (1959) Self-Tattooing Among Delinquents -
A Research Note. Sociology and Social Research, 43,
341 - 345.
2. CLARK, J.P., TIFFT, L.L., (1966) Polygraph and Interview Validation
of Self-Reported Deviant Behavior. American Sociological
Review, 31, 516 - 523.
3. DAHLSTROM, W.G., (1960) A MMPI Handbook - A Guide to Use in
Clinical Practice and Research. Minneapolis: University
of Minnesota Press.
4. DIXON, W.J., (1973) BMD Biomedical Computer Programs (2nd ed.).
Berkeley: University of California Press.
5. EDGERTON, R.B., DINGMAN, H.F., (1963) Tattooing and Identity.
International Journal of Social Psychiatry, 9, 143 - 153.
6. FARRINGTON, D.P., (1973) Self-Reports of Deviant Behavior:
Predictive and Stable ?. Journal of Criminal Law and
Criminology, 64, 99 - 110.
7. GENDREAU, P., IRVINE, M.J., KNIGHT, S.A., (1973) Evaluating
Response Set Styles on the MMPI with Prisoners: Faking
Good Adjustment and Maladjustment. Canadian Journal of
Behavioral Science, 5, 183 - 194.

8. GRUSEC, J., (1968) Waiting for Rewards and Punishments: Effects of Reinforcement Value on Choice. Journal of Personality and Social Psychology, 9, 85 - 89.
9. HAMBURGER, E., (1966) Tattooing as a Psychic Defence Mechanism. International Journal of Social Psychiatry, 12, 60 - 62.
10. HOWELL, R.J., PAYNE, I.R., ROE, A.V., (1971) Differences Among Behavioral Variables, Personal Characteristics, and Personality Scores of Tattooed and Nontattooed Prison Inmates. Journal of Research in Crime and Delinquency, 8, 32 - 35.
11. KERLINGER, F.N., (1973) Foundations of Behavioral Research (2nd ed.). New York: Holt, Rinehart & Winston.
12. KERLINGER, F.N., PEDHAZUR, E., (1973) Multiple Regression in Behavioral Research. New York: Holt, Rinehart & Winston.
13. MCNEMAR, Q., (1962) Psychological Statistics. New York: John Wiley & Sons.
14. MILLER, W.B., (1958) Lower-Class Culture as a Generating Milieu of Gang Delinquency. Journal of Social Issues, 14, 5 - 19.
15. MISCHEL, W., (1965) Theory and Research on the Antecedents of Self-Imposed Delay of Rewards. in Maher, B.A., Progress in Experimental Personality Research, Volume 3. New York: Academic Press, 85 - 132.

16. NIE, N.H., HULL, C.H., JENKINS, J.G., STEINBRENNER, K., BENT, D.H.,
(1975) SPSS Statistical Package for the Social Sciences
(2nd ed.). New York: McGraw-Hill.
17. POST, R.S., (1968) The Relationship of Tattoos to Personality
Disorders. Journal of Criminal Law, Criminology, Police
Science, 59, 516 - 525.
18. PRICE-WILLIAMS, R.R., RAMIREZ, M. III. (1974) Ethnic Differences
in Delay of Gratification. Journal of Social Psychology,
93, 23 - 30.
19. SIEGEL, S., (1956) Nonparametric Statistics for the Behavioral
Sciences. New York: McGraw-Hill.
20. WORMITH, J.S., HASENPUSCH, B., (1976) Multidimensional Measurement
of Delayed Gratification Preference with Incarcerated
Delinquents. Unpublished Manuscript, Ottawa: University
of Ottawa.
21. YAMAMOTO, J., SEEMAN, W., LESTER, B.K., (1963) The Tattooed Man.
Journal of Nervous and Mental Disorders, 136, 365 - 367.

VIICONCLUSIONS

In this chapter, the findings, limitations, and some possible implications of the present study will be discussed and suggestions for further studies will be made.

Following a short discussion of the advantages and disadvantages of ex-post-facto research such as the present study, an explanation is sought for the apparent lack of a relation between incarceration and delayed gratification preference. It seems plausible that because the questionnaire was administered on the inmates' bi-weekly payday, the immediate rewards were much less attractive to them than to the halfway house residents. It is suggested that researchers working in penal institutions involve institutional staff in planning their research to detect and avoid such interferences of institutional routine with their study.

The results of this study contradict the commonly assumed relation between criminality and preference for immediate gratification. While it seems desirable to conduct better controlled research to establish whether or not this relation is in fact spurious, it may well be that because of its complexity, this question is not amenable to experimental research and should be studied in a less stringent, phenomenological approach.

VII. 1. Ex-Post-Facto Research in Criminology

Truly experimental research is rarely if at all possible in the field of criminology. Experimental designs are often attempted and sometimes achieved in program evaluation, but in most other areas of criminological research such as prediction studies, attitude surveys, or ecological studies, random assignment of cases to treatments and active manipulation of predictor variables is not feasible. Instead, the criminologist normally measures a number of predictor variables over which he has no control. Because of the lack of control over the combination of variables, the inferences about relations between predictor- and criterion-variables which are made in ex-post-facto research are inherently weak (3, pp. 378).

The impossibility to manipulate predictor variables and the lack of power to randomize increases the risk of improper interpretation of results. This is particularly so in attempts to explain highly complex phenomena where several interpretations are plausible - especially where the research has been conducted without the guidance by a previously formulated hypothesis. A predicted (or unpredicted) relation discovered in ex-post-facto research may be spurious, but its plausibility and conformity to preconceived notions may make it easy to accept. This danger exists in experimental research as well, but to a lesser extent because of the controls characteristic of experimental designs (3, pp. 390).

Despite these weaknesses, ex-post-facto research can not and should not be avoided in the social and behavioral sciences - it often is the only way to explore the important and complex phenomena studied in these fields. It is important, therefore, that this research be conducted as systematically as possible and with clearly stated hypotheses and predictions (3, 391).

One possibility to introduce some safeguards against the erroneous interpretation of results obtained in ex-post-facto research is the formulation and testing of alternative or "control"-hypotheses. One may give additional credibility to a hypothesis supported by an ex-post-facto study by showing that equally plausible alternative hypotheses are not supported by the data (3, pp. 388). In the context of the present study, for example, an alternative hypothesis might have been that offenders with low socioeconomic status are more likely to be incarcerated than offenders with high socioeconomic status and that in view of the positive correlation between socioeconomic status and delayed gratification preference one should expect a higher delayed gratification preference among non-incarcerated offenders. This alternative hypothesis can be rejected in the present case: The incarcerated and non-incarcerated subjects did not differ in their socioeconomic background (MANN-WHITNEY U-Test, $z = 0.74$), and there is no consistent relation between delayed gratification preference and socioeconomic background in this sample. As the hypothesis proposed for this study was not confirmed, it would be inappropriate to formulate and test various alternative hypotheses later.

VII. 2. Some Explanations for the Lack of a Relation Between
Incarceration and Delayed Gratification Preference

Contrary to expectation, present incarceration, self-reported criminality, and previous incarceration accounted for only 4 % to 8 % of the variance of the choice-list scores, and present incarceration appeared to be related positively rather than negatively to delayed gratification preference.

There are several possible explanations for the failure to establish a relationship between the four variables. It may be that the variance of self-reported criminality in the sample studied here was insufficient. All subjects had had some contact with social control agencies because of their criminal behavior, so that there were very few subjects with low scores on the self-report questionnaire. Another explanation might be that "Incarceration" is too global and too complex a concept to be useful as a predictor-variable and that it should be divided into variables such as "Length of Incarceration", "Perceived Frustration" or "Perceived External Control over Reinforcers". These explanations could be tested in future research on the problem studied here.

A more basic reason may be that incarceration and self-reported criminality alone are of little importance for explaining the delayed gratification preference of incarcerated offenders. Other situational and personality factors may be more relevant in determining an individual's decision to delay gratification. At the present state of knowledge on human behavior, it seems possible to point to a large number of variables

which could have an impact on this decision, for example the present financial status or the trust in the experimenter who promises to deliver the delayed reward. It seems impossible, however, to control these variables or to reduce their number sufficiently so that they can be incorporated into an experimental design.

Considering the comments made by the subjects after the administration of the questionnaire, it seems likely that the subjects' financial status had a large impact on their choices of delayed vs. immediate rewards. As mentioned earlier, the questionnaire was administered in Warkworth Institution on the inmates' biweekly payday. Knowing that they would receive some \$ 5.- to \$ 7.- later in the afternoon, the inmates may have perceived the immediate rewards as less attractive than if they had had to wait for their next pay for several days. A number of halfway house residents, on the other hand, mentioned that they needed money badly, so that the immediate rewards may have been quite attractive to them.

Interferences with a research design by institutional routines such as the one described here seem to be quite common in penological research (5). It seems necessary for an outside researcher not only to provide information on the topic and the design of his research, but also to secure the active participation of a staff member in planning and conducting his study. Only through the cooperation of an insider who is aware both of the institutional routines and the exigencies of the research design can possible interferences in the conduct of the study by the institutional routines be detected and avoided.

VII. 3. Modifying the Delayed Gratification Preference of Offenders -
Should it Be Done ?

The present study as well as other research on self-reported deviance and delay of gratification (2) failed to establish a relation between self-reported criminality and delayed gratification preference. Furthermore, seeking immediate satisfaction seems to be the more adaptive response in the underprivileged environment from which most apprehended offenders are recruited (4, p. 49; 1, p. 72). One should therefore examine the usefulness and legitimacy of efforts to increase the delayed gratification preference of prisoners.

There are several studies which report increases in delay of gratification in incarcerated offenders through behavior modification techniques such as social reinforcement (6) and model learning (7). While these studies demonstrated that the low delayed gratification preference of prisoners can be changed, they did not question whether it should be done in the first place. Apparently it is simply assumed that any hedonistic or expressive deviation from the professional's own middle-class values or strategies which are adaptive in his environment must be a sign of inadequacy, to which one can react only therapeutically (8, p. 31). Aside from the ethical and political problems involved in universally imposing middle-class norms, it is also questionable whether the "cure" would be beneficial at all. In the absence of an analysis of the functional value of immediate

gratification in the offender's environment, modification of this behavior may be an irresponsible practice with shortlived if not harmful effects. It may well be, though, that in some situations, for example when dealing with middle-class institutions such as schools, social service agencies or employers, delay of gratification is the most appropriate strategy. In other situations, immediate consumption may be more advantageous. It would probably be more promising to show how to distinguish between situations in which it is profitable to defer gratification and other situations in which it is not rather than trying to increase delayed gratification preference generally.

VII. 4. Suggestions for Further Research

The present study was designed to examine the relationship between incarceration, self-reported criminality and delayed gratification preference. The commonly assumed connection between criminality and low delayed gratification preference is not supported by the findings reported here, and it might be interesting to repeat the present study on a larger scale and with better control over extraneous variables such as the availability of reinforcers. Such research should focus on younger subjects than were available for this study, so that a sufficient number of subjects with and without previous incarceration and with high as well as low self-reported criminality can be obtained. Composite measures of delayed gratification preference should be used which assess attitudinal as well as behavioral and cognitive aspects of the concept (9).

In the context of such a study one may also want to interview the subjects to explore their reasons for choosing delayed or immediate gratification. Information on the subjects' previous experiences with delay of gratification and their general and specific motivations and attitudes towards delay of gratification may be valuable for the generation of new hypotheses on this topic and for a better understanding of the phenomenon.

REFERENCES

1. GALLIMORE, R., WEISS, L.B., FINNEY, R., (1974) Cultural Differences in Delay of Gratification: A Problem of Behavior Classification. Journal of Personality and Social Psychology, 30, 72 - 80.
2. JESSOR, R., GRAVES, T.D., HANSON, R.C., JESSOR, S., (1968) Society, Personality, and Deviant Behavior - A Study of a Tri-Ethnic Community. New York: Holt, Rinehart & Winston.
3. KERLINGER, F.N., (1973) Foundations of Behavioral Research. New York: Holt, Rinehart & Winston.
4. ROSENQUIST, C.M., MEGARGEE, E.I., (1969) Delinquency in Three Cultures. Austin: University of Texas Press.
5. STELLER, M., (1972) Zum Versuch der empirischen Überprüfung von psychologischen Behandlungsmethoden im Strafvollzug. Monatsschrift für Kriminologie und Strafrechtsreform, 55, 357 - 365.
6. STUMPHAUZER, J.S., (1970) Modification of Delay Choices in Institutionalized Youthful Offenders Through Social Reinforcement. Psychonomic Science, 8, 222 - 223.
7. STUMPHAUZER, J.S., (1972) Increased Delay of Gratification in Young Prison Inmates Through Imitation of High-Delay Peer-Models. Journal of Personality and Social Psychology, 21, 10 - 17.

8. TAYLOR, I., WALTON, P., YOUNG, J., (1973) The New Criminology - For a Social Theory of Deviance. London: Routledge & Kegan Paul.
9. WORMITH, J.S., HASENPUSCH, B., (1976) Multidimensional Measurement of Delayed Gratification Preference with Incarcerated Delinquents. Unpublished Manuscript, Ottawa: University of Ottawa.

BIBLIOGRAPHY

- BANDURA, A., WALTERS, R.H., (1959) Adolescent Aggression: A Study of the Influence of Child-Rearing Practices and Family Interrelationships. New York: Ronald Press.
- BARNDT, R.J., JOHNSON, D.M., (1955) Time Orientation in Delinquents. Journal of Abnormal and Social Psychology, 51, 343 - 345.
- BATTLE, E., ROTTER, J.B., (1963) Children's Feelings of Personal Control as Related to Social Class and Ethnic Group. Journal of Personality, 31, 482 - 490.
- BEILIN, H., (1956) Patterns of Postponability and its Relations to Social Class Mobility. Journal of Social Psychology, 44, 33 - 49.
- BLACK, W.A.M., GREGSON, R.A.M., (1973) Time Perspective, Purpose in Life, Extraversion and Neuroticism in New Zealand Prisoners. British Journal of Social and Clinical Psychology, 12, 50 - 60.
- BLISHEN, B.R., (1967) A Socio-Economic Index for Occupations in Canada. Canadian Review of Sociology and Anthropology, 4, 41 - 53.
- BLOCK, J., MARTIN, B., (1955) Predicting the Behavior of Children under Frustration. Journal of Abnormal and Social Psychology, 51, 281 - 285.
- BLUM, G.S., (1953) Psychoanalytic Theories of Personality. New York: McGraw-Hill.
- BOCHNER, S., DAVID, K.H., (1968) Delay of Gratification, Age and Intelligence in an Aboriginal Culture. International Journal of Psychology, 3, 167 - 174.

- BURMA, J.H., (1959) Self-Tattooing Among Delinquents-A Research Note.
Sociology and Social Research, 43, 341 - 345.
- CANADIAN PENITENTIARY SERVICE, (June 5, 1972) The Living Unit Concept.
Mimeographed Paper, Ottawa: CPS Information Services.
- CARO, F.G., (1965) Deferred Gratification, Time Conflict and College Attendance. Sociology of Education, 38, 332 - 340.
- CARR-HILL, R.A., PAYNE, C.D., (1971) Crime: Accident or Disease - An Exploration Using Probability Methods for the Generation of Macro-Criminological Data. Journal of Research in Crime and Delinquency, 8, 133 - 155.
- CHAMBLISS, W.J., (1975) The Political Economy of Crime: A Comparative Study of Nigeria and the USA. in Taylor, I., Walton, P., Young, J., Critical Criminology, London: Routledge & Kegan Paul, 167 - 180.
- CLARK, J.P., TIFFT, L.L., (1966) Polygraph and Interview Validation of Self-Reported Deviant Behavior. American Sociological Review, 31, 516 - 523.
- DAHLSTROM, W.G., (1960) A MMPI Handbook: A Guide to Use in Clinical Practice and Research. Minneapolis: University of Minnesota Press.
- DIXON, W.J., (1973) BMD Biomedical Computer Programs (2nd ed.). Berkeley: University of California Press.
- DOLESCHAL, E., (1970) Hidden Crime. Crime and Delinquency Literature, 2, 546 - 572.
- DOLIARD, J., MILLER, N.E., DOOB, L.W., MOWRER, O.H., SEARS, R.R., FORD, C.S., HOVLAND, C.C., SOLLENBERGER, R.T., (1939) Frustration and Aggression. New Haven: Yale University Press.

- EDGERTON, R.B., DINGMAN, H.F., (1963) Tattooing and Identity. International Journal of Social Psychiatry, 9, 143 - 153.
- FARRINGTON, D.P., (1973) Self-Reports of Deviant Behavior: Predictive and Stable ?. Journal of Criminal Law and Criminology, 64, 99 - 110.
- PERMAN, L.A., KORNBLUTH, J.L., HABER, A., (1969) Poverty in America. Ann Arbor: University of Michigan Press.
- FISCHER, G.H., SCHEIBLECHNER, H., (1970) Algorithmen und Programme für das probabilistische Testmodell von RASCH. Psychologische Beiträge, 12, 23 - 51.
- FREUD, S., (1958) The Interpretation of Dreams. in The Standard Edition of the Complete Psychological Works of Sigmund Freud; Translated from the German under the General Editorship of James Strachey, in Collaboration with Anna Freud, Volume V. London: Hogarth Press & Institute of Psycho-Analysis, 339 - 621.
- FREUD, S., (1958) Formulations on the Two Principles of Mental Functioning. in The Standard Edition of the Complete Psychological Works of Sigmund Freud; Translated from the German under the General Editorship of James Strachey, in Collaboration with Anna Freud, Volume XII. London: Hogarth Press & Institute of Psychoanalysis, 213 - 226.
- GALLIMORE, R., WEISS, L.B., FINNEY, R., (1974) Cultural Differences in Delay of Gratification: A Problem of Behavior Classification. Journal of Personality and Social Psychology, 30, 72 - 80.
- GENDREAU, P., IRVINE, M.J., KNIGHT, S.A., (1973) Evaluating Response Set Styles on the MMPI with Prisoners: Faking Good Adjustment and Maladjustment. Canadian Journal of Behavioral Science, 5, 183 - 194.

- GOERLITZ, A., (1972) Handlexikon zur Rechtswissenschaft. München:
Ehrenwirt Verlag.
- GRANZBERG, G., (1973) A Note on Delay of Gratification Among the Hopi.
Journal of Social Psychology, 91, 151 - 152.
- GRUSEC, J., (1968) Waiting for Rewards and Punishments: Effects of
Reinforce-ment Value on Choice. Journal of Personality and Social
Psychology, 9, 85 - 89.
- HAMBURGER, E., (1966) Tattooing as a Psychic Defence Mechanism. International
Journal of Social Psychiatry, 12, 60 - 62.
- HARE, R.D., (1970) Psychopathy: Theory and Research. New York: John
Wiley & Sons.
- HARTIG, M., (1973) Selbstkontrolle. München: Urban & Schwarzenberg.
- HASENPUSCH, B., (1974) Ueber die Bevorzugung aufgeschobener Bedürfnis-
befriedigung (Spannungsbogen) und ihre Beziehung zur Delinquenz.
Unpublished Thesis, Kiel: Christian-Albrechts-Universität.
- HASENPUSCH, B., HOMMERS, W., (1975) Ein Beitrag zur Messung des
Spannungsbogens von jugendlichen Delinquenten. Zeitschrift für
experimentelle und angewandte Psychologie, 22, 600 - 612.
- HATHAWAY, S.R., MONACHESI, E.D., (1953) Analyzing and Predicting Juvenile
Delinquency with the MMPI. Minneapolis: University of Minnesota Press.
- HINDELANG, M.J., (1972) The Relationship of Self-Reported Delinquency
to Scales of the CPI and MMPI. Journal of Criminal Law, Criminology
and Police Science, 63, 75 - 81.

- HOWELL, R.J., PAYNE, I.R., ROE, A.V., (1971) Differences Among Behavioral Variables, Personal Characteristics, and Personality Scores of Tattooed and Nontattooed Prison Inmates. Journal of Research in Crime and Delinquency, 8, 32 - 35.
- JESSOR, R., GRAVES, T.D., HANSON, R.C., JESSOR, S., (1968) Society, Personality and Deviant Behavior - A Study of a Tri-Ethnic Community. New York: Holt, Rinehart & Winston.
- KERLINGER, F.N., (1973) Foundations of Behavioral Research. New York: Holt, Rinehart & Winston.
- KERLINGER, F.N., PEDHAZUR, E., (1973) Multiple Regression in Behavioral Research. New York: Holt, Rinehart & Winston.
- KLINEBERG, S.L., (1968) Future Time Perspective and the Preference for Delayed Reward. Journal of Personality and Social Psychology, 8, 253 - 257.
- LERNER, P.M., (1975) Handbook of Rorschach Scales. New York: International University Press.
- LESHAN, L.L., (1952) Time Orientation and Social Class. Journal of Abnormal and Social Psychology, 47, 582 - 592.
- LYSGAARD, S., (1954) Social Stratification and the Deferred Gratification Pattern. in International Sociological Association, Transactions of the Second World Congress of Sociology, Volume 2. London, 364 - 377.
- McNEMAR, Q., (1962) Psychological Statistics. New York: John Wiley & Sons.
- MEGARGEE, E.I., PRICE, A.C., FROHWIRTH, R., LEVINE, R., (1970) Time Orientation of Young Prison Inmates. Journal of Counselling Psychology, 17, 8 - 14.

- MILLER, S.M., RIESSMAN, F., SEAGULL, A.A., (1969) Poverty and Self-Indulgence: A Critique of the Non-Deferred Gratification Pattern. in Ferman, L.A., Kornbluth, J.L., Haber, A., Poverty in America. Ann Arbor: University of Michigan Press, 416 - 432.
- MILLER, W.B., (1958) Lower-Class Culture as a Generating Milieu of Gang Delinquency. Journal of Social Issues, 14, 5 - 19.
- MISCHEL, W., (1961) Preference for Delayed Reinforcement and Social Responsibility. Journal of Abnormal and Social Psychology, 62, 1 - 7.
- MISCHEL, W., (1962) Delay of Gratification in Choice Situations. Progress Report to the National Institute of Mental Health, Early Draft. Mimeographed Paper, Boston: Harvard University.
- MISCHEL, W., (1965) Theory and Research on the Antecedents of Self-Imposed Delay of Rewards. in Maher, B.A., Progress in Experimental Personality Research, Volume 3. New York: Academic Press, 85 - 132.
- MISCHEL, W., (1974) Processes in Delay of Gratification. in Berkowitz, L., Advances in Experimental Social Psychology, Volume 7. New York: Academic Press, 249 - 292.
- MISCHEL, W., (1976) Introduction to Personality (2nd ed.). New York: Holt, Rinehart & Winston.
- MISCHEL, W., EBBESEN, E., (1970) Attention in Delay of Gratification. Journal of Personality and Social Psychology, 16, 329 - 337.
- MISCHEL, W., GILLIGAN, C., (1964) Delay of Gratification, Motivation for the Prohibited Gratification, and Responses to Temptation. Journal of Abnormal and Social Psychology, 69, 411 - 417.

- MISCHEL, W., UNDERWOOD, B., (1974) Instrumental Ideation in Delay of Gratification. Child Development, 45, 1083 - 1088.
- NIE, N.H., HULL, C.H., JENKINS, J.G., STEINBRENNER, K., BENT, D.H., (1975) SPSS Statistical Package for the Social Sciences (2nd ed.). New York: McGraw-Hill.
- NISAN, M., (1974) Imposed Inhibition and Delay of Gratification. Child Development, 45, 1089 - 1092.
- PORTEUS, S.D., (1942) Qualitative Performance in the Maze Test. Vineland: Smith Printing House.
- POST, R.S., (1968) The Relationship of Tattoos to Personality Disorders. Journal of Criminal Law, Criminology and Police Science, 59, 516 - 525.
- PRICE-WILLIAMS, R.R., RAMIREZ, M. III., (1974) Ethnic Differences in Delay of Gratification. Journal of Social Psychology, 93, 23 - 30.
- PURI, M.L., SEN, P.K., (1971) Nonparametric Methods in Multivariate Analysis. New York: John Wiley & Sons.
- RASCH, G., (1966) An Itemanalysis Which Takes Individual Differences into Account. British Journal of Mathematical and Statistical Psychology, 19, 49 - 57.
- RAPAPORT, D., (1950) On the Psychoanalytic Theory of Thinking. International Journal of Psychoanalysis, 31, 161 - 170.
- REDL, F., WINEMAN, D., (1967) Children Who Hate. New York: Free Press.
- RENNER, K.W., (1964) Delay of Reinforcement: A Historical Review. Psychological Bulletin, 61, 341 - 361.

- ROBERTS, A.H., ERIKSON, R.V., (1968) Delay of Gratification, Porteus Maze Performance and Behavioral Adjustment in a Delinquent Group. Journal of Abnormal Psychology, 73, 449 - 453.
- ROBERTS, A.H., ERIKSON, R.V., RIDDLE, M., BACON, J.G., (1974) Demographic Variables, Base Rates and Personality Characteristics Associated with Recidivism in Male Delinquents. Journal of Clinical and Consulting Psychology, 42, 833 - 841.
- ROBIN, D.S., (1966) Delay of Gratification in Children. Dissertation Abstracts, 27, 2862-B.
- ROGALA, R.E., (1968) Delay of Gratification and Time Estimation. Dissertation Abstracts, 29, 1509-B.
- ROSENBLATT, J.B., (1968) Measures of Impulse Control as Related to First Grade Children's Socio-Economic Class and Ethnic Group Background. Dissertation Abstracts, 29, 1510-B.
- ROSENQUIST, C.M., MEGARGEE, E.I., (1969) Delinquency in Three Cultures. Austin: University of Texas Press.
- ROTTER, J.B., (1967) Personality Theory. in Helson, H., Bevan, W., Contemporary Approaches to Psychology. Princeton: Van Nostrand, 461 - 498.
- ROTTER, J.B., (1975) Some Problems and Misconceptions Related to the Construct of Internal Versus External Control of Reinforcement. Journal of Clinical and Consulting Psychology, 43, 56 - 67
- ROTTER, J.B., CHANCE, J.E., PHARES, E.J., (1972) Applications of a Social Learning Theory of Personality. New York: Holt, Rinehart & Winston.

- SAUNDERS, J.T., REPPUCCI, N.D., SARATA, B.P.V., (1973) An Examination of Impulsivity as a Trait Characterizing Delinquent Youth. American Journal of Orthopsychiatry, 43, 789 - 795.
- SCHACK, M.L., (1973) The Effects of Temporal Operations and Time Instructions on Delay of Gratification. Dissertation Abstracts, 34, 899-B.
- SCHACK, M.L., MASSARI, D.J., (1973) Effects of Temporal Aids and Frustration on Delay of Gratification. Developmental Psychology, 8, 168 - 171.
- SCHNEIDER, L., LYSGAARD, S., (1953) The Deferred Gratification Pattern: A Preliminary Study. American Sociological Review, 18, 142 - 149.
- SEAGULL, A.A., (1966) Subpatterns of Gratification Choice Within Samples of Negro and White Children. Papers of the Michigan Academy of Science, Arts & Letters, 51, 345 - 357.
- SEEMAN, G., SCHWARZ, J.C., (1974) Affective State and Preference for Immediate Versus Delayed Reward. Journal of Research in Personality, 7, 384 - 394.
- SHAW, F.J., (1948) Some Postulates Concerning Psychotherapy. Journal of Consulting Psychology, 12, 426 - 431.
- SHYBUT, J., (1968) Delay of Gratification and Severity of Psychological Disturbance Among Hospitalized Psychiatric Patients. Journal of Consulting and Clinical Psychology, 32, 462 - 468.
- SIEGEL, S., (1956) Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill.

- SIEGMAN, A.W., (1961) The Relationship Between Future Time Perspective, Time Estimation, and Impulse Control in a Group of Young Offenders and in a Control Group. Journal of Consulting Psychology, 23, 470 - 475.
- SINGER, J.L., (1955) Delayed Gratification and Ego-Development: Implications for Clinical and Experimental Research. Journal of Consulting Psychology, 19, 259 - 266.
- SINGER, J.L., (1961) Imagination and Waiting Ability in Young Children. Journal of Personality, 29, 396 - 413.
- SINGER, J.L., WILENSKY, H., McCRAVEN, V.G., (1956) Delaying Capacity, Fantasy, and Planning Ability: A Factorial Study of Some Basic Ego Functions. Journal of Consulting Psychology, 20, 375 - 383.
- SPIVAC, G., LEVINE, M., SPRIGLE, H., (1959) Intelligence Test Performance and the Delay Function of the Ego. Journal of Consulting Psychology, 23, 428 - 431.
- STEIN, K.B., SARBIN, T.R., KULIK, J.A., (1968) Future Time Perspective: Its Relation to the Socialization Process and the Delinquent Role. Journal of Consulting and Clinical Psychology, 32, 257 - 264.
- STELLER, M., (1972) Zum Versuch der empirischen Überprüfung von psychologischen Behandlungsmethoden im Strafvollzug. Monatsschrift für Kriminologie und Strafrechtsreform, 55, 357 - 365.
- STRAUS, M.A., (1962) Deferred Gratification, Social Class, and the Achievement Syndrome. American Sociological Review, 27, 326 - 335.
- STRICKLAND, B.R., (1972) Delay of Gratification as a Function of Race of the Experimenter. Journal of Personality and Social Psychology, 22, 108 - 112.

- STUMPHAUZER, J.S., (1970) Modification of Delay Choices in Institutionalized Youthful Offenders Through Social Reinforcement. Psychonomic Science, 8, 222 - 223.
- STUMPHAUZER, J.S., (1972) Increased Delay of Gratification in Young Prison Inmates Through Imitation of High-Delay Peer-Models. Journal Personality and Social Psychology, 21, 10 - 17.
- TAYLOR, I., WALTON, P., YOUNG, J., (1973) The New Criminology - For a Social Theory of Deviance. London: Routledge & Kegan Paul.
- TAYLOR, I., WALTON, P., YOUNG, J., (1975) Critical Criminology. London: Routledge & Kegan Paul.
- TRASLER, G., (1962) The Explanation of Criminality. London: Routledge & Kegan Paul.
- TRASLER, G., (1970) Criminal Behavior. in Eysenck, H.J., Handbook of Abnormal Psychology (2nd ed.). London: Pittman Medical Publications, 67 - 96.
- WAGNER, N.N., (1960) Developmental Aspects of Impulse Control. Journal of Consulting Psychology, 24, 537 - 540.
- WALLACE, M., RABIN, A., (1960) Temporal Experience. Psychological Bulletin, 57, 213 - 216.
- WALLS, R.T., SMITH, T.S., (1970) Development of Preference for Delayed Reinforcement in Disadvantaged Children. Journal of Educational Psychology, 61, 118 - 123.

- WATMAN, W.A., (1966) The Capacity to Delay Gratification and its Relationship to Perceptual Developmental Level, Ego Strength, and Anxiety Level: A Study of Prisoners. Unpublished Thesis, Michigan State University. Xerox University Microfilms No. 67-07619.
- WILKINS, L.T., (1969) Evaluation of Penal Measures. New York: Random House.
- WORMITH, J.S., (1976) Converting Prosocial Attitude Change to Behavior Change Through Self-Management Training. Unpublished Manuscript, Project No. 101, Ontario Ministry of Correctional Services.
- WORMITH, J.S., HASENPUSCH, B., (1976) Multidimensional Measurement of Delayed Gratification Preference with Incarcerated Delinquents. Unpublished Manuscript, Ottawa: University of Ottawa.
- YAMAMOTO, J., SEEMAN, W., LESTER, B.K., (1963) The Tattooed Man. Journal of Nervous and Mental Disorders, 136, 365 - 367.
- ZYTKOSKEE, A., STRICKLAND, B.R., WATSON, J., (1971) Delay of Gratification and Internal Versus External Control Among Adolescents of Low Socioeconomic Status. Developmental Psychology, 4, 93 - 98.

APPENDIX I

Reproduction of the Questionnaire

PLEASE DO NOT WRITE DOWN YOUR NAME, JUST

your age: your present or last occupation:

your father's present or last occupation:

your mother's present or last occupation:

The first half of this questionnaire contains some activities in which you may have been involved sometimes. Some of these activities are illegal and some are not. Please answer these questions frankly and be careful to answer all of them, but please do not boast about things that you have not done.

Your answers will be seen by nobody but me, and since you do not need to write your name on this paper, it is impossible to tell later on who filled it out.

In some questions you only need to answer "yes" or "no", in other questions I would like you to indicate how often you were involved in the different activities mentioned here under the headings "never", "one to three times (1 - 3)", "four to ten times (4 - 10)", and "more often". Please answer by drawing a line through the proper words.

Example: Have you ever filled out this Never 1 - 3 4 - 10 more often
questionnaire before?

If you made a mistake and want to change your answer, please blank the word out and draw a new line through the proper words.

Example: Have you ever filled out this Never 1 - 3 4 - 10 ~~more often~~
questionnaire before?

Do you have any questions?

Please answer all questions on your own without talking about them to anybody else.
Thank you.

Once in a while I lough at a dirty joke.	yes	no			
Once in a while I think of things too bad to talk about.	yes	no			
Have you ever belonged to a group of ten or more people who go around together, making a row, and sometimes get into fights or cause a disturbance?	never	1 - 3	4 - 10	more often	
At times I feel like swearing.	yes	no			
I do not always tell the truth.	yes	no			
Have you ever taken money from home - with no intention of returning it?	never	1 - 3	4 - 10	more often	
Have you ever taken a stranger's car or motor bike for joyriding (with no intention of keeping it for good) ?	never	1 - 3	4 - 10	more often	
Have you ever smashed, slashed or damaged things in public places - in streets, cinemas, dance halls, railway carriages or buses?	never	1 - 3	4 - 10	more often	
I do not read every editorial in the newspaper every day.	yes	no			
Have you ever annoyed, insulted or assaulted other people (strangers) in the street?	never	1 - 3	4 - 10	more often	
Have you ever broken into a big store, garage or warehouse?	never	1 - 3	4 - 10	more often	
Have you ever broken into a small shop, candy store, cigar store or corner grocery, whether or not anything was stolen?	never	1 - 3	4 - 10	more often	
I get angry sometimes.	yes	no			

T Have you ever stolen things out of cars? never 1 - 3 4 - 10 more often

A Have you ever used any kind of weapon in a fight - knife, blackjack, bicycle chain, razor or broken bottle? never 1 - 3 4 - 10 more often

T Have you ever planned to break into a house or an apartment to steal valuables and actually did break in? never 1 - 3 4 - 10 more often

If I could get into a movie without paying ~~and be sure~~ and be sure I was not seen I would probably do it.

yes no

I have some tattoos.

yes no

T Have you ever walked into a house or apartment and then stolen things without having thought about it beforehand? never 1 - 3 4 - 10 more often

I would rather win than lose in a game.

yes no

I like to know some important people because it makes me feel important.

yes no

! Have you ever taken a bicycle belonging to a stranger and kept it? never 1 - 3 4 - 10 more often

Have you ever been in a prison, jail, reformatory, or training school for more than a month? never 1 - 3 4 - 10 more often

I do not like everyone I know.

yes no

! Have you ever struggled or fought to get away from a policeman? never 1 - 3 4 - 10 more often

Have you ever attacked or fought a policeman who was trying to arrest someone else? never 1 - 3 4 - 10 more often

I gossip a little at times.

yes no

other goods worth more than \$ 5 from a place where you work during working hours (don't count breaking-in outside of working hours) ? never 1 - 3 4 - 10 more often

A Have you ever assaulted in a public place someone you didn't like or a guy who belonged to another gang? never 1 - 3 4 - 10 more often
 Once in a while I put off until tomorrow what I ought to do today. yes no

Have you ever stolen money from an automat, juke-box or telephone? never 1 - 3 4 - 10 more often

Sometimes when I am not feeling well I am cross. yes no

Have you ever stolen cigarettes, candy bars or any other goods from an automat? never 1 - 3 4 - 10 more often

My table manners are not quite as good at home as when I am out in company. yes no

Have you ever stolen from people's clothes hanging up anywhere? never 1 - 3 4 - 10 more often

Sometimes at elections I vote for men about whom I know very little. yes no

Have you ever obtained money by false pretenses? never 1 - 3 4 - 10 more often

D Have you ever used marijuana or other soft drugs? never 1 - 3 4 - 10 more often

D Have you ever used heroin or other hard drugs? never 1 - 3 4 - 10 more often

STOP !

Please do not turn over this page until everybody finished this part of the questionnaire.

The second half of this questionnaire deals with different kinds of choices. I will be asking you to make some choices: the choice will be between two things both of which you may want, but if you choose one you can't have the other. Answer each question to show what you would really take.

For example, the choice might be 50 ¢ today or 75 ¢ in one week. If you took the 50 ¢ today you could not have the 75 ¢ next week and if you wait for the 75 ¢ in one week you could not have the 50 ¢ today.

I will offer you 20 such choices. choose very carefully and realistically because in one of the choices you will really get what you choose as a reward for your cooperation. You won't know which one of the 20 choices you'll actually get until the very end, so choose very carefully each time. Indicate your choice by a checkmark on the line in front of your choice.

Example: Would you prefer to have

_____ 50 ¢ today or
_____ 75 ¢ in one week?

If you made a mistake and want to change your choice, please blank the checkmark out and put a new checkmark in front of your actual choice.

Do you have any questions ?

Please do not leave out any choice and do not talk about the choices to anybody else. Thank you.

Would you prefer to have

_____ 50 ¢ in one week or

_____ 30 ¢ today ?

_____ 2 packs of cigarettes in one week or

_____ 1 pack of cigarettes today ?

_____ 60 ¢ today or

_____ 90 ¢ in two weeks ?

~~3~~ _____ 3 packs of cigarettes in four weeks or

_____ 1 pack of cigarettes today ?

_____ 70 ¢ in three weeks or

_____ 35 ¢ today ?

_____ 3 candy bars in three weeks or

_____ 1 candy bar today ?

~~3~~ _____ 35 ¢ in three weeks or

_____ 15 ¢ today ?

_____ 3 packs of cigarettes in two weeks or

_____ 2 packs of cigarettes today ?

_____ 50 ¢ today or

_____ 90 ¢ in two weeks ?

_____ 1 bag of pretzels today or

_____ 2 bags of pretzels in two weeks ?

_____ 70 ¢ in two weeks or

_____ 45 ¢ today ?

_____ 3 packs of cigarettes in two weeks or

_____ 1 pack of cigarettes today ?

_____ 45 ¢ today or

_____ 90 ¢ in three weeks ?

_____ 1 can of mixed nuts today or

_____ 2 cans of mixed nuts in three weeks ? xxvi

_____ 60 ¢ today or

_____ 75 ¢ in two weeks ?

_____ 2 chocolate bars today or

_____ 4 chocolate bars in three weeks ?

_____ 35 ¢ today or

_____ 75 ¢ in four weeks ?

_____ 1 bag of potato chips today or

_____ 2 bags of potato chips in two weeks ?

_____ 30 ¢ today or

_____ 65 ¢ in three weeks ?

_____ 1 jar of instant coffee today or

_____ 3 jars of instant coffee in two weeks ?

Thank you.

Please turn over this last page, so that you have the first page of the questionnaire in front of you and wait until everybody finished the questionnaire.

Please keep quiet.

Thank you.

APPENDIX II

Data

Subject	Variable No.:										
Code-No.	1	2	3	4	5	6	7	8	9	10	11

1. 18 incarcerated subjects choosing delayed reward in the behavioral choice

W 1	30	20	1	0	10	7	5	2	0	11	5
W 2	35	19	2	1	6	10	7	14	4	35	6
W 3	40	19	0	0	2	5	3	5	6	18	2
W 4 excluded	35	17	0	1	8	8	5	8	6	22	10
W 5	30	17	3	0	10	10	10	12	5	33	2
W 6	35	17	0	0	10	10	2	4	2	15	5
W 7	25	18	2	0	1	0	5	3	3	15	3
W 8	35	20	1	0	8	6	7	14	3	27	4
W 9	30	21	2	1	10	10	10	14	4	37	1
W10	35	22	1	1	10	10	3	8	0	14	6
W11	25	20	1	1	10	10	1	4	6	15	5
W12	30	20	2	1	0	1	1	7	4	18	1
W13	30	18	1	1	3	1	10	13	6	38	4
W14	30	19	1	1	0	0	1	4	0	7	5
W15	40	18	1	1	7	5	3	4	3	14	3
W16 excluded	25	22	1	0	5	5	11	12	4	38	9
W17	35	24	1	0	10	10	0	1	4	6	1
W18	60	19	3	1	0	0	6	13	3	29	4

2. 5 non-incarcerated subjects choosing delayed reward in the behavioral choice

H 6	35	19	1	1	3	2	11	15	5	37	3
H 7	30	17	1	0	2	5	2	10	6	21	6
H 8	35	20	1	0	1	3	1	9	4	20	6
H17	30	18	1	0	10	10	5	3	3	15	3
H18 excluded	25	19	1	0	2	4	0	2	0	2	8

Subject	Variable No.:										
Code-No.	1	2	3	4	5	6	7	8	9	10	11

3. 19 incarcerated subjects choosing immediate reward in the behavioral choice

W19	30	21	2	1	0	0	6	17	3	29	5
W20	35	17	1	0	0	0	17	13	6	45	5
W21	25	20	2	1	0	0	4	8	3	21	2
W22	30	20	0	1	6	10	0	2	1	3	4
W23	25	19	1	0	0	1	0	3	1	4	3
W24	35	25	1	1	1	3	7	15	6	34	1
W25	30	18	2	1	0	0	10	18	6	43	5
W26 excluded	30	20	3	1	1	0	0	7	0	8	7
W27 excluded	25	17	1	0	2	4	12	13	4	44	9
W28	30	20	1	1	0	0	6	6	4	18	1
W29	25	20	3	1	0	0	9	14	6	38	0
W30	30	18	3	0	8	8	8	6	5	22	3
W31	40	19	3	1	0	0	18	22	6	64	0
W32	30	20	3	1	10	10	1	9	3	16	6
W33	25	19	1	1	0	2	4	4	4	15	5
W34	30	20	0	1	0	1	2	2	2	8	3
W35	40	20	1	1	0	0	2	2	6	11	6
W36	30	18	2	0	3	4	0	5	4	10	4
W37	30	20	2	0	1	4	1	11	2	17	3

Subject	Variable No.:										
Code-No.	1	2	3	4	5	6	7	8	9	10	11

4. 16 non-incarcerated subjects choosing immediate reward in the behavioral choice

H 1	25	29	2	1	0	0	7	7	4	26	3
H 2	35	19	1	1	0	3	5	6	5	20	1
H 3 excluded	60	26	1	0	5	3	1	5	6	13	7
H 4	25	19	2	1	1	4	11	20	6	42	4
H 5	25	23	1	1	0	0	8	2	5	18	3
H 9	35	16	0	0	0	0	2	0	3	10	3
H10	25	20	0	0	6	6	6	3	3	18	6
H11	30	19	2	1	0	1	4	8	6	23	2
H12	25	17	0	0	10	4	8	3	6	20	5
H13	30	21	0	1	0	2	6	8	2	20	5
H14	35	19	0	0	0	2	6	5	6	24	0
H15	35	17	1	0	0	1	7	9	6	34	1
H16	30	20	0	0	0	3	5	7	1	19	1
H19	25	23	0	0	0	0	0	1	1	3	4
H20	35	19	1	0	1	7	0	5	3	14	3
H21 excluded	25	17	0	0	0	0	7	6	6	32	10

Variable List:

- 1 - Socioeconomic background
- 2 - Age
- 3 - Previous incarcerations
- 4 - Tattoos
- 5 - Monetary choice-list score
- 6 - Material choice-list score
- 7 - Self-reported aggressive acts
- 8 - Self-reported property offences
- 9 - Self-reported drug use
- 10 - Self-reported total offences
- 11 - Lie-scale raw-score

Summary

The present study was designed to examine whether the commonly observed low delayed gratification preference of incarcerated offenders is related to their being offenders or rather to their being incarcerated.

Delayed gratification preference is defined as the willingness to postpone the immediate satisfaction of a need for the sake of a later, but larger satisfaction of the same need. Alternatively, delayed gratification preference may be expressed by forfeiting the satisfaction of one need in order to obtain the more highly valued satisfaction of a different need later. Delayed gratification preference is considered to be important for successful socialization and for the development of civilization.

According to some psychoanalytic authors, the inhibition of motor impulses during the cognitive search for satisfaction and the acceptance of the reality principle instead of the pleasure principle are crucial for the development of delayed gratification preference. Other authors stress the importance of the child's identification with high-delay parental figures.

In social learning theory, on the other hand, variables such as the perceived probability of obtaining the delayed reward and the relative attractiveness of the immediate and the delayed reward are seen as determinants of the individual's decision to delay gratification. Experimental research has shown that perceived external control over

reinforcers and unpleasant experiences tend to decrease the willingness to delay gratification.

Following a description of different procedures for the measurement of delayed gratification preference and a discussion of its relation to sociocultural variables such as socioeconomic status, social desirability, and criminality, it is suggested that the commonly assumed connection between criminality and low delayed gratification preference is a spurious relationship.

The studies that reported offenders to have lower delayed gratification preference than non-offenders compared incarcerated subjects with non-incarcerated subjects. Incarcerated offenders, however, are not representative of the criminal population as a whole, and the conditions accompanying incarceration, such as frustration and perceived external control over reinforcers, may by themselves decrease delayed gratification preference. It seems plausible, therefore, that incarceration rather than criminality is the relevant variable in explaining delayed gratification preference in incarcerated offenders.

To examine this question, two hypotheses were formulated.

- (1) The delayed gratification preference of incarcerated offenders is lower than that of non-incarcerated subjects who, in a self-report questionnaire, admit a similar amount of offences as the incarcerated subjects do.
- (2) The delayed gratification preference of non-incarcerated subjects with a high number of self-reported offences does not differ from

the delayed gratification preference of non-incarcerated subjects with a low number of self-reported offences.

A questionnaire containing a scale on self-reported offences, the MMPI Lie-scale, and a choice-list to measure delayed gratification preference was administered to 37 inmates of a medium security penitentiary and to 21 residents of halfway houses. Seven subjects with Lie-scores above $T = 55$ were excluded from the sample.

To test the first hypothesis, incarcerated and non-incarcerated subjects were matched on the number of self-reported offences and on socioeconomic background. Their choice-list scores were then compared in a WILCOXON Matched-Pairs Signed-Ranks Test. The second hypothesis was tested by comparing the choice-list scores of non-incarcerated subjects above and below the median of self-reported offences in a MANN-WHITNEY U-Test. In addition to these tests, multiple regression analyses were computed with delayed gratification as the criterion variable and present incarceration, previous incarceration, and high vs. low self-reported criminality as predictor variables.

It was found that incarcerated and non-incarcerated subjects with equal numbers of self-reported offences did not differ in their delayed gratification preference and that non-incarcerated subjects with high vs. low numbers of self-reported offences did not differ in their willingness to delay gratification, either. The multiple regression analyses showed that the three predictor variables together explained only 4 % to 8 % of the variance of the choice-list scores. Present

incarceration explained more of the variance than self-reported criminality did, but contrary to expectation, present incarceration was - although not significantly - related positively rather than negatively to delayed gratification preference.

Among other possible interpretations, it was suggested that the incarcerated subjects' relatively high delayed gratification preference may be explained by their financial status: The questionnaire happened to be administered on the inmates' biweekly payday. Close cooperation between researchers and institutional staff was proposed as a safeguard against such interferences of institutional routine with research designs.

Additional findings show that social desirability had a significant impact on the subjects' responses in the choice-list and it was proposed that future instruments for the assessment of delayed gratification preference include a measure of social desirability. Subjects with tattoos were found to choose delayed gratification less often than subjects without tattoos, but this difference was found only in the choice-list scores and not in a behavioral measure of delayed gratification preference. Finally, itemanalyses of the choice-lists and the self-report questionnaire showed that the choice-lists are of satisfactory internal consistency and of sufficient validity for research purposes. The self-report questionnaire, too, seems to be adequate as a research instrument, but its internal consistency should be improved by breaking it up into longer, more homogeneous subscales.