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AN INVESTIGATION OF THE RELATIONSHIP OF A MEASURE OF
EXTRAVERSION-INTROVERSION AND SUBSEQUENT RECIDIVISM
FOR A SELECTED GROUP OF YOUNG OFFENDERS

by Frank J. Blum

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Psychology and Education of the
University of Ottawa as partial
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CURRICULUM STUDIORUM

Frank Julius Blum was born February 6, 1935, in Ofen, Hungary. He received the Bachelor of Arts degree, with honours in Sociology, from McGill University, Montreal, in 1956.

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INTRODUCTION

The problem of recidivism is one of the major concerns in the field of penal correction today. One approach to it in recent research has been the investigation of the possible relation of recidivism to certain personality variables.

Franks¹ proposed that the personality dimension extraversion-introversion be related to recidivism. Though his first publication on this topic appeared in 1956, a review of the literature revealed few studies which used his theory as their starting point. The scarcity of suitable follow-up information on criminal offenders may be considered one possible reason accounting for this.

Data to explore one of Franks' hypotheses was made available through transcripts of R.C.M.P. follow-up reports on young adult offenders released from an Ontario provincial training centre. From these transcripts and from a measure of extraversion-introversion obtained prior to the individuals' admission to the training centre, the present study is an attempt to relate the personality variable extraversion-introversion to recidivism in a group of young adult male offenders.

¹ Cyril M. Franks, "Recidivism, Psychopathy and Delinquency", in the British Journal of Delinquency, Vol. 6, No. 3, issue of January 1956, p. 192-201.

To the extent that Franks' thinking is within the Eysenckian framework, which integrates neurophysiology, learning theory, and personality theory, the study may be considered to have some general theoretical relevance. Care should be exercised, however, in considering the importance of the study with respect to its implications for corrections in general and recidivism in particular. The contribution of this study of the relationship between an isolated personality variable and recidivism can, at best, be considered as a step in the exploration of the problem.

The first part of the thesis is concerned with the review of the literature. Franks' theory, studies supporting the theory, and research suggested by the theory are considered. This is followed by some considerations of the independent and dependent variables of this study, extroversion-introversion and recidivism respectively. The presentation of some of the predictive indices of recidivism reported in the literature follows.

The statement of the hypothesis and sub-hypothesis to be investigated is followed by the description of the experimental design of the study. It describes the independent variable and presents an estimate of its reliability. The description of the sample emphasizes those factors for which information was available and which were reported in the literature to be predictive of recidivism. The description

of the criterion is followed by presentation of the statistical formulae used in testing the hypotheses.

The results obtained in the study are subsequently presented, interpreted, and discussed. The interpretation considers the possible existence of spurious relationships and proposes an alternative hypothesis to account for the findings. This is followed by the discussion of some of the possible weaknesses, both in the experimental design of the study and in Franks' theory.

In conclusion, some explicit suggestions for further research are made. The appendix contains supplementary information relevant to this study.

CHAPTER I

REVIEW OF THE LITERATURE

This chapter presents a review of Franks' theory¹ of extraversion-introversion, conditionability and recidivism followed by studies suggested by this theory. The concepts and measurement of extraversion-introversion and recidivism are then considered. Some of the predictive indices of recidivism reported in the literature are reviewed prior to the statement of the hypothesis and subhypothesis to be investigated by the present study.

1. Franks' Theory of Extraversion-Introversion, Conditionability and Recidivism.

Franks,^{2,3} thinking within the framework of the Eysenckian theory, which relates reactive cortical inhibition, learning and personality, considers recidivism as correlated with conditionability (the ability to acquire and extinguish conditioned responses), and its correlates, extraversion-

1 "Theory" in this thesis is understood to mean a set of interacting concepts from which behaviour can be predicted.

2 Cyril W. Franks, "Recidivism, Psychopathy and Delinquency", in the British Journal of Delinquency, Vol. 6, No. 3, issue of January 1956, p. 192-201.

3 -----, "Conditioning and Abnormal Behaviour", Chapter 12, in Handbook of Abnormal Psychology, An Experimental Approach, H.J. Eysenck, Editor, New York, Basic Books, 1961, p. 457-487.

introversion. These considerations are based on the findings that conditionability and scores on the extraversion-introversion factor of certain personality inventories are related both for certain psychopaths and normals. While pointing out that his theory may well be an oversimplification of a complex problem,⁴ he regards offenders as divided into two categories: the extravert and introvert offenders. The first one, the extravert offender, is the one who, due to constitutional factors, acquires conditioned responses with difficulty and extinguishes them quickly. Looking upon re-education and therapy as a learning (teaching) process based upon conditioning, Franks postulates that the extravert does not benefit from the re-education offered in custodial settings. The extravert will not acquire new behaviour patterns, but will persist with the old ones, the criminal ones, thus, he will again break the law and become a recidivist. The introvert offender acquires and retains conditioned responses with greater ease. Consequently, he is more likely to acquire new patterns of behaviour if he has experienced re-education or therapy that aims to change his behaviour in a socially desirable direction. Thus, he is less likely than the extravert to persist in criminal behaviour and become a recidivist. From the point of view of the extravert recidivist, therefore, the

⁴ Franks, "Recidivism...", Op. Cit., p. 199.

amount and type of conditioning received, both in his own home environment and in the custodial setting, has little or no significance due to his constitutionally poor conditionability. For the introvert recidivist, on the other hand, the amount and type of conditioning received, both in his home environment and in the custodial setting, is a significant factor.

According to Franks, "testing the theory in a rigorous manner would be relatively simple".⁵ He suggests two projects by which this could be accomplished. The first one would investigate a group of first offenders by means of conditioning and personality tests entailing a measurement of extraversion-introversion, and, from these, predict who would be likely to respond successfully to various forms of treatment and re-education and who would be unlikely to respond. Follow-up studies could be used to test the validity of these predictions. The second project would be to submit a group of recidivists to tests of conditioning and personality, and, from these hypothesize who were recidivists because of an unsuitable environment and who were recidivists because of an inability to respond to their environment.

⁵ Ibid., p. 198.

Franks cites four studies^{6,7,8,9}, as giving support to the theory. Three of them are definitely conceived and carried out independently of Franks' theory, while in the case of Marcus, there is no evidence of the theoretical framework, if any, that had been used. Due to the scarcity of available research pertaining to Franks' theory, two of these studies will be briefly reviewed here with only a mention of the studies of Marcus¹⁰ and Lykken,¹¹ which were reviewed by Franks.

The two studies using comparative designs were those of the Gluecks' and Lykken. In the Gluecks' study five hundred persistent delinquents were matched with five hundred non-delinquents on age, intelligence, ethnic or racial origin and residence in under-privileged neighborhoods. They were studied on four levels of inquiry: sociocultural, somatic, intellectual, and emotional-temperamental. For each of the four levels, data was gathered and interpreted independently.

6 Sheldon and Eleanor Glueck, Unravelling Juvenile Delinquency, Cambridge, Mass., Harvard, 1950, XV-399;

7 B. Marcus, unpublished study, quoted by Franks, "Recidivism...", Op. Cit., p. 198;

8 Carmen Miller-Michael, "Follow-Up Studies of Inverted Children . III: Relative Incidence of Criminal Behaviour", in the Journal of Criminal Law, Criminology and Police Science, Vol. 47, No. 4, issue of November-December 1956, p. 414-422;

9 David T. Lykken, "A Study of Anxiety in the Sociopathic Personality", in the Journal of Abnormal and Social Psychology, Vol. 55, No. 1, issue of July 1957, p. 6-10.

10 Franks, "Recidivism...", Op. Cit., 193.

11 Franks, "Conditioning...", Op. Cit., p. 469.

The fourth level, which is most relevant to Franks' theory, (and the present study) was based on a rating of individuals on a three point scale by a psychiatrist, based on his impressions of various underlying and previously defined aspects of the individual obtained from a single psychiatric interview. For the traits "extroverted in action" and "extroverted in affect" (based on totals of 497 delinquents and 499 non-delinquents) the rating "present in a marked degree" was given to 56.7 percent and 38.2 percent of the delinquents, and 28.5 percent and 31.7 percent of the non-delinquents. The difference between the percentages was significant at the one percent level of probability for "extroverted in action" and at the four percent level of probability for "extroverted in affect". The former was defined as "uninhibited in regard to motor response to stimuli" and the latter as "free expression of affect."¹²

With respect to Franks' theory and the present study, two questions appear to be most pertinent:

- 1) To what extent are these ratings of extroversion comparable to measures of extraversion obtained by questionnaires?
- 2) To what extent is "delinquent versus non-delinquent" relevant to "adult-recidivist versus non-recidivist"?¹³

12 S. and E. Glueck, Op. Cit., p. 245.

13 James Taylor, "Habitual Criminal", in the British Journal of Criminology, Vol. 1, no. 1, issue of July 1960, p. 35.

As the answers to these questions are not unequivocal, the Gluecks' study can provide only limited support to Franks' theory.

The Lykken study of forty-nine diagnosed psychopaths and fifteen normals on questionnaire measures of anxiety, GSR reactivity to conditioned stimulus, and a test of avoidance learning confirmed the relationship established by Franks between psychopathy and conditioning. It will not be reviewed here in greater detail, as its relevance to the present study is essentially indirect. Its only important relevance lies in its implication to the interaction between neuroticism and extraversion, which highlights the problems and dangers of using extraversion as an independent variable in predicting recidivism.¹⁴

The studies using the predictive¹⁵ design are those of Marcus and Miller-Michael. Marcus found that after systematic attempts at re-education in a prison, more of the extraverts than introverts tend to become recidivists. The unavailability

¹⁴ The unresolved problem of the contribution of the Factor "Neuroticism" to Franks' theory is raised by Franks "Recidivism...", Op. Cit., p. 197, and Allen A. Bartholomew, "Extraversion-Introversion and Neuroticism in First Offenders and Recidivists", in the British Journal of Delinquency, Vol. 10, No. 2, issue of October 1959, p. 128.

¹⁵ "Predictive" in this thesis is used in the sense that from a first set of measurements a second set of measurements can be predicted, with the first set obtained prior to the second set.

of a more detailed report of this study makes its evaluation impossible.

Miller-Michael, in one of a series of follow-up studies of introverted children, examined the relationship between extroversion-introversion and crime. The study was based on six hundred white male subjects in the age range of 2-16 who were selected from the files of the Dallas, Texas, Child Guidance Clinic. No clear mention of selection criteria is made in the report. Subjects were rated as extroverts, introverts, or ambiverts by three judges on the basis of a psychiatric report. It appears that in the six hundred cases included, the judges reached unanimity as to ratings. The average length of the follow-up was twenty-eight years; Texan police records and institutional records were used as the criteria for the measurement of criminal behaviour. Miller-Michael found that a significantly larger number ($P = .01$) of the extroverts than introverts showed evidence of criminal behaviour. The methods of sampling in the study, the nature and measurement of the independent variable, the nature and the scope of the follow-up are highly questionable. One would assume that only the scarcity of relevant research led Franks to mention this study in support of his theory.

2. Studies Suggested by the Theory.

In surveying the literature, three^{16,17,18} studies were found that designate Franks' theory of extraversion-introversion, conditionability and recidivism as their starting point for research. A British publication¹⁹ of 1958 mentioned a fourth study being carried out in this subject area.

Robin studied sixty-four boys (one refused to be tested) in a senior approved school. His sample was selected because "they happened to be in their houses or working in handily situated trades".²⁰ The Maudsley Personality Inventory

16 A.A. Robin, "A Pilot Study As Suggested by 'Recidivism, Psychopathy and Delinquency'", in the British Journal of Delinquency, Vol. 8, No. 2, issue of October 1957, p. 139-141.

17 Suzanne Hammond, Test Correlates of Antisocial Behaviour in Juveniles, unpublished Master's research project presented to the Department of Psychology, McGill University, Montreal, Quebec, 1961, 17 p.

18 Bartholomew, Op. Cit..

19 The British Journal of Delinquency, Vol. 9, No. 2, issue of October 1958, under "Current Research" on p. 122, reports a study being carried out by J. Field under the auspices of the University of London. This study is also mentioned by Bartholomew, Op. Cit., p. 120. The study, entitled "Psychological Correlates of Recidivism" uses both questionnaires and objective measures, and appears to be, from the little information available, quite pertinent to this thesis. While, according to the report, completion of the study was expected in October, 1959, the writer found no publication of the findings. A letter written to J. Field in care of the Psychology Department, University of London, in January 1963, remained unanswered until the time of this writing.

20 Robin, Op. Cit., p. 139.

was administered, and, from the score, two sub-groups were formed according to whether they scored one half standard deviation above or below the mean. The former consisted of twenty-three boys and were considered the extraverts and the latter twenty-two, the introverts. The two groups were further sub-divided into extraverts who were also recidivists (recidivist extraverts) equaling fifteen in number and introverts who were also recidivists (recidivist introverts) equaling twenty in number. There was no information given about treatment they had formerly received. The institutional files of all these boys were examined two months later, and the two groups and two sub-groups were compared with respect to available social history. Robin found no significant difference between the background data of the extraverted and introverted delinquents, nor between the extraverted and introverted recidivists. In studying those released from the school, Robin also found that, during the two months, three of the introverts and nine of the extraverts were licensed (paroled); he reports that the chi square obtained for this was significant at the one percent level of probability. Since the mean length of stay of both groups was almost identical, Robin assumed that "having benefited from treatment"²¹ was a criterion in the selection for release. He suggests that it would

²¹ Id.

appear that the introverts did not reach a satisfactory level of adjustment as quickly as extraverts. This finding is directly contrary to the postulated effect of treatment.

Robin concluded that the pilot study, with its limitations of a) small numbers studied; b) using only one test; c) using only existing records instead of undertaking a special social investigation, shows no support for Franks' theory. Apart from the extremely brittle assumption that benefit from treatment was an important factor for discharge, Robin also fails to mention what was possibly the weakest point in the study, namely, the sampling technique used. It is very doubtful that place meant in shops and residences was at random,²² and thus can be considered as irrelevant to either of the two topics, background and effect of treatment, studied by Robin. Consequently, the value of the findings with respect to the evaluation of Franks' theory is very questionable.

In a study where purpose and conclusions appear to be vacillating, Hammond related three measures of extraversion (The Maudsley Personality Inventory, E scale, and two objective measures) and four criterion measures that she considers relevant to Franks' theoretical framework, namely, 1° psychopathy measured by a questionnaire; 2° family dissension

²² For example, see H.M. Hooper, S. Keane, et al., "The Brampton Story", in the Canadian Journal of Corrections, Vol. 4, No. 4, issue of October 1962, p. 227.

measured by a questionnaire; 3° verbal conditioning; 4° qualitative Q score on the Porteus Maze Test. She hypothesized that extraversion is associated with, 1° high psychopathy; 2° low family dissension; 3° high verbal conditioning and high Q score. She also hypothesized that introversion is associated with, 1° low psychopathy; 2° high family dissension; 3° low verbal conditioning; 4° low Q score.²³ The sample consisted of multiple offender juveniles, the sample size varying between thirty-two and twenty-five. The average age was sixteen with a range of twelve to eighteen and the educational level ranging from grades two to ten, with a mean of six. The author concluded that the study did not, on the whole, support the four [sic] hypotheses. The exception was her finding of a significant relationship between one objective measure of extraversion and psychopathy. To explain her negative findings, she suggested that, 1° the findings may only apply to the age groups studied; 2° instead of the questionnaire method, a more direct investigation of the subjects' background should be undertaken; 3° the Maudsley Personality Inventory might have been too difficult a test for some subjects.

Two further points can be added to this: 1° there is no suggestion in Franks' theory that extraverts should score "low" on the family dissension scale. Therefore, the

²³ Hammond, Op. Cit., p. 15.

relationship of family dissension score and extraversion is irrelevant to Franks' theory. The specification made is only for the introvert, as he suggested that whatever the environment is of the extravert, it will have little effect;²⁴ ²⁵ one could question the use of two-tailed tests of significance throughout the study, a usage which enhances the chance of committing Type II errors.²⁵

Bartholomew studied fifty consecutive first offenders and fifty consecutive recidivists, all male, who had been referred by the courts for medico-psychological assessment. He compared them on scores obtained on the individually administered Maudsley Personality Inventory. This thesis is concerned with the twenty-four questions of the Inventory that measure the extraversion dimension. In Bartholomew's study, the recidivists were compared with fifty-four other recidivists from different prisons, and, both the recidivists and the first offenders were compared with the norm of the general population on the E scale.²⁶ No significant differences were found, and, therefore, representativeness of the two groups

24 Franks, "Recidivism...", Op. Cit., p. 198.

25 Quinn McNemar, Third Edition, Psychological Statistics, New York, Wiley, 1962, p. 63.

26 H.J. Eysenck, "The Questionnaire Measurement of Neuroticism and Extraversion", in Riv. di psicologia, Vol. 50 (No mention of issue), 1956, p. 113-40 and A.A. Bartholomew, unpublished data, both quoted by Bartholomew, Op. Cit., p. 121-122.

was assumed.²⁷ The average age of the recidivist was 34.56 , with a range of 22-54 , while the corresponding numbers for the first offenders were 32.88 and 22-54 . The first offenders had no indictable offense recorded against them and had never been imprisoned. The recidivist had at least one previous and recent conviction and had been imprisoned at least once; the mean number of offenses recorded by this group prior to the offense causing their remand was 9.27 , with a standard deviation of 6.20 . Apart from manslaughter and political offenses, the charges for which either group were remanded were of a wide variety, with both first offenders and recidivists being distributed approximately equally in each category. Thirty percent of the recidivists were charged with offense against the person; fifty percent with offenses against property, and the remainder with a miscellaneous group of other offenses. Using a two-tailed test of significance, Bartholomew found the extraversion scores of the recidivists to be significantly higher, probability being between .05 and .02 . However, he cautions about the relevance of the finding for the theory. He suggests that questionnaire responses are made to some extent with reference to the immediate situation, and since the prisoner on remand is apt to be worried and concerned, the prisoner is likely to underscore on the extraversion scale.

27 Bartholomew, "Extraversion...", Op. Cit., p. 126.

Since, on logical grounds, it could be argued that the first offender is more likely to be concerned than the recidivist, the discrepancy in the scores of the two groups would tend to be increased due to situational factors in the direction predicted by the theory. Bartholomew points out, however, that whether or not the obtained difference is regarded as having reached the required level of statistical significance, a tendency in the predicted direction appears to exist both in his study and in that of Fields.²⁸ Without specifying the improvements, Bartholomew concludes his careful study by suggesting that a more "sophisticated" design would be required to test the adequacy of the theory.²⁹

3. Extraversion-Introversion and Its Measurement by Guilford's Factor R.³⁰

The most recent review of the historical development of the concept extraversion-introversion was presented by Hildebrand.³¹ Since the development of the concept does not directly pertain to this thesis, it will not be reviewed here.

²⁸ Field, see Footnote No. 19, this Chapter.

²⁹ Bartholomew, "Extraversion...", Op. Cit., p. 127.

³⁰ J.P. Guilford, Personality, New York, McGraw Hill, 1959, p. 413-414.

³¹ H.P. Hildebrand, "A Factorial Study of Introversion-Extraversion", in the British Journal of Psychology, Vol. 49, Part I, issue of February 1958, p. 1-3.

Carrigan³² considers the concept from the point of view of unidimensionality and independence. After an examination of recent research, she concluded that the evidence for both is equivocal and thus cautions the uncritical acceptance of the construct as a "pure" and independent dimension of personality.

An important issue in connection with the present study is the acceptability of Guilford's R as a measure of extraversion-introversion with which hypotheses derived from the Eysenckian theoretical framework can be tested. Franks uses the Guilford R ³³ and recommends it as an appropriate measure of extraversion-introversion.³⁴ Some studies done outside the University of London consider the use of the Guilford R as being consistent with Eysenck's earlier works.³⁵

³² Patricia M. Carrigan, "Extraversion-Introversion As A Dimension of Personality", in the Psychological Bulletin, Vol. 57, No. 5, issue of September 1960, p. 329-360.

³³ Cyril M. Franks, "Conditioning and Personality: A Study of Normal and Neurotic Subjects", in the Journal of Abnormal and Social Psychology, Vol. 52, No. 1, issue of January 1956, p. 143-149.

³⁴ Franks, "Recidivism...", Op. Cit., p. 198.

³⁵ See Allen Rechtschaffen, "Neural Satiation, Reactive Inhibition and Introversion-Extraversion", in the Journal of Abnormal and Social Psychology, Vol. 57, No. 3, issue of November 1958, p. 283-291; Wesley C. Becker, "Cortical Inhibition and Extraversion-Introversion", in the Journal of Abnormal and Social Psychology, Vol. 1, No. 1, issue of July 1960, p. 52-66; both quoted by William F. Barry, An Investigation of Relationships between Introversion-Extraversion and the Negative After Image Threshold, unpublished doctoral thesis, presented to the School of Psychology and Education, University of Ottawa, Ontario, 1961, p. 13-16.

Opposed to this view is Lynn³⁶ who found that using the E scale of the Maudsley Personality Inventory as a measure of extraversion-introversion, he obtained some results in support of the Eysenckian theory that was not obtained in the study by Rechtschaffen,³⁷ purporting to measure the same relationship.

Eysenck, defending the importance of significant low correlations and even of demonstrated tendencies, points out that the factor loading of the E scale is about .5 on extraversion.³⁸ He does not, however, suggest the elimination of the E scale for this purpose, but that reported correlations between it and various criteria should be regarded more respectable than they look at first.

In addition to the considerations mentioned in the previous paragraph, it must be pointed out that there are two Guilford Rs. The "Restraint" of the Guilford-Zimmerman Temperament Survey³⁹ corresponds to the trait "Rhythmia" of the

³⁶ R.Lynn, "Extraversion, Reminiscence, and Satiation Effects", in the British Journal of Psychology, Vol. 51, Part IV, November 1960, p. 319-324, quoted by Barry, Op. Cit., p. 11-12.

³⁷ Rechtschaffen, Op. Cit., quoted by Lynn, Ibid., who is quoted by Barry, Id..

³⁸ H.J. Eysenck, "Comments on a Test of the Personality-Satiation-Inhibition Theory", in Psychological Reports, Vol. 5, No. 3, issue of September 1959, p. 395.

³⁹ J.P. Guilford and Wayne S. Zimmerman, The Guilford-Zimmerman Temperament Survey, Beverly Hills, California, Sheridan Supply Co., 1949.

Inventory of Factors S T D C R⁴⁰ but it is scored in the opposite direction,⁴¹ that is, a high score on "Restraint" corresponds to a low score on "Rhythymia". The view is expressed in the Manual of the Survey,⁴² that the evidence with respect to practical validity which arose in connection with the Inventory of Factors S T D C R, can be applied with confidence to the corresponding scores of the Guilford-Zimmerman Temperament Survey. In the present paper, the two Rs are treated as equivalent.

Another point specifically pertinent to the present study is the subdivision of a continuous scale into subcategories. For extraversion-introversion, using the E scale of the Maudsley Personality Inventory, several methods appear in the literature. Vogel,⁴³ for example, states that the mean score of the distribution has been frequently employed in the past to dichotomize a sample into introversive and extraversive groups. Bartholomew⁴⁴ regards those having a score of minus

⁴⁰ J.P. Guilford, An Inventory of Factors S T D C R, Beverly Hills, California, Sheridan Supply Co., 1942.

⁴¹ J.P. Guilford and Wayne S. Zimmerman, Op. Cit., Manual of Instructions and Interpretations, p. 2.

⁴² Ibid., p. 3.

⁴³ Muriel D. Vogel, "The Relation of Personality Factors to GR Conditioning of Alcoholics: An Exploratory Study", in the Canadian Journal of Psychology, Vol. 14, No. 4, issue of December 1960, p. 277.

⁴⁴ Bartholomew, "Extraversion...", Op. Cit., p. 127.

one standard deviation below the mean as introverts, and those having a score of plus one standard deviation above the mean as extraverts. The "psychometric summary sheet"⁴⁵ of the Department of Reform Institutions similarly uses a three fold subdivision for Factor R. The cut-off scores, however, appear to have been arrived at arbitrarily.⁴⁶ On logical grounds it would appear that, if a relationship exists between the scale and a criterion, it would more likely be brought out by considering extreme groups rather than the whole sample.

4. Recidivism.

Rubin⁴⁷ defines a recidivist as "[...] a person who, having been convicted and subject to correctional treatment, again commits a crime" and recidivism "[...] a technical term [...] that represents the problem of persistency in criminal behaviour". Franks⁴⁸ implies that recidivists and non-recidivists represent clear-cut dichotomies:

⁴⁵ [Department of Reform Institutions, Province of Ontario] - "Psychometrics", printed form used at the Ontario Reformatory, Guelph.

⁴⁶ Frank Potts, Chief Psychologist, Department of Reform Institutions, Province of Ontario, Personal Communication with the Author.

⁴⁷ Sol Rubin, "Recidivism and Recidivism Statistics" in the NPPA Journal, Vol. 4, No. 3, issue of July 1958, p. 233.

⁴⁸ Franks, "Conditioning...", Op. Cit., p. 468.

"From the point of view of the theory of personality and conditioning[...] There is considerable methodological advantage in working with such clearly recognized groups as delinquents and prostitutes, about whose behaviour 'symptoms' there is no dispute (as contrasted with hysterics and dysthymics)".

This implied clarity is not supported by the literature. Two major problems appear to be emphasized in connection with the concept: one pertains to the measurement of recidivism and the other to the complexity of the concept itself. These two problems are briefly considered below:

(1) Errors in Measurement-- Information about recidivism is usually obtained from official criminal statistics, which Sutherland⁴⁹ considers the most unreliable and difficult of all statistics. The problem of obtaining reliable and valid indices of crime is one of the major problems of criminology. The core of the problem, for the present study, is the discrepancy between any index of crime (criminality, recidivism) and "Behaviour which would raise a reasonable expectancy of conviction if tried in a criminal court or substitute agency".⁵⁰ Three more recent papers may serve to highlight some of the

⁴⁹ Edwin H. Sutherland, Principles of Criminology, Fourth Edition, Chicago, Lippincott, 1949, p. 29.

⁵⁰ Edwin H. Sutherland, "White Collar Criminology", American Sociological Review, Vol. 5, No. 6, issue of February 1940, [No Page], quoted by Richard R. Korn and Lloyd W. McCorkle, Criminology and Penology, [No Place], Holt, 1959, p. 46.

problems. Rosow⁵¹ points out that only a small number of criminals are caught and emphasizes the differences between prisoners "in" and "out". He warns that it is important to recognize the differences in the underlying dynamics of those behind bars and "successful" criminals. Short and Nye,⁵² on the basis of responses to anonymous questionnaires, conclude that the behaviour patterns similar to delinquency and crime are distributed more evenly throughout the socio-economic structure of society than are official cases of recorded crime.

King⁵³ compared public records with Y.M.C.A. "detached worker" reports, and concluded that police records were incomplete, inconsistent, and "miscatalogued". By incomplete was meant that only twenty percent of the offenses were recorded; by inconsistent, that the recording of the offenses varied from offense to offense; and by "miscatalogued" that the recorded offense did not correspond to the actual offense.

51 Michael H. Rosow, "Observations on Group Therapy with Prison Inmates", Archives of Criminal Psychodynamics, Vol. 1, No. 4, Fall, 1955, p. 870.

52 James F. Short and Ivan F. Nye, "Extent of Unrecorded Juvenile Delinquency: Tentative Conclusions", in the Journal of Criminal Law, Criminology and Police Science, Vol. 49, [No Number], [No Month of Issue], 1958, p. 296-302, in Psychological Abstracts, Vol. 33, No. 5, issue of October, 1959, p. 1,038.

53 J. King, A Comparison of Sources of Data as Indices of Delinquent Behaviour, Thesis, University of Chicago, 1962, 7 pages, Tables 2 [sic], in Excerpta Criminologica, Vol. 2, No. 6, issue of November-December 1962, p. 632-634.

(2) Lack of Clarity of the Concept-- This refers to the statement often found in the literature that delinquents should not be thought of as a homogeneous group. Specifically, in connection with recidivists, Glover⁵⁴ writes that, if recidivists were examined with care, the pathological types would easily fall into well recognized groups, and each of these could be subdivided into subgroups having prognostic standards of their own.

Vold⁵⁵ proposes that recidivists could be divided into four types according to the factor that would be the major one in explaining their recidivism. He estimates that thirty percent of the recidivists are psychologically disturbed; forty percent unskilled, uneducated, with low level ability; ten percent ideational, that is, political and white collar; and twenty percent professional, that is "crime as a business" types.

5. Predictive Indices of Recidivism - Follow-Up Studies.

The most recent major studies that consider predictive factors of recidivism obtained by a predictive design for

⁵⁴ Edward Glover, "Prognosis and Prediction: A Psychiatric Examination of the Concept of Recidivism", in the British Journal of Delinquency, Vol. 6, No. 2, issue of September 1955, p. 124.

⁵⁵ George B. Vold, Theoretical Criminology, Oxford University Press, New York, 1958, p. 301-302.

youthful offenders were those of E. Glueck⁵⁶ and Sellin.⁵⁷

A summary of predictive factors of recidivism that can be found in the various Glueck publications dealing with specific populations was presented by E. Glueck. The most appropriate comparable population to the population of the present study appears to be that of "Male Offenders in Reformatory -- Age Span 17-21".⁵⁸ In that population, Intelligence, Age at First Delinquency, Grade Attained in School, Family Relationships, and Industrial Skill, were the five major predictive factors, the order of presentation indicating the relative predictive weight of the factors.

Sellin reviewed European and North American studies insofar as they are pertinent to the relationship between the aging process and criminal careers. He also considered the relationship between the nature of the first criminal act and the degree of its later persistence. He concluded that the studies examined tended to confirm most of what Sellin regarded as the "old"⁵⁹ hypotheses regarding the relationship of aging to crime, and of the type of the first offense to later

⁵⁶ Eleanor T. Glueck, "Status of Glueck Predictive Studies", in Journal of Criminal Law Criminology and Police Science, Vol. 47, No. 1, issue of May-June 1956, p. 18-32.

⁵⁷ Thorsten Sellin, "Recidivism and Maturation", in the NPPA Journal, Vol. 9, No. 3, issue of July 1958, p. 241-250.

⁵⁸ Eleanor T. Glueck, Op. Cit., p. 31.

⁵⁹ Sellin, Op. Cit., p. 250.

criminal conduct. Specifically, he found that 1° the younger a person is when he is first convicted of a crime, the greater is the likelihood that he will be convicted again; 2° the risk of subsequent conviction is in direct ratio to the number of previous convictions; 3° the younger a person is, the shorter will be the intervals between his first and subsequent crimes; 4° the risk of recidivism varies with the offense, being highest for property crimes.

6. The Hypotheses To Be Tested.

The present investigation is an attempt to study further the relationship between extraversion-introversion and recidivism. Specifically, it had the limited objective of approximating a cross validation of Bartholomew's findings, using a predictive instead of a postdictive design, the former being the one called for by Franks' proposed first project.⁶⁰ This objective can be stated in the form of a main hypothesis and one subhypothesis:

There will be no significant negative correlation between Guilford R scores (C score units) of a group of inmates of a Canadian open type reformatory, and recidivism, which is defined as having at least one entry on the R.C.M.P. Fingerprint Section Record, Part I, within four to five years

⁶⁰ Franks, "Recidivism...", Op. Cit., p. 198-199.

subsequent to their release from the reformatory.

Defining an extravert and introvert as having a R score (C score units) below minus one standard deviation of the mean, and above one standard deviation above the mean respectively, and defining recidivism as in the previous paragraph the sub-hypothesis is:

A greater proportion of the extraverts than the introverts become recidivists.

In the following chapter, the experimental design used for testing the hypotheses is presented.

CHAPTER II

EXPERIMENTAL DESIGN

This chapter presents the procedures involved in conducting the study to test the hypotheses proposed in the preceding chapter.

It begins with the description of the independent variable and of attempts to obtain an estimate of its correctness and reliability. The principles of selection to obtain the experimental sample are presented. This is followed by the description of the experimental sample in terms of those characteristics that were reported in the literature to be related to recidivism, and for which information was available for the sample. This is followed by some remarks about the completeness, comparability, and validity of this information. The criterion is then described, and the chapter concludes with the presentation of the statistical techniques used to establish the relationship between the independent variable and the criterion in testing the main hypothesis, and in establishing the difference between the proportion of extraverts and introverts who become recidivists, in testing the subhypothesis.

1. The Independent Variable.

The value of the independent variable for each individual of the sample was obtained by utilizing the Q score on

trait R (Restraint), of the Guilford-Zimmerman Temperament Survey.¹ R is one of the ten temperament variables, identified by factor analysis, which make up the Survey.² To aid in interpreting a score on any of the traits, the authors have categorized the items scored for each temperamental variable and suggested that the number of items give some idea of the relative importance of each quality in the total score.³ For "Restraint" they present the following break down:⁴

Positive Qualities	Negative Qualities	Number of Items
R--Restraint (opposite of former trait of rathymia)		
Serious-mindedness.....		8
.....	Happy-go-lucky; carefree.	5
Deliberate..... vs	Impulsive.....	5
.....	Excitement-loving.....	5
Persistent effort.....		3
Self-control.....		3

1 J.P. Guilford, and Wayne S. Zimmerman, the Guilford-Zimmerman Temperament Survey, Beverly Hills, California, Sheridan Supply Co., 1949.

2 Ibid., Manual of Instructions and Interpretations, p.3.

3 Ibid., p. 2.

4 The thirty items which make up the Factor, with the scoring for each item indicated, are listed in Appendix 1.

2. A Short Description of the Guilford-Zimmerman Temperament Survey.

Since the Survey was one of the main tools used in the present study, a short description appears to be in order.

Buros⁵ designates the test as suitable for individuals with educational levels of Grade Five and above. The test consists of a test booklet containing the questions and a standard I.T.M. answer sheet with thirty item spaces per column. Each factor is made up of thirty items to which the individual answers "yes", "no", or "?" with instructions to avoid using the latter if possible. There are five columns on each side of the answer sheet. The items in the booklet were rotated in such a way that the answers for each trait fall in the same column. Scoring can be done by hand or by machine. For hand scoring, there are two stencils, one for the five traits on the front page, one for the other five traits on the back-page. Scores of 0 and 1 are assigned to the responses according to the scoring stencil. Thus, the scores for each factor range from zero to thirty, and, with the help of a table, they can be converted into scores on a C scale, centile rank scale, and T scale.⁶

⁵ Oscar N. Buros, Editor, The Fifth Biennial Measurement Yearbook, Highland Park, New Jersey, The Gryphon Press, 1959, p. 65.

⁶ Profile Chart for the Guilford-Zimmerman Temperament Survey: For High School, College and Adult Ages, Beverly Hills, California, Sheridan Supply Co., 1949.

3. Administration, Scoring of the Survey,
and Recording of the Scores at the
Ontario Reformatory, Guelph.⁷

The Guilford-Zimmerman Temperament Survey is part of the battery of psychological tests administered to offenders who meet the selection standards for either the Ontario Training Centre, Brampton⁸ or for the Ontario Training Centre, Burtch, as part of the screening programme taking place in the Reception Wing of the O.R., Guelph. The battery has been administered by the same specially trained custodial officer for the past twelve years. He also does the scoring with the help of a secretary, who has been working as a secretary to the psychological department at the Reformatory for over ten years. The testing is done in three sessions, and the Survey is administered during the last session usually between forty-eight and seventy-six hours following each inmate's arrival at the Reception Wing. The size of the group tested on one occasion varies from four to twenty individuals. The testing is done in a class room utilized for this purpose only.

Prior to administering the first test in the battery, the officer speaks to the group. Although he generally tries

⁷ Hereafter referred to as O.R., Guelph.

⁸ The selection standards of 1952-53-54 of the Ontario Training Centre, Brampton, hereafter referred to as O.T.C., Brampton, are presented in Appendix 4.

to set the inmates at ease, the ideal condition for the administration of the Survey, as mentioned by the authors, that is, the suggestion that the individual's future status will not hinge on the outcome of the test is not met.⁹ The officer tells the group that the Parole Board will eventually look at the test scores, and that one of the resident psychologists at Guelph may question the inmates on certain items. The officer also describes the Training Centre at Brampton and Burtch, the relative freedom they offer in comparison with the Reformatory, and points out that performance on the tests is an important factor in the selection for either one of the Training Centres or the Reformatory. Smoking is not permitted at any point during the administration of the tests. The officer makes observations during the administration, and if he thinks that there is something "peculiar" about an individual's behaviour, he notifies one of the resident psychologists.¹⁰ Since frequently there are individuals who put a mark in each space of the answer sheet, the officer looks at the answer sheets during the testing period. He also checks that none of the answers are skipped and frequently urges the group not to work too fast. As he collects the answer sheets, he rechecks them for completion.

9 Guilford-Zimmerman, "Manual...", Op.Cit., p. 10.

10 Corporal Hart, Personal Communication with the Author.

He scores the tests with the assistance of the secretary, usually on the day of administration of the specific test or tests. A day or two after an individual completes the battery, the secretary transcribes the scores onto a psychometric report form,¹¹ and the original answer sheets are discarded in order to save space.¹²

To evaluate the accuracy of the scoring and transcribing, eighty-nine consecutive 1961 answer sheets were examined by the writer. Saved especially at his request for purposes unknown to the members of the Psychology Department at the Reformatory, the R scores on these answer sheets were checked for the raw scores, their conversion to C scores, and the transcription of the C scores to the psychometric summary. Two errors in the raw scores, (one point each), none in the conversions, and one in the transcriptions (one C score category) were found. It was concluded that the scoring and transcribing were reasonably accurate. It was also assumed that, since the same individuals (except for vacation and

11 "Psychometrics" is a printed form on which the test scores, and, with some tests, the centile equivalents according to some norm in the respective test manual, are entered for each individual tested. The form, together with a psychological report, follows the individual to whichever institution he is assigned. At the O.T.C., Brampton, since 1960, "Psychometrics" is separated from the individual's main institutional file, and becomes part of the resident psychologist's records.

12 Leo Schulte, resident psychologist, Ontario Reformatory, Guelph, Personal Correspondence with the Author, letter dated November 9, 1960.

illness) were involved in the scoring and transcribing which yielded R scores constituting the values for the independent variable in the present study, the scoring and transcribing of said values was reasonably accurate as well.

4. Estimation of the Reliability of the Independent Variable.

Estimates of the internal consistency and test-retest stability of the independent experimental variable were obtained using the following procedures:

INTERNAL CONSISTENCY:- Utilizing C scores, there were no statistically significant differences between the means and standard deviations of the standardizing population of the Inventory¹³ and the experimental sample of this study; (statistics are 5 and 2 , and 5.02 and 2.01 respectively). It is therefore estimated that the internal consistency reliability of .80 , based upon various Kuder-Richardson formulae, as reported by Guilford and Zimmerman,¹⁴ can be applied to the sample in the present study. For the latter, it was not possible to utilize raw scores in the obtaining of these statistics, as Guilford and Zimmerman did, because only the C scores were available for treatment.

¹³ Guilford-Zimmerman, "Manual...", Op. Cit., p. 7, and "Profile Chart...", Op. Cit..

¹⁴ Guilford-Zimmerman, "Manual...", Op. Cit., p. 5-6.

TEST-RETEST STABILITY:- A study¹⁵ attempting to establish the test-retest stability of the independent experimental variable was carried out from January 10, 1961, to June 7, 1961, inclusive. The study is described in Appendix 6. A few remarks about the reliability study are in order:

[a] It is recognized that the use of a separate study was not the ideal approach since the values treated in the experiment and the values treated in the reliability study came from different samples. Testing for the significance of differences between the mean R score and the standard deviation of the experimental sample and the reliability study sample (N = 80), showed no significant difference between the standard deviations, but the difference between the means was significant at the .05 level of probability (O.K. = 1.966). This finding confirms other reports about the changing nature of the population at the O.T.C., Brampton,¹⁶ and raises questions about the justifiable application of the findings of the reliability study to the experimental sample.

15 Hereafter referred to as "reliability study".

16 R.M. Hooper, S. Kean, et al., "The Brampton Story", in the Canadian Journal of Corrections, Vol. 4, No. 4, issue of October 1962, p. 226-227, also J. Marshall, Personal Communication with the Author.

[b] Not all individuals who had met the criterion for inclusion in the experimental sample were included in the reliability sample. The breakdown of the reasons for non-inclusion in the reliability sample are presented in Appendix 3. It was thought that this may provide procedural suggestions for further studies at the O.T.C., Brampton.

[c] O.R., Guelph scores were obtained from the "Psychometrics", and the comments made earlier about the accuracy of those scores are applicable here as well.

[d] C scores were used which tend to decrease the size of the coefficient that can be obtained.

[e] Time spent at the O.T.C., Brampton was considered the major confounding variable¹⁷ and was hence controlled.

THE COEFFICIENT OF TEST-RETEST RELIABILITY:- With $N = 80$, and the average length of time between test and re-test being 32.4 days, an r of .576 was obtained. Considering the design through which this coefficient was found, it was considered acceptable for the purposes of the present study.

¹⁷ For the term "confounding", see Benton J. Underwood, Psychological Research, New York, Appleton, 1957, p. 90.

5. Obtaining the Experimental Sample.

The sample pool for this study was obtained from the institutional files of those inmates who were released from the O.T.C., Brampton, between April 1, 1954, and March 31, 1955. This group consisted of 282 individuals. Out of these, 243 met the criterion for inclusion in the experimental sample of this study. The criterion was the availability of an R score in the file without any explicit remark by the test administrator or psychologist at the O.R., Guelph, counterindicating the validity. The analysis of the reasons for exclusion of the forty-three is presented in Appendix 5; it was thought that this may complement the description of the experimental sample.

To test the subhypothesis, individuals with G scores of 8-10 and 0-2 were operationally defined as "introverts" and "extraverts" respectively, were separated from the experimental sample and placed into a recidivist or non-recidivist group according to their R.C.M.P. records subsequent to their release from the Centre.¹⁸ The recidivist group of twenty-five consisted of fifteen extraverts and ten introverts; the non-recidivist group of twenty-nine consisted of ten extraverts and nineteen introverts.

¹⁸ See: Chapter II, Section 7, "The Criterion Used".

6. Description of the Experimental Sample.

A general description of the experimental sample can be obtained from the 1952-53-54 selection standards presented in Appendix 4. For the experimental group, descriptive information was obtained on some of the factors that in the past have empirically been found to be predictors of recidivism and for which information was available for a sufficiently large number of individuals. This information is summarized in Tables I, II, III. The mean age of the experimental sample was 19.13 , with a standard deviation of 2.64 and a range of 15-25 . The mean last completed school grade was 8.00 , with a standard deviation of 1.51 and a range of 3-13 . In the 222 cases where information was available, 65 or 29.3% had appeared before a juvenile court and were sentenced; out of 228 cases where information was available, 121 or 53.1% have had previous convictions, that is, they had appeared and were sentenced by either a juvenile or an adult court. Offenses for which the individuals in the experimental sample were committed to an O.R., were divided into a dichotomy, that is, that of "Crime against Property" (which consisted of offenses such as Breaking and Entering, Theft, Attempted Theft, Forgery, Theft of Cars, Uttering) and "Other than Property Offenses". The latter included the three broad categories of "Crime against the Person" (such as Assault, Carnal Knowledge, Manslaughter); "Crime against Public Morals and Decency" (such as Perjury,

Table I.-

Age and Last Completed School Grade of the Experimental Sample (N = 282).

	Mean	S.D.
Age	19.13	2.44
Last Completed School Grade	8.00	1.51

Table II.-

Numbers and Percentages of Types of Convictions Prior to the Conviction for Which the Individual Was at the O.T.C., Brampton.

Type of Convictions	N _a	N	
		n _b	%
Juvenile	222	65	29.3
Juvenile or Adult	228	121	53.1

a Individuals with information on previous convictions available.

b Individuals having previous convictions.

Table III.-

Numbers and Percentages of Types of Offenses for Which
Sentence Was Served at the O.C.T., Brampton.
(N = 282).

Type of Offense	N	%
Property	211	74.8
Non Property	71	25.2

Contributing to Juvenile Delinquency, Indecent Assault); and "Crime against Public Order and Peace (such as Dangerous Driving, Drunkenness, Disorderly Conduct, and Obstructing An Officer). The four main categories which have been mentioned are the main categories appearing in the annual report of the Department of Reform Institutions for the year 1955.¹⁹ Two hundred and eleven, or 74.8% of the sample, fall into the "Crime against Property" category.

A few remarks about the completeness, comparability and validity about the descriptive information above, appear to be in order.

COMPLETENESS AND COMPARABILITY:- As is common with most criminological studies, in which some of the data is obtained from institutional files, certain information was not available in all cases.²⁰ The psychological report prepared prior to the Inmate's appearance before the selection committee was utilized as the source of the descriptive variables for the following reasons:

1^o It was available in the files more frequently than any other source of information about the factors considered.

¹⁹ Department of Reform Institutions, Province of Ontario, Annual Report for the Year Ending 31st March 1955, Part I, Reformatories, Industrial Farms Common Jails, Toronto, Baptist Johnston, 1956, p. 44-45.

²⁰ Herman Mannheim, and Leslie T. Wilkins, Prediction Methods in Relation to Borstal Training, London, Her Majesty's Stationery Office, 1955, p. 59.

2° By design, it was to be complete; containing all the pertinent information available for selection.²¹

3° The information reported was gathered on identical points according to a pre-determined sentence. Ideally, at least, one report, therefore, was comparable to another.²²

The extent to which point number 2 was adhered to, was not determined. From the descriptions presented above, it is clear that the ideals of number 3 were not always realized.

Another problem pertaining to comparability arose in connection with the I.Q. recorded on the psychometric summary and in the psychological report. While the administration of an Otis group test of mental ability was part of the routine testing procedure, in a number of cases, other tests, mostly non-verbal, had been used. However, this fact was only rarely specified. Thus, a measure of intelligence which had been found to be a predictor of recidivism²³ was not included in the present study due to lack of information concerning the nature of the various types of measures reported.

21 Frank Potts, Chief Psychologist, Department of Reform Institutions, Province of Ontario, Personal Communication with the Author.

22 Ibid.

23 Eleanor T. Glueck, "Status of Glueck Prediction Studies", in the Journal of Criminology, Criminal Law and Police Science, Vol. 47, No. 1, Issue of May-June 1956, p. 31.

VALIDITY:- The information contained in the psychological report is based mainly on the prisoner's replies to the psychologist's questions during an interview. Although, shortly after the prisoner's arrival at the O.R., Guelph, form letters are sent out to the schools the prisoner claims he had attended and to the clergyman he gives as a possible source of inquiry, only a proportion of these are answered. Where a pre-sentence report is available, some additional and corroborating information may be gained.

Of the variables considered here, the problem of validity becomes most marked in connection with the categories of previous offenses. There is no centralized record-gathering office for juvenile offenses. Non-indictable adult offenses, that is, offenses which are not against the Criminal Code of Canada, may or may not be recorded by the R.C.M.P.. Even if recorded, they are not supported by fingerprint identifications and are listed separately from the record of the prisoner's past indictable offenses.

The main reason for the presentation of the information on previous offenses, in addition to the presentation of the selection standards, is to qualify the concept "first offender".

7. The Criterion Used.

Whether or not a student became a recidivist subsequent to his release from the O.T.C., Brampton was established from the transcripts of the R.C.M.P. Fingerprint Section Record, Part I. The transcripts, obtained for each member of the sample pool, covered the period from the offender's release until February, 1960.

The names and R.C.M.P. numbers of all those who had left the institution in the fiscal year 1954-55²⁴ were submitted to the R.C.M.P., and, on the basis of this list, the transcripts of the records were sent to the Chief Psychologist of the Department of Reform Institutions, Province of Ontario. To reduce the various possible errors, at least in the transcripts that were involved in this process, the returned transcripts were compared with the main institutional ledger to ascertain that the institutional file and the R.C.M.P. record pertained to the same individual.

In this study, a person was considered a recidivist if he had any entry on the record subsequent to his release from the Centre, unless, as in a few cases, the entry indicated the date of the individual's successful completion of parole, which was still part of the sentence he had been serving at Brampton.

²⁴ Fiscal year refers to the period between April 1, 1954 and March 31, 1955.

Parole violators, of whom there were five, were considered recidivists, even though two of these had no other entry than the notation that they were parole violators.

No direct measure of the reliability of this criterion was found. Little²⁵ estimates it at ninety-five percent. He believes that some of the offenses committed outside of Canada are not reported.

8. Statistical Treatment of the Data.

The sample, after the means and standard deviations of the \bar{R} score were calculated, was divided into two groups, recidivists, and non-recidivists, according to the criterion stated above. The relationship between \bar{R} score and recidivism, the relationship being expressed as a point biserial coefficient of correlation, was calculated by the following formula:

$$[1] \quad r_{pbi} = \frac{(M_p - M_t)}{\sigma_t} \sqrt{\frac{N_p}{N_q}}$$

where, M_p = mean \bar{R} score of the recidivists;

M_t = mean \bar{R} score of the total group;

²⁵ William F. Little, A Statistical Study and Survey of the Ontario Training Centre, Brampton, 1947-1959, report submitted to the Department of Reform Institutions, Province of Ontario, April 1959, p. 95.

(continued)

where, σ_t = standard deviation of the \bar{R} scores
of the total group;

N_p = Number of recidivists in the sample;

N_q = Number of non-recidivists in the sample.

The standard error of the obtained r_{pb} was estimated
by:²⁶

$$[2] \quad \sigma_{r_{pb}} = \sqrt{\frac{1}{N}}$$

where, N = Number of cases in the sample.

This value was multiplied by 1.96 to obtain the value of the r_{pb} that was required for it to be significantly different from zero, at the .05 level of probability. This r_{pb} was then compared with the obtained r_{pb} in order to establish whether or not the latter differed significantly from zero.

For the testing of the difference between the proportion of extraverts and introverts who recidivate, the following formula was used:

$$[3] \quad t = \frac{P_E - P_I}{\sigma_{D_p}}$$

²⁶ Quinn McNemar, Third Edition, Psychological Statistics, New York, Wiley, 1962, p. 193.

(continued)

where, p_E = Proportion of extraverts who recidivate;
 p_I = Proportion of introverts who recidivate;
 σ_{D_p} = Standard error of the difference between two proportions.

This was obtained by the formula:

$$[4] \quad \sigma_{D_p} = \sqrt{p_{E.I.} q_{E.I.} \left(\frac{1}{N_E} + \frac{1}{N_I} \right)}$$

where, $p_{E.I.}$ = The combined standard error of the proportion of extraverts and introverts;

$$q_{E.I.} = 1 - p_{E.I.}$$

$$N_E = \text{Total number of extraverts};$$

$$N_I = \text{Total number of introverts.}$$

The combined standard error of the proportions is obtained by the formula:

$$[5] \quad p_{E.I.} = \frac{N_E p_E + N_I p_I}{N_E + N_I}$$

The degrees of freedom from the t test were given by:

$$df = N_E + N_I$$

Having presented the experimental design for testing the hypotheses, the following chapter will be concerned with the presentation of the findings, their interpretation and their discussion.

CHAPTER III

FINDINGS AND DISCUSSION

In this chapter, the findings of the study are presented and interpreted. This is followed by a discussion of some of the possible weaknesses of the design of the study to test Franks' theory adequately. The chapter concludes with some critical comments on Franks' theory and proposed methodology. Throughout the discussion, explicit and implicit suggestions for further research will be made. Some of these suggestions will be restated in the Summary and Conclusions which follows this chapter.

1. Findings.

The frequency distribution of the R scores (C score units) for the recidivists, non-recidivists and the total group respectively is presented in Table VIII of the Appendix 6. This Table presents the "raw data" of this study.

The main experimental hypothesis, namely that there is no significant negative relationship between R score (C score units) and recidivism, was tested by Formulae [1], and [2].¹ The values that entered into Formula [1] are presented in Table IV, together with additional information on measures of

¹ See Chapter II, p. 43.

Table IV.-

R Score Distributions of Recidivists, Non-recidivists and Combined.

	N	Mean	S.D.
Recidivists	101	4.85	2.15
Non-recidivists	142	5.20	1.90
Combined	243	5.05	2.02

contral tendencies for the recidivist and non-recidivist groups. In testing the main experimental hypothesis, a point biserial coefficient of correlation of $-.084$ was found. The standard error of this coefficient was estimated to be $.064$.²

Irrespective of direction, at the $.05$ level of probability a value of $.126$, and at the $.10$ level of probability a value of $.105$ was required for the coefficient to be significantly different from zero.³ The hypothesis, consequently, could not be rejected.

The subhypothesis, namely that the proportion of extraverts (operationally defined as individuals having a \underline{Q} score between 0-2) who became recidivists is not greater than the proportion of introverts (operationally defined as individuals having a \underline{Q} score between 9-10) was tested using Formula [3].⁴ A difference of $.26$ in favour of the extraverts was found between the two proportions. The values utilized in calculating the t value for the difference are presented in Table V. A t of 1.87 was obtained which was significant at the $.05$ level of probability (one-tailed test). Consequently, the hypothesis was rejected, that is, "cranks" theory was supported.

Thus, the findings tended to confirm the relationship-tendency found by Bartholomew in his study, the cross-

2 Id..

3 Id..

3 Ibid., See Chapter II, p. 44.

Table V.-

The Difference Between the Proportions of Extraverts and Introverts Who Recidivate.^a

	Extraverts	Introverts
N	25	29
Recidivists	15	10
Proportions Recidivate	.60	.34
$P_{E.I.}$.46	
$q_{E.I.}$.54	
D_p	.26	
σ_{D_p}	.14	
t	1.87	
df	54	

^a Symbols see Chapter II, p. 43.

validation of which was the specific objective of the present investigation. To the extent that the present study used a predictive design while Bartholomew used a postdictive one, the findings of the present study lend stronger support to Franks' theory than Bartholomew's finding. On the other hand, since some of the known "confounding" variables⁵ were left uncontrolled in this study, the evaluation of the theory on the basis of this study has to be postponed until further analysis, preferably with additional data.

2. Interpretation of the Findings.

While the findings of this study cannot be claimed to confirm the existence of the relationship between extraversion-introversion and recidivism suggested by Franks, tendencies in support of the theory were observed. It is important therefore that the results be interpreted with particular care, and that factors be considered which, although not specifically entering into the present study, might influence the conclusions one may legitimately reach. The existence of spurious relationships and alternative interpretations of the results here obtained must also be considered. It will appear in the process that further analysis and data would render any conclusion more reliable.

⁵ Benton, J. Underwood, Psychological Research, New York, Appleton, 1957, p. 90.

If the results are regarded as providing sufficient evidence for the rejection of the negative hypothesis here posed, it must nevertheless be noted that the relative importance of the extraversion-introversion scores with respect to some other predictors of recidivism has not been established. Thus, for example, preliminary analysis indicated that the recidivists and the non-recidivists who made up the sample on which the main experimental hypothesis was tested, differed significantly with respect to age. The recidivists were younger and since age has been found to be inversely related to recidivism,⁶ the point biserial coefficient of correlation found here could be regarded as an index of the latter relationship. The point could be resolved by the examination of additional data, in which age is controlled.

There are also reasons for the acceptance of the hypothesis here posed, and, therefore, for the rejection of Franks' theory. Certain of these arise from the possibility that the present study fails to test the theory adequately, while others are concerned with weaknesses in the theory itself. Further, Franks' remark concerning the "simple testing of the theory in a rigorous manner"⁷ might be taken with some reservations.

⁶ Thorsten Sellin, "Recidivism and Maturation", in the NPPA Journal, Vol. 4, No. 3, 1958, p. 250.

⁷ Cyril M. Franks, "Recidivism, Psychopathy and Delinquency", in the British Journal of Delinquency, Vol. 6, No. 3, issue of January 1956, p. 198.

A discussion of these points is deferred to section 3 and 4 of this chapter.

A somewhat different point is that, even if the hypothesis is regarded as rejected, there are possible interpretations of the findings which differ from Franks' theory, without necessarily being incompatible with it. Such an alternative explanation would regard recidivism as being predictable from extraversion-introversion scores, without the need to postulate, or to establish, any relationship between reactive cortical inhibition, conditionability, and extraversion-introversion. Thinking of R, not only as "a confirmed dimension of personality",⁸ but also as a "dependable descriptive category"⁹ and considering the description offered by Guilford-Zimmerman, one might concur with their statement that extreme negative qualities are likely to "indicate trouble".¹⁰ The word "trouble", applied to a criminal population, can imply further entanglement with the law.

The concept of reformation, in the classical sense, was that the inmate was given the opportunity, being incarcerated, to think and reflect, to realize his mistakes, and hence to

⁸ J.P. Guilford and Wayne S. Zimmerman, the Guilford-Zimmerman Temperament Survey, Manual of Instructions and Interpretations, Beverly Hills, California, Sheridan Supply Co., 1942, p. 6-8.

⁹ Ibid., p. 8.

¹⁰ Ibid., p. 3.

reform. But, the extravert, according to his own statements, does not like to think. Thus, the extraverted person is unaffected by incarceration and becomes a recidivist because he does not do the first thing necessary for reformation -- that is, to reflect.

There is some support for such a "descriptive" interpretation.¹¹ If it could be shown that the R score in a given population, although correlated to recidivism, is not related to various measures of conditioning, such an interpretation would be enhanced, and the support for Franks' theory weakened.

3. The Failure of the Design to Test the Theory Adequately.

Apart from the use of data not originally collected for research purposes and with the deficiencies that such data frequently contain,¹² the other most apparent possible deficiencies lay in the independent variable and the criterion used. These will be considered here in light of their contribution to the possible failure of the design of the present study to have tested Franks' theory adequately.

11 J. Marshall, Personal Communication with the Author.

12 Herman Mannheim and Leslie T. Wilkins, Prediction Methods in Relation to Borstal Training, London, Her Majesty's Stationery Office, 1955, p. 59.

THE INDEPENDENT VARIABLE USED:- Three points will be considered here. Firstly, it had been assumed that the \bar{R} scores of the Guilford-Linerman Temperament Survey, and the \bar{R} of the Inventory of Factors S.I.F. were equivalent. It was also assumed that the \bar{R} of the Survey was comparable to the \bar{E} of the Maudsley Personality Inventory. No research evidence has been found to support the first assumption, and it is known that the second is somewhat controversial.¹³

Secondly, the unavailability of the raw scores for \bar{R} required the utilization of \bar{Q} scores. This restriction of range of the independent variable tended to diminish both the correlation of the variable with the criterion and its test-retest reliability coefficient; the latter, in turn, contributed to the further reduction of the correlation between the variable and the criterion.

The third point, and this is somewhat more elusive as to its consequences, pertains to the adequacy of the test containing the independent variable for the population studied. It was indicated that Buros¹⁴ suggested Grade Nine as the minimal grade level attained by the population on whom the test is to be used. The average grade level of the

¹³ See Chapter 1, Ref. No. 40, p. 17.

¹⁴ Oscar Buros, Editor, The Fifth Mental Measurement Yearbook, Highland Park, New Jersey, The Gryphon Press, 1959, p. 65.

experimental sample was Grade Eight. On the other hand, the investigation by inspection and by test-retest study in 1961-62¹⁵ of the thirty items making up the score on Factor R, did not suggest that the offenders at the Training Centre had difficulties understanding the items for this factor.¹⁶ There were certain items that entered into scores of other Factors that offenders consistently questioned as to meaning. The effect these items may have had on the two coefficients mentioned above is not known. The estimation of the reading level of the O.T.C., Brampton population would contribute to our knowledge concerning the "validity" of the independent variable, as a "dependable descriptive category of personality".¹⁷

THE CRITERIA USED:- It has been pointed out in Chapter I¹⁸ that Franks may have underestimated the complexity of the concept of recidivism. Some of the difficulties in measuring recidivism have been highlighted. Recognizing the inherent problems of measurement, it is the writer's opinion that the R.C.M.P. records used as criteria in the present study were superior methodologically to some previously

¹⁵ See Appendices, 1, 2, for the description of items in Factor R and for the reliability study respectively.

¹⁶ An additional problem here is the comparability of the experimental and reliability samples, See Chapter II, p. 43.

¹⁷ Guilford-Zimmerman, "Manual...", Op. Cit., p. 8.

¹⁸ See Chapter I, p. 19.

employed criteria. For example, prior to 1961, the O.T.C., Brampton had claimed that eighty percent of its released inmates did not recidivate.¹⁹ This information was obtained from notification from other institutions within the Department of Reform Institutions, Ontario, when an offender who had been an ex-inmate of Brampton was admitted there. It was also customary for the Centre's clerical staff to regularly scrutinize the Ontario daily newspapers for any information regarding former Brampton inmates. The R.C.M.P. records are more comprehensive and systematic, and therefore more reliable.

While criticism of the various criteria is frequent in the literature, practical alternative suggestions for improving the criterion measure are rarely found. The intensive follow-up case studies appeared to be most widely mentioned as an alternative²⁰ to the criterion measure used in this study. This approach, apart from its costliness and the ethical problems involved, presents special problems for Canada due to the dispersion of the population. To illustrate, in the summer of 1962, it was found that less than fifty percent of the inmates at the O.T.C., Brampton during that summer had come

¹⁹ The Department of Reform Institutions Province of Ontario; Reformatories, Industrial Farms, Training Schools, Toronto, [No date], [No page].

²⁰ For example, see Sol Rubin, "Recidivism and Recidivism Statistics", in the NPPA Journal, Vol. 4, No. 3, issue of July 1958, p. 237.

from the four largest cities of Ontario.

4. Weaknesses of Franks' Theory.

Two points will be discussed in this section, both raising the possibility that the inconclusive findings of the present study may be due to weaknesses in the underlying theory. The first point briefly considers three notions suggested by the Eysenckian theoretical framework and research related to it that add to the complexity of Franks' theory. The second point will consist of some critical remarks on the nomenclological network²¹ that appears to underly the theory.

A.- Complexities suggested by the Eysenckian Framework. Contrary to Franks' statement that the environment of the extravert delinquent makes little or no difference in his learning of socially acceptable behaviour, Eysenck suggests that: "... no simple equation of extraversion-criminality can be made; in each case one has to consider not only the conditionability of the subject, but also the actual conditioning in fact received".²²

21 L.J. Cronbach and P.E. Meehl, "Construct Validity in Psychological Tests", in the Minnesota Studies in the Philosophy of Science, Volume I, The Foundations of Science and the Concepts of Psychology and Psycho-analysis, Herbert Feigl and Michael Scriven, Editors, Minneapolis, University of Minnesota Press, 1956, p. 187.

22 H.J. Eysenck, "Levels of Personality, Constitutional Factors and Social Influences: An Experimental Approach", in the International Journal of Social Psychiatry, Vol. 6, No. 304, Autumn 1960, p. 15.

The simplicity of the relationship of extraversion and criminality is further complicated by the fact that extraversion is not invariant. For example, Franks found that sodium amytal, a depressant drug, reduces conditionability and increases extraversion.²³ One wonders, therefore, if Franks is justified in postulating a direct relationship between extraversion and recidivism without considering the effect of alcohol, a depressant widely used by the criminal population.²⁴ As to the effect of extraversion, Petrie and Eysenck found a positive relationship between extraversion and accident-proneness.²⁵ Since fatal motor accidents are very frequent among the young,²⁶ there is a possibility that the number of extraverts who become recidivists is thereby diminished. Thus, the chances of finding the predicted relationship between extraversion and recidivism is reduced.

23 C.M. Franks and S.G. Laverly, "Sodium Amytal and Eyelid Conditioning", in the Journal of Mental Science, Vol. 101, No. 424, issue of July 1955, p. 654-663, quoted by Franks, "Recidivism...", Op.Cit., p. 192.

24 S.A. Cook, "Criminal Behaviour and the Use of Beverage Alcohol", in the Canadian Journal of Corrections, Vol. 4, No. 2, issue of April 1962, p. 83.

25 A. Petrie, "Personality Changes After Prefrontal Leucotomy, Report 2", in the British Journal of Medical Psychology, Vol. 22, (No Number), [No Month of Issue], 1949; H.J. Eysenck, Dimensions of Personality, London, Routledge, 1947, [No Page], both quoted by Franks, "Conditioning...", Op. Cit., p. 469.

26 Dominion Bureau of Statistics, Health and Welfare Division, Vital Statistics Section, Vital Statistics 1961: Preliminary Annual Report, Ottawa, Queen's Printer, July 1962, p.28.

B.- The nomonological network. The nomonological network upon which Franks' hypotheses were based can be considered to be made up of the following ideas: 1) Conditionability is a function of reactive cortical inhibition; 2) Conditionability is equated with the capacity to acquire new patterns of behaviour; 3) Extraversion scores on certain personality inventories are highly correlated with conditionability; 4) A first offender, who is an extravert, is one who constitutionally has difficulties in learning; 5) As a consequence to the above, he does not benefit from treatment or re-education in a custodial setting; 6) And, therefore, he becomes a recidivist.

In this section some comments are made on these ideas in light of the present study.

CONDITIONABILITY AS A FUNCTION OF REACTIVE CORTICAL INHIBITION:- This notion, although basic to the Lysenckian theory, is not necessary for Franks' theory. To the extent, however, that Franks sees his theory within the Lysenckian framework,²⁷ Becker's statement that "If a relationship between reactive inhibition and extraversion and its correlate conditionability exists, it is probably of such small magnitude

27 Franks, "Conditioning...", Op. Cit., p. 481.

as to be practically and theoretically trivial"²⁸ is relevant.

CONDITIONABILITY AND THE CAPACITY TO ACQUIRE NEW PATTERNS OF BEHAVIOUR:- The all inclusiveness of the concept of conditioning is obvious here. Franks²⁹ points out that the relationship between conditioning and learning in general is a matter of controversy, with no generally accepted theory of conditioning available at present.

EXTRAVERSION SCORES ON CERTAIN PERSONALITY TESTS ARE CORRELATED WITH CONDITIONABILITY:- Farber, Spence and Bechtold³⁰ found that individual differences in eyelid conditioning related to anxiety and not to extraversion. Eysenck³¹ found a significant correlation between extraversion scores and verbal conditioning, a relationship not found by Hammond.³²

28 Wesley C. Becker, "Cortical Inhibition and Extraversion-Introversion", in the Journal of Abnormal and Social Psychology, Vol. 61, No. 1, issue of July 1960, p. 65.

29 Franks, "Conditioning...", Op. Cit., p. 457.

30 I.E. Farber, K.W. Spence and H.P. Bechtold, "Emotionality, Introversion-Extraversion and Conditioning", paper read at Midwestern Psychological Association, Chicago, May 1957, quoted by Becker, Op. Cit., p. 53.

31 H.J. Eysenck, "Personality and Verbal Conditioning", Psychological Reports, Vol. 5, 1959, p. 570, quoted by Suzanne Hammond, Test Correlates of Antisocial Behaviour in Juveniles, research project submitted to the Department of Psychology, McGill University, Montreal, Quebec, for a Master of Science Degree (Applied), 1961, p. 13.

32 Hammond, Op. Cit., p. 13.

Franks³³ raises the possibility that the relationship may only exist for behavioural changes at the peripheral level. While there appears to be some relationship between conditionability and extraversion-introversion, from the few examples given one can conclude that the relationship between extraversion-introversion scores and conditioning has not yet been unequivocally demonstrated.

AN EXTRAVERT FIRST OFFENDER HAS DIFFICULTIES IN LEARNING DUE TO CONSTITUTIONAL FACTORS IN ACQUIRING CONDITIONED RESPONSES:- To quote specifically, he has "...an inability or difficulty in forming those conditioned responses which we call learning the rules expected of us by society".³⁴ Two ideas require comment. The idea of "first offender" is a concept of the same type as "recidivist" and every comment that can be made in describing the limitations of the latter concept, can be applied to the former. The other idea has been recognized and discussed by Eysenck³⁵ as mentioned earlier, that the acquirement of a conditioned response depends not only on the neuro-physiological make-up of the individual, but also on the number or intensity of the attempts to make him acquire that response.

33 Franks, "Conditioning...", Op. Cit., p. 481.

34 Franks, "Recidivism...", Op. Cit., p. 197.

35 Eysenck, "Levels of Personality...", Op. Cit., p.15.

AS A CONSEQUENCE TO THE ABOVE, HE DOES NOT BENEFIT FROM TREATMENT OR RE-EDUCATION:- Even if one accepts the statement that all the staff are engaged in counselling³⁶ (the professional staff at the C.T.C., Brampton in 1954-55, consisted of one psychologist), this would not indicate what else was happening in the institution.³⁷ "Any description of the 'treatment situation' which emphasizes inmate-staff relations to the neglect of inmate-inmate relations is necessarily biased and incomplete".³⁸ It seems to the writer that this inmate interaction, which may have a "reciprocally inhibitory" effect on the acquirement of socially desirable responses, is significant enough to be included in even the crudest type of conceptual framework pertaining to offenders released from a custodial institution.

THEREFORE, HE BECOMES A RECIDIVIST:- The global nature of this concept and some of the difficulties in obtaining a reliable and valid measure of it were pointed out both in the review and earlier in this chapter. Some concurrent

36 M.H. Hooper, S. Keane, et al., "The Brampton Story", in the Canadian Journal of Corrections, Vol. 4, No. 4, issue of October 1962, p. 235.

37 Richard H. Korn and Lloyd W. McCorkle, Criminology and Penology, [No Place], Holt, 1959, p. 554.

38 Id..

validity measures,³⁹ with or without subsequent individual follow-up, may suggest additional approaches to criterion measurement.

In the Summary and Conclusions that follows, suggestions for further research will be made on those topics that the writer thinks would contribute most to the present status of the theory, especially in view of the future availability of additional data similar to data used in this study.⁴⁰ These recommendations will be preceded by a short résumé of the results of the research and the presentation of the conclusions.

39 For example, see C.J. Shea, unpublished Manuscript.

40 Frank Potts, Chief Psychologist, Department of Reform Institutions, Province of Ontario, Personal Communication with the Author.

SUMMARY AND CONCLUSIONS

In examining the relationship between C score on Factor R of the Quilford-Zimmerman Temperament Survey and recidivism, it was found that the hypothesis of no significant negative relationship was upheld. However, a tendency approaching the .05 level of probability, contrary to the hypothesis, was observed, (one-tailed test).

Taking only the two extreme groups on the scale and operationally defining them as extraverts and introverts, the hypothesis that not a larger proportion of the extraverts than introverts become recidivists was rejected.

Thus the results found are in accordance with the findings of previous research on the relationship between extraversion-introversion and recidivism. It does not follow, however, that the findings of this study can necessarily be regarded as supporting Franks' theory in its present form because, 1^o the findings are not sufficiently conclusive; 2^o other factors related to recidivism have not been sufficiently taken into account; 3^o alternative interpretation of the found tendencies is possible on a basis other than Franks' theory.

Three major suggestions for further research arise from the present study:-

1:- To gain a broader understanding of the relationship of extraversion-introversion recidivism, the independent

variable should be examined to establish;

a.- The contribution of R relative to other variables predictive of recidivism.

b.- The relationship of R to recidivism in combination with other factors of the Bullford-Weinerman Temperament Survey.

c.- The relationship between R of the Survey and various other measures of extraversion-introversion.

d.- The relationship between the R score of the Survey and various types of conditioning.

Investigation of points (a) and (b) could be started with data available at present.

2:- To obtain a better measurement of the criterion, recidivism, two steps could be taken;

a.- The sample studied could be limited to those inmates who upon release, reside in the same large city. Individual follow-up studies of both recidivists and non-recidivists could be carried out.

b.- Additional criterion measures such as length of time between release and first subsequent conviction, or various types of offense patterns could be obtained from R.C.M.P. records.

3:- In order that the generalizations drawn from the present study be more conclusive and enjoy wider applicability;

a.- The study could be repeated using different populations and larger samples.

b.- The data could be gathered with research purposes in view thus reducing some of the deficiencies of the present study.

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Barry, William F., An Investigation of Relationships Between Introversiion-Extraversiion and the Negative After Image Treshold, unpublished doctoral thesis, presented to the School of Psychology and Education, University of Ottawa, Ontario, 1961, ix-80 p.

Uses a Guilford R to test a hypothesis derived from the Eysenckian theoretical framework, and cites others doing the same, thus supporting the use of the independent variable in the present study. However, he suggests that the E scale of the Maudsley Personality Inventory might be a more appropriate measure of extraversion.

Bartholomew, Allen, A., "Extraversiion-Introversiion and Neuroticism in First Offenders and Recidivists", in the British Journal of Delinquency, Vol. 10, No. 2, issue of October 1959, p. 192-201.

A careful study using a comparative design. The cross validation with a predictive design of the findings on the relationship between extraversion-introversiion and recidivism was the specific objective of the present study. He also discusses the problem of the possible interaction of Factor E with Factor N in light of his findings.

Becker, Wesley C., "Cortical Inhibition and Extraversiion-Introversiion", in the Journal of Abnormal Social Psychology, Vol. 61, No. 1, issue of July 1960, p. 52-66.

The relationship between various types of inhibition and measures of extraversion are questioned, as a result of the findings of the experiment and thus one of the ideas underlying Franks' theory of extraversion-recidivism is challenged.

Carrigan, Patricia M., "Extraversiion-Introversiion as a Dimension of Personality: A Reappraisal", in the Psychological Bulletin, Vol. 57, No. 5, issue of September 1960, p. 329-360.

Considers the concept extraversion-introversiion with respect to unidimensionality and independence and finds that the evidence for both is equivocal. The need for the careful interpretation of the relationship between extraversion and a criterion is implied.

Eysenck, H.J., "Comments on a Test of the Personality-Satiation-Inhibition Theory", in the Psychological Reports, Vol. 5, No. 3, issue of September 1959, p. 395-396.

Considers low correlations and demonstrated tendencies between measures of extraversion and certain criteria to be of theoretical significance. He suggests that for his theoretical framework Factor E of the Maudsley Personality Inventory is more appropriate than Guilford's R.

-----, "Levels of Personality, Constitutional Factors and Social Influences: An Experimental Approach", in the International Journal of Social Psychiatry, Vol. 6, No. 3-4, Autumn, 1960.

A presentation of Eysenck's theory of reactive cortical inhibition and extraversion with a suggested modification in Franks' theory of extraversion-recidivism.

Franks, Cyril M., "Recidivism, Psychopathy and Delinquency", in the British Journal of Delinquency, Vol. 6, No. 3, issue of January 1956, p. 192-201.

Presents the theory of extraversion-introversion and recidivism that initiated the present study. Certain specific suggestions for research for the testing of the theory are made. The author acknowledges that the theory is somewhat over-simplified.

-----, "Conditioning and Abnormal Behaviour", Chapter No. 12, in the Handbook of Abnormal Psychology, An Experimental Approach, H.J. Eysenck, Editor, New York, Basic Books, 1961, p. 457-487.

The theory is restated as a part of a broader framework relating conditioning and abnormal behaviour. Several of the studies considered suggest some of the complexities inherent in the theory.

Glover, Edward, "Prognosis or Prediction: A Psychiatric Examination of the Concept of Recidivism", in the British Journal of Delinquency, Vol. 6, No. 2, issue of September 1955, p. 116-125.

The different usages of the term "recidivist" by psychiatrists, psychologists, sociologists and statisticians are discussed. It is suggested that the concept should be clarified and elaborated.

Clueck, Sheldon and Eleanor, Unravelling Juvenile Delinquency, Cambridge, Mass., Harvard, 1950, XV-399 p.

A comparative study of a group of delinquents and non-delinquents on four levels of investigation. Franks refers to some of the findings as supportive of his theory of extraversion-recidivism even though the study was carried out independently of the theory. This support is not clear cut.

Glueck, Eleanor, "Status of Glueck Prediction Studies", in the Journal of Criminal Law, Criminology and Police Science, Vol. 47, No. 1, issue of May-June 1956, p. 18-32.

The findings of the various follow-up studies for which the Gluecks are responsible are reported. Only one of the five predictors of recidivism reported for a comparable group was used in the description of the experimental sample of the present study.

Guilford, J.P., Personality, New York, McGraw-Hill, 1959, X-562 p.

A textbook by one of the co-authors of the test that was the source of the independent variable for the present study. He considers "Restraint" and "Rhythymia" as the two extremes of a single bipolar scale and thus offers support for the use of the R of the Guilford-Zimmerman Temperament Survey for the testing of Franks' theory of extraversion-recidivism.

-----, and Wayne S. Zimmerman, the Guilford-Zimmerman Temperament Survey, Manual of Instructions and Interpretations, Beverly Hills, California, Sheridan Supply Co., 1949, 12 p.

Apart from the description of the independent variable used, the Manual's particular relevance for the present study lies in, (1) the coefficient of internal consistency reliability for the standardizing population of the test being regarded as applicable to the experimental sample; (2) the consideration of Factor R as a descriptive category of personality which served as the basis for the alternative explanation to that of Franks' on the relationship between extraversion and recidivism.

Hammond, Suzanne, Test Correlates of Antisocial Behaviour In Juveniles, unpublished Master's research project presented to the Department of Psychology, McGill University, Montreal, Quebec, 1961, 17 p.

A study of extraversion and four other measures the author considers pertinent to Franks' thinking about the characteristics of recidivists. The relationship of the purpose, findings and conclusions of the study to Franks' hypotheses about recidivists is not always clear.

Hildebrand, H.P., "A Factorial Study of Introversion-Extraversion", in the British Journal of Psychology, Vol. 49, Part I, issue of February 1958, p. 1-11.

Apart from the study indicated in the title, the article presents a short historical review of the concept "introversion-extraversion" which takes the place of the historical review of the concept in the present study.

Hooper, H.M., S. Keane, A.S. Agar, R. Brayshaw, V.C. Gunn, F. Blum, G.J. Warden, W. Robertson, T.J.B. Anderson, "The Brampton Story", in the Canadian Journal of Corrections, Vol. 4, No. 4, issue of October 1962, p. 221-246.

The most recent and comprehensive description of the Ontario Training Centre, Brampton, in places it is probably somewhat favourably slanted.

Korn, Richard R., and Lloyd W. McCorkle, Criminology and Penology, [No Place], Holt, 1959, XII-660 p.

A recent textbook in criminology. Points out that the nature and effect of "treatment" in a custodial setting is difficult to establish. This implies further qualifications and problems of verifying Franks' theory of extraversion-recidivism.

Little, William F., A Statistical Survey of the Ontario Training Centre, Brampton, 1947-1959, report submitted to the Department of Reform Institutions, Province of Ontario, April 1959, 105 p.

Presents a complement to the article by Hooper, et al. Also offers an estimate of the proportion of apprehended offenders whose offense and apprehension is recorded by the R.C.M.P.

Lykken, D.T., "A Study of Anxiety in the Sociopathic Personality", in the Journal of Abnormal and Social Psychology, Vol. 55, No. 1, issue of July 1957, p. 6-10.

Using a theoretical framework different from that of Franks' found that psychopaths condition poorly. Its relevance for the present study lies in its implications for the possible interaction of extraversion and neuroticism.

Mannheim, Herman, and Leslie F. Wilkins, Prediction Methods in Relation to Borstal Training, London, Her Majesty's Stationery Office, 1955, vi-276 p.

A follow-up study in England on a group comparable to the sample of the present study. Cited to show that the inadequacy of the descriptive information of the present study is a general problem of research using data available in files of custodial institutions.

McNemar, Quinn, Third Edition, Psychological Statistics, New York, Wiley, 1962, VII-451 p.

A textbook in psychological statistics by a recognized authority in the field. He states that in situations where prediction is involved a one-tailed test is preferable to a two-tailed test.

Miller-Michael, Carmen, "Follow-up Studies of Inverted Children, III: Relative Incidence of Criminal Behaviour", in the Journal of Criminal Law, Criminology and Police Science, Vol. 47, No. 4, issue of November-December 1956, p. 414-422.

Another study carried out independently of Franks' theory of extraversion-recidivism but which, Franks claims, supports the theory. A study of questionable value.

Robin, A.A., "A Pilot Study as Suggested by 'Recidivism, Psychopathy and Delinquency'", in the British Journal of Delinquency, Vol. 8, No. 2, issue of October 1957, p. 139-141.

Attempts to verify some of the hypotheses suggested by Franks. The data used is inadequate.

Rosow, Michael H., "Observations on Group Therapy with Prison Inmates", in the Archives of Criminal Psychodynamics, Vol. 1, No. 4, Fall, 1955, p. 866-897.

A therapeutic technique with prisoners is described. His remarks about imprisoned offenders as being representative of all offenders raises questions about Franks' statement concerning the simplicity of the testing of his theory of extraversion-recidivism.

Rubin, Sol, "Recidivism and Recidivism Statistics", in the NPPA Journal, Vol. 4, No. 3, issue of July 1958, p. 233-240.

Deals mostly with the inadequacies of currently available statistics on recidivism. It is relevant to the present study by its mention of the intensive individual follow-up method as an alternative to the criterion measure used in this project.

Sellin, Thorsten, "Recidivism and Maturation", in the NPPA Journal, Vol. 4, No. 3, issue of July 1958, p. 241-250.

Reviews several North American and European follow-up studies with respect to the relationship between age, criminal record and recidivism. Three of the predictors of recidivism reported were used in the description of the experimental sample of the present study.

Sutherland, Edwin H., Principles of Criminology, Fourth Edition, Chicago, Lippincott, 1949, VII-643 p.

A textbook by a well known North American criminologist. The unreliability of criminal statistics in general is emphasized.

Taylor, James, "Habitual Criminal", in the British Journal of Criminology, Vol. 1, No. 1, Issue of July 1960, p. 32-38.

An essay on the concept "habitual criminal" which suggests that adult and juvenile recidivists may not be comparable and thus implies a possible need for one area of elaboration for Franks' theory of extraversion-recidivism.

Vold, George B., Theoretical Criminology, Oxford University Press, New York, 1958, xi-334 p.

A textbook in criminology by a recognized author in the field. His suggested categorization of the recidivists into four sub-groups implies caution about the interpretation of the findings between a single variable and recidivism.

APPENDIX 1

Items in the Evaluation of Factor R of the
Guilford-Zimmerman Temperament Survey.

		Yes	No
2.	You would rather plan an activity than take part in it.....	1	0
7.	You believe in the idea that we should "eat, drink, and be merry, for tomorrow we die".....	0	1
12.	Other people think of you as being very serious minded.....	1	0
17.	You like parties you attend to be lively.....	0	1
22.	You are inclined to stop to think things over before you act.....	1	0
27.	You like work that requires considerable attention to details.....	1	0
32.	You are a carefree individual.....	0	1
37.	You take life very seriously.....	1	0
42.	You often crave excitement.....	0	1
47.	You sometimes make quick decisions that you later wish you hadn't made.....	0	1
52.	You have a habit of starting things and then losing interest in them.....	0	1
57.	It is difficult for you to understand people who get very concerned about things.....	0	1
62.	Many of your friends think you take your work too seriously.....	1	0
67.	You make decisions on the spur of the moment....	0	1
72.	You often act on the first thought that comes into your head.....	0	1
77.	You like to play practical jokes upon others....	0	1
82.	You are a happy-go-lucky individual.....	0	1
87.	You are so concerned about the future that you do not get as much fun out of the present you might.....	1	0
92.	You often stop to analyze your thoughts and feelings.....	1	0
97.	It is difficult for you to understand how some people can be so unconcerned about the future...	1	0
102.	You can listen to a lecture without feeling restless.....	1	0
107.	You sometimes find yourself "crossing bridges before you come to them".....	1	0
112.	You are one of those who drink or smoke more than they know they should.....	0	1

(Continued)

	Yes	No
117. You like wild enthusiasm, sometimes to a point bordering on rowdiness, at a football or baseball game.....	0	1
122. You keep at a task until it is done, even after nearly everyone else has given up.....	1	0
127. You seldom let your responsibilities interfere with your having a good time.....	0	1
132. You generally feel as though you haven't a care in the world.....	0	1
137. You usually say what you feel like saying at the moment.....	0	1
142. When you get angry, if you let yourself go you feel better.....	0	1
147. You are fond of betting on horse races and games, whether you can afford it or not.....	0	1

APPENDIX 2

Procedure for the Test-Retest Reliability Study for Factor 4.

As of January 10, 1962, one afternoon of the orientation week¹ was reserved for testing by the resident psychologist, the writer. The students who arrived from the O.R., Guelph, on a Tuesday afternoon were seen by the Superintendent, then by the writer, individually on Wednesday morning as part of the routine orientation procedure. During the interview the writer indicated that the student could be asked to retake two of the tests that he had taken at Guelph. It was explained that this was part of a research project that the writer was doing, and that they did not have to participate in it unless they wanted to. However, it was mentioned in passing that since this testing had become a routine procedure in the programme, it has replaced general fatigue duties for that afternoon, and if the student did not feel like taking the test, he would have no choice but do fatigues on that afternoon. This individual approach in the form of a request, with mentioning the possible alternative proved to be productive; with one exception the students appeared cooperative and were "well behaved".

¹ H.M. Hooper, S. Keane, et al., "The Brampton Story", in the Canadian Journal of Corrections, Vol. 4, No. 4, issue of October 1962, p. 225-226.

(Continued)

The two tests administered were the Guilford-Zimmerman Temperament Survey² and the Mental Health Analysis³ in that order. For the first four weeks the testing was held in one of the empty classrooms of the academic school. Subsequent to the first month it was found to be more convenient to do the testing in the staff library adjacent to the psychologist's office where extra chairs and tables were put in, and up to ten students at a time, could be accommodated with comfort. In case this number was exceeded, only once, place in the psychologist's office could be made available for another three students. Smoking was permitted during the testing. The testees were encouraged to ask the meaning of the words in the questions about which they were doubtful. The words asked were shortly explained to the individual testee asking them, and the writer recorded the words asked. Words that appear in the questions pertaining to Factor K were not questioned.

There were 115 new admissions between January 10, and June 7, 1962. Apart from two successive Tuesdays when the

2 J.P. Guilford and Wayne S. Zimmerman, the Guilford-Zimmerman Temperament Survey, Beverly Hills, California, Sherider Supply Co., 1949.

3 Louis P. Thorpe and Willis W. Clark, Ernest W. Fieles, Consultant, Mental Health Analysis, All Levels, Grade 4 to Adult, 1959 Revision, Los Angeles, California, California Test Bureau, 1959.

(Continued)

writer was absent unexpectedly due to illness, and three other separate Tuesdays when there were no new admissions, the above described procedure was followed every consecutive Tuesday. Deducting the sample loss, (see Appendix 3) a sample of eighty students was left for the calculation of the required statistic.

The names on the tests were replaced by a code number, and the scoring was done by four students of the Centre selected for their maturity, dependability and arithmetical ability. The scoring done by one student was double checked by another and spot checked by the writer.

The following formula was used for the calculation of the reliability coefficient of correlation:

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}}$$

where, $N = 80$

$X = \underline{R}$ score, \underline{C} score units, obtained at the
O.R., Quelph;

$Y = \underline{R}$ score, \underline{C} score units, obtained at the
O.F.C., Brampton.

The result and the interpretation of the result for Factor R is presented on p. 32-33.

APPENDIX 3

Table VI.-

Reasons for Excluding Individuals From the Reliability Study
Sample (N = 35).

Did not take test at <u>O.R.</u> , Guelph - language difficulty.....	7
Did not take test at <u>O.R.</u> , Guelph - low <u>I.Q.</u>	3
Spoilt test at <u>O.R.</u> , Guelph.....	1
So "Psychometrics" from <u>O.R.</u> , Guelph.....	5
Did not come through <u>O.R.</u> , Guelph.....	1
Slow, incomplete at the <u>O.T.C.</u> , Brampton.....	4
Did not appear to take test seriously at the <u>O.T.C.</u> , Brampton.....	1
Called away for visit at <u>O.T.C.</u> , Brampton.....	2
Test not administered at the <u>O.T.C.</u> , Brampton - Psychologist ill.....	11

APPENDIX 4

Selection Standards for the Ontario Training Centre,
Brampton, 1953-54-55.

- AGE: 16 to 24 years inclusive.
(i.e. up to their 25th Birthday at time of admission to Brampton).
- INTELLIGENCE: A. An I.Q. of 85 or higher - less than 85 are sent to O.T.C., Burch.
B. Inmates with an I.Q. of 80 to 84 may be sent to either the O.T.C., Brampton or the O.T.C., Burch.
- SENTENCE: Generally speaking an Inmate should have not less than three months of his sentence left to serve at time of screening.
- CUSTODIAL RISK: The Inmate should be considered to be sufficiently stable to adjust to an open institution.
- CRIMINAL RECORD: A. Usually the Inmate who has already received training at the O.T.C., Brampton on a previous conviction will not be considered for further training at that Centre.
B. At time of screening the Inmate should not have had more than three previous adult convictions or have served a sentence of more than six months.
- MENTAL HEALTH: An Inmate should be rejected for training if there is evidence of:
A: Psychosis. B: Severe Neurosis.
C: Homosexuality. D: Arson.

APPENDIX 5

Table VII.-

Reasons for Excluding Individuals from the Experimental Sample (N = 39).

No "Psychometrics" available.....	3
Did not come through <u>O.R.</u> , Buslph.....	11
Language Problem.....	12
Literacy Problem.....	2
Mentally Retarded.....	3
Reading Difficulty.....	1
Writing Difficulty.....	1
Doubtful Validity.....	3
Called away during the test.....	1
Incomplete.....	1
Blank, no reason given.....	1

APPENDIX 6

Tabulated Raw Data of the Study.

Table VIII.-

Frequency Distribution of R scores, (C score units) of Recidivists, Non-recidivists and Both Groups Combined.

Score	Recidivists N:101	Non-recidivists N:142	Combined N:243
0	2	1	3
1	6	4	10
2	7	5	12
3	15	22	37
4	9	18	27
5	20	18	38
6	19	44	63
7	13	11	24
8	6	16	22
9	4	3	7
10	0	0	0

APPENDIX 7

ABSTRACT OF

An Investigation of the Relationship of a Measure of Extraversion-Introversion and Subsequent Recidivism for a Selected Group of Young Offenders¹

Franks has suggested that from certain measures of the personality dimension extraversion-introversion, it was possible to predict who would benefit and who would not benefit from re-education in a custodial institution. Recidivists could be considered as those who had not benefited from this re-educational process.

This study investigated the proposed relationship. The sample consisted of a group of young adults between the ages of 16 and 25 years, each with an I.Q. score of at least 85, and with none or very few previous offenses on their records, and who were released from the Ontario Training Centre, Brampton, during a twelve month period in 1954-1955. A C score on Factor R of the Quilford-Zimmerman Temperament Survey obtained prior to the individual's admission to the Centre served as a measure of extraversion-introversion. R.C.S.P. follow-up records of each individual up to 1960 served as the criterion of recidivism subsequent to release.

¹ Frank J. Blum, master's thesis presented to the School of Psychology and Education of the University of Ottawa, Ontario, May 1963, ix-84 p.

(Continued)

The hypothesis of no negative relationship between \bar{R} score and recidivism was upheld though the obtained point biserial coefficient of correlation approached the .05 level of probability. The subhypothesis, using extreme groups on the \bar{R} scale, of not more extraverts than introverts recidivating was rejected at the .05 level of probability.

The findings were inconclusive with respect to Franks' theory, but tended to support the findings of Bartholomew who had tested Franks' hypothesis by postdictive design. An alternative explanation of the findings not incompatible with Franks' theory was proposed.

Possible weaknesses in the design of this thesis and in Franks' theory were pointed out, and suggestions for further research were made.