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NEUROTICISM-EXTRAVERSION AND RECIDIVISM

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Psychology and Education of the
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fulfillment of the requirements
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CURRICULUM STUDIORUM

Raymond J. Parthun was born in Milwaukee, Wisconsin, on May 29, 1936. He received his B. Sc. degree from Marquette University in January 1959, and a Master of Arts degree in Psychology from the University of Ottawa, Ontario, in May 1963.

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INTRODUCTION

The study of the legal offender presents problems in both theory and research methodology. On the one hand, it is difficult to differentiate between successful and unsuccessful legal offenders, i.e., between offenders who are able to avoid apprehension and those who become criminal statistics. On the other hand, it is somewhat of a value judgment to state that the apprehended legal offender is unsuccessful, because apprehension is often a powerful deterrent to committing legal offenses again. Apprehension can also be a personal criterion of success for those types of persons often referred to as institutionalized, who offend with the hope of resultant apprehension. Nor is this line of distinguishing successful and unsuccessful offenders given much support by research endeavors which, at best, can only speculate concerning the unapprehended offender and which are forced to use extremely unreliable data when dealing with those apprehended. This problem has been pointed out emphatically by Sutherland.¹

Unfortunately, these are some of the conditions, among many others, which often obviate the use of the best rationale of psychological research in attempting to

¹ E. Sutherland, Principles of Criminology, Philadelphia, Lippincott, 1947, xvi-632 p.

understand the legal offender and this has, no doubt, prompted Wilkins,² among many others, to retreat to the comforts of despair concerning the present value of research in correctional psychology.

Perhaps the most accessible group of offenders are those who persistently offend and are apprehended. Not only their accessibility, but also the intrigue that they offer from a psychological viewpoint makes them a favored group for research. Concepts such as learning ability, socialisation, constitutional disposition and environment have been applied to this group. Many researchers have aligned their thinking with but one of these concepts, seeing it as offering the total explanation of the persistent offender. Others feel that several or all these notions play an active role, if even by their absence, in shaping the behavioral pattern of recidivism.

Only a few researchers have offered any theoretical schema for their thinking which permits testing and from which a hypothesis may be derived. Among these, probably the best formulated theoretical schema that can be applied to investigations of the persistent offender has been

2 L.T. Wilkins, "Juvenile Delinquency: A Critical Review of Research and Theory", Educational Research, Vol. 5, No. 2, 1963, p. 104-119.

offered by H.J. Eysenck and his followers, especially C.M. Franks.³ This approach combines many of the concepts mentioned as important in shaping an individual's behavioral disposition and activity. A model for analysing this type of behavior is accessible which can readily be applied to the persistent offender, making use of the concepts of Extraversion-Introversion and setting forth postulates which reflect such processes as learning, conditioning, socialization and, lastly, Neuroticism, with its postulate of internal stress and stimulation being subject to cortical inhibition.

Eysenck's theory is based on the concept of typology which has its foundation in psychoneurological postulates. The typology has relied on factor analysis of personality measurements. Two of the three factors which resulted from his investigation were Extraversion and Neuroticism, which originally were set forth as being factorially orthogonal.

The Extraversion dimension, to the exclusion of Neuroticism, was used to explain two behavior syndromes called Hysteria and Psychopathy. Franks⁴ found a ready application of Extraversion to Recidivism. However, as many

³ C.M. Franks, "Conditioning and Abnormal Behavior", Handbook of Abnormal Psychology, H.J. Eysenck, Ed., New York, Basic Books Inc., 1961, p. 457-489.

⁴ Ibid.

research projects failed to find full support for a direct relationship between Extraversion and Psychopathy or Recidivism, but rather found support for a greater importance in the Neuroticism dimension, Eysenck has conceded that perhaps Neuroticism is not orthogonal to Extraversion when considering these types of individuals. This has set in motion another chapter in the voluminous research utilizing this theory, with emphasis on investigating the possible predictive value of Neuroticism, and the combined influence of Extraversion and Neuroticism in attempting to explain behavior.

Perhaps this is where the research should have begun, since Eysenck's original schema of reported factors is noticeably non-orthogonal as high factor loadings, in terms of axes representation, indicate that Psychopathy as well as Hysteria are a combined effect of Neuroticism and Extraversion. Since the study of the combination of these two factors has only been a recent development, this study is timely in its attempt to relate both factors to Recidivism with a test for interaction. The plan to be followed in this research can best be summarized by presenting a short resume of the content of the following chapters.

In chapter one, the review of the literature, the writer has refrained from repetition as much as possible. Where available, reviews as presented in other studies were

not repeated. This became necessary due to the voluminousness of research utilizing Eysenck's theoretical model and the writer's acknowledgment that these reviews could not be improved upon. However, main sources which contribute to understanding the rationale of this study and which hopefully lend cohesiveness to the presentation are noted. The general hypothesis is derived and noted in this chapter.

Chapter two describes the research procedures used, the setting, the sample and methods of statistical analysis. The statistical hypotheses end this chapter. The third chapter presents the results and a short discussion. The summary and conclusions are followed by suggestions for further research.

CHAPTER I

REVIEW OF THE LITERATURE

This chapter presents a review of the literature related to the study, leading to a formulation of the general hypothesis.

Section one presents the theoretical postulates invoked in explaining the Extraversion dimension followed in section two by an examination of research which has attempted to explore these postulates. The third section presents studies relating Extraversion and illegal behavior. Section four states the theoretical postulates of Neuroticism and its relationship to illegal behavior. Section five states the general hypothesis.

1. The Theoretical Postulates of Extraversion.

The dimension Extraversion has been related to psychoneurological postulates which emphasize innate cortical processes and assumed associated individual differences in learning ability. The cortical processes invoked are those of excitation and inhibition, the latter being specified as "a reaction in the nervous structure which mediates a stimulus response connection by opposing its

recurrence".¹ Excitation is interpreted as inter-neuronal and intra-neuronal stimulation. The construct inhibition is placed within a context of individual differences on a behavioral level. Eysenck states:

Individuals in whom reactive inhibition is generated quickly, in whom response inhibitions are dissipated slowly and in whom response inhibitions are generated, are thereby predisposed to develop extraverted patterns of behavior (...) whereas, individuals in whom weak response inhibitions are generated and in whom inhibition is developed slowly and dissipated quickly are thereby predisposed to develop introverted patterns of behavior.²

Given these descriptive categories, workable hypotheses concerning individual differences in conditionability have been evaluated. Franks³ found that introverted normals conditioned better than extraverted normals (using eye-blink-puff of air conditioning), which supported Eysenck's contention that "the more easily an individual forms conditioned responses, the more introverted will his behavior be".⁴

1 H.J. Eysenck, "Cortical Inhibition, Figural After-effect and Theory of Personality", Journal of Abnormal and Social Psychology, Vol. 51, No. 1, 1955, p. 96.

2 Ibid., p. 97.

3 C.M. Franks, "Personality Factors and the Rate of Conditioning", British Journal of Psychology, Vol. 30, Part 2, 1957, p. 147-158.

4 H.J. Eysenck, Behavior Therapy and the Neurosis, London, Pergamon Press, 1960, p. 6.

Vegel⁵ concluded from her research that conditioned galvanic skin response is elicited in fewer trials and is more resistant to extinction in introverts than in extraverts when differences in neuroticism were controlled and that both alcoholic and non-alcoholic extraverts more frequently failed to display a conditioned GSR than a group of alcoholic-nonalcoholic introverts. One wonders what these results really mean, given the possibility of cortical deterioration often found in the severe alcoholic. The fact that the severity of alcoholism for this group was not mentioned casts a shadow of doubt upon the conclusions made.

Most recently, Spence and Spence⁶ also studied eye-blink conditioning and its relationship with Extraversion and manifest anxiety. They found no significant correlation between Extraversion and this type of conditioning but found that conditioning eye-blink is possibly related to measures of manifest anxiety and the scores on the Maudsley Personality Inventory Neuroticism Scale.

⁵ M.D. Vogel, "GSR Conditioning and Personality Factors in Alcoholics and Normals", Journal of Abnormal and Social Psychology, Vol. 63, No. 2, 1961, p. 417-421.

⁶ K.W. Spence and J.T. Spence, "Relation of Eyelid Conditioning to Manifest Anxiety, Extraversion and Rigidity", Journal of Abnormal and Social Psychology, Vol. 68, No. 2, 1964, p. 144-149.

In another study, Ihsan Al-Issa⁷ concluded that his data gave no substantial results to support the hypothesis that eye-blink conditioning and Extraversion are correlated.

Becker⁸ noted that Eysenck considered both saturation effect and reactive inhibition effects resulted from cortical inhibition, while Franks referred to a basal trait-like difference among individuals. He attempted to find out which of these three, if not all, were related to differences in Extraversion-Introversion. He found Franks' notion of basal cortical inhibition unrelated to either Introversion or Extraversion. Also, there was no support for Eysenck's saturation or reactive inhibition concepts being related to Introversion or Extraversion. He did note some relationship between Eysenck's and Franks' concepts, however. He concluded with the very strong statement that, "if a relationship between reactive inhibition and extraversion exists, it is probably of such a small magnitude to be practically and theoretically trivial".⁹ Franks¹⁰

7 Ihsan Al-Issa, "The Effect of Attitudinal Factors on the Relationship between Conditioning and Personality", British Journal of Social and Clinical Psychology, Vol. 3, Part 2, 1964, p. 113-119.

8 W.C. Becker, "Cortical Inhibition and Extraversion-Introversion", Journal of Abnormal and Social Psychology, Vol. 61, No. 1, 1960, p. 52-66.

9 Ibid., p. 65.

10 C.M. Franks, "Personality and Eyeblink Conditioning Seven Years Later", Acta Psychologica, Vol. 21, No. 4/5, 1963, p. 295-312.

conceded in a recent article that the relationship between conditioning and Extraversion is non-existent, but suggested that the interaction of Neuroticism and Extraversion be studied in subsequent research.

Using another approach, Barry¹¹ investigated cortical inhibition by measuring inhibition to retino-occipital stimulation. He found no significant relationship between Guilford's factor R (an Extraversion factor) and negative after-image threshold. He suggests that his data support "similar studies which have found no justification for accepting a relationship between his (Eysenck) personality dimension and reactive inhibition".¹²

The cited studies seem to suggest that Extraversion has little predictive value due to the inability of research to find a relationship with the postulate set forth (conditioning) as its basis. It is still advisable to consider that the conditioning experiments used to test this notion were of a specific kind, i.e., eye-blink conditioning and whether this type of conditioning tests the hypothesis. However, this does not explain Barry's results, which do

¹¹ W.F. Barry, An Investigation of Relationships Between Introversion-Extraversion and Negative After Image Threshold, unpublished doctoral thesis presented to the School of Psychology and Education of the University of Ottawa, 1961, 80 p.

¹² Ibid., p. 80.

suggest that perhaps the hypothesized relationship between Extraversion and cortical inhibition, as measured by negative after image threshold, is not as simple as Eysenck would suggest.

2. Behavioral Correlates of Extraversion.

Testing the notion of Extraversion in its implied behavioral manifestations, Eysenck¹³ has noted that Psychopaths and Hysterics are notably extraverted, whereas those individuals often categorized as anxiety neurotics, obsessive-compulsives, depressives and mixed neurosis tend to be introverted. The former group he called Hysterics and the latter groups he called Dysthymics. Franks¹⁴ found that Dysthymics tend to have high scores on tests of Introversion and high scores on tests of Neuroticism. Hysterics, on the other hand, while showing high scores on tests of Neuroticism, also showed high scores on measures of Extraversion. He states, "These different kinds of neurotics differ essentially, not along the dimension of neuroticism but along the dimension of Extraversion-Introversion."¹⁵

¹³ H.J. Eysenck, "Classification and the Problem of Diagnosis", Handbook of Abnormal Psychology, Basic Books Inc., New York, 1961, p. 9.

¹⁴ C.M. Franks, "Conditioning and Abnormal Behavior", Handbook of Abnormal Psychology, H.J. Eysenck, Ed., Ibid. p. 457-489.

¹⁵ Ibid., p. 461.

It is not easy to follow the line of reasoning used to arrive at this conclusion. Granted that the difference in the two groups is on the Extraversion-Introversion dimension, it nevertheless seems that it would be equally valid to conclude that the two groups were essentially neurotics which calls into question the interpretation that this represents unequivocal support for dichotomizing introverts and extraverts. Hamilton¹⁶ points this out in noting that Eysenck purposely set out to show that Introversion and Extraversion were independent of Neuroticism but did not test the equally valid hypothesis that degree of Introversion and Extraversion is proportional to the degree of Neuroticism.

From another point of view, Storms¹⁷ questions Eysenck's methodology in which he pooled hysterics and psychopaths as a criterion group for Extraversion. In his study he showed that, "Hysterics and Psychopaths were differentiated best by tasks having high loadings on extraversion-introversion."¹⁸ The point made is that in

16 V. Hamilton, "Conflict Avoidance in Obsessionals and Hysterics and the Validity of the Concept of Dyshymia", Journal of Mental Science, Vol. 103, No. 433, 1957, p. 666-667.

17 L.H. Storms, "Discrepancies Between Factor Analysis and Multivariate Discrimination Among Groups as Applied to Personality Theory", Journal of Mental Science, Vol. 104, No. 435, 1958, p. 713-721.

18 Ibid., p. 719.

pooling hysterics and psychopaths, differentiation should not exist using the criterion (Extraversion-Introversion) when it is assumed that the criterion allows for non-differentiation.

Also examining the efficacy of using hysterics and dysthymics as a criterion group of Extraversion-Introversion, Segal, Star and Franks¹⁹ used the Extraversion and Neuroticism scales of the Maudsley Personality Inventory on twenty-seven hysterics-psychopaths and twenty-five dysthymics all of whom were selected on the basis of unanimous diagnostic agreement among three psychologists. The results suggested three conclusions. The first possibility was that hysterics and dysthymics could not be used as criterion groups for Extraversion-Introversion. The second suggestion was more devastating in that it questions whether the Extraversion scale does measure Extraversion. Lastly, it was proposed that both of these suggestions were true. Eysenck²⁰ replied to this heavy criticism by suggesting that the sample size used in their study was too small to warrant the conclusions made.

19 J.J. Segal, K.J. Star, and C.M. Franks, "Hysterics and Dysthymics as Criterion Groups in the Study of Extraversion-Introversion", Journal of Abnormal and Social Psychology, Vol. 57, No. 2, 1958, p. 143-146.

20 H.J. Eysenck, "Hysterics and Dysthymics as Criterion Groups in the Study of Extraversion-Introversion: A Reply", Journal of Abnormal and Social Psychology, Vol. 57, No. 2, 1958, p. 250-252.

In summary, the criticism has been leveled at Eysenck that he was not justified in studying Extraversion-Introversion independently of Neuroticism and that there is little support for his contention that there is a real differentiation between hysterics-psychopaths on the one hand and dysthymics on the other. These criticisms seem valid and have forced Eysenck to revamp his views as to the part Neuroticism plays in describing behavioral syndromes which in turn reflects upon the postulates used to set these concepts within a theoretical framework.

As will be noted later, Eysenck in attempting to reach a rapprochement has derived an alternative explanation utilizing both dimensions in studying behavior syndromes as well as offering another explanation of the underlying postulates. He has not changed his position essentially, however. These modifications will be dealt with in the discussion of Neuroticism.

Before presenting the concept of Neuroticism, it will be necessary to present the research that has used the concept of Extraversion as applied to the study of illegal behavior.

3. Extraversion as Related to Illegal Behavior.

The basic assumption underlying the use of the Extraversion concept in studying illegal behavior is that

this type of behavior is much akin in definition to the behavioral description of Extraversion. Persistent illegal behavior reflects in part upon an individual's ability to be conditioned, to learn, or to profit from experience. Inadequate socialization is also the mark of the extravert, as Eysenck states:

Insofar as our hypothesis deals with conduct and patterns of observable behavior it must, I think, be concluded that we are on relatively safe ground in putting forward the hypothesis that differences in conditionability determine in part the socialized and anti-social behavior of children and adults alike.²¹

Franks, applying the theory of Extraversion to Recidivism, states:

Some recidivists would have learned anti-social patterns from the undesirable environment in which they live. Even repeated prison sentences if custodial, would merely provide a reinforcement of the undesirable society whose patterns they learned so well. These recidivists could be detected by their tendency toward introversion and by their ease of conditioning. They are the non psychopathic recidivists who, if they are highly responsive to undesirable training should be equally responsive to more desirable treatment such as re-education.²²

He agrees with Eysenck in suggesting that there are recidivists who are poor in forming conditioned responses.

²¹ H.J. Eysenck, "Symposium -- The Development of Moral Values in Children, VII. The Contribution of Learning Theory", British Journal of Educational Psychology, Vol. 29, No. 1, 1959, p. 217.

²² Franks, "Conditioning and Abnormal Behavior", Op. Cit., p. 469.

These would be noted by their extraversive tendencies and their inability to profit from re-educative attempts.

Lykken²³ differentiated between the neurotic psychopath (presumably an individual who has high scores on tests of Extraversion and Neuroticism) and the sociopath (high Extraversion but moderate Neuroticism scores). Since both are extraverted both should condition poorly and this was his conclusion.

Blum,²⁴ in 1963, studied first offenders who subsequently became recidivists and found no significant relationship between Extraversion and Recidivism. He suggested, however, that the correlation was in the direction predicted, that is in support of the theory. However, neither of these studies attempted to control the Neuroticism component as suggested by Eysenck²⁵ and Bartholemew,²⁶ as well

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

24 F.J. Blum, An Investigation of the Relationship of a Measure of Extraversion-Introversion and Subsequent Recidivism for a Selected Group of Young Offenders, unpublished master's thesis presented to the School of Psychology and Education of the University of Ottawa, 1963, 84 p.

25 H.J. Eysenck, "Personality and Drug Effects", Experiments in Drugs, Studies in the Relation between Personality, Learning Theory and Drug Action, H.J. Eysenck, Ed., Oxford, Pergamon Press, 1963, p. 12.

26 A.A. Bartholemew, "Extraversion-Introversion and Neuroticism in First Offenders and Recidivists", British Journal of Delinquency, Vol. 10, No. 2, October 1959, p. 120-129.

as Franks²⁷ who called both the dysthymics and hysterics groups "neurotics".

Eysenck²⁸ studied recidivists and found them to have mean Neuroticism scores comparable to a clinically determined neurotic group.

Bartholomew²⁹ noted that, of his group of twelve introverted recidivists, eight had high Neuroticism scores and, similarly, the extraverted recidivists had equally high Neuroticism scores. Of the first offenders in his study, ten of the fourteen extraverts had high Neuroticism scores, while only three of the nine first offender introverts had high Neuroticism scores. He noted significant differences in Extraversion scores between first offenders and recidivists and, likewise, significant differences in Neuroticism scores between these two groups. However, the correlation between Neuroticism and Extraversion which, although, not strikingly high, strongly suggested that in this group it would be difficult to sort their relative contribution to recidivism. He did not test the hypothesis that perhaps Extraversion and Neuroticism jointly contribute to

²⁷ Franks, "Conditioning and Abnormal Behavior", Op. Cit., p. 469.

²⁸ H.J. Eysenck, Behavior Theory and the Neurosis, London, Pergamon Press, 1960, ix-479 p.

²⁹ Bartholomew, Op. Cit., p. 126.

differences between his groups. This was one of the bases from which the present study evolved, i.e., to test for possible joint effect of Neuroticism and Extraversion.

Fitch³⁰ supported Bartholemew's finding that recidivists score higher on Neuroticism than first offenders but not the conclusion that recidivists are more extraverted than first offenders. He also found Neuroticism to be related to recidivism but no direct relationship between Extraversion and Recidivism was found.

Franks³¹ stated that either the presence of neurotic tendencies or the administration of stimulant drugs facilitated both the formation of conditioned responses and the evocation of already formed conditioned responses and that once formed, these responses are more resistant to extinction. These seem to be in accord with much clinical thinking which has suggested that anxiety or some kind of "internal" activity is necessary for beneficial treatment of individuals with psychopathic tendencies or those classified as character disorders. Bomberg³² has even

30 J.H. Fitch, "Two Personality Variables and Their Distribution in a Criminal Population", British Journal of Social and Clinical Psychology, Vol. 1, Part 3, 1963, p. 161-167.

31 Franks, "Conditioning and Abnormal Behavior", Op. Cit., p. 469.

32 W. Bomberg, "The Psychopathic Personality Concept Re-evaluated", Archives of Criminal Psychodynamics, Vol. 4, No. 2, 1961, p. 435-442.

suggested that a psychopathic individual clinically appears more like a neurotic individual than like what he calls a "fixed character structure".

Sweetbaum³³ suggests that dysthymics and hysterics could more parsimoniously be conceived in terms of high and low anxiety groups respectively. These studies, among many, have led Eysenck to further clarify his own thinking and examine what he initially reported as independent dimensions. In one of his most recent publications, Eysenck³⁴ states that the independence of Extraversion and Neuroticism is no longer applicable in neurotic populations. He states:

Although this independence was indeed found to hold in normal populations, it ceased to apply in neurotic populations or even normal sub groups having high scores on neuroticism.³⁵

This statement renders all past research dealing with Extraversion obsolete unless factor Neuroticism was taken into account or at least the extensiveness of Neuroticism was checked in the groups studied.

33 A.A. Sweetbaum, "Comparison of the Effects of Introversion and Extraversion and Anxiety on Conditioning", Journal of Abnormal and Social Psychology, Vol. 66, No. 3, 1963, p. 249-254.

34 Eysenck, "Personality and Drug Effects", Op. Cit., p. 1-24.

35 Ibid., p. 12.

4. Theoretical Postulates of Neuroticism.

Initially, Eysenck³⁶ thought of Neuroticism as a trait similar in kind to intelligence and which he found to be orthogonal to Extraversion. He states quite explicitly, "Neuroticism is similar to the general trait of intelligence; wherein pathological variants may or may not be present in the population." There seems to be little question that he intended Neuroticism to be differentiated from neurosis, although he did see a relationship between high Neuroticism and tendency toward neurotic dispositions.

More recently, Eysenck has set forth neurological postulates as a basis to explain what he means by Neuroticism, as well as to give the concept a theoretical dimension. The postulate relates Neuroticism to the autonomic nervous system and the responsivity of the organism to autonomic stress. He says:

In some people the autonomic system and the emotions aroused through it are produced quickly, strongly and lastingly; people of this kind are thus predisposed to over-emotional unstable conduct. At the other extreme we have people whose emotions are difficult to arouse, are not very strong and do not last for very long periods of time.³⁷

³⁶ H.J. Eysenck, Structure of Human Personality, London, Methuen, 1953, xiii-348 p.

³⁷ -----, "Biology and Conscience", New Society, No. 100, 1964, p. 8.

The parallel with the Extraversion-Introversion model is clearly evident. Instead of exteroceptive and proprioceptive stimuli being input as in the case of Extraversion-Introversion, what he refers to as input for Neuroticism is internal stimulation. Supposedly, high Neuroticism reflects high internal stimulation. High Neuroticism scorers perceive these internal stimulations and react to them as much as to external stimuli, or more depending upon the personality disposition balance. Within the normal range particularly, Neuroticism could be identified with the concept of drive which makes it possible to postulate that high neuroticism scorers, since they need not be abnormal, possess greater amounts of drive than low scorers who also could be non-neurotics clinically. Unfortunately, there has been little time since this hypothesis was proposed to relate research either supporting or not supporting this position.

As mentioned earlier, Eysenck has not changed his position as to the primacy of Extraversion and its relationship to conditionability, learning, et cetera. He suggested that if extraverts were also high on Neuroticism they would possess the same capacity of inhibition of autonomic reactivity as for exteroceptive reactivity. He says:

Extraverts high in neuroticism would consequently inhibit these stimuli more successfully than introverts so that at high levels of neuroticism extraverts generating as much stimulation as introverts would soon drop to a lower level of stimulation due to inhibition.³⁸

Accordingly, the neurotic³⁹ extravert also has the capacity to inhibit internal drives which still makes it difficult for him to be conditioned, to learn from past experience unlike the neurotic introvert. The neurotic introvert should then possess more potential for conditionability than the non-neurotic introvert and thereby have the optimal characteristics for profiting from experience.

5. General Hypothesis.

It will be the task of this study to examine these conventions in the light of persistent illegal behavior which represents an inability on the part of the individual to profit from experience, or to learn new patterns of behavior.

The general hypothesis states in the null form that there is no relationship between each of the criteria of Recidivism and a) Extraversion, b) Neuroticism, and c) various combinations of Extraversion and Neuroticism.

³⁸ Eysenck, "Biology and Conscience", Op. Cit., p. 6-10.

³⁹ Neurotic here understood as high Neuroticism scorer.

The three criteria of Recidivism were operationally defined as:

1. The number of times an individual is convicted of an indictable offense after his release from a penal institution and for which he is returned to a penal institution.
 - a) Further specification is made in that individuals sentenced to a penitentiary term of longer than three years will be eliminated since his chance of recidivating is considerably lessened for the post release period of time assessed in this study.
2. The number of days from the time the individual is released from an institution to the day he commits his next indictable offense for which he is convicted and returned to a penal institution.
3. The fact that an individual is charged for offenses while in Brampton or not. This will be a rough index of institution adjustment.

The hypothesis calls for a multi-dimensional analysis of the data which will be described in the next chapter as well as the general method of the study.

CHAPTER II

DESIGN

In this chapter a description of research procedures used for the study is presented. Section one describes the setting from which the data were obtained, followed by a description of the sample population. The second and third sections describe the data and the tests used to measure the predictor variables - Neuroticism and Extraversion. Section four describes the statistical methods used in testing the general hypothesis followed by a statement of the statistical hypotheses tested.

1. Reformatory Setting and Study Sample.

Data were obtained from the Ontario Training Centre in Brampton, Ontario. This institution "provides living, training and recreation facilities for two hundred male offenders between sixteen and twenty-four years of age selected from the reception wing of the Ontario Reformatory at Guelph".¹ It has as its policy not only institutional guidance, but also

¹ H.M. Hooper, et al., "The Brampton Story", Canadian Journal of Corrections, Vol. 4, No. 4, 1962, p. 221.

(...) a social re-education influence to all those committed to its care. The emphasis is upon reconstruction of social and vocational attitudes rather than on punishment. The principle of approximating as closely as possible normal living, working and recreational routine has become a cornerstone of the Brampton Centre policy and philosophy.²

The standards of selection³ for the Training Centre allow trade training in eleven workshops which consist of sheet metal work, welding, radio repairing, machine shop, motor mechanics, painting, (including silk screen and commercial art), barbershop, woodworking, bricklaying, electrical and maintenance services which includes stationary engineering and food services, both on a practical level of training as well as classroom lectures. All of these various shops stress instructions in the work as well as an opportunity to practice learned skills often in institutional projects and maintenance. In addition to trade training, each student is compelled to attend classes which concentrate on English, mathematics, and civics. For other services and facilities, such as hobby craft, religious instruction, psychological and parole services, see "The Brampton Story".⁴

2 Hooper, et al., Op. Cit., p. 222.

3 See Appendix 1 for selective criteria.

4 Hooper, et al., Op. Cit.

One aspect of the program which might be described in greater detail is that of discipline procedures, as one of the criteria of Recidivism used here is that of institution charges which arise from disciplinary sanction.

For violation of institutional rules, such as gambling or insolence,⁵ the student is given the opportunity to change without sanction. Failing this, the student is placed "on charge" which means that a report on his behavior is submitted to the superintendent for sanction. The lesser offenses of this kind result in forfeiture of privileges, forfeiture of good conduct remission, or dissociation. Quite serious offenses dictate that the offender will be placed in close confinement, or returned to the Ontario Reformatory at Guelph. Institutional offenses will be included as measures of Recidivism on the grounds that they are comparable to offenses in society, that is, they represent a lack of conformity, for which sanctions have been imposed.

Although, in theory an offender with three or more convictions, or who has served a sentence of less than six months could be accepted as a student⁶ in practice, the majority of students are first offenders, that is without

⁵ See Appendix 2 for list of possible violations for which an individual at OTC, Brampton can receive sanctions.

⁶ Inmate offenders are called students.

previous institutional experience. They might have paid fines or have been incarcerated in a county jail for short periods of time or have been training school wards, however. The sample for study was such a group, that is, first offenders understood in this way.

The total sample consisted of 468 young offenders released from Brampton during the years 1954, 1955. Their mean age was 19.27 years and ranged from 16 to 25 years with a standard deviation of 2.42. They had a mean educational level of 8.66 grades with a standard deviation of 2.15 grades and a range of 5 to 15 grade levels. Otis' Advanced Examination for Intelligence⁷ estimates indicated a mean intelligence quotient of 97.69 with a standard deviation of 10.09 and a range of 67 to 126. These characteristics are here presented in order to specify the sample. The influence these variables could have in studying Recidivism has not been dealt with in this study since to do so would make the study exceedingly complex and thereby decrease precision in analysing and interpreting the data. These variables have been studied by Blum⁸ relative to a comparable sample, but these data are not yet available for inclusion at this time.

⁷ Arthur S. Otis, Otis Group Intelligence Scale Advanced Examination, Yonkers-on-Rudson, N.Y., World Book Co., 1929. (Hereafter referred to as Otis IQ).

⁸ F.J. Blum, Further Investigation of Extraversion-Introversion and Subsequent Recidivism for a Selected Group of Young Offenders, Ph.D. research thesis in progress.

2. Research Data.

The data for this study were of two kinds: the predictor measures, consisting of the Guilford-Zimmerman Temperament Survey,⁹ Factors, Restraint (R) and Emotional Stability (E); and criteria measures which included RCMP Finger Print Section (FPS) reports and institutional records. The FPS reports facilitated the collation of the number of post institutional (Brampton) reincarcerations and the period of time between post-Brampton and the date of conviction which resulted in reincarceration (number of free-days). The institutional records listed the number of charges accumulated by each student. These three criteria measures were defined as Recidivism as noted in chapter one.

All of these measures, with the exception of the RCMP FPS reports were obtained from institution files of students who were released from Brampton during the fiscal years 1954-1955. The RCMP FPS reports were obtained from 1959 and 1960 respectively in order to allow for a five year period to have elapsed after release from Brampton. The assumption was that, if an offender is to become a recidivist, he would do so within five years but not so readily after five years. This particular Recidivism measure indicates whether an individual had been returned to an institution

⁹ Hereafter referred to as GZTS.

or not within the five year follow-up period, but not the number of times returned, although an intensity measure such as this could also be used. The problem of validity of this criterion (RCMP reports) has been dealt with quite adequately in Blum's¹⁰ study and this will not be repeated here. He concluded this criteria to be the most adequate available. The second criterion measure of Recidivism was concerned with presence or absence of institutional charges, not the number accumulated during a student's stay at the Training Centre.

It was found to be inadvisable to use any other categorization, but presence or absence since the distribution of charges was negatively skewed. The second reason for not using the number of charges accumulated was because of the finding that the range of the number of charges was limited with the greatest number of charges being six for but a few individuals of the entire sample of 468.

The third measure of Recidivism was the number of free days, that is the number of days after release from Brampton before an individual was reconvicted and returned to a custodial institution. Examining the date of post-

¹⁰ F.J. Blum, An Investigation of the Relationship of a Measure of Extraversion-Introversion and Subsequent Recidivism for a Selected Group of Young Offenders, unpublished master's thesis presented to the School of Psychology and Education of the University of Ottawa, Ontario, 1963, 84 p.

release freedays resulted in categorizing this variable, either as High or Low on the basis of the obtained distribution of freedays. This distribution was found to be positively skewed, but multi-modal. The resultant classification pitted that part of the sample having a maximum number of freedays against those having one year or less freedays. This reduced the sample size to 367, there being 101 individuals between one year and five years freedays. It made little sense to use the median or mean as cut off since both of these central tendency measures fell within the maximum number of freeday categories. In this sense, the variable was a poor criterion but was, nevertheless, included because it seemed to possess logical validity and rationale relative to the study. The rationale states that the neurotic introvert group might possibly persist in learned patterns of behavior longer than neurotic extraverts.

3. Personality Factor Measures.

The GZIS Factor B represents a scale temperament dimension which has been purported to measure the quality restraint and its opposite rathymis. Guilford¹¹ notes that, "This dimension is best defined as a self-controlled

¹¹ J.P. Guilford, Personality, New York, McGraw-Hill Book Co., 1959, vii-562 p.

serious, conscientious disposition versus a happy-go-lucky, carefree and unconcerned disposition."¹² Although this factor is not identical with the Extraversion factor of Eysenck, he has proposed that Factor R is highly related to it¹³ and has found a factor loading of R on the Extraversion scale to be in the vicinity of .4 to .6.¹⁴ Franks¹⁵ has used Factor R in his studies and has noted that Factor R of the QZTS does measure elements which have much in common with Eysenck's Extraversion scale.

The second predictor measure, Neuroticism, arises specifically from Eysenck's research. Guilford¹⁶ has also noted similar factors which he calls emotional disposition factors which include emotional maturity, cycloid disposition, depression and nervousness. All are highly intercorrelated and account for a large part of Neuroticism.¹⁷ Factor E of the QZTS correlates .86 with the Neuroticism scale of

12 Guilford, Op. Cit., p. 413.

13 H.J. Eysenck, "Cortical Inhibition, Figural After-effect and Theory of Personality", Journal of Abnormal and Social Psychology, Vol. 51, No. 1, 1955, p. 94-106.

14 -----, "Comments on a Test of Personality Satiation-Inhibition Theory", Psychological Reports, Vol. 5, No. 3, 1959, p. 396.

15 C.M. Franks, "Conditioning and Personality: A Study of Normal and Neurotic Subjects", Journal of Abnormal and Social Psychology, Vol. 52, No. 2, 1956, p. 143-150.

16 Guilford, Op. Cit., p. 477-481.

17 Ibid., p. 481.

Eysenck¹⁸ which assures to an acceptable extent that Factor E of the GZTS is a measure of Neuroticism as proposed by Eysenck.

Guilford and Zimmerman¹⁹ report internal consistency reliability coefficients of Factors E and I to be .60 and .64 respectively. Alum²⁰ found retest coefficients after a period of three weeks for Factor I equal to .76 and for E to be .58 using eighty Brampton students who can be considered a representative sample of the Brampton population for the years 1954-1960 inclusively since the standards for selection have not changed. On this basis, the reported .76 and .58 will be accepted as reliability estimates for this sample.

4. Statistical Methods.

The chi square technique was used which permitted testing the hypotheses by evaluating frequencies of individuals in groups which possess varying degrees of Neuroticism and Extraversion.

The total sample was grouped into three categories, i.e., high, medium, and low on both Extraversion and

18 H.J. Eysenck, Structure of Human Personality, London, Methuen, 1953, p. 153.

19 J.P. Guilford and W.S. Zimmerman, The Guilford-Zimmerman Temperament Survey: Manual, Beverly Hills, Cal., Sheridan Supply Co., 1955.

20 Alum, Op. Cit., p. 32-33.

Neuroticism scores. This was accomplished on the basis of standard deviations in which high was one standard deviation and low was minus one standard deviation. The possible combinations of these three divisions of Extraversion and Neuroticism were: (high RE), (low RE), (medium RE), (high R low E), (high E low R) and (high R medium E), (low R medium E), (high R low E), and (high E low R).

Since this research is a problem with three dimensions, i.e., Extraversion, Neuroticism and Recidivism and the measuring unit in the form of frequencies; the multi-dimensional chi square technique as described by Winer²¹ was used in analyzing the data. This technique entails four major partitions of frequencies. The first partition is a total chi square value which relates the three variables without specification, followed by two subsequent partitions which relate Extraversion and Neuroticism independently to the three criteria of Recidivism. The remaining partition allows for an analysis of the relationship between Extraversion and Neuroticism; and an interaction analysis of Extraversion and Neuroticism as related to the three criteria of Recidivism. Since there are three measures of Recidivism, i.e., three criteria, the analysis of the data will

²¹ B.J. Winer, Statistical Principles in Experimental Design, New York, McGraw Hill, 1962, p. 629-632.

necessitate three separate applications of this technique. Table I presents a schema of the technique as applied to this study.

If a significant interaction effect can be discovered between Extraversion and Neuroticism and any of the three criteria of Recidivism, further specific analysis must follow in order to identify, if possible, the source of the interaction, i.e., which combination of High, Medium or Low Extraversion-Neuroticism is related to Recidivism. For this analysis the usual chi square formula will be used when

$$\chi^2 = \frac{\sum (f_o - f_e)^2}{f_e}$$

where χ^2 - chi square
 f_o - observed frequencies
 f_e - expected frequencies as estimated from marginal totals.²²

For this study, significance will be accepted if chi square is equal to or more than the .05 level of probability using the appropriate degrees of freedom as will be noted below.

Calculation of degrees of freedom for the various partitions are as follows and remain constant for the three criteria. The number of frequency classifications remains constant.

²² L.T. Dayhaw, Manuel de Statistique, Ottawa, Editions de l'Universite d'Ottawa, 1958, p. 374.

Table I.-

Partition of Chi Square When Probabilities Are Estimated from Marginal Totals.

Source	Chi Square	df
Total	$x^2 \text{ total} = (n_{ijk} - n'_{ijk})^2/n'_{ijk}$	$(pqr-1)-(p-1)-(q-1)-(r-1)$
AB	$x^2 \text{ ab} = (n_{ij} - n'_{ij})^2/n'_{ij}$	$(p-1)(r-1)$
AC	$x^2 \text{ ac} = (n_{ik} - n'_{ik})^2/n'_{ik}$	$(p-1)(q-1)$
BC	$x^2 \text{ bc} = (n_{jk} - n'_{jk})^2/n'_{jk}$	$(p-1)(q-1)$
ABC	$x^2 \text{ abc} = x^2 \text{ total} - x^2_{\text{ab}} - x^2_{\text{ac}} - x^2_{\text{bc}}$	$(p-1)(q-1)(r-1)$

where n_{ijk} = the observed frequencies for each of the three classifications, i, j, k.

Total n'_{ijk} = the expected frequencies derived from the data for each of the three classifications, i, j, k.

total = the total chi square for the three variables.

ab = chi square for a (Recidivism) with b (Extraversion)

ac = chi square for a (Recidivism) with c (Neuroticism)

bc = chi square for b (Extraversion) with c (Neuroticism)

abc = the interaction form of the three variables, Recidivism, Extraversion, and Neuroticism.

For the total chi square:

$$df = (pqr-1)-(p-1)-(q-1)-(r-1)$$

where p = the number of categories of Extraversion

q = the number of categories of Neuroticism

r = the number of categories of Recidivism.

In this study, there are three categories each of Extraversion and Neuroticism and two categories of Recidivism. Substituting numerical equivalents in the formula, the degrees of freedom for the total chi square is:

$$df = (3 \times 3 \times 2 - 1) - (3 - 1) - (3 - 1) - (2 - 1) = 12$$

For the two dimension chi squares (AE) and (AC) the degrees of freedom are:

$$df = (p-1) (r-1)$$

where p = the number of categories of Extraversion or Neuroticism

r = the number of categories of Recidivism. Accordingly, the degrees of freedom are:

$$df = (3-1) (2-1) = 2$$

For the two dimension chi square (BC), the degrees of freedom are given by the formula:

$$df = (p-1) (q-1)$$

$$\text{or} \\ df = (3-1) (3-1) = 4$$

The degrees of freedom for the interaction chi square are given by:

$$df = (p-1) (q-1) (r-1)$$

$$\text{or} \\ df = (3-1) (3-1) (2-1) = 4$$

5. Statistical Hypotheses.

The statistical hypotheses to be tested are as follows stated in the null form:

1. There is no overall relationship between Neuroticism, Extraversion and Recidivism I, or Recidivism II or Recidivism III.
2. There is no relationship between Extraversion and Recidivism I, or Recidivism II or Recidivism III.
3. There is no relationship between Neuroticism and Recidivism I, or Recidivism II or Recidivism III.
4. There is no relationship between Neuroticism and Extraversion throughout the three criteria of Recidivism.
5. There is no significant interaction of Neuroticism and Extraversion for Recidivism I, or Recidivism II or Recidivism III.

The results of testing these hypotheses follow in the next chapter, followed by a discussion.

CHAPTER III

RESULTS AND DISCUSSION

1. The Results.

The general hypothesis which referred to the relationship of Neuroticism, Extraversion and Recidivism was tested using three different measures of Recidivism, i.e., returns to a custodial institution within a five-year period, presence of institutional charges and the number of post release freedays. The obtained three dimensional chi squares were 22.44, 27.55 and 20.52 respectively, as shown in Table II. For twelve degrees of freedom, a chi square of 21.02 was needed for significance at the .05 level of probability. Accordingly, the first two formulations of the general hypothesis were rejected but the third formulation cannot be rejected. It can be stated, therefore, that there is a relationship between degrees of Neuroticism and Extraversion and two of the measures of Recidivism, i.e., returns to an institution and presence of institutional charges, would be related to one's position on the scales of Neuroticism and Extraversion. However, the position is not related to the number of post release freedays.

The significance of the first two three dimensional chi squares suggested further analysis of the data in order

Table II.-

Total Chi Square Values for the Total Three Way Analysis
Assessing the Relationship of Extraversion,
Neuroticism and Recidivism I,
Recidivism II and
Recidivism III.

Recidivism	Total Chi Square	df	p.
I	22.44	12	> .05
II	27.54	12	> .05
III	20.52	12	< .05

to evaluate which of the 2 x 2 combinations of the three dimensions are significantly related. Further analysis of the third measure of Recidivism was obviated by the non-significant three way analysis.

The two two-dimensional chi squares shown in Table III which examined the relationship of Extraversion to the remaining measures of Recidivism were 1.05 (Extraversion and returns) and .08 (Extraversion and charges). These failed to meet the requirements for significance at the .05 level of probability which for two degrees of freedom needed to be 5.99. On this basis the hypothesis of no relationship cannot be rejected. Accordingly, it was found that there was no relationship between Extraversion and returns to an institution or the presence of institution charges.

The same conclusion was reached in evaluating the relationship of Neuroticism to the first two measures of Recidivism. The obtained chi squares, as shown in Table IV, of .22 (Neuroticism and returns) and 1.50 (Neuroticism and charges) failed to meet the required 5.99 for significance at the .05 level. The hypothesis of no relationship between Neuroticism and returns to an institution and Neuroticism and presence of institutional charges cannot be rejected. Thus, it can be stated there is no evidence to support a direct relationship between Neuroticism and Recidivism.

Table III.-

Chi Square Values for the Two Dimension Analysis of the
Relationship of Extraversion and Recidivism I
and Recidivism II.

Recidivism	Two Dimension Chi Square	df	p.
I	1.05	2	<.05
II	.68	2	<.05

Table IV.-

Chi Square Values for the Two Dimension Analysis of the
Relationship of Neuroticism and Recidivism I
and Recidivism II.

Recidivism	Two Dimension Chi Square	df	p.
I	.22	2	< .05
II	1.50	2	< .05

Evaluating the hypothesis of no relationship between Extraversion and Neuroticism for the two measures of Recidivism (returns and charges) produced a chi square of 19.76, as shown in Table V. This is significant at the .05 level or better since a chi square of 9.49 was required for four degrees of freedom. Accordingly, the hypothesis of no relationship between Extraversion and Neuroticism is rejected. The statement can be made that in this sample of recidivists the Extraversion and Neuroticism dimensions are correlated beyond chance expectancy.

The last analysis which evaluated the possibility of an interaction effect between Neuroticism and Extraversion and Recidivism I and II failed to reject the hypotheses of no interaction. The obtained chi squares as shown in Table VI, of 1.39 (Extraversion, Neuroticism and returns) and 5.58 (Extraversion, Neuroticism and charges) failed to meet the required 9.49 for significance at the .05 level of probability. Thus, it can be stated that Neuroticism and Extraversion are not jointly effecting a relationship with Recidivism.

On the basis of the results obtained, the statement can be made that although a relationship was found between an individual's position on the scale of Extraversion and the scale of Neuroticism and returns to an institution on the one hand, and on the other to presence of institution

Table V.-

Chi Square Values for the Two Dimension Analysis of the
Relationship of Neuroticism and Extraversion
for Recidivism I and Recidivism II.

Recidivism	Two Dimension Chi Square	df	p.
I	19.78	4	> .05
II	19.76	4	> .05

Table VI.-

Chi Square Values Assessing the Interaction of Neuroticism,
Extraversion and Recidivism I and Recidivism II.

Recidivism	Interaction Chi Square	df	p.
I	1.39	4	< .05
II	5.56	4	< .05

charges, these relationships could be explained by the significant relationship noted between Neuroticism and Extraversion. However, there was only chance interaction between Neuroticism and Extraversion which accordingly could have contributed only minimally in the relationship to Recidivism.

The third criterion of Recidivism, although logically derived from Eysenck's theory, was found to be, in fact, a poor criterion and not at all related to Extraversion or Neuroticism or various combinations of these two dimensions.

Accordingly, the results have indicated that the theory which was used to differentiate recidivists and non-recidivists was found to be inapplicable, in its present form, to the sample of recidivists studied.

2. Discussion and Conclusions.

One of the assumptions made in most studies of Recidivism is that the reformatory setting has in its program an opportunity to learn new behavior. This becomes increasingly important in talking about recidivists. The point here is that it has been hypothesized that Recidivism is related to inability to learn from experience, or at least to respond to what has been learned. The environmental factors of learning are difficult to control especially

in a design such as that used in this study in which environmental factors could not be evaluated or controlled.

For example, perhaps the recidivists are generally more of the behavior problem types and thereby are not given comparable treatment and handling to the non-recidivists. A further chi square analysis of the relationship between institutional charges (an index of behavior problems in the institution) and Recidivism was calculated. The obtained chi square of $5.6\frac{1}{2}$ was significant at the .02 level of probability which suggests that those individuals who are behavior problems are more likely to become recidivists. On this basis, one could think that perhaps these individuals, by their behavior, have forfeited their equal chance to be handled in the same way as the non-recidivists.

Another possibility arises relative to the result that there is better than chance probability of Extraversion and Neuroticism being correlated in this sample. This suggests that perhaps there is a common factor being tapped in the measurement of these factors. The common factor could be anxiety, as Sweetbaum has suggested in noting a relationship between conditioning and anxiety.

Two ways whereby an anxiety-recidivism relationship could be postulated. The first would be in considering anxiety as a relevant drive for learning where optimal amount of anxiety facilitates acquiring new, non-criminal responses. The second way of looking at this proposal is

1 See appendix three.

in postulating anxiety as a relevant drive, not to learning, but to habit in which case optimal level of anxiety would increase criminal response habit and thereby increase the prospect of Recidivism. While the anxiety-recidivism relationship is obviously not a simple one, these postulates might warrant further study.

From a more theoretical point of view, one of the important considerations in the scheme proposed by Eysenck is that complex learning is equated with conditioning as measured by rate of eye-blink to puff of air, psychogalvanic skin response, knee jerk response, et cetera. It would appear that the proponents of the Extraversion and Neuroticism factors have only accepted, rather than demonstrated, correlation between higher order learning and conditioning. They have not fully specified the differences between voluntary and involuntary behavior. Accordingly, to postulate that Recidivism, which seems to be an aggregate of many complex learning tasks, or the absence of some, can be equated with laboratory findings of simple conditioning, seems to be misleading or at least an over-simplification of the mechanisms of human learning. Recidivism, on the contrary appears to be heavily weighted toward the voluntary type of behavior involving choices, including the ability to refuse to act on established simple stimulus response connections.

From a philosophical point of view, Eysenck, in his quest of theoretical parsimony by invoking inhibition as the primary behavior determinant has developed an essentially mechanistic psychology of human behavior. This inadequacy has generated a considerable amount of meaningful research if only to point out these weaknesses. Possibly this stimulating effect is one of the major contributions of Eysenck's theory.

Several possible suggestions for further research in this area can be envisaged. It might be beneficial as well as theoretically sound to assess personality factors other than Extraversion and Neuroticism in attempting to differentiate recidivists from non-recidivists. For example, a multi-variate analysis of the ten Guilford Zimmerman Temperament Survey factors might be undertaken, thereby setting up a series of factors which contribute maximally to the prediction of Recidivism.

Using another approach, the effect of punishment in custodial settings could be assessed. One suggestion is that groups of randomly selected illegal offenders could be compared, in which one group is dealt with according to existing policies when they violate institutional rules, the second group handled using some treatment technique and with no intervention used with the third group at all. The recidivism statistics for these three groups would offer

much in terms of understanding Recidivism as related to institutional treatment of behavior problems.

A third possibility for research would entail duplicating the present study with a greater cross section of the population of illegal offenders in custodial institutions, such as taking random samples of inmates of several reformatories in Ontario. Perhaps the first and third suggestions could be combined.

A theoretical study of the relationship of anxiety to Recidivism seems worthy of attention. There are several factorial scales of anxiety that could be used in measuring this factor. The basic Recidivism data as used in this study could be used, that is follow up data of criminal activity as given by RCMP records.

Finally, it would be beneficial to ensure that subsequent research would not be post hoc in nature and which would thereby allow better control and evaluation of the data, particularly assessing the reliability of the data.

3. Summary.

This study attempted to apply a theoretical schema to the differentiation between recidivists and on-recidivists on the basis of Extraversion and Neuroticism scores. This required a multi-variate chi square technique and the general hypothesis that there is no relationship

between the three variables of Neuroticism, Extraversion and three indices of Recidivism respectively. This hypothesis was rejected at $<.05$ level of probability for two of the three indices of Recidivism. The third index of Recidivism was found to be unrelated to Neuroticism, or Extraversion or any combination of these dimensions.

The hypothesis in this multi-variate chi square which stated that Extraversion and Neuroticism taken independently are not related to the two remaining criteria of Recidivism was not rejected since the obtained chi squares failed to meet the required .05 level of probability. However, the hypothesis that Neuroticism and Extraversion were not related was rejected at $<.01$ level of probability.

The last series of analyses in this technique assessed the possibility of interaction effect, but failed to demonstrate interaction beyond chance expectancy.

Accordingly, it is suggested that any relationship between Neuroticism, Extraversion and Recidivism could be attributed to the correlation of Neuroticism and Extraversion rather than their relationship to Recidivism.

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A sound comparative study of first offenders and recidivists using the dimensions Extraversion and Neuroticism of the Maudsley Personality Inventory. The results were inconclusive since the dimensions were correlated in his sample. The suggestion was made that perhaps a joint effect of the dimensions would be worthy of study.

Becker, W.C., "Cortical Inhibition and Extraversion-Introversion", Journal of Abnormal and Social Psychology, Vol. 61, No. 1, 1960, p. 52-66.

Examined Eysenck's and Franks' hypothesis that cortical inhibition is one of the bases for individual differences in measures of Extraversion and Introversion. The results challenged this hypothesis. A primary source which evaluates inhibition as a construct in Eysenck's theory.

Eysenck, H.J., "Cortical Inhibition and Extraversion-Introversion", Journal of Abnormal and Social Psychology, Vol. 51, No. 1, 1955, p. 96-106.

In this article Eysenck develops a theory of cortical inhibition which was suggested to account for differences in behavior. He found support for his predictions that extraverts and introverts differed. This was based on fourteen men in each group, a sample quite small to use as support for a theory.

-----, "Personality and Drugs", Experiments in Drugs: Studies in the Relation Between Personality, Learning Theory and Drug Action, H.J. Eysenck, Ed., Oxford, Pergamon Press, 1963, p. 1-27.

In this chapter Eysenck summarizes his theory of inhibition and clarifies the constructs in light of research results. He definitely suggests studying an interaction effect of Neuroticism and Extraversion which questions past research which did not control Neuroticism. A basic reference for this study and for those interested in Eysenckian theory and new experimental hypotheses.

Pitch, J.H., "Two Personality Variables and Their Distribution in a Criminal Population", British Journal of Social and Clinical Psychology, Vol. 1, Part 3, 1962, p. 161-167.

A study with many goals and few controls. It related the Maudsley Personality Inventory factors Extraversion and Neuroticism to twenty-three other variables, mostly environmental indices. Extraversion and Neuroticism were found to be highly correlated but neither the relative contribution of each nor the possibility of interaction effect was studied. A good study to stimulate research hypotheses.

Franks, C.M., "Conditioning and Abnormal Behavior", Handbook of Abnormal Psychology, H.J. Eysenck, Ed., New York, Basic Books, 1961, p. 457-487.

An attempt to related conditioning and abnormal behavior with suggestions for application of the Extraversion dimension to illegal behavior Recidivism. The logic is often nebulous in dismissing Neuroticism as another worthy factor of study and application to Recidivism.

-----, "Personality and Eyeblink Conditioning Seven Years Later", Acta Psychologica, Vol. 21, No. 4/5, 1963, p. 295-312.

This article reviews seven years in which experiments of eyeblink conditioning were reported. The conclusion suggested that neither Introversion, Extraversion nor Neuroticism, taken alone, contribute much to understanding conditioning. The suggestion was made that both Extraversion and Neuroticism should be studied as interacting variables.

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

A study based on the assumption that psychopaths and sociopaths differ on the basis of high or moderate Neuroticism scores respectively but both high on Extraversion. However, this assumption was not tested. It is one of the earlier studies attempting to combine Extraversion and Neuroticism in understanding illegal behavior dispositions.

Segal, J.J. and K.J. Starr and C.M. Franks, "Hysterics and Dyathymics as Criterion Groups in the Study of Extraversion and Introversion", Journal of Abnormal and Social Psychology, Vol. 57, No. 2, 1958, p. 143-148.

A validation study of the Extraversion and Neuroticism scales of the Maudsley Personality Inventory within the Eysenckian framework. The study failed in its validation attempt but suggested that Neuroticism and Extraversion were not orthogonal as Eysenck contended.

Sweetbaum, A.A., "Comparison of the Effects of Introversion-Extraversion and Anxiety on Conditioning", Journal of Abnormal and Social Psychology, Vol. 66, No. 3, 1963, p. 249-254.

A basic research concluding that conditioning is related to anxiety and that Extraversion could be more parsimoniously conceived of in terms of anxiety. A challenge of Eysenck's position, at that time, but presently a pivot point for research in anxiety as related to learning or habit strength. These concepts could readily be applied to studies in illegal behavior Recidivism.

APPENDIX 1

**CRITERIA USED IN THE SELECTION PROCESS OF STUDENTS FOR THE
ONTARIO TRAINING SCHOOL, BRAMPTON**

APPENDIX 1

CRITERIA USED IN THE SELECTION PROCESS OF STUDENTS FOR THE ONTARIO TRAINING SCHOOL, BRAMPTON

- Age:** 16 to 24 years inclusive, i.e., up to their 25th birthday at the time of admission to Brampton.
- Intelligence:**
- A. An I.Q. of 85 or higher - less than 85 are usually sent to O.T.C. Burtch.
 - B. Inmates with an I.Q. of 80 to 84 may be sent to Brampton or Burtch.
- Sentence:** Generally speaking, an inmate should have not less than three months of his sentence left to serve at the time of screening.
- Custodial risk:** The inmate should be considered to be sufficiently stable to adjust to an open institution (minimum security).
- Criminal record:**
- A. Usually an inmate who has already been at Brampton on a previous conviction will not be considered for further training at Brampton.
 - B. At the 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 Psychosis, Severe Neurosis, Homosexuality or Arson.

APPENDIX 2

LIST OF OFFENSES AND THEIR FREQUENCY OF OCCURRENCE FOR
STUDENTS AT THE ONTARIO TRAINING SCHOOL, BRAMPTON,
FOR THE FISCAL YEARS 1954 AND 1955 INCLUSIVE

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**LIST OF OFFENSES AND THEIR FREQUENCY OF OCCURRENCE FOR
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FOR THE FISCAL YEARS 1954 AND 1955 INCLUSIVE**

Nature of Offence	<u>Frequency of Occurrence</u>	
	1954-55	1955-56
Insolence	25	14
Refuse to obey	2	6
Malingering	9	6
Loss of temper, fighting	17	12
Obscenity	9	2
Contraband	5	11
Theft	5	3
Misuse and destruction of property	7	3
Illegal mail	4	5
Causing a disturbance	9	9
Unsatisfactory conduct	2	2
Gambling	4	0
Possessing indecent literature	1	0
Illegal smoking	2	0
Absent without permission	0	0
Waste food	2	0
Illicit sex behavior	0	0
Inciting	0	0
Attempted escape	3	1
Miscellaneous	0	1

APPENDIX 3

**CONTINGENCY CHI SQUARE TABLE SHOWING THE RELATIONSHIP OF
INSTITUTIONAL CHARGES TO RETURNS TO AN INSTITUTION**

APPENDIX 3

Table VII.-

Contingency Chi Square Table Showing the Relationship of Institutional Charges to Returns to an Institution.

	Return	No Return	Total
Charge	43	44	87
No Charge	136	244	380
Total	180	288	468

APPENDIX 4

ABSTRACT OF

Extraversion, Neuroticism and Recidivism

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ABSTRACT OF

Extraversion, Neuroticism and Recidivism¹

Eysenck has contended that antisocial behavior tendencies are the result of cortical inhibition and that individuals possessing inhibition of this kind generally score high on tests of Extraversion. He has found a relationship between Extraversion and antisocial behavioral tendencies in the form of illegal behavior Recidivism.

Recently, other investigators have postulated Neuroticism as an equally important factor in determining behavioral disposition which Eysenck has accepted, but he still holds to the supremacy of Extraversion and its correlate inhibition as suppressing any drive effect of Neuroticism. Further, he believes, that in combination, Extraversion and Neuroticism have a greater inhibiting effect on an individual's ability to acquire more acceptable response tendencies. However, this combined effect of Neuroticism and Extraversion has not been studied relative to illegal offender recidivists.

¹ Raymond J. Parthun, doctoral thesis presented to the School of Psychology and Education of the University of Ottawa, Ontario, 1965, x-55 p.

This study is an attempt to apply Eysenck's theoretical schema in differentiating recidivists from non-recidivists. The sample consisted of 468 inmate students who were incarcerated at the Ontario Training School, Brampton, during the fiscal years 1954 and 1955. Data were obtained from institutional files which included Guilford Zimmerman Temperament Survey scores of factors Restraint (R) and Emotional Stability (E) which were found in the literature to be adequate measures of Extraversion and Neuroticism.

Recidivism was defined in three different ways:

- 1) whether an individual was returned to a custodial institution or not within a five-year post-release period;
- 2) the number of post-release freedays each individual had within the five-year post-release period; and
- 3) whether an individual was "charged" for infraction of institution rules.

Three criteria of Recidivism were used since one definition could limit the applicability of the results. Data for the first and second operational definitions of Recidivism were obtained from RCMP Finger Print section reports and data for the last definition were obtained from institutional records.

The multi-variate chi square technique was applied to the data which permitted assessment of Neuroticism, Extraversion and Recidivism as a unit as well as testing for interaction effect. The results indicated that there

was a relationship between the three variables, but this was attributable to common variance of Extraversion and Neuroticism rather than their contribution to the variance of Recidivism. No support was found for the hypothesis of an interaction effect between Extraversion and Neuroticism.

It was concluded that the hypotheses derived from Eysenck's contentions are not applicable to the recidivists studied or to other samples having comparable selective characteristics.

Suggestions for further research noted: 1) the possibility of studying treatment variations of recidivists and non-recidivists as being related to subsequent illegal behavior; 2) the possibility of invoking the concept of anxiety as related to Recidivism; and 3) that perhaps for samples of recidivists as found in this study the outstanding personality characteristics are not Extraversion or Neuroticism and that other characteristics should be studied.