

COGNITIVE FUNCTIONING WITHIN AN INCARCERATED SAMPLE

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Abstract

The present study was designed to investigate the relationship between cognitive functioning and criminal history. One hundred and nineteen inmates at a maximum security provincial institution were tested on a number of specific cognitive functions (impulsivity, empathy, locus of control, and field dependence/independence). Three measures of criminal history were constructed from the available inmate information on file (level of criminal involvement, level of institutional disruptive behaviour, and offence types). In examining the relationship between cognitive functioning and criminal history, intelligence, education and age were controlled statistically. In addition, the degree of the inter-relatedness among the cognitive functions was investigated to assess if any underlying theme or themes existed. Correlational analyses revealed that the relationship between cognitive functioning and criminal history was weak overall, but with some significant findings. It was found that many inmates were field dependent, low in empathy, and some inmates hold an internal locus of control. It was also found that to some degree intelligence, education, and age influence cognitive ability and criminal behaviour. The inter-relatedness among the cognitive

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functions was generally weak, although two factors emerged; an external locus of control and an internal (self-reliant) orientation. Results are discussed in reference to a cognitive model of delinquency prevention and offender rehabilitation. The main premise of the model is that inadequate cognitive functioning is associated with criminal behaviour and that many, but not all offenders evidence inadequacies in a number of cognitive skills considered essential for the effective solution of human interaction problems.

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## INTRODUCTION

Despite the number of programs designed to prevent crime or rehabilitate offenders, crime control is still an elusive goal in the criminal justice system. Research has indicated that many of these programs fall short of reaching their objectives, that of preventing crime or rehabilitating offenders (Ross and Gendreau, 1980; Martinson, 1974). The widely proclaimed lack of success has left a feeling of helplessness among some correctional practitioners and a reluctance among many to believe that programs can work.

However, some programs have achieved success (Ross and Gendreau, 1980). Decreases in recidivism rates ranging from 30 to 60% for up to 15 years after program completion have been reported (Ross and Gendreau, 1980; Ross and Fabiano, 1981). Such outstanding results are few and far between among programs which have been adequately evaluated. Nevertheless, these successful programs contradict the negativism and pessimism established by the "nothing works" philosophy (Martinson, 1974).

The question which needs to be asked is, why are some programs effective; others ineffective? Such a question may yield more useful information than a broader question which would attempt to obtain a general conclusion about all programs without appreciating the tremendous variation in the nature of programs - the types of offenders treated, the characteristics, skills, motivation of the intervention agents, the nature of the setting,

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the quality of the program service, and the overall goals of the intervention.

Research which has examined the differences between effective and ineffective programs has found that each of the above mentioned factors influence the outcome of a program (Ross and Gendreau, 1980). The research has also determined that the outcome of correctional programs depends upon who does what to whom, how much, how well, how often, and for what reason. One of the major factors is the nature of the intervention - what is actually done with the offenders. The conceptualization on which the program is based is crucial (Ross and Fabiano, 1985). Programs which attempt to modify criminal behaviour must derive from an adequate conceptualization of the factors which are associated with criminal behaviour and/or recidivism and, furthermore, the program must be designed to influence these factors. Programs, therefore, which focus on irrelevant factors are unlikely to experience much success. Although the conceptualization of correctional programs is the foundation, it has been pointed out by Ross and Fabiano (1985), by Gottfredson (1980), and by Martin, Sechrest, and Redner (1981) that most programs have been based on inadequate or inappropriate conceptual models; some on no model whatsoever!

This thesis is concerned with one particular model which has been proposed for delinquency prevention and offender rehabilitation programs: The Cognitive Model.

The Cognitive Model of Delinquency Prevention and Offender  
Rehabilitation

The selected model, set forth by Ross and Fabiano (1981;1982;1985), offers one of the most comprehensive presentations of the association between cognitive functioning and criminal behaviour. It is an integrated model postulated from the available information. The model was derived from two distinct, yet related bodies of research:

- 1) An analysis of effective and ineffective programs revealed that a central feature of almost every successful program was some intervention which could be expected to modify an offender's cognition - his thinking, understanding, reasoning, ability to problem solve, and the ability to evaluate his values and expectations (Ross and Fabiano, 1981;1982).
- 2) The results of the first study led Ross and Fabiano (1981;1982) to examine the criminological literature in order to determine if there was any evidence which associated criminal behaviour with cognitive functioning. They found a large body of research indicating that many offenders evidence developmental delays in a number of cognitive skills necessary for prosocial adaptation. They argued that inadequacies in such skills could place an individual " at risk " for

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acquiring a criminal lifestyle. The cognitive inadequacies among offenders included impulsivity, externalizing the blame for their behaviour onto others, egocentricity, and the lack of social perspective-taking.

Whereas many offenders experience cognitive inadequacies, others do not. That is, the criminal behaviour of some offenders may constitute perfectly rational acts. Their thought processes would be considered to be sound and logical. Accordingly, Ross and Fabiano (1985) do not argue that cognitive inadequacies are a cause of crime; however, they suggest that an offender's cognition, how he thinks, what he thinks, and how he views the world are all important contributors in his criminal behaviour. They also suggest that programs designed to improve cognitive development can provide certain skills which may enable some offenders to achieve satisfactory social adjustment without resorting to anti-social behaviour.

#### Model Development

As with any model in any field of study, the cognitive model is far from being an all inclusive one. In presenting the evidence of an association between cognitive functioning and criminal behaviour, Ross and Fabiano (1981) have indicated a number of shortcomings and gaps in the research on this relationship. For example, studies are necessary to determine

what specific sub-groups of offenders are most likely to evidence cognitive inadequacies. Another important research need is to determine the relationship between cognitive functioning and criminal history and recidivism. Many researchers in studying the relationship between cognitive functioning and criminal behaviour have failed to control for variables such as intelligence, education, emotional state, or race, which may be related either to cognitive functioning or criminal behaviour, or both. This thesis addresses a few issues initially raised by Ross and Fabiano (1981) which they feel are necessary for the further development of the cognitive model in terms of investigating an association between cognition and crime. This may, in turn, identify potential areas for intervention.

- a) The relationship between a number of specific cognitive functions (impulsivity, empathy, locus of control, field dependence/independence) and criminal history (level of criminal involvement, level of institutional disruptive behaviour, offence types) was examined. In doing so, the variables of intelligence, education and age were controlled statistically.
- b) The degree of inter-relatedness among the specific cognitive functions were examined. As Ross and Fabiano (1981) have noted, it is unknown whether the cognitive functions which have been identified as problematic for offenders are independent or whether they represent different but related aspects of some central cognitive skill.

It has also been established by Ross and Fabiano (1981) that the evidence of cognitive inadequacies among offenders relates primarily to the social (interpersonal) sphere (the ability to understand people and social institutions); many offenders appear to have shortcomings in those cognitive functions which are considered necessary for social competence. The evidence of cognitive inadequacies within the impersonal sphere (the ability to understand events surrounding the concepts of time, movement, and space) is much less impressive. On the basis of this information, four cognitive functions, namely: impulsivity, empathy, locus of control and field dependence/independence, were chosen because each has implications for effective responding under the condition of social conflicts.

More specifically, there is some evidence which indicates that many offenders are impulsive and that many are external in their locus of control (they believe that what happens to them is a result not of their actions but of fate or the action of other people). This evidence will be reviewed shortly. There is, however, less evidence that offenders are inadequate in empathy and field dependence/independence, but Ross and Fabiano (1985) have suggested that these functions should be examined. It seems reasonable to suggest that all of these functions are important for social competence.

The Relationship between Impulsivity, Empathy, Locus of Control,  
Field Dependence/Independence and Criminal Behaviour

**Impulsivity**

A considerable number of researchers have indicated that many offenders are impulsive in that they react to situations without any self-reflective thought (Mischel, 1961; Offer, Marohn, and Ostrov, 1979). Rather than being quick to respond, Ross and Fabiano (1981) point out in their review that some offenders may have underdeveloped problem solving skills. As such, impulsivity may not be a behavioural shortcoming but a cognitive one: a failure to analyse the situation at hand before responding.

Several studies have supported an association between impulsivity and criminal behaviour. For example, on the basis of a socio-ecological study, King (1975) found a group of convicted violent youths unable to conceptualize people in a societal context. Their thinking was considered to be immediate and intense. Therefore, they acted rapidly in order to avoid the anxiety which thinking causes, in turn, adding to their limited ability in understanding the consequences of their behaviour. Drury (1981) reported significant results in terms of a relationship between impulsivity and low anger control when comparing a group of impulsive and non-impulsive probationers on a measure of anger potential. Erez (1980) also found that an impulsive chronic group of offenders, classified on the basis of

their inability to plan (non-planners), committed more violent crimes than a group of offenders classified as planners. Thus, many studies have suggested that impulsivity could lessen the recognition of or monitoring of anger. Some offenders have simply never learned to think through the consequences of their action and to tolerate the outcome.

Apart from the above mentioned findings, studies using an objective measure of impulsivity (Matching Familiar Figures Test) did not indicate any significant differences between adolescent reformatory inmates and high school students (Saunders, Repucci, and Sarata, 1973) or between institutionalized aggressive, pre-delinquents and non-delinquents (Glenwick, Croft, Barocas, Black and Black, 1979). Rotenberg and Nachson (1979), however, did find a group of delinquents significantly more impulsive than a non-delinquent one on the Matching Familiar Figures Test.

Some explanations for the conflict in results point to sampling differences, inappropriate methodology and the variety of techniques used to measure impulsivity (Ross and Fabiano, 1981). Offenders appear to be a heterogeneous group in that some may maintain a element of self-control; while others react without evaluating the situation.

In other words, some offenders who review situations less systematically or without any self-regulating thought than other individuals, may hold poorly developed problem-solving skills. For that matter, some may never have developed such skills. Many offenders then can not suppress their immediate reaction to a

situation by inserting thought between situation and action, for whatever reason. They may never have learned, that stopping to think is beneficial. Some may react in order to avoid assessing or dealing with the situation. Therefore, impulsivity can represent an inability to analyse the situation in question and, subsequently, act in a non-reflective manner.

**Empathy**

An awareness of other people's views and behaviour is necessary in order to establish and maintain effective social relationships. Such social perceptual skills require a number of factors such as being able to judge others, role - take (the ability to view the world through the eyes of others), and social perspective taking (the ability to recognize the perspective of others and to understand social protocol). These skills rely upon the ability to make adequate inferences about the inner characteristics of others such as their thoughts and perceptions. Without the ability to understand others the individual is more likely to behave in a manner which may be mis-interpreted and greeted with unanticipated negative reactions by others.

Some offenders have been found to evidence a delay in their development of social comprehension. That is, some are egocentric or self-centered; they fail to take into consideration the emotional states and thoughts of others (Chandler, 1973).

Although individuals differ in how quickly they develop .

beyond a self-centered state of mind, the ability to understand others is essential to form and maintain harmonious social relationships (Ross and Fabiano, 1982). A lack of social comprehension might indicate that offenders have shortcomings in empathy (the ability to understand how others think and feel). Ross and Fabiano (1985), however, note that there is little research on empathy with offenders and that further studies are needed.

Despite the paucity of research, the available evidence using Hogan's (1969) Empathy Scale indicates differences in empathy between offender and non-offender populations. Krutines and Hogan (1972) matched college students and incarcerated delinquents on the basis of low socialization scores from the California Personality Inventory (CPI). They found that the college students scored significantly higher on Hogan's (1969) empathy scale and concluded that higher empathic ability compensated for poor socialization. On the other hand, Kendall, Deardoff and Finch (1977) found no significant differences in empathy scores among first offenders, repeat offenders and non-delinquents. However, all three groups differed significantly on the socialization scale (CPI), with the repeat offenders scoring lowest and non-delinquents highest.

Another study found differences in empathy between offender groups. Ellis (1982) tested a group of incarcerated delinquents and a control group of non-delinquents. He reported that the delinquent group was significantly lower in empathy than

the non-delinquent one. The delinquent group was subsequently re-classified according to Quay's Personal Opinion Study. These three delinquent subgroups differed significantly among each other in terms of empathic ability. Of the three subgroups, the neurotics were least empathic, followed by the psychopaths, and finally the subcultural ones were the most empathic. He also found that the aggressive group of delinquents was significantly lower in empathy than the non-aggressive one.

Notwithstanding the lack of empirical evidence, Ross and Fabiano's (1985) discussion of the cognitive model appears to suggest that empathy, or the lack thereof, may be a key contributing factor in criminal behaviour.

#### **Locus of Control**

Locus of control theorists classify people according to their individual belief systems such that those perceiving themselves as essentially controlling their lives are considered to be internals, as opposed to externals who basically believe their behaviour is dependent upon forces beyond their immediate control (Levenson, 1974; Rotter, 1966).

There is a popular hypothesis which states that offenders are generally external (Beck and Ollendick, 1976; Kumchy and Sayer, 1980; Joe, 1971); they explain their behaviour as being outside their immediate control and deny responsibility for their acts (Dean, 1979).

Although some studies found offenders external, many other studies reported that offenders are internal. Lefcourt and Ladwig (1966) found adult incarcerates to be more internal than college students. Another study by Roberts (1978) also found a group of inmates to be internal. He added that these inmates took the necessary steps to reach specific goals for release. This finding would suggest that if an inmate perceives that his behaviour can positively effect the direction of his future towards prosocial acceptance, he is more apt to participate in means designed to do so.

Furthermore, the degree of externality has been found to fluctuate across situations. Kielbauch (1968) tested a group of sentenced inmates at three specific times during their incarceration; after one month, at 13 months, and before one month of release. He reported a U-shaped trend which ranged from a greater, to a lesser, to a greater level of externality.

The studies reported thus far have used a locus of control scale which classifies people according to two dimensions: internal and external. Levenson (1973;1974) furthered this initial dichotomization by distinguishing the external component into two related, yet distinct forms of externality - belief in fate, or a belief in powerful others. As a result, this trichotomized scale separates individuals according to those who believe their lives are generally self-controlled, in control of powerful others, or controlled by chance (i.e. fate). It is therefore possible that an externally controlled individual who believes his behaviour is governed by powerful others will behave and be cognitively

different from one who believes his behaviour is governed by chance.

On the basis of her trichotomized scale, a statistically significant difference between inmates who believed in powerful others and inmates who believed in chance was found. Those inmates who were incarcerated for 5 years felt more controlled by powerful others than those incarcerated for 6 months or less. The latter, however, did not feel more controlled by chance (Levenson, 1975). It would appear then, that differences in inmate incarceration periods correspond to differences in their belief systems. Inmates may therefore refer to such belief systems as a function of understanding the correctional environment and the familiarity of the organizational milieu.

Ross and Fabiano (1985) have also pointed out in their review that an individual's locus of control differs on the basis of cultural factors and social class. For example, Lefcourt and Ladwig (1966) found that black inmates were more external than white inmates. Shearer and Moore (1978) also indicated that significant racial differences were reported among white, black and hispanic inmates. Moreover, it appears that individuals from a lower socio-economic class are more external (Lefcourt, 1976).

In short, the relationship between locus of control and criminal behaviour is uncertain in the sense that many offenders are external, some are internal. Furthermore, the degree as well as the direction of externality can change as a function of situational factors. It seems important to conduct additional

studies of locus of control in offenders and to determine what differences in locus of control are related to criminal history.

#### **Field Dependence/Independence**

Some research has found that offenders differ among themselves and from non-offenders on measures of field dependence/field independence, which relates to an individual's ability to isolate objects located not only within a perceptual field, but intellectual and social fields as well (Ross and Fabiano, 1982).

A survey of the literature revealed only a small number of studies pertaining to offender populations. Eskin (1960) tested a group of inmates and found them to be more field dependent, as compared to a control group of non-inmates. The control group, however, was not matched with the experimental group for social class or race. On the other hand, Ostrov, Marohn, and Offer (1979) reported a number of chronic delinquents to be field independent when compared with a group of non-delinquents. Differences between these groups did not reflect the influences of race, social class, or intelligence. In contrast, Levy (1972) matched field dependent and field independent offenders on a measure of socialization (CPI) and did not find any differences in terms of delinquency.

The conflicting results raise doubts about the differences in field dependence/independence among offenders. However, in

their discussion of the cognitive model, Ross and Fabiano (1985) suggest that field dependents tend to be oriented to the physical rather than social environment. Field independents, on the other hand, tend to have greater social acuity, less egocentricity, and are better able to restructure their thoughts (i.e. are cognitively flexible). As with the material presented on the locus of control, offenders are a heterogeneous population. Some may be field dependent; others, field independent. Further research is therefore required to determine what types of offenders are field dependent/independent and to determine the association between field dependence/independence and criminal history.

To recapitulate, research on the four cognitive areas of impulsivity, empathy, locus of control and field dependence/independence were reviewed in respect to their individual associations with criminal behaviour. Overall, the evidence suggests that many offenders are weak in some of these skills, however, as indicated, further research is needed to establish the precise nature of the relationship between each cognitive function and criminal activity.

#### The Relationship between Cognitive Functioning and Intelligence, Education and Age

In the present study, it was considered essential in studying the relationship between cognitive functioning and

criminal history to control for differences in intelligence, education and age. Failure to do so has been a major drawback of too many previous studies.

### **Intelligence**

The relationship between impersonal cognition (the ability to understand causality, time, movement and space) and social cognition (the ability to understand people and social institutions) is somewhat uncertain. Research has yet to establish how the ability to understand events on an impersonal level influences the ability to understand people. It would appear that social cognition is based less on logic and more on cultural and social understanding (Ross and Fabiano, 1985). It does, however, involve complex cognitive skills which depend upon the ability to understand another's thoughts and behaviour and how one's behaviour can influence another's thoughts, judgements and behaviour. Understanding people requires dealing with the unpredictable nature of an individual's feelings. Social cognition does not appear to be the same as impersonal cognition; impersonal cognition and social cognition appear to be two different processes (Ross and Fabiano, 1985).

However, social cognition is not entirely independent of impersonal cognition or intelligence, as assessed by standard I.Q. tests. Significant correlations have been found between measures of social ability and intelligence (Platt, Spivack and

Bloom,1971). It would appear then, that social cognition and intelligence are somewhat inter-related. Some general skills required to both understand and analyse problems appear to overlap between social cognition and intelligence. Although being socially acute does not necessarily mean the individual is highly intelligent, some minimal level of intelligence is required for social ability (Ross and Fabiano,1981).

Apart from the association between social cognition and intelligence, there is ample evidence suggesting that intelligence relates to criminal activity (Hirschi and Hindelang, 1977). It has been established quite clearly that the relationship between intelligence and crime cannot be explained simply in terms of race or class differences.

On the basis of the aforementioned, it is essential in studying the relationship between cognitive functioning and criminal behaviour that controls be introduced for intelligence.

#### Education

The relationship between education and cognitive functioning is unclear at this point. However, it has been found that many offenders have a long history of school failure (Campbell and Davis,1981;Gagne,1977;Rutter and Giller,1983), and that poor school performance mediates the association between intelligence and crime (Hirschi and Hindelang,1977). This information therefore raises the possibility that poor school performance is associated

with cognitive functioning in that poor school performance may inhibit the opportunity to develop certain skills necessary for appropriate social adjustment. As a consequence, this may influence the likelihood of deviant behaviour. Accordingly, it is essential to control for education in studying the relationship between cognitive functioning and criminal behaviour.

Age

Researchers who have implied that many offenders are developmentally delayed in a number of cognitive skills considered essential for social adaptation suggest that cognitive abilities develop according to a series of stages, as indicated by early cognitive development theorists (i.e. Piaget). Certain cognitive abilities, therefore, are necessary to be learned before graduating onto the next stage. Each stage is an accumulation of the preceeding one. That is, certain cognitive skills gained in one stage are advanced in the following one. An individual must succeed each stage in order and cannot skip a stage. Moreover, he cannot go through the sequence of stages merely as a function of getting older. This information suggests that age is a factor in cognitive development. Age is also associated with criminal activity (Ross and Fabiano, 1985; Rutter and Giller, 1983). Therefore, age must be controlled for in studying the relationship between criminal behaviour and cognitive functioning.

In summary, the nature of the relationship between cognitive functioning and intelligence, education and age is uncertain. However, since it would appear that such variables are related to both cognitive ability and criminal behaviour, this study controlled for these variables when examining the relationship between the various cognitive functions and criminal history.

#### Purpose of this Study

The research questions and hypotheses for this study were formulated on the basis of Ross and Fabiano's (1981) cognitive model. In general, the study examined the relationship between a number of cognitive functions (impulsivity, empathy, locus of control, and field dependence/independence) and criminal history (the level of criminal involvement, the level of institutional disruptive behaviour, and types of offences). A number of factors (intelligence, education and age), which may have been confounding variables in previous research, were also studied and employed as appropriate controls in examining the relationship between the specific cognitive functions and criminal history. Finally, this study explored the inter-relatedness among the specific cognitive functions.

## METHODOLOGY

### Subjects

Incarcerated adult male offenders who volunteered to participate in a larger project on correctional classification systems (Bonta and Motuik, in progress), served as subjects. These inmates were currently serving provincial court sentences from 124 days to 729 days. From December 1983 to May 1984, a total of 150 inmates were approached to participate in this research. Of these initial interviews, 119 inmates consented to and successfully completed the entire battery of psychological tests. The remaining 31 inmates declined to participate in this project. Inmates unable to speak English were excluded.

### Setting

The Ottawa-Carleton Detention Centre (O.C.D.C.) is a maximum security provincial correctional institution in Ottawa, Ontario. It houses offenders who are on remand, completing short term sentences, or awaiting transfer to either provincial or federal institutions.

## Data Sources and Assessment

In investigating the relationship between cognitive functioning and criminal history as well as intelligence, education and age, the following measures were employed:

A. a number of psychological tests:

- 1) Quick Test of Intelligence,
- 2) Matching Familiar Figures Test,
- 3) Hogan's Empathy Scale,
- 4) Internal, Powerful Others, and Chance Scale, and
- 5) Group Embedded Figures Test.

B. three operational measures of criminal behaviour constructed from the information provided by the Adult Information Service (A.I.S.) - Ontario Ministry of Correctional Services:

- 1) level of criminal involvement,
- 2) level of institutional disruptive behaviour, and
- 3) offence types.

### A. Tests

#### 1. Quick Test of Intelligence (Q.T.)

Purpose: This is a verbal test of intelligence (Ammons and Ammons, 1962).

**Administration:** It is individually administered. Three plates are presented in sequence, each of which has four picturesque scenes representing the words presented by the examiner. The subject is asked to choose the picture which best describes the words given.

**Scoring:** The researcher recorded the number of correct answers given by the subject before reaching five consecutive errors on each plate. The number of correct responses correspond to a normative I.Q. level for the particular plate (Ammons and Ammons, 1962). The composite score is derived by adding the total number of correct responses on each plate together. From this score, a final I.Q. level was obtained.

**Reliability:** A summary of reliability information is presented in an article by Ammons and Ammons (1962).

Reliability coefficients ranging from .60 to .98 are reported across samples of pre-kindergarden through to college students. It has been suggested that scores on the single plates of the Q.I. are likely to be suitably reliable for screening intelligence at single age levels and very effective where wide ranges of ability are being handled (Ammons and Ammons, 1962). Highly stable reliability estimates can be obtained by using combined plates (Ammons and Ammons, 1962).

**Validity:** Tests of validity conducted with the Quick Test, when given to three delinquent samples, are reported in an

article by Gendreau, Wormith, Kennedy, and Lass (1975). The Q.T. produced significant concurrent validity coefficients when correlated with a variety of other I.Q. tests. They were as follows: the WAIS (full scale correlation was .63), Differential Aptitude Test (mean correlation of .49), Revised Beta (mean correlation of .46), and Otis Em ( $r=.75$ ).

## 2. Matching Familiar Figures Test (M.F.F.T.)

**Purpose:** The M.F.F.T. is a perceptual test designed to assess an individual's cognitive functioning along the continuum of reflection-impulsivity (Kagan, 1964; Kendall and Hollen, 1981). The concept of reflection-impulsivity was first addressed by Kagan (1964; 1966). He viewed the cognitive processes involved when facing ambiguous situations as being the product of a conceptual tempo (speed of responding) and error rate. Considerable debate has occurred over the measurement and definition of this concept (Block, Block, and Harrington, 1974; Kagan and Messer, 1975; Salkind and Wright, 1977). There is, however, a general agreement that accuracy in responding, rather than speed (Campbell and Davis, 1981), provides the focus for an operational definition.

**Administration:** This test is individually administered. The format involves simultaneous presentation of eight

pictures and the subject is required to choose the one identical to the stimulus figure. Two practice runs and twelve plates are presented.

Scoring: In accordance with the operational definition of impulsivity, the researcher recorded the mean number of errors (maximum of eight per picture) across the twelve plates. As such, the M.F.F.T. is sample based. Subjects are ranked as being either reflective or impulsive within the boundaries determined by the sample. Those individuals with few errors are considered to be reflective, while those who make many more errors are impulsive (Block et al., 1974).

Reliability: Messer (1976) reported the test, re-test correlations for response latencies ranged from .58 to .96 indicating a highly reliable measure. Lower test re-test correlations for errors ranged from .23 to .43 over intervals of 3 weeks to 2 1/2 years. Internal consistencies for latencies were .89 and .58 for errors (Kendall and Hollon, 1981).

Convergent Validity: If conceptual tempo is generalizable, reflectives and impulsives should remain reflective or impulsive on tests similar to the M.F.F.T. Two such tests are the Design Recall and the Haphic Visual Matching Test. The response times to the M.F.F.T., Design Recall, and the Haphic Visual Matching Test were moderately correlated, ranging from .33 to .52.

### 3. Hogan's Empathy Scale

**Purpose:** This empathy scale was derived from Hogan's (1969) multi-dimensional theory of cognitive-moral development. The test statements assess the the subject's ability to understand others and how others view his actions (see Appendix 'A'). The format includes 64 items: 31 from the California Personality Inventory, 25 from the Minnesota Multiphasic Personality Inventory (M.M.P.I.) and 8 from various experimental testing forms used in studies at the University of Berkley, California.

**Administration:** This is a pencil and paper test which was individually administered.

**Scoring:** A scoring key was used to tabulate the final score. The higher the total score, the greater empathic ability.

**Reliability:** Reliability coefficients between empathy and social acuity ranged from .52 to .77, with a mean correlation of .69 (Hogan, 1969).

**Validity:** Some evidence for validity exists when used with a younger high school population ( $r = .4$ ) (Hogan, 1969).

### 4. Internal, Powerful and, Chance Scales (I.P.&C.)

**Purpose:** This instrument is a 24 item self report measure for assessing an individual's locus of control (Levenson, 1973).

The internal, powerful, and chance scales are each comprised of eight items in a Likert format. These items measure the degree to which an individual perceives events in his life as being a consequence of his actions, under the control of others, or determined by luck (Appendix 'A'). The rationale for this tripartite differentiation is that individuals, who view the world as structured by themselves, powerful others, or luck, think differently (Levenson, 1973).

Administration: This is a pencil and paper test which was individually administered.

Scoring: A scoring key was used where each item corresponds to a particular subscale. The examiner adds the circled response from those items together which focus on a particular subscale. A total score is recorded for each of the three subscales and, subsequently, the number 24 is added to the individual subscale scores. This yields a total score for each subscale. Scores from each of the three subscales were recorded.

Reliability: Internal consistency estimates are moderately correlated;  $r=.64$  for the Internal subscale,  $r=.77$  for the Powerful subscale, and  $r=.78$  for the Chance subscale.

Split-half reliabilities are  $r=.62$  for the Internal subscale,  $r=.66$  for the Powerful subscale, and  $r=.64$  for the Chance subscale. Test re-test correlations were found to be  $r=.62$ ,  $.74$ , and  $.78$ , respectively (Levenson, 1973).

Validity: The validity of this test has been shown through convergent and discriminant methods which have indicated significant low order correlations with other measures of the general construct (see Ross and Fabiano, 1982).

#### 5. Group Embedded Figures Test (G.E.F.T.)

Purpose: The G.E.F.T. assesses an individual's degree of field dependence/independence by measuring his ability to perceive a figure hidden within a larger complex figure (Witkin, Oltman, Raskin, Karp, 1971).

Administration: Subjects are given a maximum of ten minutes to outline eight simple figures which are embedded in 18 complex figures.

Scoring: Each simple figure outlined correctly is given a score of one. Total scores were recorded. Previous normative data drawn from a sample of college men (n=155) and a sample of college women (n=242), on the Group Embedded Figures Test, has established the cut-off scores by which to discriminate field dependence from field independence. Scores less than or equal to 12 refer to field dependence, while those being greater than 13 are defined as field independent (Witkin, Oltman, Raskin, Karp, 1971).

Reliability: A parallel test reliability coefficient of  $r=.82$  is reported (Witkin, Oltman, Raskin and Karp, 1971),

establishing this test to be highly reliable in repeated situations.

Validity: Based on a sample of 175 females, ranging in age from 17 to 72, over-all internal consistency estimates are reported between Part 11 of the G.E.F.T. and the total score ( $r=.96$ ), and between Part 111 of the G.E.F.T. and the total score ( $r=.95$ ) (Panek, Funk, & Nelson, 1980).

Construct Validity: The over-all correlations between the G.E.F.T. and the P.R.F.T. (portable rod and frame test; another test of field dependence/independence) were significant and in the expected direction. These coefficients were  $-.36$ ,  $-.50$ ,  $-.46$  ( $p<.001$ ) for Part 11, Part 111, and Total score, respectively (Panek, Funk, & Nelson, 1980). It is suggested that satisfactory construct validity for the total correct on Parts 11 and 111 of the G.E.F.T. was obtained as correlations with the P.R.F.T. for the entire sample. However, differences across age levels were not adequately demonstrated (Panek, Funk, & Nelson, 1980).

#### B. Measures of Criminal History

The Adult Information System (A.I.S.); Ontario Ministry of Correctional Services form was the principal information source used to determine each inmate's criminal background, current age and previous education. It is compiled from the office statistics received by a number of court offices, probation offices and

correctional institutions located throughout the province. This data is then entered into a computerized data-system whereby authorized personnel can be issued information printouts. The documented information includes demographic facts; the date, number and type of offences; institutional transfers; and misconducts. Juvenile history is not included.

From this information, three operational measures of criminal behaviour were constructed for the present study:

- a) the level of criminal involvement,
- b) the level of institutional disruptive behaviour, and
- c) offence types.

#### 1. Level of Criminal Involvement (F.C.O.)

**Purpose:** An inmate's level of criminal involvement (F.C.O.) was operationally defined according to the number of past convictions in relation to his age. "Past convictions" referred to the total number of reported court convictions before the inmate's participation date in this project.

**Method:** The level of criminal involvement was a single number computed by dividing the number of past convictions by the inmate's age. The following equation was used to calculate this measure:

$$F.C.O. = \# \text{ of past convictions} \div \text{current age}$$

## 2. Level of Institutional Disruptive Behaviour (I.M.S.)

Purpose: An inmate's level of disruptive behaviour (I.M.S.) was operationally defined according to the number of misconducts, reported during his last provincial term of incarceration in a correctional facility. Another criteria for selection was that these inmates be housed within a correctional institution for a minimum of 10 days. Both inmates who spent time in the institution either on remand or serving their sentence were included in this sample.

Method: The level of disruptive behaviour was a single number computed by dividing the number of reported misconducts by the amount of time spent in an institution. The following equation was used to calculate this measure:

$$\text{I.M.S.} = \frac{\# \text{ of reported misconducts}}{\text{days in the institution}}$$

## 3. Offence Types

Purpose: An inmate's offence type was operationally defined in terms of the greatest number of convictions within a general offence category. Seven major offence categories, adapted from The Offender and Ex-Offender

as a Correctional Manpower Resource (Ministry of the Solicitor General, 1973), were used. They are as listed:

- 1) crimes against the person;
- 2) crimes against property;
- 3) crimes against public morals and decency;
- 4) narcotics;
- 5) crimes against property with violence;
- 6) crimes against liquor and traffic; and,
- 7) crimes against public order and peace.

In the case of an equal number of convictions within two or more particular offence categories, the investigator chose the more serious one to represent the inmate's offence category. The following hierarchy was used to indicate the severity of the offence categories:

- 1) crimes against the person;
- 2) crimes against property with violence;
- 3) crimes against property;
- 4) narcotics;
- 5) crimes against liquor and traffic;
- 6) crimes against public morals and decency; and,
- 7) crimes against public order and peace.

This initial classification of offence categories was subsequently collapsed into two general types of offence categories - aggressive and non-aggressive. The aggressive type contained the two offence categories which, by definition alone, represent acts of aggression (crimes

against the person, crimes against property with violence) while the non-aggressive type included the remaining categories (crimes against property, crimes against public morals and decency, narcotics, crimes against liquor and traffic, crimes against public order and peace).

### Procedure

On a weekly basis the psychology department at D.C.D.C. received a list of inmates who were recently classified by the institution's classification staff. This list was then distributed to the investigator, or another research assistant qualified to administer the test battery.

All testing was done on an individual basis since the nature of some of the tests and insufficient space limited the possibility of group testing sessions. A brief introduction was given describing the purpose of the project, an explanation of the tests and, finally, an invitation to participate by completing the test battery. If the inmate agreed, a consent form was signed.

Prior to the actual test administration, the inmates were screened for literacy. Those scoring below a Grade 6 reading level, as measured by the Wide Range Achievement Test (Jastak, Bijou, & Jastak, 1965), were asked to listen to a taped version of Hogan's Empathy Scale and the I.P.&C. Scales which was prepared by the investigator. Others completed the tests as originally designed.

The test battery used for the purposes of this research consisted of five instruments; three of which were individually administered, while the remaining two self-instructed tests were completed in a secure room. Throughout the entire testing session, inmates were encouraged to ask the researchers for help whenever necessary.

This procedure was followed for each inmate until the desired sample size (119) was reached. Afterwards, the investigator scored the test batteries, recorded the scores, and coded the data along with pertinent information from the A.I.S. forms. Reliability checks on the scoring and coding were done by an independent research assistant to ensure accuracy.

#### Research Design

It should be recalled that the study will examine the relationship between a series of selected cognitive functions and three constructed measures of criminal history. In doing so, intelligence, education and age will be controlled statistically. The study will also examine the inter-relatedness among the selected cognitive functions.

A within and between group comparison of the selected sample will be conducted. The data will be analyzed according to a variety of statistical techniques best suited to address the research questions. Correlational analyses will determine the strength and direction of the relationships between each cognitive

function and the variables of intelligence, education (taken separately and together) and age. Partial correlations will determine the relationship between each cognitive function and each of the three criterion measures of criminal history, while controlling for the given factors. Multiple regressions will identify the cognitive functions that most consistently relate to the criterion measures (FCO and IMS). An analysis of co-variance will assess the association between each of the cognitive functions and the other criterion measure of offence type (this analysis was chosen because of the categorical nature of the variable offence types). Finally, a factor analysis will determine the degree of inter-relatedness among the selected cognitive functions. Given an array of correlation coefficients for the cognitive functions, factor analytic techniques reduce the data to a smaller set of principal factors that may be taken as summary variables for the interrelations found in the data.

## RESULTS

### Brief Overview of the Results

The majority of inmates in this research were Caucasian and ranged in age from 17 to 62 ( $M=25.1$ ,  $SD=8.2$ ). The average I.Q., as measured by the Quick Test (Ammons and Ammons, 1962), was 88.7 ( $SD=11.5$ ). I.Q.'s ranged from a low of 53 to a high of 120. In this sample, 111 were literate as assessed by a minimal reading level of Grade 6 on the Wide Range Achievement Test (Jastak, Bijou, & Jastak, 1965), while 8 were considered illiterate and were asked to listen to a taped version of the non-verbal tests (Hogan's Empathy Scale and the Internal, Powerful others and Chance Scales). This procedure was followed to compensate for the inmate's inability to read. The average school grade completed was 9.8 ( $SD=2.4$ ).

A summary of the test results on the various cognitive measures is presented in Table 1.

TABLE 1 ABOUT HERE

The nature of the cognitive tests and the variation in scores do not permit any further evaluation at this point, with the

TABLE 1

## Description of Cognitive Tests

	range of scores	mean	median	standard deviation	n
impulsivity	.1 - 4.0	1.2	1.1	7.68	119
empathy	17 - 47	31.5	30	6.07	119
internal	0 - 48	34.3	35	7.89	119
power	0 - 42	17.6	18	8.09	119
chance	0 - 46	19.7	18	9.03	119
field dependence	0 - 12	6.5	6	3.76	93
field independence	13 - 18	14.9	15	1.58	26

exception of field dependence/independence. On the basis of previous normative data (see methodology), seventy-eight per cent (78%) of this sample were found to be field dependent (n=93), while twenty-two per cent (22%) were found to be field independent.

With respect to criminal history/behaviour, three measures were taken into consideration:

- a) the level of criminal involvement (F.C.D.);
- b) the level of institutional disruptive behaviour (I.M.S.); and,
- c) offence types.

The level of criminal involvement (the number of convictions relative to age) indicated a mean level of .470 and ranged from .02 to 1.6 (n=119).

Thirty-five per cent (35%) of this sample were found to have previous institutional misconducts during their last provincial term of incarceration. Therefore, the level of institutional disruptive behaviour (I.M.S.) was based on a relatively small proportion of this sample (n=42). The mean level was .041 and ranged from .004 to 1.08.

The third measure of criminal behaviour considered was offence type. In this sample, seventy-nine per cent (79%) were found to evidence a non-aggressive type (n=94), as opposed to the twenty-one per cent (21%) who evidenced an aggressive one (n=25). A more detailed breakdown of the offence types is presented in Table 2.

TABLE 2 ABOUT HERE

The Relationship between Cognitive Functioning and Intelligence,  
Education and Age

Table 3 presents the results of the Pearson product-moment correlations between the specific cognitive measures and intelligence, education and age. As showed in this table, several significant correlations emerged.

TABLE 3 ABOUT HERE

**Intelligence:** Significant positive correlations were found between intelligence and empathy ( $r=.34, p<.001$ ) and between intelligence and field dependence ( $r=.3, p<.01$ ). In contrast, the chance subscale of the I.P.A.C. Scale and impulsivity each correlated negatively and significantly with intelligence ( $r=-.23, p<.01$ ;  $r=-.28, p<.002$ , respectively).

**Education:** The last school grade completed was found to correlate positively and significantly with empathy ( $r=.32, p<.000$ ), while significant negative correlations were reported with field independence ( $r=-.2, p<.05$ ) and the

Table 2Frequency Distribution of Major  
Offence Types

	number of subjects
against person	24
against property	68
narcotics	15
property w/violence	1
traffic	7
peace disorders	4
-----	
aggressive offence type	25
non-aggressive offence type	94

✓ Table 3

**Correlation Coefficients between the various  
Cognitive Functions and Intelligence, Education  
and Age**

	Intelligence	Education	Age
impulsivity	-.29** (118)	-.15 (118)	.11 (119)
empathy	.34** (118)	.32** (118)	.18* (119)
internal	-.06 (118)	-.02 (118)	-.03 (119)
power	-.11 (118)	-.03 (118)	-.07 (119)
chance	-.23** (118)	-.24** (118)	-.17 (119)
field dependence	.32** (092)	.16 (092)	-.16 (093)
field independence	-.09 (026)	-.19* (026)	-.37** (026)

p < .05\*  
p < .01\*\*

chance subscale of the I.P.&C. Scale ( $r = -.24, p < .008$ ).

**Intelligence and Education:** Intelligence and education were found to significantly inter-correlate ( $r = .41, p < .0001$ ).

**Age:** Initial analyses showed a significant negative correlation between age and field independence ( $r = -.4, p < .01$ ), and a significant positive correlation between age and empathy ( $r = .2, p < .05$ ). Subsequent analyses were undertaken due to the great variability in age. This variable was dichotomized by taking the median split of the grouped frequency distribution. Comparisons between two age groups in terms of mean differences and standard deviations among the cognitive measures did not reveal any major differences.

TABLE 4 ABOUT HERE

The Relationship between Cognitive Functioning and Criminal Behaviour with Intelligence, Education and Age as Covariates

On the basis of the above mentioned significant results, intelligence, education, taken separately as well as together, and age served as covariates when examining the relationship between the specific cognitive functions and criminal behaviour. The

Table 4

## Mean Differences across Age Levels

	Age 1 (17-22)		Age 2 (23-62)	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
impulsivity	1.27	.76	1.18	.77
empathy	30.71	6.09	32.82	5.9
internal	33.95	7.07	34.64	8.8
power	17.3	7.4	17.96	8.8
chance	20.36	8.9	18.89	9.2
field dependence	6.9	3.6	5.9	3.8
field independence	15.46	1.7	14.6	1.3

significant results of these analyses are reported in Tables 5 and 6 according to each of the three aspects of criminal behaviour:

- 1) the level of criminal involvement;
- 2) the level of institutional disruptive behaviour; and,
- 3) offence types.

TABLES 5 & 6 ABOUT HERE

**The Level of Criminal Involvement (F.C.O.):** Of the seven cognitive measures, only one reached significance with the level of criminal involvement. Significant partial correlation coefficients showed a negative relationship between the level of criminal involvement and empathy when controlled statistically for intelligence only ( $r = -.24, p < .004$ ), for education only ( $r = -.24, p < .004$ ), for intelligence and education together ( $r = -.22, p < .01$ ), and for age only ( $r = -.26; p < .002$ ). The remaining partial correlations were non-significant.

**The Level of Institutional Disruptive Behaviour:** Only one significant correlation between the specific cognitive measures and the level of institutional disruptive behaviour

Table 5

Partial Correlation Coefficients between the various Cognitive Functions and the Level of Criminal Involvement, controlling for I.Q., Education and Age

	Intelligence	Education	Intelligence, & Education	Age
impulsivity	-.05 (114)	-.03 (114)	-.07 (113)	.05 (114)
empathy	-.24** (114)	-.25** (114)	-.22** (113)	-.26** (114)
internal	.02 (114)	.03 (114)	.02 (113)	.02 (114)
power	-.01 (114)	.02 (114)	-.01 (113)	-.01 (114)
chance	-.02 (114)	-.02 (114)	-.05 (113)	-.02 (114)
field dependence	.17 (89)	.11 (89)	.17 (87)	.04 (89)
field independence	.22 (23)	.20 (23)	.19 (22)	.09 (23)

p < .05\*

p < .01\*\*

Table 6

Partial Correlation Coefficients between the various Cognitive Functions and the Level of Institutional Disruptive Behaviour, controlling for I.Q., Education, and Age

	Intelligence	Education	Intelligence & Education	Age
impulsivity	-.03 (39)	-.02 (39)	-.05 (38)	-.04 (39)
empathy	.02 (39)	-.01 (39)	.02 (38)	.08 (39)
internal	.25* (39)	.23 (39)	.21 (38)	.31* (39)
power	-.16 (39)	-.12 (39)	-.15 (38)	-.13 (39)
chance	-.14 (39)	-.17 (39)	-.21 (38)	-.11 (39)
field dependence	-.27 (32)	-.26 (32)	-.24 (31)	-.27 (32)
field independence	-.61 (04)	.72 (04)	.65 (03)	.53 (04)

p < .05\*

p < .01\*\*

was found. Positive significant partial correlations were found between the level of disruptive behaviour and the internal subscale of the I.P.&C. Scale when controlled statistically for intelligence ( $r = .25, p < .05$ ), and for age ( $r = .31, p < .02$ ). Non-significant partial correlations were reported for the other six cognitive measures.

Subsequent to the partial correlations, stepwise multiple regressions were used to determine the predictive value of each cognitive measure for the level of criminal involvement and the level of institutional disruptive behaviour. The purpose of the regression analysis was to identify the cognitive functions that most consistently relate to the criterion measures of the level of criminal involvement and the level of institutional disruptive behaviour. The only significant prediction of the level of criminal involvement was empathy with a multiple  $R$  of .302 ( $F(1, 117) = 17.74, p < .001$ ).

Offence Types: The scores on the specific cognitive measures between aggressive and non-aggressive offence types were analysed using covariance techniques to control statistically for intelligence, for education, and for age. The results indicated that the types did not differ significantly from each other on any of the cognitive measures.

The Inter-correlations among the Cognitive Measures

Inter-correlations among the measures: Table 7 presents a summary of the inter-correlations among the cognitive measures, and reveals a number of significant inter-correlations:

TABLE 7 ABOUT HERE

- a) Negative correlations were found between impulsivity and each of two cognitive measures, that of empathy ( $r = -.23, p < .05$ ), and the internal subscale of the I.P.&C. Scale ( $r = -.31, p < .01$ );
- b) empathy was related negatively to the chance subscale of the I.P.&C. Scale ( $r = -.25, p < .01$ ); and,
- c) the internal, powerful others, and chance subscales of the I.P.&C. Scale inter-correlated positively with one another. In particular, the power and chance subscales were highly inter-correlated ( $r = .54, p < .01$ ).

**Factor Analysis:** In order to assess if any underlying patterns of relationship exist among the cognitive functions, scores on each cognitive measure were factor analyzed by principal components. Two factors emerged. Table 8 presents the factor loading scores for the specific cognitive measures on each of the

Table 7

Correlation Matrix - Cognitive Functions

	impulsivity	empathy	int	power	chance	field
impulsivity	1.0	-.23*	-.31**	-.09	.04	-.48
empathy		1.0	.11	-.08	-.25**	.21
internal			1.0	.35**	.25**	.14
power				1.0	.54**	-.14
chance					1.0	-.20
field						1.0

p < .05\*  
P < .01\*\*

two factors. The eigenvalues of 1.3 and 1.2 were indicated for the first factor and second one, respectively.

TABLE 8 ABOUT HERE

The first factor, accounting for fifty-two per cent (52%) of the variance, indicated a belief in an external orientation. Both the power and chance subscales of the I.P.&C. Scale loaded greater than .40 (.72 and .75, respectively). Such a finding is not surprising since both the power and chance subscales reflect an external locus of control.

The second factor accounted for forty-seven per cent (47.8%) of the variance. Three factor loading scores higher than .40 were revealed. The greatest single factor loading score was for impulsivity (-.76), followed by field dependence/independence (.54), and the internal subscale of the I.P.&C. Scale (.47). These factor loading scores appear to point towards a internal or self-reliant orientation.

The results from this factor analysis suggest two relatively independent factors; an external locus of control and an internal (self-reliant) orientation.

Table 8

Factor Analysis

Factor Matrix using Principal Factor with Iterations

	Factor 1	Factor 2
impulsivity	.12967	-.76940
empathy	-.25230	.28376
internal	.30528	.47286
power	.71295	.24131
chance	.74907	.05338
field	-.34441	.53723

	Eigenvalue	pct. of variance
Factor 1	1.36168	52.2
Factor 2	1.24580	47.8

## DISCUSSION

### Summary of the Main Findings

The cognitive model of delinquency prevention and offender rehabilitation lends an interpretative framework to a large body of research investigating the relationship between cognitive functioning and criminal behaviour. Previous research, which has formed the basis for this model, indicated that cognitive inadequacies are associated with criminal behaviour. The present study was undertaken as an initial step in the empirical investigation of a number of questions raised by Ross and Fabiano (1981;1982;1985).

The findings from the present study are based upon a within group and between group comparison of an incarcerated sample. As previously indicated (methodology), the present study was conducted in conjunction with a larger project on correctional classification systems which accounts for the selection of this particular incarcerated sample (Bonta, 1983).

It should be recalled that the purpose of this study was twofold. The primary purpose was to examine the relationship between the specific cognitive functions (impulsivity, empathy, locus of control and field dependence/independence) and criminal history (level of criminal involvement, level of institutional

disruptive behaviour and offence types). In doing so, a number of factors (intelligence, education and age) were also studied and employed as controls. Secondly, it explored the relationship among the specific cognitive functions in order to determine if any underlying theme, or themes, existed.

With respect to the first purpose, the reported relationship between the specific cognitive functions and criminal history was negligible overall, but with some specific exceptions. Three significant findings emerged. First, the majority of inmates tested were found to be field dependent. This supports an earlier study which found similar results (Eskin, 1960). Secondly, empathy was negatively related to the level of criminal involvement when controlled for intelligence, for education (taken separately and together) and for age. Such a finding is in support of some other studies which have found differences in empathy with offenders (Ellis, 1982; Krutines and Hogan, 1972). It is, however, in contrast to Deardoff 1977's study. The contrast may be attributed age differences. Deardoff's study tested adolescents who may not have yet developed differential empathic dispositions. Success was also obtained in the predictive value of empathy with the level of criminal involvement. Such a finding corroborates with the previous mentioned correlation wherein empathy was shown to be significantly related to the level of criminal involvement. It should also be mentioned here, that the lack of predictive power with the level of institutional disruptive behaviour on any of the cognitive measures may have been mitigated by the small sample

distribution (n=42); a possibility which increases the chance that a sampling artifact was the controlling factor. The third significant finding was that the internal locus of control related positively to the level of institutional disruptive behaviour when controlled for intelligence, and for age. Such a finding runs counter to an ever present hypothesis indicating that offenders are external and gives reason to speculation. It may be that some inmates within a correctional environment maintain this particular perception of control by committing institutional misconducts. That is, instead of viewing the misconduct as being a punishment for violating the institution's regulations, some inmates may view the misconduct as a reward or a reinforcement for maintaining mastery over their environment.

Although the above mentioned findings confirm other studies, it was indicated earlier that many of the previous studies did not take into account factors which may influence the relationship between cognitive functioning and crime. It is particularly interesting that in the present study intelligence, education (taken separately and together), and age influence this relationship. However, the relationship is not simple. The analyses indicated that intelligence, education and age are variably related to cognitive functioning, or to both cognitive functioning and criminal behaviour. In presenting the complex interplay of these factors in the relationship between cognitive functioning and criminal behaviour, these findings reinforce the view that in research on cognition and crime such factors must be

controlled.

The second purpose of this study was to assess the relationship among the cognitive functions. Two independent factors were revealed. The first factor indicated that the power and chance subscales of the I.P.&C. scale were statistically significant cognitive functions. Such a finding corroborates with the correlational analyses wherein the power and chance subscales were related positively to each other. These findings support Levenson's (1974) results in that the power and chance scales are different from each other in terms of belief systems, however, they reflect an external locus of control. A second factor was identified in reference to a number of cognitive functions which were found to be statistically significant (impulsivity, internal locus of control, and field dependence/independence). A conjecture based on the statistical direction and the definition of these cognitive functions appears to point towards an internal or self-reliant orientation. This finding also appears to add some support to the research which has suggested that some offenders are egocentric (i.e. self-centered; self-oriented) (Chandler, 1973).

#### Discussion of the Findings

Although this research provides some support for the view that criminal behaviour may be associated with cognitive functioning, the results raise more questions than they answer.

The major question is: How do these findings further the cognitive model in terms of future research as well as intervention?

Some cognitive functions were found to relate to some measures of criminal history, however, some did not. There are several explanations for these findings.

In their discussion of the cognitive model, Ross and Fabiano (1985) stress individual differences: many, but not all offenders have cognitive inadequacies. Some evidence weakness in different cognitive skills than others, while some evidence no cognitive inadequacies. Offenders are a heterogeneous population. Differences in cognitive functioning are naturally dependent upon a host of other factors such as intelligence, education and age, as indicated in this study. Other factors not directly examined in this study would also influence cognitive functioning such as emotional state, culture, and social class.

Second, studies which have found an association between cognitive functioning and criminal behaviour have examined a large number of cognitive skills, ranging from basic perceptual skills to complex problem-solving abilities. In doing so, they have used a wide variety of measures. Whether or not a relationship is found in any study will depend on the measure employed. The sensitivity of the tests used in this study may not have captured the relationship between cognitive functioning and criminal behaviour. For example, the failure in the present study to find a positive association between impulsivity and criminal behaviour is consistent with some other studies which have used the M.F.F.T. as

a measure of impulsivity (Glenwick, et.al.,1979;Saunders et.al.,1973). Differences in scoring this test also add to the inconsistent findings between impulsivity and criminal behaviour. Moreover, non-significant results were found when a construct validation procedure was designed in order to assess the convergent and discriminant validity of the M.F.F.T. with delinquents (Shapiro,1977). Whereas the reliability and validity of the test have been reported with non-offenders, past and present findings should give cause to reconsider the value of the M.F.F.T. as an impulsivity test with offenders. Additional psychometric work appears to be required.

The present study assessed the inter-relatedness among the specific cognitive functions and found weak, although significant, themes. Such a finding suggests, as Ross and Fabiano (1985) have noted, that the cognitive skills which have been found to be inadequate in some offenders do not necessarily represent some consistent or central cognitive function but may, rather, indicate that the skills are relatively independent.

A fourth explanation points to sampling differences. Most researchers have examined cognitive functioning in juvenile offenders. Since cognitive functioning is related to age, it is possible that many adult offenders have matured sufficiently to have lost their cognitive inadequacies and that, therefore, the relationship between cognition and criminal behaviour is much less likely to be found in studying adult offenders.

The fifth issue concerns the particular environment used

in the present study. Situational factors have frequently been ignored as influencing characteristics which are thought to be stable and situation free personality traits. Even though the actual testing was presented in a manner which would encourage the inmate's optimal performance, his motives, his attitudes and his general emotional state may have been affected by just being in an institution and these, in turn, may have influenced the test results.

It is suggested that further research should include studies which compare adjudicated offenders and those individuals who behave illegally without being caught, should cross-sectionally assess inmates at different stages of incarceration, should longitudinally assess inmates at several points during particular lengths of incarceration, and should evaluate more homogeneous groups of offenders to establish the level of cognitive functioning in certain groups.

#### **Impersonal Cognition versus Social (Interpersonal) Cognition**

It is particularly noteworthy, that in the present study the most salient feature was empathy - a cognitive function which constitutes an interpersonal cognitive skill. This finding provides some support for the view that Ross and Fabiano (1985) have expressed in their most recent discussion of the cognitive model - that the skills most likely to be inadequate in offenders are interpersonal cognitive skills rather than impersonal

cognitive skills such as are measured by the impulsivity and field dependence/independence tests used in the present study.

Of specific mention is the finding that empathy related negatively to the level of criminal involvement. This finding is consistent with other offender studies which have used Hogan's Empathy Scale (1969) and found similar trends in empathy (Ellis, 1982; Krutines and Hogan, 1972). Empathy was also found to be intelligence-related, education-related, and age-related. It would therefore appear that the ability to empathize increases as a function of these factors. An inadequacy in empathic ability may also represent a breakdown in a normal developmental progression of prosocial thought. These findings also suggest an important area of concern for clinicians interested in intervention.

#### Cognition and Intervention

The cognitive model is above all pragmatic. It suggests that many offenders need to learn how to think, how to problem-solve, and how to make decisions. In short, the model implies that offenders need to learn social competence. The present study adds some support to this model. Although the study found a weak relationship between cognitive functioning and criminal history, it did reveal that many inmates were field dependent, low in empathy, and some inmates hold an internal locus of control. The non-significant findings may indicate that many of the inmates were not inadequate in many of the cognitive

functions. The research, therefore, adds to the view that it is necessary to assess offenders on specific cognitive functions in order to determine whether they require cognitive training and in what area (Ross and Fabiano, 1985).

As Ross and Fabiano (1985) and Chandler (1973) have suggested, the strength of the relationship between cognition and criminal behaviour can be somewhat irrelevant to the fact that offenders who are inadequate in essential cognitive skills should receive training in these areas. It has been established that such training is associated with decreases in recidivism (Ross and Fabiano, 1985). Moreover, as they note, cognitive inadequacies are neither an essential or sufficient cause of criminal behaviour. In fact, they suggest that perhaps the best way to interpret the research on the relationship between cognitive functioning and criminal behaviour is not that cognitive inadequacies are a cause of crime rather, cognitive skills may prevent individuals from having to resort to criminal activity, and enhance his ability to develop a prosocial lifestyle.

### Conclusion

The cognitive functioning of offenders is a relatively new and developing trend in criminology. As with all studies dealing with crime, it addresses such questions as Why is there crime? What are the differences between offenders, and with non-offenders?

The selected cognitive model of offender rehabilitation and delinquency prevention addresses the association between cognitive functioning and criminal behaviour. As with any model in any field of study, it is not an all inclusive one. In presenting the information on cognition and crime, the authors of the selected model raised a number of unexplored areas in need of research. The present study examined one of these areas: the relationship between cognitive functioning and criminal history.

The reported relationship was generally weak for some facets of cognition. Several explanations were offered for the lack of a strong relationship. To name a few: The tests may not have attended to the relationship between cognition and crime. Another probable explanation is that many adult offenders have developed enough to have lost any cognitive inadequacies. It is also possible that these facets of cognition are simply not related to criminal history.

One of the most valuable findings in the study points to empathy. Such a finding is in accord with some other studies in this area. It would therefore appear that interpersonal skills are

the most likely to be found inadequate with many offenders. Another interesting finding was the relationship between internality and the relatively higher incidences of institutional misconducts. This finding may be interpreted as displaying competence over their environment. Other noteworthy findings in the study refer to the intricate relationship between intelligence, education and age with cognition and criminal behaviour, indicating the necessity to control for these factors.

In conclusion, the present study contributes to this area by simply exploring certain aspects and providing feedback on one way of testing the relationship between cognition and crime, using standard psychological tests. It also suggests the utility of attempting to understand offenders in terms of their developmental approach for the acquisition of cognitive skills necessary for social adaptation.

The findings of the present study indicate the importance of pursuing research on the following questions: What are the differences in cognitive functioning between various offender groups? between various settings? under certain control conditions?

P

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APPENDIX 'A'





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\_\_\_\_\_  
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\_\_\_\_\_  
Signature of Research Staff

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