THE DEVELOPMENT OF A CRIMINAL CAREER:
THE ROLE OF A CRIMINAL SELF-CONCEPT IN THE
PREDICTION OF YOUNG OFFENDER RECIDIVISM

by

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The role of a Criminal Self-concept in the Prediction of a Young Offender Recidivism.

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Abstract

What is the relationship between a criminal self-concept and the future recidivism of young offenders? In an effort to answer this question, the criminal careers of 155 male young offenders were followed for approximately three years following a period of incarceration. Prior to release, all subjects completed a testing package that included the following measures: Carlson Psychological Survey, Jesness Inventory, Rosenberg Self-esteem Questionnaire, and a new measure of criminal identity developed by the author, the "Street-Self" Questionnaire (SSQ). Results of the multiple regression analyses showed that measures of antisocial orientation significantly added to the capacity of criminal history to predict recidivism, whereas age of onset of criminal activity and I.Q. did not. A significant increase in the effect size of this twofold predictor set was observed when predicting recidivism for those who demonstrated high self-esteem at the time of testing. With regard to the antisocial measures themselves, the SSQ measure was as strong a predictor as the established measures of antisocial orientation, the Jesness and Carlson subscales, while requiring less time to complete. The Asocial Index, a composite score computed for the Jesness Inventory, performed the most poorly of the antisocial subscales included in the regression equation. Additional analyses revealed that the SSQ, while correlated with impulse control, captures a dimension that subsumes and extends beyond that construct. In addition, the SSQ is correlated with an estimate of involvement with delinquent peers, but uncorrelated with both alcohol and illicit drug use. The implications of these results for the theory and practice of predicting young offender recidivism are discussed.
Acknowledgements

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Table of Contents

Introductory Section
- Approval Page
- Abstract
- Acknowledgements
- List of Tables
- List of Appendices

Literature Review
- Introductory Review
  - Definitions
  - Theoretical Background
  - Empirical Support

Self-concept and Recidivism Research
- Familial Factors
- Intellectual/Academic Factors
- Personality Factors
- Age at First Arrest
- Peer Influences

Criminal Identity and Recidivism
- Theoretical Considerations
- Empirical Investigation of the Criminal Identity

Self-esteem and Recidivism
- Changes in Self-esteem During Incarceration
- The Self-esteem/Self-concept Connection

Treatment Outcome Research
- Residential Group Therapy
- Residential Social Skills Training
- Community Based Treatment Programs
- Summary

The Treatment/Self-concept Connection

Conclusion

Statement of Research

Method
- Participants
  - The Initial Data Sample
  - The Validation Sample
Table of Contents (continued)

Hypothesis #1(T2) 117
Hypothesis #2(T2) 118
Conclusion 118

Discussion 119
  Attitudes versus Actions 119
  The Neutralization of I.Q. and Age of Onset 122
  Nonviolent versus Violent Recidivism 126
  The "Street Self" Questionnaire 127
  The Self-concept/Self-esteem Interaction 129
  Limitations of the Current Investigation 130
  Recidivism Rate 132
  Predictive Capacity 133
  Summary and Implications 134

References 137

Appendices 158
List of Tables

Table 1: Strong Correlates of Young Offender Recidivism 14

Table 2: Factors Demonstrating an Equivocal Relationship with Young Offender Recidivism 16

Table 3: Factors Demonstrating a Marginal Relationship with Young Offender Recidivism 18

Table 4: Time Spent in Jail: Closed-Custody versus Open-Custody 86

Table 5: Summary of the Hierarchical Regression Analyses for the Relative Significance of the Antisocial Measures in Predicting Density of Convictions during the General Recidivism Period: Regression A and B (N = 155) 88

Table 6: Summary of the Hierarchical Logistic Regression Analyses for the Relative Significance of the Antisocial Measures in Predicting the Advent of a Serious Jail Sentence (>90 days) during the General Recidivism Period: Regression A and B (N = 155) 90

Table 7: Summary of the Hierarchical Logistic Regression Analyses for the Relative Significance of the Antisocial Measures in Predicting a Violent Conviction during the General Recidivism Period: Regression A and B (N = 155) 91

Table 8: Summary of the Hierarchical Regression Analyses for the Relative Significance of the Antisocial Measures in Predicting Density of Convictions during the Adult Recidivism Period: Regression A and B (N = 120) 93

Table 9: Summary of the Hierarchical Logistic Regression Analyses for the Relative Significance of the Antisocial Measures in Predicting Future Contact with the Adult Correctional System: Regression A and B (N = 120) 94

Table 10: Summary of the Hierarchical Logistic Regression Analyses for the Relative Significance of the Antisocial Measures in Predicting Violent Convictions within the Adult Recidivism Period: Regression A and B (N = 120) 96
List of Tables (continued)

Table 11: Part A: Summary of the Stepwise Linear Regression Analyses to Select the Significant Antisocial Measures in the Prediction of Recidivism 97

Table 11: Part B: Summary of the Stepwise Logistic Regression Analyses to Select the Significant Antisocial Measures in the Prediction of Recidivism 97

Table 12: Part A: Summary of the Stepwise Linear Regression Analyses to Select the Significant Predictors of Recidivism when the Controls are added to the Possible Pool of Predictors 100

Table 12: Part B: Summary of the Stepwise Logistic Regression Analyses to Select the Significant Predictors of Recidivism when the Controls are added to the Possible Pool of Predictors 101

Table 13: Part A: Summary of the Stepwise Linear Regression Analyses to Select the Significant Predictors of Recidivism for Subjects with High Self-esteem 103

Table 13: Part B: Summary of the Stepwise Logistic Regression Analyses to Select the Significant Predictors of Recidivism for Subjects with High Self-esteem 104

Table 14: The Predictive Capacity for the Continuous Measures of Recidivism: A Comparison 105

Table 15: Summary of the Hierarchical Linear Regression Analyses to Investigate Moderator Effects in the Prediction of General Conviction Density (N = 155) 108

Table 16: The Stepwise Regression Results for the Prediction of Serious General Recidivism when Impulse Control is Added to the Predictor Set (N = 155) 110

Table 17: Part A: Summary of the Hierarchical Linear Regression Analyses to Determine Whether or not Testing is Necessary to Predict Recidivism 112

Table 17: Part B: Summary of the Hierarchical Logistic Regression Analyses to Determine Whether or not Testing is Necessary to Predict Recidivism 113
List of Appendices

Appendix A: Environmental Settings
Appendix B: The Canadian Recidivism Index
Appendix C: Auxiliary Instruments
Appendix D: The "Street Self" Questionnaire
Appendix E: Factor Analyses Results for the Street Self Questionnaire
Appendix F: The Friendship Questionnaire
Appendix G: Consent Form
Appendix H: Demographic Questionnaire
Appendix I: Effect Size in Logistic Regression
Appendix J: Correlation Matrix of the Independent Variables
The Development of a Criminal Career:

The Role of a Criminal Self-concept in the Prediction of Young Offender Recidivism

Introductory Review

The preponderance of criminal activity in North America is perpetrated by males in their mid-to-late teen years (e.g., Brudner-White, 1986; Gruenwald & West, 1989; Tanner, 1996). Although a certain degree of delinquency\(^1\) may be thought of as "developmentally a fairly typical phase for many adolescents" (p. 339), these early law-breaking experiences are all too often followed by chronic adult criminal activity (Fischer-Dilalla & Gottsman, 1990). However, engaging in delinquent acts does not necessarily result in the establishment of a criminal career. The following literature review will outline the theoretical and empirical basis for considering the establishment of a criminal identity as one of the more influential factors in propelling delinquent adolescents into chronic adult criminality.

Self-concept and self-esteem are two aspects of adolescent identity that have received considerable theoretical and empirical focus in the young offender research, and which appear to be reflective of criminal identity. Early research focused largely on establishing self-concept and self-esteem as precursors and/or correlates of delinquent activity, resulting in the eventual investigation of the role of these factors in the prediction of young offender recidivism. Therefore, brief coverage of the earlier work will be provided in order to lay the groundwork for discussion regarding self-esteem, self-concept and recidivism.

1. The term "delinquency", as used in this paper, refers to the commission of criminal activities by individuals who are under the age of 18 years, and does not refer to status offenses. Elsewhere in this paper, the term "young offender" has been used to refer to adolescents under the age of 18 who have been officially adjudicated for their involvement in criminal activity. Due to the limitations on the scope of the current paper, the term young offender will always refer to male adolescents.
Definitions

Although the terms self-esteem and self-concept are frequently referred to in the young offender literature, they are rarely defined and are often used interchangeably. This lack of clarity and consistency in usage leads to a great deal of confusion regarding both the definition of terms, and the interpretation of results. For the purposes of discussion here, self-esteem and self-concept are construed as separable and distinct constructs.

Self-esteem is unidimensional and refers to the extent to which one feels generally positively or negatively about oneself (Rosenberg, 1979). In contrast, self-concept is multidimensional and collectively comprises one's conception of "self". One's "self" encompasses the many roles in one's life, some of which are more important and central to us than are others, which are less salient to our consciousness and more peripheral to our identities. Therefore, self-concept refers to how one perceives one's functioning in all of the various roles or aspects of one's life (Offer, Ostrov, & Howard, 1981). This perception incorporates, but is not limited to, Bandura's notion of self-efficacy (e.g., Markus & Wurf, 1987).

Although most individuals would agree that self-esteem has a positive value, individuals vary considerably with regard to the value that they place on each aspect of self-concept. For example, the criminal aspect of the self-concept may be equally salient to two young offenders, but one may feel ashamed of that aspect of himself whereas the other may value that role. This example highlights the importance of not imposing either our own values, or those of "mainstream society", onto the self-concept structure of another. 2
Self-concept and self-esteem are hypothesized to be separate constructs that exert reciprocal influences upon one another. For example, one's self-esteem may be bolstered by the acknowledgment that one functions well in some aspects of one's life, such as being a good parent, a hard worker, or a successful car thief. Research has focused more often on the impact of self-concept on self-esteem, than vice versa. Despite such empirical attention, investigations have yet to elucidate the exact means by which aspects of self-concept influence self-esteem. For example, the intuitive notion that a given aspect of self-concept will affect self-esteem, either positively or negatively, in proportion to which it is an important (central) aspect of the identity has neither been supported or refuted by the research done thus far (Hoge & McCarthy, 1984; Marsh, 1986). This lack of clarity may be due to: (1) a deficiency in sensitivity of the measurements used, leading to ceiling effects; and (2) difficulties separating personal importance from societal importance (Connors, 1992).

Moreover, Connors (1992) uncovered an environmental mediator in the relationship between self-esteem and aspects of self-concept in incarcerated young offenders \( (N = 137) \). The staff of these correctional facilities are extremely concerned that residents not act out (Impulse Control), act "crazy" (Psychopathology), or become depressed such that they represent an institutional risk (Emotional Tone).\(^3\) These were the only

2. Aspects of self-concept may also vary along alternate dimensions, such as the degree to which they: (1) have been currently achieved (Markus & Nurius, 1986); (2) are reflected to us in the opinions of others (McSueda, 1992); or (3) demonstrate balance between possible selves and feared selves (Oyserman & Markus, 1990). However, as the investigation of all dimensions of self-concept is beyond the scope of the current research, the present discussion will be limited to the two dimensions of self-concept that are alluded to in the young offender research: positive/negative and central/peripheral.

3. Impulse Control, Psychopathology, and Emotional Tone are three of eleven self-concept scales comprising the Offer Self-Image Questionnaire (Offer, 1983).
aspects of self-concept that were correlated with the general measure of self-esteem. For this sample, the aspects of self-concept that exerted the greatest influence on self-esteem were those made salient given the demands of the environment. This suggests an exceedingly complex relationship between self-concept and self-esteem.

The aggregate of all dimensions of self-concept and self-esteem is perhaps best represented by the Eriksonian concept of ego-identity (Erikson, 1968). Erikson has identified the adolescent years as a socially sanctioned period of role experimentation. The ultimate aim of such experimentation is the determination of a sense of self (identity) that unifies perceptions of the past and future, with the present. Erikson theorized that the identity that is ultimately adopted often reflects the role that was both personally satisfying and most available or realistic for the adolescent at that time. The individual's initial identity formulation provides a bridge into the adult world of independence by providing a structure through which each individual can to process information and experiences as they begin to face the demands of adult life. Therefore, it is the initial identity formulation that determines what behaviours will be acceptable to an adolescent, such as choosing to remain in school, or deciding to engage in lawbreaking activity.

**Theoretical Background**

Self-esteem and self-concept were initially identified as theoretically important elements in the continuance of delinquent activity by the *Esteem-Enhancement Hypothesis* (e.g., Kaplan, 1975). This hypothesis can be conceptualized as a two-part framework; part one describes the means by which delinquency commences, and part two delineates the process by which it is maintained. Part one of the Esteem-
Enhancement Hypothesis has also been referred to as the Societal Failure Theory of delinquent development. This theory is a popular sociological framework for conceptualizing the initiation of delinquent behaviour (e.g., Brudner-White, 1986; Hogan & Sloan, 1984; Vigil, 1988).

Briefly, the Societal Failure Theory posits that conventional institutions such as the family and schools are "breaking down" as stable structures that provide validation and reinforcement to the developing identity of today's youths. These societal inadequacies spur a negative psychological state that we, as individuals, are intrinsically motivated to ameliorate. The end result is that conventional adolescent methods of achieving a sense of self-worth are shunned, and alternative methods are sought. Disenchantment with the available structures of adult authority leads to an increased reliance on the peer group for support, approval, and validation of self. This change in social orientation is hypothesized to be fertile ground for the exploration of antisocial roles and activities (e.g., Gottfredson, McNiel, & Gottfredson, 1991; Paternoster & Mazerolle, 1994).

The negative psychological state evolving from such societal failures affects two fundamental aspects of the self: self-esteem and self-concept. When conventional institutions of socialization "fail" a youth, s/he has fewer opportunities to identify with socially sanctioned roles. Not only does s/he have a less favorable foundation from which to build a solid (and positive) self-concept, s/he is also vulnerable to lowered self-esteem. Delinquency is hypothesized to provide a psychosocial "solution" to both of these undesirable psychological states. Delinquent activity may result in a sense of mastery as well as peer acceptance and approval. Therefore, antisocial activity will
both increase self-esteem and provide a personally rewarding role with which the adolescent can identify. The delinquent role then becomes an integral aspect of the self-concept, acting to "defend" (bolster) self-esteem (part two of the Esteem-Enhancement Hypothesis). This theoretical framework clearly identifies self-esteem and aspects of the self-concept as important factors in both the initiation and maintenance of adolescent criminal activity.

The Esteem-Enhancement Hypothesis describes a process that is commensurate with Erikson's description of the internalization of a "negative identity". Erikson referred to the identification with roles such as criminality as a "negative identity". According to Erikson, a negative identity would be formed if it had been presented to the adolescent as undesirable or dangerous, yet also as the most realistic or "satisfying" role for him/her to adopt.

For example, a mother whose first-born son died and who, because of complicated guilt feelings, had never been able to attach to her later surviving children the same amount of religious devotion that she bestowed on the memory of her dead child, aroused in one of her sons the fateful conviction that to be sick or dead was a better assurance of being "recognized" than to be healthy and about. (Erikson, 1968, p. 174)

The integration of one's sense of self around a negative role often represents an attempt to gain control over what appears to be an inevitable fate.

The history of such a choice reveals a set of conditions in which it is easier for the patient to derive a sense of identity out of a total identification with that which he is least supposed to be than to struggle for a feeling of reality in acceptable roles which are unattainable with his inner means. (Erikson, 1968, p. 176)

4. "Negative", as it was used by Erikson (1968), refers to the process of identity development as opposed to describing the nature of the identity. Thus, individuals are thought to internalize the negative of possible positive images (like a picture negative). However, this does not appear consistent with Erikson's discussion of "positive" identities as unavailable to some members of minority groups. It is possible that this discrepancy can be explained by considering roles such as criminality to be negatives of roles that are societally, as opposed to personally, valued (J. Marcia, June 1994, personal communication).
The sense of an inability to attain recognition in socially acceptable roles may be promoted by experiences such as the incapacity to gain validation through such conventional means as families and schools. As well, the peer support described by the Esteem-Enhancement Hypothesis as a reinforcer of antisocial activity is compatible with considering a role to provide "personal satisfaction". Therefore, these two theories appear to be describing parallel processes. Given the richness of Erikson's theory, it is unfortunate that his conception of the "negative" identity has not been further delineated or empirically investigated. In contrast, some attention has been given to the validation of the Esteem-Enhancement Hypothesis.

**Empirical Support**

Research directly focusing on the Self-Esteem Enhancement Hypothesis of delinquent behaviour has been largely limited to three longitudinal sets of data: (1) Howard Kaplan conducted a two-year longitudinal study from which he has published numerous findings (Kaplan, 1975, 1976, 1977, 1977a, 1978, 1980; Kaplan, Johnson, & Bailey, 1986; Kaplan, Johnson, & Martin, 1986); (2) three separate analyses were conducted on the "Youth in Transition" data collected by Jerald Bachman over an eight year period (Brynner, O'Malley, & Bachman, 1981; Rosenberg & Rosenberg, 1978; Wells & Rankin, 1983); and (3) a two-year longitudinal study conducted by McCarthy and Hoge (1984) investigated the self-esteem/delinquency connection. All three sets of data were conducted on high school students who were rated as more or less delinquent by virtue of their self-reports on a delinquency checklist. (See Connors (1992) for a more comprehensive discussion of this research.)
These investigations focused on the influence of self-esteem on delinquency (part one the Esteem-Enhancement Hypothesis), and the influence of delinquency on self-esteem (part two of the Esteem-Enhancement Hypothesis). Evidence for causal relationships in either direction were contradictory and overall not strongly supported. The most consistent correlations between delinquency and self-esteem (in either direction) were observed when "specific" measures of self-esteem were used (e.g., Kaplan, Martin & Johnston, 1986; McCarthy & Hoge, 1984). These specific measures are clearly referring to self-concept rather than self-esteem (i.e., they refer to functioning in specific areas of one's life), but many of the authors failed to make the distinction between self-esteem and self-concept. Consequently, it appears that it is aspects of the self-concept (specifically academic, familial, and social roles), rather than more global self-esteem, that are implicated in a cause-effect relationship with delinquency.

Furthermore, self-esteem was shown to predict later self-concept ratings more consistently than it did later delinquency (e.g., Kaplan, 1977; Wells & Rankin, 1983). These results indicate a complex interaction among the three variables. In fact, there is some suggestion that changes in self-concept mediates the impact of delinquency on self-esteem (e.g., Kaplan, 1980). The notion that self-concept mediates the delinquency/self-esteem relationship is theoretically pleasing, but as yet only suggested, as opposed to supported, by the empirical findings.

One theoretical description for this mediation process is as follows. In addition to the possible addition of a criminal self to the identity, the direct effect of delinquent activity may be to strengthen and increase the importance of other aspects of self-
concept that are most relevant to success in the criminal role (i.e., social, physical, and mastery aspects of self-concept). In turn, the resulting sense of self-efficacy in these roles may serve to enhance self-esteem, thus reinforcing the delinquent behaviour (Connors, 1992; Hoge & McCarthy, 1984; Marsh, 1986).

The preceding research was inadequate to detect such a relationship for four reasons. First, the terms self-esteem and self-concept were inconsistently applied across studies, and were often not well defined or clearly differentiated. Second, this research did not consider the impact of a delinquent/criminal aspect of self-concept. Third, delinquency initiation and continuance were often not clearly separated. Fourth, all data were collected from "normal" high school students, the majority of whom had not been involved with the juvenile justice system. "Delinquent" subgroups of students were identified by virtue of self-reports of delinquent behaviour. Clearly, these individuals may differ substantially from adjudicated delinquents who rarely attend school.

Research investigating the nature of self-concept and self-esteem with adjudicated delinquents has refuted the popular notion that delinquents "feel badly" about themselves. Young offenders are virtually indistinguishable from nondelinquent youths in terms of their self-esteem, and generally feel quite good about themselves overall (e.g., Connors, 1992; Gold & Mann, 1972). In contrast, research has demonstrated that the self-concept of young offenders differs substantially from that of nondelinquents (e.g., Connors, 1992; Leung & Lau, 1989; Lund & Salary, 1980; Jurich & Andrews, 1984).
Altogether, there is strong evidence that young offenders experience the academic and familial aspects of their selves negatively, and the social and physical aspects of their selves positively. This self-concept configuration is commensurate with both the Esteem-Enhancement Hypothesis and the Societal Failure Theory of delinquency initiation and maintenance. However, a consistent shortcoming of this research is its collective failure to include aspects of self-concept unique to the subgroup of young offenders, such as a criminal aspect of the identity. This absence is surprising as one would expect that the greater an individual's involvement in a criminal subculture, the greater the role that criminality would play in that individual's identity. This hypothesis will be explored in greater detail at a later point in this review.

In summary, although there is a strong theoretical basis for expecting a close relationship between self-esteem and delinquency, the research has not supported the existence of such a correlation. Greater evidence has been uncovered to support a relationship between delinquency and the academic, familial, and social aspects of self-concept. The hypothesis that self-concept may mediate the self-esteem/delinquency connection is plausible but, as yet, unclarified. It is clear that the self-concept of adolescent offenders differs significantly from that of nonoffenders, and that it may include a delinquent or criminal self-concept as a central aspect of the identity. In contrast, young offenders do not differ from nonoffenders in terms of self-esteem, collectively viewing themselves positively.
Self-concept and Recidivism Research

The preceding research review clearly indicated a relationship between aspects of self-concept and the presence of delinquent activity, as well as suggesting an interaction between these two variables and self-esteem. However, it is unclear whether these "self" constructs are related only to "temporary" adolescent antisocial activity or to the more serious situation of the actual development of a criminal career. Although both processes are certainly disturbing, it is the later process that results in greater economic and emotional costs to members of society. Thus, given that self-esteem and self-concept are clearly theoretically and empirically implicated in the presence of delinquent activity, attention will now be turned to whether these constructs play a role in the continuance of that antisocial behaviour.

One indication of the initiation of a criminal career is the persistence of delinquent and criminal activity over time. This persistence is often referenced by measures of recidivism. There has been a great deal of controversy surrounding the definition and measurement of recidivism. One such dispute involves whether or not self-reports of antisocial activity are acceptable measures of recidivism. Although self-reports may be related to, and even predictive of officially recorded young offender activity (e.g., LeBlanc, Vallieres, & McDuff, 1993), there is substantial evidence that the two measures are capturing slightly different constructs (e.g., Blakely, Kushler, Parisian, & Davidson, 1980; Davidson, Redner, Blakely, Mitchell, & Emshoff, 1987; Hawkins, Cassidy, Light, & Miller, 1977; Loeber & Dishion, 1983; Smith, Smith, & Noma, 1986; Wormith & Goldstone, 1984). Therefore, this review was limited to
articles that examined the persistence of officially recorded criminal activity in adjudicated young offenders.

Dunham and Alpert (1987) is the only study reviewed that did not measure recidivism by the occurrence of officially recorded contacts with the youth correctional system. Dunham and Alpert (1987), while focused on the outcome of officially adjudicated young offenders, used a more subjective measure of recidivism in conjunction with the objective measure of school dropout. Further limitations to the following literature review were as follows. First, the primary focus was on articles that compared the relative contribution of more than one variable in the prediction of young offender recidivism. Therefore, articles that limited their focus to the impact of one variable in isolation from other influences were excluded from this review, as were those articles that did not clarify what predictors were considered but not empirically supported, or that did not delineate the relative contribution of each factor. This resulted in the elimination of several otherwise sound investigations (e.g., Benda, 1987; Shields & Whitehall, 1994).

Second, although the primary interest is young offender recidivism, some articles have been included which investigated the recidivism of incarcerated young adult males of the approximate age of 20 years (e.g., Gendreau, Grant, & Leipciger, 1979; Gendreau, Grant, Leipciger, & Collins, 1979; Wormith, 1984). These studies were included for two reasons. First, all of these articles investigated recidivism in samples of Canadian incarcerates. Although there may be many similarities between American and Canadian adolescents, differences in cultural mix, population density, and laws pertaining to the arrest and adjudication of young offenders may effect the
identification of recidivism predictors (e.g., Spaights & Simpson, 1986; Spellacy & Brown, 1984). Therefore, it was felt that additional material on the recidivism of Canadian incarcerates was preferable. Second, given that the participants were only 20 years old, and were first time incarcerates, it was felt that they may be more similar to young offenders than to older, experienced adult criminals. Finally, all articles reviewed in this section are concerned with the recidivism of male young offenders. A thorough discussion of the recidivism correlates for female young offenders is beyond the scope of this review.

Tables 1, 2 and 3 summarize the results of 25 articles reviewed in the area of young offender recidivism. A glance at Table 1 readily identifies which factors received the most consistent support as recidivism correlates: early onset of delinquent activity (9 of 12 comparisons); association with delinquent friends (8 of 10 comparisons); certain personality factors (8 of 10 comparisons); and intellectual capacity (5 of 7 comparisons). Equivocal evidence exists for a relationship between young offender recidivism and the following constructs: academic factors (6 of 10 comparisons); type of offense (5 of 8 comparisons); self-esteem (2 of 4 comparisons); socioeconomic status (1 of 3 comparisons); and employment opportunities\(^5\) (1 of 1 comparison) (see Table 2). Finally, those factors that received little empirical support for a relationship with young offender recidivism are: family factors (6 of 18 comparisons); previous

5. Although employment opportunities and criminal history have been demonstrated to be consistent predictors of adult recidivism (e.g., Andrews & Bonta, 1994), the significance of these variables is diminished for young offenders due to the age factor (e.g., Hoge, Andrews, & Lescheid, 1994). Adolescents have shorter histories in which they could have engaged in (officially recorded) crime, and are less likely to be employable in comparison to adults. For example, Loeber and Dishion (1983) demonstrated that, in their review of the literature, officially record criminal history did not emerge as a predictor of recidivism until young offenders reached the age of at least 15 years. Therefore, age of onset of criminal behaviour is often used as a historical variable for young offenders as opposed to previous record. Similarly, school performance is typically examined as a parallel variable to employment opportunities for the population of young offenders.
Table 1

**Strong Correlates of Young Offender Recidivism**

<table>
<thead>
<tr>
<th>Study Details</th>
<th>Early Onset</th>
<th>Personality Factors</th>
<th>Peer Influence</th>
<th>Cognitive Factors</th>
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<tbody>
<tr>
<td>Ashford &amp; LeCroy (1979) (Arizona)</td>
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<td>A &amp; L (1979) (Contra Costa)</td>
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<tr>
<td>Brenda (1986)</td>
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<tr>
<td>Brown, Jenkins, &amp; Rhodes (1992)</td>
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<tr>
<td>Brundage (1984)</td>
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<td></td>
<td></td>
<td>✔</td>
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</table>

**Note.**  
X = not correlated with recidivism.  
✔ = significantly correlated with recidivism.  
X/✔ = some factors are correlated and others are not.
Table 1 continued

**Strong Correlates of Young Offender Recidivism**

<table>
<thead>
<tr>
<th>Early Onset</th>
<th>Personality Factors</th>
<th>Peer Influence</th>
<th>Cognitive Factors</th>
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<td>✓</td>
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<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Wormith (1995)</td>
<td></td>
<td>✓</td>
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</table>

**Note.** X = not correlated with recidivism. ✓ = significantly correlated with recidivism.
### Table 2

| Factors Demonstrating an Equivocal Relationship with Young Offender Recidivism |
|-----------------------------------------------|----------------|----------------|----------------|----------------|
|                                               | Offense Type   | Self-Esteem    | Academic Success | SES            |
| Ashford & LeCroy - (1979) (Arizona)           |                |                | X              |
| A & L (1979) (Contra Costa)                   |                |                |                | X              |
| A & L (1979) (Orange County)                  | X              |                |                | X              |
| A & L (1988) (Wisconsin)                      |                |                | X              |
| Brundage (1984)                               |                |                | ✓              |
| Denno (1986)                                  | ✓              |                |                |                |
| Dunham & Alpert (1987)                        |                |                | ✓              |
| Fendrich (1991)                               | X              |                |                |
| Gendreau, Grant, & Leipciger (1979)           |                |                |                | X              |
| Gendreau, Grant, Leipciger & Collins (1979)   |                |                | X              | ✓              |
| Grenier & Roundtree (1987)                    | ✓              |                | ✓              |
| Hollander & Turner (1985)                     | ✓              |                |                | ✓              |

**Note.** X = not correlated with recidivism. ✓ = significantly correlated with recidivism. SES = Socio-economic Status.
Table 2 continued

Factors Demonstrating an Equivocal Relationship with Young Offender Recidivism

<table>
<thead>
<tr>
<th>Offense Type</th>
<th>Self-Esteem</th>
<th>Academic Success</th>
<th>SES</th>
<th>Employment</th>
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</tr>
<tr>
<td>Piper, Barnett, &amp; Lofaso (1985)</td>
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<td></td>
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<tr>
<td>Wormith (1984)</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wierson &amp; Forehand (1995)</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. X = not correlated with recidivism.
✔ = significantly correlated with recidivism.
SES = Socio-economic Status.
Table 3

Factors Demonstrating a Marginal Relationship with Young Offender Recidivism

<table>
<thead>
<tr>
<th></th>
<th>Family Factors</th>
<th>Race</th>
<th>Previous Record</th>
<th>Substance Abuse</th>
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<td>A &amp; L (1979)</td>
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<td></td>
<td>✓</td>
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<tr>
<td>(Contra Costa)</td>
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<td></td>
</tr>
<tr>
<td>A &amp; L (1979)</td>
<td>X</td>
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<td>✓</td>
<td>X</td>
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<tr>
<td>(Orange County)</td>
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<td>A &amp; L (1988)</td>
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<tr>
<td>Brenda (1986)</td>
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<tr>
<td>Brown, Jenkins, &amp; Rhodes</td>
<td>X</td>
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<td>(1992)</td>
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<td>Denno (1986)</td>
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<td>X</td>
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<td>Grenier &amp; Roundtree (1987)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Hansen, Henggeler, Haefele, &amp; Rodick (1985)</td>
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</tbody>
</table>

**Note.** X = not correlated with recidivism. ✓ = significantly correlated with recidivism.
Table 3 continued

Factors Demonstrating a Marginal Relationship with Young Offender Recidivism

<table>
<thead>
<tr>
<th>Family Factors</th>
<th>Race</th>
<th>Previous Record</th>
<th>Substance Abuse</th>
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<tbody>
<tr>
<td>Hollander &amp; Turner (1985)</td>
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<td>✓</td>
</tr>
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<td>Piper, Barnett, &amp; Lofaso (1985)</td>
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<td>Wierson &amp; Forehand (1995)</td>
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<td>Wodarsky (1983)</td>
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</tbody>
</table>

**Note.** X = not correlated with recidivism. ✓ = significantly correlated with recidivism. X/✓ = some factors are correlated and others are not.
Criminal Identity

record (4 of 12 comparisons); substance abuse (2 of 7 comparisons); and race (1 of 6 comparisons) (see Table 3). A thorough discussion of all of these variables is beyond the scope of this review. Therefore, the focus will be upon those variables which receive stronger support as recidivism correlates, in addition to those variables that are implicated in the relationship between young offender recidivism and dimensions of self-concept.

The above list of results only partially reflects the delinquent self-concept configuration described earlier. Nonrecidivism research has identified four aspects of self-concept that young offenders feel strongly about (either positively or negatively); these are the familial, academic, social, and physical aspects of the self. (The physical aspect of the self will be set aside at present due to the exclusion of this factor in the recidivism research.) Given the salience of these roles for young offenders, one would hypothesize that these roles would impact upon the continuance of a criminal lifestyle or role.

The social self is clearly implicated in continuing criminality as "association with delinquent friends" emerged as a strong recidivism correlate. The role of the academic self is less clearly delineated in the development of a criminal career as "academic factors" received only equivocal support as recidivism correlates, whereas "intellectual capacity" acquired strong endorsement as a factor influencing recidivism. This combination of results appears inconsistent as one may expect factors in academic success to be correlated with intellectual capacity. Even more surprising is the finding that familial factors appear to play a minimal role in recidivism. This result is unexpected given the abundance of evidence suggesting that young offenders continue
to feel a strong negative reaction regarding this aspect of their lives (e.g., Connors, 1992). In light of these inconsistencies, the discussion of recidivism correlates will begin by examining the role of factors related to the familial and academic selves in greater detail.

Familial Factors

Of the articles reviewed, six showed support for the predictive capacity of family variables for recidivism, whereas twelve uncovered nonsignificant results. Careful analyses of the familial factors involved reveals that some aspects of the family are related to recidivism, whereas others are not. Familial factors that did not demonstrate predictive capacity for recidivism are: (1) parental control (Ashford & LeCroy, 1988, 1990; Dunham & Alpert, 1987; Grenier & Roundtree, 1987); (2) parental criminality or mental disorder (Brown, Jenkins, & Rhodes, 1992; Moore, Pauker, & Moore, 1984; Niarhos & Routh, 1992; Spellacy & Brown, 1984); and (3) parental discord (Grenier & Roundtree, 1987; Hansen, Henggeler, Haefele, & Rodick, 1984; Moore, Pauker, & Moore, 1984).

In contrast, some support was provided for the role of two familial factors in the prediction of recidivism. The first recidivism correlate is familial disorganization (Brundage, 1984; Fendrich, 1991; Hollander & Turner, 1985). Second, the nature of parent/child interactions appears to be related to recidivism risk, whether that be due to

6. This is somewhat surprising as familial crime has demonstrated a correlation with the onset of young offender delinquency (e.g., Loeber & Dishion, 1983; Stouthamer-Loeber & Loeber, 1988; Yoshikawa, 1994).

7. Not only has familial disorganization demonstrated a correlation with recidivism, but it has also been linked to the type of offenses committed. Gottfredson, McNeil, and Gottfredson (1991) showed that familial disorganization (increased unemployment and poverty coupled with decreased support and stability) was correlated with the commission of interpersonally aggressive crimes, but not with the commission of theft, vandalism, or drug use.
inconsistent discipline (Moore, Pauker, & Moore, 1984) or a lack of warmth and support (Brundage, 1984; Fendrich, 1991; Hansen et al., 1984). Support for the role of single parenting in the recidivism equation is outweighed by research demonstrating no correlation between the two factors (supportive: Hollander & Turner, 1985; Putnins, 1984; unsupportive: Brundage, 1984; Denno, 1986; Leuger & Cadman, 1982; Wodarsky, 1983). However, wishing to live with both parents has demonstrated a strong link to recidivism risk (Dunham & Alpert, 1987).

Consequently, it appears that it is unwarranted to simply proclaim on the balance of the evidence that all familial factors are not related to recidivism prediction. On the contrary, there are specific aspects of the family environment that show a fairly consistent correlation with recidivism. Moreover, it may be that some aspects of the familial environment do not demonstrate a correlation with recidivism due to a ceiling effect. It is possible that the majority of young offenders come from homes characterized by parental discord, criminality, mental illness, and lack of parental supervision (e.g., Himes-Chapman & Hansen, 1983; Kolvin, Miller, Fleetling, & Kolvin, 1988; Lewis, Pincus, Lovely, Spitzer, & Moy, 1987). Therefore, these factors would be unable to function as discriminators between the recidivist and nonrecidivist groups.

**Intellectual/Academic Factors**

Five of seven studies investigating the link between intellectual capacity and recidivism found a significant correlation between the two variables. 8 All of these investigations used the Weschler Full Scale I.Q. to estimate intellectual capacity.

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8. In fact, it may be a statistical inconsistency that resulted in one of the seven studies demonstrating no correlation between I.Q. and recidivism. Nairhos and Routh (1992) was the only study that included the I.Q. range in their statistical analyses, as opposed to the one I.Q. score as was adopted by all of the other studies. This may have resulted in a decreased variability in I.Q. scores, thereby limiting the capacity of this variable to covary with another factor.
Official adult conviction prior to the age of 30 years (Leblanc, Valières, & McDuff, 1993.

In addition, poor school performance in nondelinquent 14-year-old boys has been related to having an

Like risk factors for recidivism are separate from risk factors for school dropout.

Young offenders, rather than official recidivism. It may be that despite the presumed
drawn as Dunham and Alpert (1987) were principally interested in the school dropout of
school were correlated with recidivism risk. Unfortunately, no conclusions can be
school performance were not related to recidivism; whereas self-reports of not liking
in contrast to that body of findings, Dunham and Alpert (1987) found that self-reports of
investigation discussed above measured school performance in an objective manner.

Each indicator depends a great deal on who identifies the presence of that factor. Each
may be that whether or not an academic factor is found to be a recidivism risk

aptitude than is school behavior.

Academic performance can be argued to be more directly related to one's cognitive
is consistent with the finding that intellectual capacity is a risk factor for recidivism as
Moore, Parker, & Moore, 1984; Nihrads & Round, 1992; Spelke & Broman, 1984). Thus
school performance was predictive of recidivism risk (Greener, Roundtree, 1987:
scrutiny disclose that although poor school behavior was not predictive of recidivism
academic factors only receive equivocal support (6/10 data sets). However, closer

It is interesting that IQ proves a strong predictor of recidivism, whereas
alternative among restricted educational and vocational options.

Apparent may result in criminally becoming a more realistic or even adaptive
intellectual capacity to provide a cap on available opportunities. Such a predetermined
A strong relationship between IQ and recidivism is consistent in that one would expect

Criminal Identity.
Personality Factors

The research investigated for this review suggests that general psychological testing (Gendreau et al., 1979) and formal diagnosis (Hollander & Turner, 1985; Wierson & Forehand, 1995) are not the most effective indicators of young offender recidivism. However, more specific measures of personality characteristics do appear to correlate with recidivism. Recidivists were differentiated from nonrecidivists on measures of antisocial identification (Gendreau, Grant, & Leipciger, 1979; Spellacy & Brown, 1984), impulsivity10 (Lueger & Cadman, 1982; Moore, Pauker, & Moore, 1984), and neuroticism (Lueger & Cadman, 1982; Lindgren, Harper, Richman, & Stehbens, 1986; McGurk, McEwan, & Graham, 1981; McGurk, McEwan, & McGurk, 1983).

The first correlate, antisocial identification, clearly refers to the adoption of values and beliefs associated with an antisocial or criminal orientation.11 The second two correlates, impulsivity and neuroticism, appear to be more enduring personality traits. It makes intuitive sense that both increased impulsivity and decreased neuroticism correlate with recidivism as each complements the other, both indicating a decrease in rumination and metacognitive decision regulation. Similarly, perhaps both neuroticism and impulsivity correlate with recidivism due to their influence on the

10. Impulsivity has also been implicated in the frequency of self-reported criminal acts by adjudicated young offenders (Thorton, 1985).

11. Although antisocial attitudes has rarely been directly assessed as a predictor of recidivism in the young offender research, there is increasing evidence that it may be a strong predictor of young offender recidivism (Shields & Whiteall, 1994), independent from the influence of association with criminal peers (Hoge, Andrews, & Lescheid, 1994). Despite the relative lack of attention in the young offender research, antisocial attitudes have long been accepted as a strong and significant predictor of adult recidivism (e.g., Andrews, Wormith and Kiessling, 1985). A related construct, psychopathy, has also demonstrated strong predictive capacity for both adult and young offender recidivism (e.g., Forth, Hart, & Hare, 1990). However, the predictiveness of psychopathy in comparison to other variables has yet to be investigated for young offender recidivism.
adoption of a delinquent identity. One may hypothesize that more impulsive, less neurotic individuals are more likely to internalize a criminal identity quickly, once it is perceived as a realistic option, due to the common element of decreased metacognitive processes.

**Age at First Arrest**

Early onset of criminal behaviour is one of the variables receiving the strongest support as a correlate of young offender recidivism, with 9 of 12 data sets demonstrating a significant relationship between early onset and continued recidivism (also see Gendreau, Madden & Leipciger, 1978). Early onset was most often defined as the age at first adjudication. The only exception to that rule was the Moore, Parker, and Moore (1984) study, in which the age of first agency contact (for conduct disorder) was recorded as a measure of early onset of asocial behaviour. Clearly then, the research reviewed here indicates that earlier initiation into legally recognized antisocial behaviour is strongly correlated with the tendency to continue engaging in such behaviours.

**Peer Influences**

The research done in the last decade also demonstrates strong support for the role of delinquent peer associations in continued criminal activity.\(^{12}\) For example, Ashford and LeCroy (1988, 1990) reviewed the predictive capacity of four recidivism indicator measures. Only two of the measures demonstrated predictive power above chance: the Orange County and Arizona Juvenile Risk Assessment Measures.

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12. In addition, the extent of involvement with delinquent peers has also exhibited a strong correlation with the extent of adolescent criminal behaviour as indicated by self-reports (e.g., Agnew, 1991; Brownfield & Thompson, 1991; Lauritsen, 1993), and has been implicated in the initiation of criminal acts by young offenders (e.g., Warr, 1996).
Although not the strongest predictor, "peer influence" was found to discriminate significantly between recidivists and nonrecidivists for both models. Peer influence was second only to age at first arrest as a predictor variable. Unfortunately, although it can reasonably be assumed that peer influence was operationalized somehow, no information is provided regarding the procedure for doing so.

Grenier and Roundtree (1987) gave a clear description of their rating process for the variable of "peer influence". They assembled and reviewed each participant's \( N = 100 \) psychosocial history, police reports, and family and individual status reports for evidence of delinquent siblings and/or friends. This review included evidence that the participant committed offenses with others. All variables, including recidivism, were assigned binary scores (e.g., \( 1 = \) presence of delinquent associates; \( 0 = \) absence of delinquent associates). Analyses revealed involvement with a delinquent other to be the best predictor of recidivism \( (p < .001; 65\% \text{ of variance accounted for}) \), when compared to all other variables (i.e., school problems, offense type, sex, race, home environment, previous record).

Similar results were found with studies utilizing parental ratings and self-reports of association with antisocial peers. Hansen et al. (1984) found that "socialized aggressive behavior, as rated by the parent(s), was the most consistent and powerful predictor of serious and repeated arrests among the male adolescents and their siblings" (p. 535). This variable was followed by the adolescent's age at first arrest as

13. Judge Brundage adopted a similar rating process in his model of juvenile recidivism prediction. On the basis of 4500 young offender records, Brundage developed a weighted equation in which the presence of criminal peers or siblings was considered a definite positive predictor of recidivism, but the absence of such associates was simply considered a null result as opposed to a negative additive to the equation. Therefore, it appears that although researchers agree that association with delinquent peers or siblings is a poor prognostic indicator for recidivism, there is a great deal of caution in considering the absence of such influences to be a good prognostic indicator.
a predictor of recidivism. Parents provided information relevant to "socialized aggressive behaviour" by completing the Child Behaviour Checklist (CBC; Quay & Peterson, 1975). This is a 55 item measure designed to assess four dimensions of adolescent psychopathology: conduct disorder, anxiety-withdrawal, immaturity, and socialized-aggressive disorder. Of the four areas, only the socialized aggressive dimension proved to be significantly related to recidivism.

The socialized-aggressive dimension of the CBC is almost a direct measure of delinquent peer influence:

Socialized-aggressive disorder is characterized by the adolescent's loyalty to and strong participation in a delinquent peer group. Items on the CBC that tap the socialized-aggressive dimension include: "belongs to a gang", "loyal to delinquent friends", "has bad companions", "steals in the company of others", "truancy from school", and "stays out late at night". ... Our findings suggest that it is the involvement with a deviant peer group that most strongly relates to the adolescent's repeated and serious criminal activity, especially for father-absent males. (Hansen et al., 1984, p. 535)

Corroborative results have been obtained by research utilizing self-reports of delinquent associates. Dunham and Alpert (1987) focused on the prediction of school dropout, as opposed to legal recidivism, in adjudicated juvenile delinquents. After "misbehaviour in school" and "liking school", variables representing peer influence (close friends who had dropped out and/or often get into "trouble") provided the most predictive power to the model. "Family stability" had far less predictive power, and the variables of school "relevance" and perceived "success" did not add to the predictive capacity of the model. These results lead the authors to conclude that "any strategies that can weaken the negative impact of the youth culture and introduce positive values
will have a more profound and lasting effect on preventing school dropout and juvenile delinquency" (Dunham & Alpert, 1987, p. 55).

Thus, it appears that the friends of juvenile delinquents may have a significant impact on several areas of the young adolescents' lives. This supposition is supported by investigations demonstrating a correlation between self-reports of criminal peer associations in adolescence and continuing adult criminality (Brown, Jenkins, & Rhodes, 1992; Osborn & West, 1983). Moreover, Brown, Jenkins, and Rhodes (1992) discovered that although involvement of the participant's peers in delinquent/criminal acts did influence the likelihood of the participant continuing with future criminal behaviour, involvement of the participant's relatives in delinquent/criminal acts did not. Therefore, identification with a delinquent peer group must provide an influence that is fundamentally different from that which is provided by family. 14

Contrary to the above research, Niarhos and Routh (1992) did not find involvement with delinquent peers to significantly predict recidivism. A combination of number of prior arrests, a rating of academic achievement, and history of drug use were significant predictors of recidivism in the regression analyses. Variables not found to be significant predictors were: race; age at first arrest; family stability; parenting capacity; intellectual functioning; psychological functioning, including capacity for self-control; and involvement with delinquent peers. All variables were coded by trained raters from information provided in the psychology assessment reports.

14. This conclusion appears to hold true unless the family member is of the same age, in which case measures of sibling delinquency correlates with participant self-reported delinquency (Lauritsen, 1993). It is possible that the lack of influence of the criminality of elder family members is due to the natural developmental shift that adolescents experience away from the influence of their parents and elders and toward the influence of their peers (e.g., Loeber & Stouthamer-Loeber, 1996).
One difference between Niarhos and Routh's (1992) study and those discussed earlier, is that Niarhos and Routh included the variable of substance abuse. One hypothesis to offer for their results is that involvement with delinquent peers may be confounded with indications of alcohol and drug use. If this were the case, the extent of the intercorrelation between the two variables would ensure that only one was chosen as a recidivism predictor when both are considered in the regression equation. A review of Table 3 provides some support for this hypothesis. For example, the four recidivism prediction models examined by Ashford and LeCroy (1988, 1990) included measures of substance abuse. These measures were nonsignificant predictors in all four models, overshadowed by both age of onset and peer influence. In depth comparison among the studies is not possible, given the minimal information provided regarding the rating schemes. Clearly, more research must be done in this area to clarify the relationship among these variables as they relate to recidivism.

With the exception of Nairhos and Routh (1992), all of the research investigating both the role of delinquent peers and age at first arrest found at least one of the two factors to be a significant predictor of recidivism. This fact alone leads one to speculate whether or not these two factors could be indirectly measuring different aspects of a third variable. The following section will explore the theoretical plausibility that "criminal identity" is that third variable.
Criminal Identity and Recidivism

Theoretical Considerations

Recall Erikson's (1968) hypothesis that the identity that is ultimately adopted by an adolescent often reflects the role that was both personally satisfying and most available or realistic for the adolescent at that time. Age of onset and peer associations can be conceptualized as indicators of this process of identity development.

One could hypothesize that arrest, conviction, and incarceration results in increasing the salience and realism of the criminal role. The factors that may play a role in heightening the awareness of the criminal identity during the adjudication process are: the experience (or shock) of the criminal justice and correctional processes; the sense of being unlike "normal" adolescents; the perception of a loss of other potential options; or the reflected appraisals of important others (e.g., Matesueda, 1992). For example, Erikson (1968) stated:

Teachers, judges, and psychiatrists who deal with youth come to be significant representatives of that strategic act of "recognition", the act through which society "identifies" and "confirms" its young members and thus contributes to their developing identity... (p. 196).

These perceptions may be augmented for the younger more impressionable adolescent, culminating in the enhanced availability of the criminal identity for those 15. In Erikson's theory, an identity is either given (conferred) or self-constructed (J. Marcia, 1993). The conferred identity is that which an individual gradually becomes aware of, as opposed to actively constructs. In contrast, a self-constructed identity is derived from the "superimposition of a decision-making process onto the given (conferred) identity" (p. 7). Fewer individuals have a self-constructed identity than have a conferred identity. It is beyond the scope of this paper to investigate the process by which young offenders develop a criminal identity. Therefore, I refer only to an identity that is formed, and make no assumptions about the process that creates that identity. Furthermore, I make no assumptions about the level of commitment that a young offender has to the criminal aspect of his/her identity. If a young offender has a criminal identification, I only assume it to be the structure from which the adolescent presently approaches the world.
who have contact with the correctional system earlier in life.

As the criminal role gains prominence in the awareness of the adolescent, so may the adolescent become increasingly cognizant of his delinquent associates. This may have a greater impact on those first arrested in early adolescence as it has been speculated that "the relatively young adolescent is probably more susceptible to the influence of all peers" (Hansen et al., 1984, p. 535). Therefore, developmentally earlier arrest may result in both increased salience of the criminal role, and increased susceptibility to peer influence. Moreover, roles experimented with earlier may be those that are most compatible with the skills and opportunities of the adolescent.

Erikson postulated that personal satisfaction played an equally important role in the development of the identity structure. Group process theory states that "once a person joins a group, he identifies with the norms and standards of the group and makes the group his ego ideal" (Vigil, 1988, p. 433). For example, Kennedy and Baron (1993) showed that the subculture norms of the delinquent street group they infiltrated provided the strongest influence on the members' routine activities. In addition, Warr (1996) demonstrated that young offender crime is largely a social activity. Therefore, the validation and support provided by other delinquent associates may provide the satisfaction required for that identity to be desirable. Moreover, increased association with criminals may provide a feedback loop, confirming the perceived availability and acceptability of the criminal role. Thus, it is possible that age of onset and peer influence act in concert to accelerate the progress of criminality from an experimental role to an accepted role that is internalized as part of the identity.
Empirical Investigation of the Criminal Identity

The effects of internalizing a criminal self-concept has received limited attention in contrast to the larger proportion of research focused on the effects of "labeling" individuals as criminals. Results show that those who do identify themselves as delinquent do not adopt the societal stereotype as defined by the control group (Chassin, Presson, Young, & Light, 1981), nor does this identification correlate with lowered self-esteem (e.g., Hughes & Dodder, 1980; Jensen, 1972; Owens, 1994). These results suggest that criminality is viewed much more positively by those who identify with that role than by individuals who do not consider themselves to be criminals.

Although the contributing factors are far from clear, there is evidence that this process of internalization is furthered for those individuals who are younger (e.g., Wells & Rankin, 1983), or from environments or subcultures in which crime is more common and/or accepted, such as lower SES communities (e.g., Emms, Poveri, & Clift, 1986; Jensen, 1972). It is possible that in such an environment, criminal activity is seen as a realistic or even adaptive alternative among restricted options (e.g., Simons & Gray, 1989; Paternoster & Mazerolle, 1994).

...a negative identity prevails in the delinquent (addictive, homosexual) youth of our larger cities, where conditions of economic, ethnic, and religious marginality provide poor bases for any kind of positive identity. (Erikson, 1968, p. 88)

These perceptions of restricted potential may result in attenuating resistance to an identification with a criminal identity. Once criminality/delinquency becomes an important, and accepted, aspect of the self-concept (identity), it may indirectly increase self-esteem to feel that one has done well in that role. Therefore, it is possible that
criminality is more available as an esteem-enhancement option for some young offenders than for others (Gold & Mann, 1972; Hall, 1986).

Intuitively, it follows that the adoption of a criminal identity in adolescence could precipitate the persistence of antisocial activity into adulthood. Gendreau et al. (1979) conducted one of the few studies to examine the impact of identity on recidivism. These researchers collected data from 646 first incarcerates ($M = 20$ years) within two weeks of their admission to a provincial correctional facility in Canada.\(^{16}\) Results indicated that scales evaluating the degree of "Association and Identification with Criminal Others" were not predictive of recidivism two years after release.

Although these results do not support the hypothesis, one must be cautious in drawing conclusions. If we consider the hypothesis that arrest and/or incarceration serves to increase the salience of the criminal role, we may further hypothesize that the assessments were conducted by Gendreau et al. (1979) too soon after the participants' first experience with incarceration to provide a meaningful measure of the subsequent internalization of that role. Perhaps measurement occurred during the process of role internalization, rather than after the process was completed. One may be on one's way to seeing oneself as a delinquent/criminal, but that has yet to occur. Consequently, when asked directly, one does not identify oneself as having a criminal identity. This reluctance may be influenced by psychological defense mechanisms such as denial or minimization. The possibility that the internalization of a criminal identity may have occurred in the future is underscored by the following finding: scales that were

\(^{16}\) In Canada, provincial correctional facilities house adjudicated adults serving sentences of less than two years; whereas federal correctional facilities house those serving sentences of two years or more.
significant predictors of recidivism were those measuring assaultiveness, gratification style, and degree of socialization. These personality characteristics are potentially compatible with the eventual acceptance, and internalization, of a criminal identity.

Brown, Jenkins, Miller, and Rhodes (1990) had similar results in their investigations of criminal identity and recidivism. They mailed a self-report survey to a randomly selected group of adults (N = 273) who were first adjudicated by a juvenile court during the years 1960 to 1975. Results indicated that whether or not a young offender viewed himself (in retrospect) as a delinquent or criminal was not related to future criminal behaviour. In contrast to this finding, some respondents reported that their first contact with the Juvenile Probation Department (JPD) resulted in an increase in frequency of delinquent activity. These individuals were significantly more likely to continue on with criminal activity into adulthood than were individuals who were "scared off" by their first official adjudication.

Results also indicated that both the number of friends involved in the participant's delinquent acts, and the frequency of such involvement, were "strongly related" to the likelihood of an adult criminal conviction (Brown, Jenkins, & Rhodes, 1992). Moreover, the far-reaching impact of having delinquent friends appeared to only hold true after the participant's first contact with the JPD. This result may be explained by considering the earlier hypothesis that arrest, adjudication, and incarceration makes the criminal role more salient and realistic to an adolescent. This heightened awareness may serve to increase identification with delinquent others, ultimately leading to the adoption/internalization of this role as part of the identity. However, if
peer involvement in crime is associated with the construction of a criminal identity, why did self-declarations of this identification not correlate with recidivism?

It appears puzzling that delinquents could increase both their criminal activity and their association with delinquent peers without adopting a delinquent/criminal identity. First, as with any self-report, it is possible that social desirability decreased enthusiasm for making such an "antisocial" assertion. Second, failure to identify oneself as a criminal may be an artifact of using retrospective self-report data. Perhaps in retrospect, adult criminals do not feel that they were really criminals when they were adolescents. As the criminal career develops, the conceptualization of a criminal identity may change, leading adults to answer differently, in retrospect, than they may have if asked the same question during that earlier developmental period.

In summary, it can be argued that the factors most consistently correlated with young offender recidivism (age of onset and peer associations) are those which are theoretically linked to the establishment of a criminal identity. Unfortunately, research attempting to directly investigate the impact of adopting such an identity has been confounded by the implicit assumption that identity is a constant variable. An arguable assumption in later adulthood, it becomes an untenable hypothesis in the identity exploration stage of adolescence and young adulthood.

Current approaches to identity development emphasize development over the life-span (e.g., Marcia, 1993). Identity integration in adolescence is seen only as an initial formulation that is continually modified as each individual continues to develop.

17. Employed in a jail setting, I have been afforded numerous opportunities to witness older criminals disparage younger criminals as "punks", suggesting that the identity of the older inmates has "transformed" since their younger days.
and assimilate new experiences and information. Research that has examined the nature of these changes over the course of incarceration has implicated self-esteem as a correlate of this complex relationship (e.g., Wormith, 1984). Therefore, this review will now turn to a consideration of research investigating the role of self-esteem in the incarceration and recidivistic processes.

**Self-esteem and Recidivism**

Research has been consistently unsupportive of a link between increased delinquent activity and lowered self-esteem. In addition, there is little evidence that measures of self-esteem distinguish young offenders from a nonoffender population (e.g., Gold & Mann, 1972). However, there is limited support for the role of delinquency as an enhancer of self-esteem, particularly for those who are younger (e.g., Wells & Rankin, 1983) and for those who see delinquency as a more realistic and less stigmatized role (e.g., Emms, Pover, & Clift, 1986; Jensen, 1972).

These often puzzling and conflictual results have lead researchers to continue investigating the role of self-esteem in young offender recidivism. The research conducted thus far has produced little evidence to support a connection between this psychological construct and continued criminality. One half of the investigations reviewed by this author demonstrated absolutely no predictive capacity for self-esteem in the estimate of recidivism (Annis & Chan, 1983; Gendreau et al., 1979).

Moreover, closer inspection of the studies that have indicated a correlation between recidivism and self-esteem reveals that the self-esteem measures used may not be tapping that dimension after all. Gendreau, Grant, and Leipciger (1979), make the assertion that "self-esteem measured prior to release was the best predictor of
recidivism" (p. 67) despite the fact that a general measure of self-esteem was not predictive of recidivism. The measures of "self-esteem" that were predictive of recidivism are: measures of antisocial attitudes (Psychopathic Deviate scale from the MMPI) and scales from the Adjective Checklist (ACL\textsuperscript{18}; e.g. Autonomy, Abasement, and Unfavorable scales). These scales are typically considered to be personality measures. Although it may be possible to make an argument for using these scales to estimate certain aspects of self-concept; they are clearly not measures of self-esteem.

Spellacy and Brown (1984) is the only study covered by this review that demonstrated a relationship between self-esteem and recidivism.\textsuperscript{19} However, they found that this correlation only held true when the measure of self-esteem was taken at the beginning as opposed to the end of incarceration. This suggests that levels of self-esteem may be changing in a meaningful way over the course of incarceration.

In summary, there is little evidence of a correlation between general self-esteem and recidivism. This may be due to a ceiling effect. Connors (1992) demonstrated that general self-esteem, as measured by the Rosenberg Self-Esteem Scale, is relatively high among the majority of her sample (approximately two thirds) of incarcerated young offenders.\textsuperscript{20} Another possibility is that levels of self-esteem do not remain constant over the duration of incarceration. Therefore, it may be that time of measurement has

18. The ACL requires participants to rate to what degree they perceive each of a series of adjectives to describe them.

19. I have referred to Spellacy and Brown (1984) as providing evidence that self-esteem does correlate with recidivism despite the fact that the authors themselves have described their results as supporting a correlation between self-concept and recidivism. This change is due to the fact that the measure used reflects the definition of self-esteem, as opposed to the definition of self-concept, that has been adopted for the purposes of the present study. The Semantic Differential Test requires an individual to rate (on a seven point Likert scale) how well each of several pairs of opposites describes him/her (e.g., 1 = warm; 7 = cold). Thus, the resulting total score is more representative of a general sense of self-acceptance (self-esteem), than of value regarding a specific role or self-concept.
created a confound in the investigation of a correlation between self-esteem and recidivism.

**Changes in Self-esteem During Incarceration**

Some research has specifically investigated the nature of changes in self-esteem during incarceration. Wheeler (1961) hypothesized that an individual's self-esteem would follow an inverted U-shaped path during the course of incarceration. Wheeler's rationale for this assertion began with the acknowledgment that incarceration virtually eliminates all of the material indications of success. As well, the skills required to succeed in this environment may be the very ones that have not lead to much success "on the outside" (i.e., cunning, conniving, deviousness, etc.). Therefore, individuals could elevate their sense of self-worth by comparison in a more "equalitarian" society. However, as release approaches, the individual reorients himself to the outside society, and his lack of success therein, and experiences a corresponding decrease in self-esteem.

Bennett (1974) tested Wheeler's hypothesis in a longitudinal study involving 82 incarcerated adult males. These participants were given a general measure of self-esteem (summary total of the Tennessee Self-Concept Scale; TSCS) at six-month intervals over a two year period. Results showed that, as hypothesized, self-esteem increased within a six-month period of incarceration. However, contrary to the hypothesis, self-esteem leveled off at six-months and remained stable over time. Specific patterns were analyzed for the 39 participants who approached parole in the

20. In order for two variables to correlate with one another, they both must demonstrate a reasonable range of values. It is possible that there is not enough variance among levels of self-esteem in a young offender population to create a correlation with another variable. This possibility is highlighted when the relationship between self-esteem and recidivism is considered, given that recidivism is often assigned a binary score and therefore displays minimal variance itself.
duration of the study. Although all trends were nonsignificant, results indicated that the majority (36%; 14/39) showed a trend for continued elevation in self-esteem, followed by a smaller number (28%; 11/39) who showed the hypothesized decrease. While acknowledging the limitations of this study, such as the small sample size, the authors conclude that there is no evidence that gains in self-esteem are lost during the later segments of incarceration. Furthermore, "the large number of 'increase over time' patterns does suggest that there are aspects of institutional life that are psychologically supportive of many individuals" (p. 14). Results from this study clearly indicate that self-esteem does not remain stable over a period of incarceration.

The Self-esteem/Self-concept Connection

A longitudinal Canadian study by Homer (1981) is supportive of Bennett's (1974) findings. Homer administered measures of general self-esteem and self-concept (both rated from the Twenty Statement Test) to 21 adult male first time federal incarcerates (serving sentences in excess of two years). Measures were administered: (1) while in custody at the provincial correctional facility (immediately after sentencing); (2) when first transferred to the federal penitentiary 30 days after sentencing; and (3) eight weeks after arrival at the federal penitentiary. Results indicated both a steady and significant increase in self-esteem, and a decrease in confusion regarding the self-concept. Unfortunately, the author did not delineate precisely which aspects of the self-concept were clarified during incarceration.

Although the results of Bennett (1974) and Homer (1981) are persuasive, they are based on samples of adult incarcerates. Simple generalization from these results to a population of adolescent incarcerates is inappropriate. Indications that the self-
esteem of young offenders increases over a period of incarceration may simply be reflective of a general trend for all adolescents. Both McCarthy and Hoge (1982) and Chiam (1987) have demonstrated that general levels of self-esteem are significantly higher in older, as compared to younger adolescents (age span of approximately 13 to 17 years of age). This cross-sectional data is supported by a longitudinal investigation by O'Malley and Bachman (1983). These researchers showed that self-esteem (as measured by the Rosenberg Self-Esteem Questionnaire), although reasonably stable, shows self-reported increases between the ages of 13 and 23.

More recent longitudinal analyses have confirmed that the majority of sixth graders have either increased or maintained their level of self-esteem by both the end of the eighth grade (Hirsch & DuBois, 1991), and the end of the ninth grade (Mullins, Mullins, & Normandin, 1992). In sum, research with noncriminal adolescents strongly supports an increase in self-esteem over the period of adolescent years. Therefore, conclusions regarding the correlates of increased self-esteem in young offenders over a period of incarceration must be tempered by this knowledge of general developmental trends.

Some elucidation of the impact of institutionalization on the self-esteem and self-concept of young offenders is provided by Culbertson (1975). His cross-sectional design involved the administration of The Tennessee Self-Concept Scale (TSCS) to 236 adolescent inmates. The summary score of the TSCS was compared among those not previously incarcerated, those incarcerated once previously, and those having two or more previous incarcerations (there were no age differences among the groups). Results showed that the latter group experienced increasing levels of self-esteem.
during incarceration, the middle group a stable level of self-esteem, and the former group a decline in self-esteem. In sum, incarceration was only detrimental for those who had never experienced formal detention before, regardless of age. This correlation indicates that changes in self-esteem over incarcerated periods are determined by more than general developmental trends.

Culbertson hypothesized that the stability or increase in self-esteem displayed by the other two groups was "a consequence of [the boys'] increased delinquency orientation and acceptance of a delinquent self-concept" (p. 92) as indicated by increased rates of incarceration. It is possible that those who did not identify with a criminal self-concept did not receive the peer acceptance and validation that incarceration provided the others.

Culbertson (1975) utilized a cross-sectional design; therefore, his results can only be used as approximations of hypothesized temporal processes. Nevertheless, these results do replicate those described above in longitudinal studies of adult male incarcerates (Bennett, 1974; Homer 1981). Incarceration does not appear to be detrimental to the self-esteem of the majority of incarcerated individuals. In fact, research supports increased identification with delinquency/criminality during incarceration as a correlate of enhanced self-esteem for both adults and adolescents. Therefore, it is possible that although self-esteem does not correlate with recidivism, the strength or centrality of the criminal identity does.

Wormith (1984) specifically attempted to examine the role of self-esteem and criminal identity in the recidivism of young adult offenders ($M = 20.8$ years). Participants ($N = 50$) were asked to complete a series of self-report scales including
measurements of self-esteem and identification with criminal others (scale items not specified). Measures were administered to experimental and control participants both prior to and following eight weeks of residential group discussion treatment. Treatment was found to be unrelated to recidivism three years following release from incarceration (mean length of incarceration was 15 months).

Despite treatment failure, increases in self-esteem during incarceration were found to be significantly related to increased rates of recidivism for those who also evidenced increased identification with criminal others. Self-esteem was unrelated to recidivism for those who decreased in criminal identification. These results support the hypothesis put forth by Culbertson (1975) that self-esteem influences recidivism only insofar as it reflects delinquent/criminal identity (self-concept).

Chiu (1990) found a sample of nondelinquent adolescents to show increased self-esteem when they have chosen a career. "In general it is the inability to settle on an occupational identity which disturbs most young people" (Erikson, 1968, p. 132). The same may be true of delinquent adolescents who have "chosen" a criminal career. Identification with criminality could represent the end to role confusion. Erikson was clear in his hypothesis that it is psychologically preferable to be someone bad, than to have never been anyone at all. "In the social jungle of human existence there is no feeling of being alive without a sense of identity" (Erikson, 1968, p. 130.) Dissipation of identity confusion coupled with the validation provided by (inescapable) association with fellow inmates during incarceration, may be the force behind both increased self-esteem and increased recidivism. Unfortunately, studies investigating the career
choices of criminal offenders have typically not considered criminality to be a career choice (e.g., Homant & Dean, 1988).

**Treatment Outcome Research**

The reduction of recidivism is often viewed as a desirable outcome of the young offender "treatment outcome" research. Therefore, having surveyed the "recidivism" research, this review now turns to a consideration of which treatment factors contribute to the reduction of recidivism in an effort to further understand the recidivistic process.

**Residential Group Therapy**

The most common form of treatment studied within correctional institutions is group therapy. Julian and Kilman (1979) reviewed all of the group treatment research published between 1952 and 1978 (inclusive). Their analysis of 32 studies revealed that behavioural and modeling groups were superior to discussion and therapy groups for producing significant changes on behavioral and attitudinal measures. However, it appears that these changes did not contribute to the reduction of recidivism. This result was replicated by Garrett's (1985) meta-analysis of 111 young offender treatment outcome studies.

Only one of fourteen studies examining recidivism showed positive changes following treatment (Julian & Kilman, 1979). Interestingly, this was a therapy group; as discussed above, therapy groups showed little success in producing behavioural or attitudinal change. More recent studies have continued to show a failure of residential group therapy programs to reduce rates of both reconviction and reincarceration, one year (Annis & Chan, 1983) and three years (Wormith, 1984) following release. In its
current form, residential group therapy appears to hold little promise as an effective means of reducing recidivism.

**Residential Social Skills Training**

Social skills training was initially thought to be a useful avenue to pursue as a means to reduce recidivism due to the following rationale:

> By teaching these youths appropriate social skills, we can increase their ability to obtain desired rewards through legitimate behaviours and reduce the likelihood of future inappropriate behaviour and illegal activity. (Hazel, Schumaker, Sherman, & Sheldon-Wildgen, 1982, p. 135)

Henderson and Hollin (1983) reviewed the social skills program outcome research published in the young offender literature since Spence's (1979) review of the same. More recently, Cunliffe (1992) reviewed articles pertaining to the use of social skills programs with Canadian young offenders. All three reviews indicate that the results are equivocal with regard to the ability of these programs to reduce recidivism. Although not overly promising, social skills treatment surpasses the effectiveness of residential group treatment in decreasing recidivism rates. As both forms of treatment are conducted within a residential setting, the disparity in effectiveness suggests that it is not simply the setting which is hampering treatment effectiveness for residential group treatment.

**Community Based Treatment Programs**

Lab and Whitehead (1988) reviewed 55 treatment outcome studies conducted between 1975 and 1984 (inclusive) in order to determine the effect of treatment on young offender recidivism. As indicated in the section above, institutional/residential programs showed no positive results. In fact, five of the ten residential programs resulted in increases in recidivism! Community programs showed a little more...
promise, with seven of sixteen programs indicating reductions in recidivism, but only two of those seven programs showed statistically significant reductions. Programs that the authors classified as "community" were largely probation or parole supervisory programs. This author would not consider these programs to be true community based treatments. Gendreau, Cullin, & Bonta (1994) confirmed that supervisory community programs that failed to include a rehabilitative component were ineffective treatment strategies.

Lab and Whitehead (1988) also investigated the effectiveness of juvenile diversion programs. Diversion programs treat delinquents outside of an institutionalized correctional system in an attempt to divert them from becoming part of the "system". Hence, these programs usually occur in various community settings. Regoli, Wilderman and Pogrebin (1985) stated that a focus on the development of community support was the commonality among the four (of six) diversion programs that they found to be successful. Given the community focus of diversion programs, they are considered by this author to constitute community treatment.

Lab and Whitehead (1988) found diversion programs to be the only programs that showed more positive outcomes than either no effect or negative outcomes, even when only statistically significant results were considered. Thirty of the fifty-five diversion treatment programs resulted in reductions to recidivism. Eleven of these programs produced statistically significant decreases in the reoffence rate. The majority of these eleven programs involved counseling and/or skills training in a community setting. Moreover, none of the twenty-three system diversion programs

21. This finding is commensurate with the hypothesis that incarceration serves to further the inculcation of the criminal identity.
(affiliated with the correctional system), and only two of the thirty-two nonsystem
diversion programs resulted in significant increases in recidivism. Thus, Lab and
Whitehead's results support the superiority of community based programs as a means
to "treat" antisocial activity in adolescents. 22

A variety of community based treatments have been successful in reducing
young offender recidivism rates (e.g., Behre, Edwards, & Flemming, 1983; Fendrich,
1991; Gordon, Graves, & Arbuthnot, 1995; Lee & Olinjik, 1981; Moran, Kass, & Munz,
1986; Tolan, Perry, & Jones, 1987). For example, Davidson et al. (1987) investigated
the impact of four treatment foci involving one-on-one workers with youths in their
homes and the community. Programs that involved social skills or behavioural
contracts coupled with child advocacy significantly reduced recidivism over those not
assigned any intervention. The treatment that taught behavioural contracting and child
advocacy to family members was less successful, resulting in nonsignificant gains.

The similarity in the effectiveness of the two treatments mentioned above lead
the authors to conclude that success may be due to the components of social-support
and social-control, a conclusion also reached by Garret (1985). However, when
treatment was based out of the courthouse rather than the youth's home, the treatment
failed to show even nonsignificant gains in recidivism reduction over the attention
placebo group. This finding suggests the importance of conducting treatment outside
of the correctional "system" and in the youth's environment. Perhaps a community
base aids in the generalization of treatment gains in social-support and internal control.

22. The superiority of community based diversion programs in the reduction of recidivism was
demonstrated by both the simple ballot-box method (Lab & Whitehead, 1988), and by the more stringent
meta-analytic procedures (e.g., Garret, 1985; Whitehead & Lab, 1989).
These results lead one to speculate whether social skills training would be shown to be more effective if treatment were community based rather than residential.

Summary

These research results appear to be indicating that, at least for young offenders, treatment is most effective in preventing continued crime when it is community based, multi-focused, individualized, and representative of an interrelationship among agencies (e.g., Gendreau & Ross, 1979). Community based treatments commonly focus on restructuring each youth's environment so that it is more supportive and validating. This often involves social skills training and agency networking. Denno (1979) concluded that:

> It is apparent that in order to be effective, a community correctional program must direct its treatment efforts toward a variety of factors (both cognitive and environmental) to ensure youths' maximum rehabilitative responsiveness. (p. 404)

The Treatment/Self-concept Connection

Residential treatment often focuses on factors such as substance abuse, self-esteem, and academic/employment aptitude. A review of Tables 2 and 3 reveals that these factors do not demonstrate a strong statistical link to recidivism. Therefore, it is possible that residential treatment has been shown to be ineffective simply because it has focused on the amelioration of factors that are not closely linked to the continuance of antisocial behaviour.  

23. A further difficulty in discerning effectiveness of residential treatment is that usually all residents are required to attend. This contrasts with the consideration of individual factors that is used to evaluate the appropriateness of a young offender's release to community or diversion treatment (e.g., Baird, 1985). Lueger and Cadman (1982) found that the completion of a young offender residential program was associated with higher Weschler I.Q. estimates, older age on admission to the program, and a lower incidence of "neurotic" diagnoses. Perhaps residential treatment would be more successful if admission to the programs was restricted to those that were felt to have the best potential for benefit. (See Brannon, Brannon, Craig, and Martray (1989) for a proposed behaviourally oriented classification system.)
In contrast, community based treatments commonly focus on increasing the amount of individualized prosocial support and validation that is available to a youth. This often involves restructuring the youth's environment so that contacts with prosocial individuals and agencies increases, while connections with antisocial elements decrease. By definition, this will necessarily result in the decrease of delinquent and criminal peer associations.

It is logical that in order to prevent recidivism, one must focus on factors that have been empirically linked to recidivism. Table 1 reveals that there are four strong young offender recidivism correlates: (1) early onset of criminal activity; (2) association with delinquent friends; (3) certain personality factors, specifically antisocial attitudes, impulsivity and neuroticism; and (4) intellectual capacity. Of these four recidivism correlates, early onset and intellectual capacity are clearly the least malleable. Of the two remaining factors, association with delinquent friends emerges as the more manipulable component. Impulsivity and neuroticism may be somewhat alterable, but internal traits are intuitively more difficult to change than is an aspect of the environment such as choice in peers. Arguably, shifts in peer choices could be accompanied by shifts in antisocial attitudes.

Based on findings that identification with antisocial attitudes and associates consistently predicted recidivism across studies (e.g., Gendreau, Andrews, Coggin, & Chanteloupe, 1992) for both adult incarcerates (e.g., Andrews, Wormith & Kiessling, 1985) and young offenders (e.g., Hoge, Andrews, & Lescheid, 1994; Shields & Whiteall, 1994), Andrews and Bonta (1994) have proposed that these “criminogenic needs” be targeted for treatment (also see Andrews, Bonta, & Hoge, 1990; Andrews,
Kiessling, Robinson, & Mickus, 1986). In fact, the treatment outcome studies reviewed by Whitehead and Lab (1989) that were the most successful were those that focused on these needs (Andrews, Zinger, Hoge, Bonta, Gendreau, & Cullen, 1990). These programs were most often community based. Therefore, it appears that community treatment targets the one young offender recidivism correlate that is most capable of modification: association with criminal peers.

Previous sections of this paper have discussed the theoretical link between association with criminal peers and the inculcation of a criminal identity. If the existence of such a link is accepted, then community based treatment indirectly focuses on the reduction of a criminal identification. The following authors highlighted lessened identification with criminality and criminal others as an effective treatment mechanism:

...it is of major importance for subjects who wish to avoid further conflict with the law to seek as friends those who live within the law and to avoid those who commit delinquent or criminal acts. Without such a change, it is unlikely that the subject will avoid a criminal conviction in adult life. (Brown, Jenkins, & Rhodes, 1992, p. 169)

Further, any strategies that can weaken the negative impact of the youth culture and introduce positive values will have a more profound and lasting effect on preventing school dropout and juvenile delinquency. (Dunham & Alpert, 1987, p. 55)

Homant (1984) hypothesized that many young offender treatment programs fail because they do not provide a replacement for criminal identification (called "prisonization" by Homant) as a buffer for self-esteem. Similarly, Goldsmith (1987) proposed that treatment programs only succeed insofar as they result in a "positive impact on self-esteem through a form of re-identification" (p. 83). These statements proffer the possibility that treatment effects changes in criminal behaviour to the extent
that it effects changes in the individual's self-concept, particularly those aspects of the self-concept that are influenced by identification with other offenders.

Wormith (1984) provided some support for this hypothesized effect of treatment. Although residential group discussion treatment was not correlated with decreased recidivism three years following release, treatment was correlated with a decrease in identification with criminal others. This finding is relevant as increased criminal identification coupled with increased self-esteem was correlated with increased recidivism. It is possible that the interaction between treatment and identification would have been stronger had the study taken place in a community setting. It is infinitely more promising to attempt to manipulate the validation and support that a youth experiences away from that of his delinquent peer group, if one is actually in the youth's living environment helping the youth reestablish a more adaptive support network. Wormith (1984) stated that a treatment program will be most successful when it succeeds in providing both the motivation to change the offender lifestyle, and the means for achieving this change. It would seem that community based programs have had the greatest success in fulfilling this dual objective.

Conclusion

The influence of delinquent peers has emerged as a crucial factor in the understanding of the continued criminal activity of young offenders. Despite initial speculation that delinquents were either uninterested or incapable of forming satisfying relationships with peers (e.g., Gordon, 1967), young offenders have demonstrated good communication skills (Oyserman & Saltz, 1993), loyal attachments to their best friends (Brownfield & Thompson, 1991), and friendship patterns typical of most
adolescents (Giordano, Cernovich, Pugh, 1994). Association with criminal others has been overwhelmingly supported as a predictor of young offender recidivism as well as implicated in the initiation (e.g., Stouthamer-Loeber & Loeber, 1988), frequency (e.g., Smith, Visher, & Jarjoura, 1991), and type of criminal activity (e.g., Oyserman & Saltz, 1993).

Moreover, it is clear that the criminal activity of friends provides an influence that is fundamentally different from that of the family (e.g., Brown, Jenkins, & Rhodes, 1992). It is possible that this is due to each set of relationships (i.e., familial and peer) effecting different aspects of delinquency. Whereas peer criminality appears to be related to both onset and continuance of criminal activity, familial crime has only demonstrated a correlation with the initiation, as opposed to the continuance, of young offender delinquency (e.g., Loeber & Dishion, 1983; Stouthamer-Loeber & Loeber, 1988; Yoshikawa, 1994). This finding is commensurate with the developmental shift away from the influence of parents toward the influence of peers as an individual progresses through adolescence (e.g., Lauritsen, 1993).

It is possible that both associations with criminal others and age of onset (another strong predictor of recidivism) are indirect measures of the centrality of criminal identity. However, there is some confusion as to the possible role of substance abuse in this relationship. Therefore, although criminal identity has not been given a great deal of direct attention in the young offender recidivism research, it may be a strong recidivism predictor. This hypothesis is supported by evidence such as the emergence of antisocial values in the prediction of young offender recidivism (e.g., Gendreau, Grant, & Leipciger, 1979; Hoge, Andrews & Lescheid, 1994; Shields &
Whiteall, 1994; Spellacy & Brown, 1984). Preliminary investigations demonstrate that increased levels of self-esteem are predictive of recidivism only for those who show an enhanced criminal identity, suggesting that self-esteem may have a role to play in the continuance of antisocial behaviour after all (e.g., Culbertson, 1975; Wormith, 1984).

These findings appear supported by the treatment outcome research. The only treatments that collectively show success (i.e., decreased recidivism) with a young offender population are those that mandate both the restructuring of supports in the youth's environment away from his delinquent peers, and the development of noncriminal means for validation and esteem (e.g., Andrews, et al, 1990). Theoretically, the effect of these efforts would be the reduction of an antisocial values orientation and a lessening criminal identification whilst maintaining an acceptable level of self-esteem (e.g., Andrews & Bonta, 1994).

The present investigation is focused specifically on the role of the criminal self-concept in the continuance of criminal activity from mid-adolescence to early adulthood. The "Street Self" Questionnaire (SSQ) is a measure specifically designed to reflect the extent of criminal identification in young offenders (Connors, 1992). The predictive capacity of this instrument will be compared to that of measures of antisocial attitudes that are commonly assumed (for clinical purposes) to reflect a criminal identity in young offenders, namely subscales of the Jesness Inventory and Carlson Personality Inventory. The measure chosen to reflect the continuation of antisocial activity is the extent of officially recorded reconviction. Given the implied relationship between criminal identity and self-esteem, the role of self-esteem as a mediator of the criminal identity-recidivism relationship will be investigated as well.
Given that delinquent peer influence and substance abuse were not involved in the initial Time One (T1) data collection (which was collected for another purpose), and have emerged as factors requiring closer scrutiny in the understanding of the prediction of recidivism, a Time Two (T2) data collection period was instituted to enhance our understanding of the relationship between these factors and the measures used for T1 data collection. It is hoped that information accrued from analyses of the T2 data will allow a deeper understanding of the constructs assessed at T1, thereby aiding in "fine tuning" the interpretation of results.
STATEMENT OF RESEARCH

Recidivism Hypotheses

Hypothesis # 1: The SSQ total score will equal if not surpass, the commonly accepted measures of antisocial inclination in the prediction of recidivism.

Hypothesis # 2: The measures of antisocial inclination will remain significant predictors of recidivism even when the commonly accepted predictors of age of onset, criminal history, and I.Q. are added to the regression equation.

Hypothesis # 3: The capacity to predict recidivism will be significantly improved when only those participants that received higher scores on self-esteem while incarcerated at T1 are considered.

Exploratory Analyses of T2 Data

The relationship between peer relationships and substance abuse and the T1 measures will be examined. Based on the preceding literature review, the following expectations are tentatively advanced.

Hypothesis #1(T2): The extent of substance abuse is expected to correlate positively with the SSQ and with the extent of antisocial peer relationships (all measured at T2).

Hypothesis #2(T2): The extent of antisocial peer relationships is expected to correlate positively with the SSQ.
METHOD

Participants

All participants \((N = 251)\) were convicted young offenders serving a court imposed sentence at one of three youth correctional facilities in British Columbia: Burnaby Youth Secure Custody Centre (BYSCC); Victoria Youth Detention Centre (VYDC); and Burnaby Youth Open Custody Centre (BYOCC). The first two facilities are "closed-custody" correctional facilities as opposed to the third facility which is designated an "open-custody" holding. Closed-custody refers to maximum security incarceration; open-custody refers to medium security. Open-custody facilities typically allow more privileges and freedom (e.g., grounds privileges, community passes, etc.) than do closed-custody facilities (see Appendix A for a full description).

The Initial Data Sample (T1)

Description at the Time of Testing: Of the T1 participants\(^4\) \((N = 155)\), 54% \((N = 84)\) were selected from the two closed-custody facilities whereas 45% \((N = 71)\) were selected from the open-custody correctional centre. On average, participants had their first documented contact with the legal system at age 14.40 years. Participants spanned the entire age range of young offenders from ages 13 to 20 years \((M = 16.62)\) at the time of testing, with open-custody participants approximately one-half of a year younger than the closed-custody participants, \(t(153) = 3.05, p < .01\).

There were no differences between closed-custody and open-custody participants with regard to the following demographics. Of the total sample, 68% \((N = 105)\) were Caucasian. Of the noncaucasian participants, 56% were of First

\(^4\) A total of 205 participants were initially collected, but 50 were culled from the sample due to incomplete data regarding the main independent and dependent variables.
Nations ethnicity (N = 28). Twenty-five percent (N = 39) identified themselves as having had more than five separate familial environments as well as having moved to more than five separate cities in their lifetime. With regard to educational achievement, 19% of participants had completed Grade 7, 26% had completed Grade 8, 23% had completed Grade 9 and 18% had completed Grade 10 at the time of the initial assessment. Comparatively fewer participants were found at the ends of the continuum with 8% of participants indicating a level of education of Grade 11 or above, and 6% of participants stating an educational level at the elementary school level (these participants often required reading assistance in order to complete the educational package). The average educational level for the entire sample was approximately halfway between Grade 8 and Grade 9.

At the time of testing, participants were incarcerated for an average of four crimes. Of these crimes, the breakdown works out to approximately two property crimes, one violent crime, and one "rebellion" (i.e., not obeying traffic rules, probation orders, or orders to appear in court). This breakdown provides a crude estimate of the "average participant", but many participants deviated widely from this projection.

**Description at Follow-up:** At the time of follow-up, T1 participants were on average slightly more than three years older than they were at T1 (M = 19.85 years). Given that the Canadian legal system considers one to have reached adulthood at the age of 18 years, these participants had been eligible to be tried in an adult court for an average of approximately two years (M = 717 days).

Of the entire sample, 90% of participants recidivated and 62% of those that recidivated had been tried by the adult system at the time of follow-up. At the time of
follow-up, 38% \((N = 59)\) of participants were "free", 37% \((N = 58)\) were on probation (40% of whom were also facing new charges), 23% \((N = 36)\) were in custody, one had escaped custody, and one had recently died of a drug overdose. In addition, 36% \((N = 55)\) of participants had received an inpatient assessment, 31% of whom had been for more than one assessment.

The Validation Sample (T2)

The T2 data participants \((N = 96)\) were selected from BYSCC and BYOCC in equal proportions \((N = 48; N = 48)\). This group of participants did not significantly differ from the initial sample with regard to the following demographics. Participants spanned the entire age range of young offenders from ages 13 to 20 years \((M = 16.74)\) at the time of testing. Of the total sample, 66% \((N = 63)\) were Caucasian. Of the noncaucasian participants, 52% were of First Nations ethnicity \((N = 17)\).

With regard to educational achievement, 18% of participants had completed Grade 7, 28% had completed Grade 8, 18% had completed Grade 9 and 24% had completed Grade 10 at the time of the initial assessment. Comparatively fewer participants were found at the ends of the continuum with 4% of participants indicating a level of education of Grade 11 or above, and 8% of participants stating an educational level at the elementary school level (these participants often required reading assistance in order to complete the educational package). The average educational level for the T2 sample was one third of the way between Grade 8 and Grade 9 \((M = 8.36)\).

Compared to the T1 participants, significantly more T2 participants (40%) identified themselves as having had more than five separate familial environments as
well as having moved to more than five separate cities in their lifetime, 
\( \chi^2(2, N = 251) = 13.28, p < .001. \) T2 participants did not differ significantly from the description of crimes provided above for the "average participant". As described above, the number of property crimes easily doubled the number of violent crimes. In addition, participants were sentenced to "rebellious" crimes (i.e. not obeying traffic rules, probation orders, or orders to appear in court) about as often as they were to violent crimes. As in the T1 sample, several participants deviated widely from this projection.

Description of the T1 Variables

Dependent (Recidivism) Variables

There has been a great deal of controversy in the literature regarding the measurement of recidivism. Some authors prefer self-reports of delinquency as opposed to official indicators of criminal activity as they feel that the later is more reflective of police behaviour than of actual criminal activity (e.g., Blakely et al., 1980). Wurmith and Goldstone (1984) noted that self-reports of delinquent activity usually yield higher rates of offending than do official indicators of the same factor. Therefore, relying solely on official reports may lead to an underrepresentation of actual criminal activity (e.g., Smith, Smith, & Noma, 1986). Moreover, other researchers have presented results to suggest that the two forms of measurement may not be tapping the exact same dimension (Davidson et al., 1987; Hawkins et al., 1977; Loeber & Dishion, 1983).

As the current study was focused on both the sort of criminal activity that would result in official convictions, and the type of offender that would be involved with the
correctional system, as opposed to focusing on general antisocial law-breaking behaviour, official records were used to code the recidivism measures. As several authors have cautioned against considering recidivism to be a simple binary variable (e.g., Barton & Turnbull, 1979; Cohen, 1990; Gardner, Mulvey, & Shaw, 1995; Gendreau & Leipciger, 1978), both dichotomous and continuous measures of recidivism were included in this investigation. This practice is consistent with Hawkins et al. (1977) who recommended that researchers never rely on one measure of recidivism in isolation.

In preparation for computing the continuous recidivism measures, a measure of "time at risk to re-offend" was computed by subtracting time spent both in remand and serving sentences from the length of time between the date of release (after the testing period) and the follow-up date. The number of days on "home-leave" from jail were then added to give a total number of days that the participant spent outside of jail, and at risk to re-offend, since the time of testing. This equation was repeated to compute the number of days that each participant had been outside of jail since the age of 18, and at risk to re-offend as an adult. This resulted in two variables per participant: (1) the number of days at risk to recidivate as either a young offender or as an adult \( (M = 780.25) \); and (2) the number of days at risk to re-offend as an adult \( (M = 578.96) \). These two measures were used to "standardize" the continuous recidivism measures by controlling for time at risk. This helped neutralize the separation between the low-frequency serious offenders, and high-frequency less serious offenders.

In addition, a similar measure was calculated to determine the actual number of days each participant had been out of jail and at risk to commit crime from the time that
each turned 12 years of age to the beginning of the recidivism period. This variable was used to standardize the continuous control variable of Criminal History ($M = 1456.37$).

**General Recidivism Measures:**

1. **General Conviction Density.** This variable measures recidivism in terms of the frequency with which each participant is convicted of offenses while controlling for time in jail. General Conviction Density is a continuous measure computed by dividing the total number of convictions accrued by each participant during the entire recidivism period by the number of days the subject had been "free" and at risk to reoffend, and then multiplying the result by 365.25. The average number of convictions accumulated by each participant per year at risk to re-offend was $3.50 (SD = 2.70)$.

2. **Serious Recidivism.** It is commonly assumed that a relationship exists between the length of sentence imposed on a criminal, and the severity of his crimes. Therefore, the Serious Recidivism index was included as a dependent variable in a further attempt to capture the low-frequency yet "serious" offender. Serious Recidivism is a dichotomous measure that codes whether or not each participant had received a sentence that exceeded 90 days during the recidivism period. Of the total sample, 57% ($N = 89$) of participants received a sentence greater than 90 days during the recidivism period.

3. **Violent General Recidivism.** One of the frequent concerns of those who make decisions regarding the extent of security imposed on an inmate, is the potential danger

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25. Ratings of seriousness for each offense were originally based on the Canadian Recidivism Index developed by Gendreau and Leipciger (1978) (see Appendix B), and then split into a dichotomy based on the frequency distribution.
that the individual may represent to society. Therefore, this dependent variable was included as a measure of recidivism that is directly hurtful to society. Violent General Recidivism is a dichotomous measure that codes whether or not each participant had been convicted of at least one offense that involved aggressing against another individual during the recidivism period (e.g., assault, robbery, and sexual offenses). This condition was found to be true for 41% ($N = 63$) of participants at follow-up.

**Adult Recidivism Measures:**

Adult recidivism was separated out from general recidivism because one of the questions posed by this research is whether or not one can predict which young offenders will continue on to be adult criminals, and which young offenders will not. In an attempt to maintain a time frame of adult recidivism risk that was adequate for detecting recidivism, only those participants who had more than 183 days “free” and at risk to reoffend as an adult were included in the analyses involving adult recidivism ($N = 120$).

1. **Adult Conviction Density.** This continuous measure was computed by dividing the total number of convictions accrued by each participant in the adult system by the number of days each subject was “free” and at risk to reoffend as an adult, and then multiplying the result by 365.25. The average number of convictions accumulated by each participant per year at risk to re-offend as an adult was 2.46 ($SD = 4.17$).  

2. **Violent Adult Recidivism.** This variable is a dichotomous measure that codes whether or not each participant had been convicted of at least one offense that

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26. Refer to the description of the measures of General Conviction Density and Violent General Recidivism for a brief description of the rational for the inclusion of these particular forms of recidivism measurement. A Serious Recidivism index was not computed for the adult recidivism period given that the period at risk for adult re-offending was not sufficient to reliably capture the low frequency offender.
involved aggressing against another individual during the adult recidivism period. This condition was found to be true for 24% (N = 28) of participants at follow-up.

3. **Future Contact with the Adult Correctional System.** This dichotomous measure codes whether or not each participant had appeared in a provincial (adult) court on criminal charges at the time of follow-up. Of the total sample, 64% (N = 77) of participants had been tried in a provincial court at the time of follow-up. This measure was included to answer the simple question: Will this inmate end up in the adult correctional system or not? This index purposefully does not consider either the frequency or the severity of offending.

**Independent Variables**

The total number of independent variables required for the T1 analyses is nine: six measures of antisocial orientation and three control variables. This number is one below the maximum independent variable set that could be supported by a sample size of 155 without creating worrisome validity shrinkage in $R^2$. Given a predictor set of nine, and a sample size of 155, this investigation has power = .80 to detect medium effect-sizes at $\alpha = .01$ (Cohen, 1990).

**Description of the Antisocial Inclination Measures:**

The “Street Self” Questionnaire (SSQ) was compared to five subscales that are routinely used with the current participant pool in order to make estimations of an inmate's level of antisocial orientation. These measures were: the Carlson Antisocial Tendencies Scale; the Jesness subscales of Value Orientation, Alienation, and Social Maladjustment; and, a composite index developed for the purpose of predicting future

27. The maximum independent variable set of ten was determined by following the rule of thumb of one predictor per 15 participants (Allison, German, & Primavera, 1993).
delinquent activity, the Jesness Asocial Index. The following is a description of the three tests that were given in order to estimate antisocial orientation; given that the Jesness and Carlson measures are well established, they will be discussed in less detail than the SSQ, which has not yet been published. (See Appendix C for a description of the additional measures that were utilized in the T1 data analyses.)

Carlson Psychological Survey (CPS)

Carlson (1982).

The CPS was developed for use with "individuals accused or convicted of crimes, or otherwise referred for socially deviant behaviour" (Carlson, 1982, p. 1). It consists of 50 items that compose four scales: Chemical Abuse (CA), Thought Disturbance (TD), Antisocial Tendencies (AT), Self-Depreciation (SD), and Validity (V).

The CPS was initially chosen for four reasons. First, it was specifically designed for use with an incarcerated population. Second, it was normed with a Canadian inmate population. Third, the items have a concrete easy-to-follow answer format designed for low-reading skills. Fourth, although the CPS was developed in use with incarcerated young adults the mean age of the standardization sample is 19.01 years, only three years older than the mean age of the current sample. As hypothesized earlier in this paper, it may be that individuals who are in their late teens still have a great deal in common with adolescents. Friesen (1984) provided some evidence for this hypothesis by establishing the utility and validity of the CPS with a juvenile population.
However, perusal of the manual reveals insufficient substantiation of the initial validity and reliability estimates. For example, although acceptable levels of test-retest reliability were found with all scales but Validity, this was only over a two-week period and based on a mere sample of 32 inmates. This suggests some caution in the use and interpretation of this measure.

**Jesness Inventory (JI)**

Jesness (1983)

The JI was originally designed for the purpose of classifying and treating disturbed or delinquent adolescents. It consists of a total of 155 true-false items chosen for their ability to: (a) distinguish disturbed or delinquent adolescents from others; and (b) cover a variety of attitudes toward self and others for the purpose of providing the basis of a personality typology.

Standardized scores can be derived for 11 personality characteristics. Of the following 10 scales, the first three were developed on the basis of an item analysis using criterion groups, and the rest were derived statistically from cluster analyses: Social Maladjustment (SM), Value Orientation (VO), Immaturity (Imm), Autism (Au), Alienation (Al), Manifest Aggression (MA), Withdrawal-Depression (Wd), Social Anxiety (SA), Repression (Rep), and Denial (Den). All ten of these scales have demonstrated acceptable reliability and validity with a variety of cultural groups (e.g., Jesness, 1983; Singh, 1983).

A final scale, the Asocial Index, was derived from the weighted combination of the other scales (the greatest weight given to scores on the Social Maladjustment
Scale) for the purpose of differentiating between delinquents and nondelinquents. The Asocial Index has been documented to both reliably distinguish between delinquents and nondelinquents (e.g., Graham, 1981; Martin, 1981) and to demonstrate t-scores in the "deviant" range for institutionalized male delinquents (e.g., Kunce & Hemphill, 1983). However, there is some evidence that the test-retest reliability of the Asocial Index is rather low ($r = .26$), suggesting caution in the utility of this measure as a predictor of future behaviour (Putnins, 1980).

"Street Self" Questionnaire (SSQ)

This is an exploratory measure designed to investigate the role of the criminal self-concept (see Appendix D). Questions were constructed for the purpose of assessing the extent to which delinquency/criminality is an important part of an individual's life. SSQ scores are hypothesized to reflect the extent to which delinquency has been internalized as an aspect of the identity.

Two pilot tests were conducted prior to data collection. The first pilot test was conducted with five male junior high school students for the following purposes: to determine the time required to complete the tests; to determine the best arrangement of tests to minimize subject fatigue; and to receive feedback concerning the clarity of the two measures developed by the researcher and colleagues.

The second pilot test was conducted with 18 male adolescents remanded to BYSCC. Remanded youth are those held in custody awaiting their court date. Sentenced subjects, the target group of this study, were not used for the pilot test as there were limited numbers available. Remand subjects were deemed to be the best
alternative. The verbal feedback received from both pilot tests and the statistical feedback provided by the second, were used to guide the revisions of the new measures (Demographic Questionnaire and SSQ).

The feedback received during the two pilot tests was used to inform the modification of the SSQ questions. A portion of the final 25 questions were negatively worded and arranged randomly with the remainder of the SSQ questions. All questions are scored so that higher scores on the SSQ represent greater delinquent identity. Total scores can range from 25 to 125 points. Subjects respond to all questions by circling one of five responses. Five response sets were used: 1 = excellent to 5 = poor (used for 7 questions); 1 = all to 5 = none (used for 5 questions); 1 = all of the time to 5 = none of the time (used for 4 questions); 1 = completely to 5 = not at all (used for 7 questions); and 1 = a lot more to 5 = a lot less (used for 2 questions).

Although there are obvious difficulties with using more than one response set within the same questionnaire, it has the advantage of providing the most appropriate answer format for the question. This was hypothesized to be useful for eliciting accurate responses from a population known to respond well to concrete structure. Similar reasoning resulted in providing written response sets rather than Likert scales.

**Psychometric Properties of the SSQ.** The psychometric qualities of the SSQ were investigated in an earlier study with an incarcerated population (Connors, 1992). The SSQ demonstrated high internal consistency (alpha = .83, N = 115), and high test-retest reliability, $r = .98$, $p < .001$, over a period of one month ($N = 18$).

On the basis of the theory underlying the SSQ, four measures were chosen for the purpose of demonstrating construct validity. On face validity, it was felt that these
four scales also represent attitudes that would be representative of individuals with an internalized delinquent identity. First, Social Maladjustment (SM) measures the degree to which "the individual shares attitudes expressed by persons who do not meet, in socially approved ways, the demands of living" (Jesness, 1983, p. 7). In other words, SM reflects attitudes shared by those with inadequate or disturbed socialization.

Second, Value Orientation (VO) refers to a tendency to share attitudes and opinions that are characteristic of persons in the lower socioeconomic class culture (e.g., "toughness" ethic). Third, Alienation (Al) refers to the presence of distrust and estrangement in relationship with others, particularly authority figures. Finally, Antisocial Tendencies (AT) measures the degree to which an individual has a hostile and socially defiant attitude. Individuals who score highly on this scale are often cynical and prefer the values and customs of those who commit criminal offenses.

The SSQ raw scores demonstrated significant correlations with all four of the chosen measures (N = 91): the Antisocial Tendencies scale of Carlson Psychological Survey, $r = .63, p < .001$; and the three scales chosen from the Jesness Inventory: Value Orientation, $r = .47, p < .001$; Alienation, $r = .41, p < .001$; and Social Maladjustment, $r = .27, p < .01$. These four scales have been established as valid measures of constructs also assessed by the SSQ (see discussion of factor analyses).

Scores on the SSQ also demonstrated significant correlations with the following OSIQ scales (N = 116): Morals, $r = -.50, p < .001$; Impulse Control, $r = -.47, p < .001$; Vocational & Educational Goals, $r = -.39, p < .001$; Family Relationships, $r = -.34, p < .001$; Superior Adjustment, $r = -.27, p < .01$, and Psychopathology, $r = -.24, p < .01$. These results indicate that individuals who receive high SSQ ratings tend to
receive low scores on those aspects of self-concept. It makes intuitive sense that more criminal individuals would feel less positive about these aspects of self-concept. Moreover, the SSQ was found to be relatively unrelated to self-esteem, $r = .12$, $N = 116$. Thus, the delinquent identity is not consistently related to feeling either positively or negatively about oneself. These results provide strong evidence for the construct validity of the SSQ.

In addition, Wynne-Smith (1994) continued the validation of the SSQ with a sample of high school students ($M = 15.78$ years; $N = 88$). This sample scored significantly lower on the SSQ than did the above sample of incarcerated young offenders, $t(156) = -4.23, p < .001$. Furthermore, the total raw score of the SSQ demonstrated a significant correlation with the total score of the Delinquency Checklist (DCL), $r = .75, p < .01$. These results provide further evidence for the validity of the SSQ.

**Factor Analysis of the SSQ.** A factor analysis of the SSQ revealed eight factors that collectively account for 66% of the variance (Connors, 1992). With the exception of question 2 which did not demonstrate a high loading on any factors, questions were only considered that had factor loadings greater than or equal to 0.5 (see Appendix E). Factor 1 comprises nine of the twenty-five SSQ questions and accounts for the largest proportion of the variance (23%). This factor can be designated as "criminal identity". Questions included in this factor assess the extent to which crime is a salient part of the individual’s life, including: amount of time spent in the delinquent subculture; ability and reasons for committing criminal acts; and the degree to which crime is a positive experience.
Factor 2 (4 of 25 questions; 9% variance represented) can be designated as "peer acceptance". This factor represents the peer acceptance one receives for delinquent behaviour. Within this factor, questions 2 and 23 appear quite similar in content, although question 2 does not load as highly as question 23. This discrepancy may be due to a subtle difference between the questions. Question 23 represents crime as one of the ways in which one can gain respect, whereas question 2 isolates crime as the only reason one is respected. It seems intuitively plausible that individuals would be less willing to agree to the latter.

Factor 3 (3 of 25 questions; 8% variance represented) can be designated as "future criminality". This relationship may account for the inclusion of question 12 under Factor 3. Crime may be a necessary part of survival "on the street". Therefore, the more time spent on the street, the greater the chances that crime will be probable or even necessary, and the greater the chances that criminality is a part of the identity. Factor 3 was hypothesized to be related to Factor 5 (2 of 25 questions; 6% variance represented), which encompasses a lack of personal responsibility and implies an external locus of control.

Factor 4 (2 of 25 questions; 7% variance represented) can be designated "street survival". Although these individuals may feel that they have little control over events in their lives (Factor 5), they believe that they can survive. The last three factors will be mentioned only briefly, as they account for little of the variance (14% collectively).

Factor 6 (2 of 25 questions) represents status and validation of the delinquent identity. Factor 7 (2 of 25 questions) indicates an inability to function adequately with the social
demands of a correctional setting. Finally, Factor 8 (1 of 25 questions) refers to the sense of a strong physical self.

Moreover, Wynne-Smith (1994) conducted a principle component analysis of the SSQ results from her sample of high school students. Her results reinforce the validity of the above factors. The three main components of her analysis are similar in content to factors one, two and three combined with five described above. These results are particularly intriguing as they confirm the earlier hypothesis of a relationship between factors three and five. Thus, Wynne-Smith (1994) has provided further evidence in support of the validity of the SSQ.

Description of the Control Variables:

The predictiveness of the antisocial tendencies scales was compared to that of three variables that are concrete, unmalleable, and commonly used to aid in the prediction of future antisocial behaviour with this inmate population: (1) Intelligence Quotient (IQ) as estimated by the Weschler Intelligence Test subscales (see Appendix C); (2) Age of Onset of criminal activity (as noted on each inmate's criminal record); and (3) one of two measures of prior criminal activity (Criminal History):

1. Measure of Historical Conviction Density. This continuous measure reflects conviction density prior to the recidivism period. This measure was computed by dividing the total number of convictions that each participant had accrued prior to the recidivism period by the number of days "free" and at risk to commit crime during that period, and then multiplying the result by 365.25. This control variable was used in the
prediction of both the general and the adult Conviction Density measures, as well as for Serious Recidivism and Future Contact with the Adult Correctional System.

1. **Index of Past Violent Convictions.** Both the general and the adult Violent Recidivism indices appear to measure an outcome that may be related to, but is ideologically separate from the other recidivism indices given that it focuses specifically on reconvictions that involve a victim. To mirror this conceptual shift in focus, a separate measure of criminal history was used as a control variable in the prediction of these two dependent variables. Index of Past Violent Convictions is a dichotomous measure that codes whether or not each participant had been convicted of at least one offense that involved aggressing against another individual prior to the recidivism period. This condition was found to be true for 40% ($N = 62$) of participants.

**Description of the T2 Variables**

The only variables that are unique to the T2 testing period are the Friendship Questionnaire and the two measures of substance abuse. As the remainder of the tests given during the T2 period are discussed elsewhere, this section will limit itself to a review of the three "new" measures:

**Friendship Questionnaire (FQ)**

The questions that comprise the FQ originated from the National Youth Survey, a longitudinal study of delinquency and drug use that was conducted with 1725 subjects by the Behavioural Research Institute in Boulder, Colorado. Agnew (1991) conducted a factor analysis on the 26 questions included in this survey that were related to peer interactions. The resulting five factors were: (1) Extent of Peer Delinquency; (2) Attachment to Peers; (3) Time Spent With Friends; (4) Peer Approval
for Delinquency; and (5) Peer Pressure for Deviance. All of the questions noted by Agnew were retained in the FQ, but some were reworded to allow a 5-point Likert response to each question (see Appendix F).

Additional questions were included based on Brownfield and Thompson (1991) to tap the dimensions of peer trust and respect, and to help differentiate the impact of general peer group delinquency from best-friend delinquency. Moreover, one additional question was added to clarify factor three (Time Spent with Friends); this question differentiates between time spent with delinquent versus nondelinquent friends.

All Likert-scale items were assigned a score from one to five with higher scores representing higher levels of each of the five factors (e.g., 1 = low peer delinquency; 5 = greater peer delinquency). Percent of time spent with friends who could lead to trouble with the police was converted into a score out of ten, and the six questions pertaining to best-friend delinquency were scored 0 = no; 5 = yes. This resulted in a maximum total score of 100 points. The two questions eliminated from scoring were: (1) What percent of time do you spend with friends who would never do things that could lead to trouble with the police?; and (2) Do you have a best friend? These two questions were eliminated for a total score because the literature reviewed by this author did not offer guidance as to either the weight or interpretation that should be assigned to the resulting responses.
**Drug Abuse Screening Test (DAST) - Abbreviated Version**

Skinner (1982)

The DAST is a 20-item questionnaire designed to assess the extent and consequences of drug abuse. The true/false items were chosen to parallel items on the Michigan Alcoholism Screening Test (MAST). Each item is equally weighted, resulting in a possible range of summary scores from 0 to 20. Scores above six can be considered indicative of significant drug abuse problems. High scores are also related to increased impulsivity, depression, and interpersonal problems. This scale has demonstrated success in differentiating drug abuse from alcohol problems.

**Michigan Alcoholism Screening Test (MAST) - Short Form**

Selzer, Vinokur, and Rooijen (1975)

The MAST is designed to assess the extent and consequences of alcohol abuse (Selzer, 1971). The short form consists of 13 true/false questions that were chosen from the original 25 questions by means of stepwise regression analyses. The short form of the MAST has demonstrated a strong correlation with the original version, and has established reasonable reliability and validity (Selzer, Vinokur, & Rooijen, 1975; Zung, 1979). Items are differentially weighted, resulting in a possible range of summary scores from 0 to 34. Higher scores indicate greater impairment as a result of alcohol use, and a greater likelihood of substantial alcoholism. A cutoff score of five is recommended as indicative of serious alcoholism (Selzer, 1971; Zung & Charalampous, 1975).
Procedure

Overview

Participants from the T1 data sample were interviewed and assessed from February 1992 to July 1993 (T1). Two thirds of this data sample was part of a larger project investigating the self-concept and personality profiles of young offenders. Participants from the T2 data sample were interviewed and assessed from September 1994 to October 1995. Participants for the T2 data collection period were selected from BYSCC and BYOCC (in equal proportions), as these were the two correctional facilities where the majority of the T1 participants had been incarcerated. This strategy maximized the similarity between the T1 and the T2 data samples.

On November 7, 1995, information regarding all of the T1 participants' criminal records was obtained from the official Ministry of the Attorney General (Corrections Branch) Client History. A random sampling proved this record to be more complete than the traditionally used Canadian Police Information Centre (CPIC) for young offender records. However, if a participant could not be located in the B.C. correctional system, CPIC was consulted to ensure that the participant was not incarcerated in another province.

November 7, 1995, was chosen as an appropriate end-date of the period during which T1 participants were at risk to re-offend for two important reasons. First, the research indicates that young Canadian incarcerates who reoffend tend to recidivate within one year after their release. For example, Gendreau and Leipciger (1978) found that of those young adult Canadian first incarcerates who recidivate, approximately 70% do so within one year of release ($N = 773; M = 20.01$ years). This finding was
supported by Wormith (1984) who found the average time to re-offense for a similar sample to be 324 days. Participants in the current study were followed for an average of three years following their release. This includes a period of approximately two years that the majority of subjects were eligible to be tried in an adult court ($M = 717$ days). These follow-up periods comfortably exceed the one year recommendation of previous authors.

However, Osborn and West (1980) caution that a five year follow-up into adulthood should be considered the bare minimum required to separate the truly reformed juvenile delinquent from an "infrequent", yet truly criminal, offender. Therefore, the current research incorporates a period of follow-up that is most adequate for identifying recidivists who reoffend from high to moderately-low frequency levels (i.e., at least once per three years).

Second, participants, who were on average 16.62 years of age at the time of testing, were (on average) slightly more than three years older at the time of follow-up ($M = 19.85$ years). Therefore, the period of time from the initial testing session to the follow-up recidivism coding bridges the time frame during which identity is hypothesized to consolidate for this subgroup of young adults (J. Marcia, June 1994, personal communication). This fact is relevant to the consideration of young offender recidivism as a reflection of a burgeoning criminal identity.

**Testing Procedure at T1**

The researcher followed a similar testing procedure in each of the correctional institutions (BYSCC, BYOCC, VYDC). Residents were briefly told the purpose of the research and what would be expected from them as participants. Volunteers were
taken to a semi-quiet private room in groups of three. Upon arrival consent forms were read, signed, and questions concerning the research were answered (see Appendix G). Testing then proceeded in three separate sections, each lasting approximately one hour.

The first and third sessions involved supervision as participants completed questionnaires as a group. The second session was conducted individually with each participant to allow for uninterrupted participant-researcher interaction, and for privacy in the discussion of more sensitive information. Prior to testing, participants were told that some questions may sound strange, and to feel free to ask what something means. Therefore, questions were asked and answered throughout the three testing sessions. All three sessions were usually completed on the same day. However, circumstances beyond the researcher's control resulted in the testing of some participants over two days.

Tests were completed in the following blocks: **Session 1** - Beck Depression Inventory (BDI), Offer Self-Image Questionnaire (OSIQ), Rosenberg Self-esteem Scale, and the "Street Self" Questionnaire (SSQ); **Session 2** - Demographic Questionnaire (see Appendix H), Family Environment Scale (FES), and subtests of the Wechsler Intelligence Scales; and **Session 3** - Carlson Psychological Survey (CPS), Corrections Institutions Environment Scale (CIES), and Jesness Inventory. (Descriptions of the tests not pertinent to the current investigation have not been provided in this paper.)

29. There is one difference between the procedure employed at BYSCC and BYOCC, and the procedure followed at VYDC. At both BYSCC and BYOCC each participant received a cheeseburger, fries, and a soft drink for his participation. This was given to the participants when they arrived in their groups of three for the final testing session. This constituted a more relaxed time in which the researcher chatted with the participants about the institution, staff, and so on. However, at VYDC the provision of tangible incentives was against their policy. Therefore, a relaxing "reward" period was not possible with this group of participants.
Testing Procedure at T2

The testing procedure at T2 was essentially identical to the procedure described at T1 with two exceptions: (1) participants received a Coca-Cola for their participation rather than the more economically taxing "burger and fries"; and (2) due to the reduction in pen-and-paper assessment tools, testing required only two separate sessions of approximately one-hour each, one of which was conducted individually (as described for T1).

The more specific focus of the T2 study, as well as restrictions in time and resources, resulted in the utilization of a more streamlined testing package than was presented at T1. Instruments that were administered at both T1 and T2 were the Demographic Questionnaire, Jesness Inventory, Offer Self-Image Questionnaire, Rosenberg Self-esteem Scale, and "Street Self" Questionnaire. New to the T2 assessment period were the Drug Abuse Screening Test (DAST); Michigan Alcoholism Screening Test (MAST); and the Friendship Questionnaire (FQ).

Statistical Analyses

One of the concerns with the analyses of recidivism data is that incident rate variables often do not meet the assumptions of normality required for standard linear regression. However, Gardner, Mulvey, and Shaw (1995) demonstrated that whereas the accuracy of the resultant mathematical model is affected by the choice of a regression model, conclusions regarding the associations between predictors and incident rate dependent variables are not greatly influenced. This is relevant to the current study as it is primarily concerned with the theoretical identification of recidivism predictors, as opposed to the creation of a mathematical model.
Moreover, one of the main issues regarding the use of linear regression models with incident rate dependent variables is that of heteroscedasticity (unequal variances). Analyses performed on the continuous recidivism measures examined in this investigation confirmed suitable homoscedasticity (due to the high rate of recidivism). Therefore, it was determined that standard linear multiple regression analyses would be appropriate for hypothesis testing that involved the current continuous measures of recidivism (see Tabachnick & Fidell, 1989).

In contrast, the dichotomous recidivism variables violate all assumptions of the normal distribution. Therefore, logistic multiple regressions were conducted for analyses with these variables. Unfortunately, it is difficult to make a direct comparison between the linear and logistic regression output. The information provided by the $F$ test in a standard linear regression is represented by the $\chi^2$ test in logistic regression. In both output tables, the $B$ and $SE$ represent the regression coefficient and the standard error respectively. However, the logistic regression output does not provide a direct equivalent to the $\beta$ statistic provided in the linear regression output.

The logistic regression output does provide the Exp($B$) statistic, which reveals the increase in the odds of recidivism occurring for every one-unit increase in the independent variable. Therefore, as is the case with $B$, Exp($B$) is unit dependent. Exp($B$) was not presented in the following table summaries as the basic information provided by it is replicated in the Wald statistic. Wald performs the equivalent to a $t$ test in linear regression, but for the unit-dependent $B$, as opposed to the standardized $\beta$. Wald is a more capricious statistic than is the $t$ test, and should not be interpreted when the estimated standard error becomes large. In this investigation, the regression
coefficient did not obtain high enough values to call the validity of the Wald statistic into serious question with any frequency. Despite this fact, more weight has been placed on the general significance of the $\chi^2$ tests, as they are based on the more reliable log likelihood estimates.

An important difference in interpretation between the linear and logistic regression analyses is the meaning attached to the "R" reported in the output. Unlike standard multiple regression, a total $R$ is not computed or reported for the logistic regression equation. As reported in the logistic output table, "R" reflects the partial correlation between that independent variable and the dependent variable (referred to hereafter as $\hat{R}$). In theory, one could total the $\hat{R}$ and estimate the total $R$ for the logistic equation. However, this statistic would incorporate the error involved in each calculation of Wald (which is based on the unit dependent $B$) and would be inaccurate as a total estimate.

In order to avoid this overreliance on the fickle Wald statistic, the Geometric Mean Likelihood (GML) was calculated by liberating the log likelihood value from its dependence on $N$ in order to estimate the equivalent of an effect-size for the logistic equation (R. Koopman, March 1996, personal communication). Both the $\hat{R}$ and the GML will be presented in the output provided (see Appendix H for a description of the calculation of the GML's and their base referents). Moreover, to further decrease dependence on Wald, a specific form of "stepwise" logistic regression was conducted. This procedure determines entry into the regression equation on the basis of Wald, but removes variables on the basis of the resultant change in the log likelihood.
In an effort to maximize the comparability of the logistic regressions and the standard linear regressions, the linear multiple regressions were also conducted in a stepwise manner. As interpretation of the $R^2$ is often considered compromised by the stepwise procedure (e.g., Allison, Gorman, & Primavera, 1993), a set of forward regressions was conducted in order to confirm the stability of the results obtained through the stepwise procedure.

**Analyses of the Recidivism Hypotheses**

**Hypothesis #1:** Two sets of multiple regressions were conducted to investigate the predictive capacity of T1 SSQ scores as compared to that of established measures of antisocial orientation (T1 scores on the subscales of the Jesness Inventory and the Carlson Personality Inventory that refer to antisocial orientation). Regression Set A proceeded by forcing all of the Jesness and Carlson subscale scores into the first step of the regression equation. This had the effect of "controlling" for the contribution of these variables to the prediction of recidivism. The second step of the hierarchical regression involved forcing the SSQ scores into the equation. This allowed the estimation of the amount of variance which is independently accounted for by the SSQ beyond that accounted for by the other measures.

Regression Set B simply reversed this two step process by entering the SSQ in the first step of the regression equation, followed by the rest of the subscales in the second step. In this manner, the amount of variance independently accounted for by the Jesness and Carlson subscales when the impact of the SSQ was controlled for could also be estimated. Stepwise multiple regression analyses were then conducted with
all of the variables to determine which among the antisocial measures would be chosen as significant predictors of recidivism.

**Hypothesis #2:** Stepwise multiple regression analyses were conducted to investigate hypothesis three. Factors that were demonstrated by the literature review to be strong predictors of recidivism were entered into the regression equation (e.g., criminal history, age of onset of criminal activity, and I.Q.) along with the antisocial inclination measures. The results of this set of regression equations revealed whether or not any of the measures of antisocial inclination continued to be selected as significant predictors of recidivism when competing with the historical variables for entry into the regression equation.

**Hypothesis #3:** Participants that received scores above average on the Rosenberg Self-Esteem Questionnaire (score of 4 or higher out of 6) were selected from the sample (N = 106). The set of stepwise regression analyses described for Hypothesis #2 was then repeated with this specific group of participants. The outcome of this regression could then be compared to that of the Hypothesis #2 analyses. For the purposes of comparison (see Chow, 1988), the effect-sizes of the linear regression equations were computed as described in Cohen (1992): $R^2 / (1 - R^2)$. Although there were comparatively fewer participants who scored below average on the RSEQ (score of 2 or less out of 6; N = 30), an exploratory stepwise regression was completed with this subgroup for purposes of tentative comparison with the "higher" self-esteem group.

In order to further test the effect of self-esteem a moderator between antisocial orientation and recidivism, a set of hierarchical analyses was conducted following the procedure outlined by Baron and Kenny (1986). The first step of the hierarchical
regressions included the measure of self-esteem in addition to the predictor sets identified by the stepwise regression analyses conducted for Hypothesis 2 (see Table 12). Table 12 reveals that Future Contact with the Adult Correctional System was the only dependent variable not to have an antisocial measure identified as a predictor. Therefore, the measure that approached significance, the Antisocial Tendencies scale, was added for the purposes of this analysis. In effect, step one of the hierarchical regression “controls for” the main effects of self-esteem and antisocial orientation.

The second step of the hierarchical regression consisted of the interaction term (i.e., the cross product of self-esteem with the identified measure of antisocial inclination). The results of these hierarchical regressions revealed whether or not the cross-product added significantly to the predictive capacity of the two variables on their own for each aspect of recidivism.

The following analyses were conducted with the regression equations that demonstrated significant interaction terms. First, as recommended by Baron and Kenny (1986), the studentized residuals of the relationship between the independent variable and the dependent variable were plotted against the moderator variable (self-esteem) in order to verify that heteroscedasticity was not occurring. Second, as recommended by Lubinski and Humphreys (1990), a second set of hierarchical regressions was performed in which the second step of the regression contained both the interaction term and the squared term of each variable. The purpose of this analysis is to confirm that there is a true linear x linear interaction occurring, as opposed to a quadratic trend. A quadratic trend can be reflected in the spurious finding of a significant interaction term through the process of multicollinearity between the
quadratic term and the interaction term. Finally, the simple correlations between self-esteem and both the independent and dependent variables were investigated to determine to what extent a simple correlation may be influencing the regression results.

**Exploratory Analyses of the T1 Data**

These analyses were derived as a result of the findings made during the investigation of the recidivism hypotheses described above. Therefore, the rationale and description of the analyses that were performed are outlined in the results section.

**Exploratory Analyses of the T2 Data**

The primary purpose of the T2 data collection was to attempt to improve the interpretation of the multiple regression results by further elucidating the nature of the SSQ. Therefore, the first set of analyses was directed toward investigating the comparability of the T1 and T2 data sets. This set of analyses, which consisted of simple correlational procedures (t tests and ANOVAs), determined the degree to which findings from the T2 data sample could be generalized to the T1 data sample. The second set of analyses (again simple correlational procedures) explored the relationship between the SSQ and the constructs of peer relationships and substance abuse.
RESULTS

A. Background Results

Criminal Offending

With regard to criminal records, the closed-custody participants had received significantly more convictions than had the open-custody participants prior to the index offense cluster\textsuperscript{30}, \(t(153) = 3.74, p < .001\). This result held true even when the actual time that each individual was free from custody and at risk for committing a crime was held constant, \(t(130) = 3.09; p < .01\). This was largely due to a difference in the proportion of nonviolent convictions between groups, \(t(153) = 3.30, p < .001\), with closed custody participants having committed an average of 3.30 more nonviolent offenses prior to the index offense cluster, than did the open-custody participants (e.g., 8.60 versus 5.30 convictions). There were no significant differences between groups with regard to the average number of pre-index violent convictions. Participants in both groups had an average of approximately one prior violent offense.

There were no differences observed between groups regarding the average number of violent and non-violent convictions both at the time of testing \((M = 4.20)\) and during the recidivism period \((M = 6.75)\) unless only adult recidivism was considered. During the adult recidivistic period, participants who were closed-custody inmates at the time of testing received significantly more nonviolent convictions \((M = 3.25)\) than did the participants who were open-custody inmates at the time of testing \((M = 1.70)\), \(t(153) = 2.20, p < .05\). Again, the average number of violent convictions did not differ

\textsuperscript{30} Index offense cluster refers to the group of convictions that each participant was serving a sentence for at the time of testing. Thus, pre-index refers to previous history of offending, and post-index refers to the recidivism period.
significantly between the two groups ($M = 0.41$). This was not due to an age factor, as both groups had similar amounts of time at risk to commit crimes as an adult ($M = 579$ days).

Participants who were closed-custody inmates at the time of testing were both sentenced to and served significantly more time (when remand time and home leave were taken into consideration) than did the open-custody participants. This held true both prior to testing, at the time of testing, and during the adult recidivism period (See Table 4). Participants who did not continue on into the adult system actually served similar time periods although those who were initially closed-custody participants were sentenced to greater periods of time. There were no differences between groups with regard to the amount of probation participants were sentenced to either prior to, during, or after testing.

**Psychological Tests**

The two groups of inmates did not differ significantly with regard to any of the tests that estimated psychological parameters, with one exception: Closed-custody participants scored higher than open-custody participants on the Jesness subscale of Denial, $t(153) = 2.58, p < .01$. As this scale measures the extent to which participants are reluctant to acknowledge unpleasant conditions, it is possible that this subscale is tapping an adaptive defense mechanism on the part of the closed-custody participants! Given that the two groups did not differ with regard to any of the independent variables, including both the antisocial inclination measures and the control variables, the following analyses were conducted collapsing across groups.
Table 4

Time Spent in Jail: Closed-Custody versus Open-Custody

<table>
<thead>
<tr>
<th>Variable</th>
<th>df</th>
<th>Closed-Custody (mean # of days)</th>
<th>Open-Custody (mean # of days)</th>
<th>t value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Sentenced:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-index</td>
<td>121</td>
<td>201.76</td>
<td>54.52</td>
<td>4.49***</td>
</tr>
<tr>
<td>Index</td>
<td>125</td>
<td>354.46</td>
<td>146.32</td>
<td>5.72***</td>
</tr>
<tr>
<td>Post-index</td>
<td>146</td>
<td>377.23</td>
<td>246.16</td>
<td>2.14*</td>
</tr>
<tr>
<td>Adult</td>
<td>110</td>
<td>261.01</td>
<td>75.25</td>
<td>3.49***</td>
</tr>
<tr>
<td>Time Served:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-index</td>
<td>120</td>
<td>184.65</td>
<td>51.94</td>
<td>4.89***</td>
</tr>
<tr>
<td>Index</td>
<td>121</td>
<td>315.68</td>
<td>128.10</td>
<td>5.69***</td>
</tr>
<tr>
<td>Post-index</td>
<td>151</td>
<td>300.51</td>
<td>234.93</td>
<td>1.47</td>
</tr>
<tr>
<td>Adult</td>
<td>122</td>
<td>173.11</td>
<td>67.73</td>
<td>3.03**</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.
B. Recidivism Hypotheses

Hypothesis #1: The SSQ total score will equal, if not surpass, the commonly accepted measures of antisocial inclination in the prediction of recidivism.

The Hierarchical Regression Results

General Recidivism: A perusal of Table 5 reveals that scores on the SSQ are superior to the relevant subscales of the Jesness Inventory and the Carlson Personality Inventory in the prediction of density of convictions during the general recidivism period (General Conviction Density). The SSQ significantly added to the predictive capacity of the other subscales, \( \Delta F(1, 154) = 12.53, p < .001 \). The increase in variance accounted for held true for both the change in \( R^2 \) and the change in the adjusted \( R^2 \) (see Table 5; Regression A). In both cases, the addition of the SSQ resulted in a greater than twofold increase in the proportion of the variance accounted for (58% and 78% increases respectively). In contrast, adding the other subscales to the SSQ did not significantly increase the proportion of the variance accounted for, \( \Delta F(5, 150) = 1.04, p = .40 \). This outcome is reflected by the observation that the adjusted \( R^2 \) did not increase at all from Step 1 to Step 2 in Regression B. In addition, when all of the variables were considered, the SSQ was the only variable to demonstrate a statistically significant relationship with the dependent variable, \( \beta = .37, t(154) = 3.54, p < .001 \).

31. The SSQ has been referred to as the "Street Self" in all of the output tables so that the participant matter of the SSQ is readily compared to that of the other scales.
Table 5

Summary of the Hierarchical Regression Analyses for the Relative Significance of the Antisocial Measures in Predicting Density of Convictions during the General Recidivism Period: Regression A and B (N = 155)

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression A: Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Maladjustment</td>
<td>-0.10</td>
<td>0.07</td>
<td>-0.23</td>
</tr>
<tr>
<td>Value Orientation</td>
<td>0.18</td>
<td>0.10</td>
<td>0.23</td>
</tr>
<tr>
<td>Alienation</td>
<td>0.00</td>
<td>0.11</td>
<td>0.00</td>
</tr>
<tr>
<td>Asocial Index</td>
<td>-0.04</td>
<td>0.06</td>
<td>0.10</td>
</tr>
<tr>
<td>Antisocial Tendencies</td>
<td>-0.02</td>
<td>0.03</td>
<td>0.07</td>
</tr>
<tr>
<td>Regression B: Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street-Self&quot;</td>
<td>0.18</td>
<td>0.04</td>
<td>0.30***</td>
</tr>
<tr>
<td>Regression A and B: Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street-Self&quot;</td>
<td>0.22</td>
<td>0.06</td>
<td>0.38***</td>
</tr>
<tr>
<td>Social Maladjustment</td>
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<td>0.07</td>
<td>-0.12</td>
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<tr>
<td>Value Orientation</td>
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<td>Alienation</td>
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<tr>
<td>Antisocial Tendencies</td>
<td>-0.04</td>
<td>0.03</td>
<td>-0.14</td>
</tr>
</tbody>
</table>

Note. For Regression A: $R^2 = .05 (p = .20)$, Adj. $R^2 = .02$ for Step 1; and for Step 2, $\Delta R^2 = .07 (p < .001)$, Adj. $R^2 = .07$. For Regression B: $R^2 = .09 (p < .001)$, Adj. $R^2 = .09$ for Step 1; and for Step 2, $\Delta R^2 = .03 (p = .40)$, Adj. $R^2 = .00$. ***$p < .001$. 

Criminal Identity

88
Table 6 presents the statistics from Regressions A and B in the prediction of the advent of a "serious" sentence (>90 days) during the general recidivism period. The SSQ clearly added to the predictive power of the other antisocial measures, $\Delta \chi^2(1, N = 155) = 4.16, p < .05$, whereas these measures did not add to the predictive capacity of the SSQ, $\Delta \chi^2(5, N = 155) = 2.93, p = .71$. In fact, the addition of the Jesness and Carlson subscales lead to a drop in the accuracy of classification from 83% to 61%. Although the Jesness and Carlson subscales did significantly lower the error of prediction on their own, $\chi^2(5, N = 155) = 11.32, p < .05$, as did the SSQ, $\chi^2(1, N = 155) = 12.55, p < .001$, what they measure appears to be both subsumed by, and improved upon by the SSQ. This conclusion is supported by the fact that the SSQ was the only variable to demonstrate a significant relationship with the dependent variable when all of the variables were considered in the regression equation, Wald(154) = 3.98; $p < .05$.

Table 7 displays the statistics from Regressions A and B in the prediction of a violent conviction during the general recidivism period (Violent General Recidivism). Neither the SSQ nor the other antisocial measures significantly reduced the error of prediction beyond that of the other, $\Delta \chi^2(1, N = 155) = 0.18, p = .67$, and $\Delta \chi^2(5, N = 155) = 8.79, p = .12$, respectively. However, the Jesness and Carlson subscales lead to a significant reduction in the error of prediction when considered on their own, $\chi^2(5, N = 155) = 10.78, p < .05$, whereas the SSQ did not. Of the Jesness and Carlson subscales, the Antisocial Tendencies subscale is the only one whose coefficient approached significance, Wald(154) = 2.90, $p < .09$. Therefore, it can be
Table 6
Summary of the Hierarchical Logistic Regression Analyses for the Relative Significance of the Antisocial Measures in Predicting the Advent of a Serious Jail Sentence (>90 days) during the General Recidivism Period: Regression A and B (N = 155)

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE$</th>
<th>Wald</th>
<th>$\hat{R}$</th>
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<tbody>
<tr>
<td>Regression A: Step 1</td>
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</tr>
<tr>
<td>Social Maladjustment</td>
<td>-.02</td>
<td>.02</td>
<td>0.53</td>
<td>.00</td>
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<td>Value Orientation</td>
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<td>.03</td>
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<td>.02</td>
</tr>
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<td>.00</td>
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<tr>
<td>Antisocial Tendencies</td>
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<td>.01</td>
<td>2.38</td>
<td>.04</td>
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<tr>
<td>Regression B: Step 1</td>
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</tr>
<tr>
<td>&quot;Street-Self&quot;</td>
<td>.05</td>
<td>.02</td>
<td>11.04***</td>
<td>.21</td>
</tr>
<tr>
<td>Regression A and B: Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street-Self&quot;</td>
<td>.04</td>
<td>.02</td>
<td>3.98*</td>
<td>.10</td>
</tr>
<tr>
<td>Social Maladjustment</td>
<td>-.01</td>
<td>.02</td>
<td>0.37</td>
<td>.00</td>
</tr>
<tr>
<td>Value Orientation</td>
<td>.03</td>
<td>.03</td>
<td>1.17</td>
<td>.00</td>
</tr>
<tr>
<td>Alienation</td>
<td>.01</td>
<td>.03</td>
<td>0.11</td>
<td>.00</td>
</tr>
<tr>
<td>Asocial Index</td>
<td>.01</td>
<td>.02</td>
<td>0.40</td>
<td>.00</td>
</tr>
<tr>
<td>Antisocial Tendencies</td>
<td>.00</td>
<td>.01</td>
<td>0.03</td>
<td>.00</td>
</tr>
</tbody>
</table>

Note. GML = .51 for the constant, and GML = .50 for the baseline value.

For Regression A: $\Delta$GML = .01 ($p < .05$) for Step 1, and $\Delta$GML = .01 ($p < .05$) for Step2
For Regression B: $\Delta$GML = .02 ($p < .001$) for Step 1, and $\Delta$GML = 0 ($p = .71$) for Step2.

*p < .05. **p < .01. ***p < .001.
Table 7

Summary of the Hierarchical Logistic Regression Analyses for the Relative Significance of the Antisocial Measures in Predicting a Violent Conviction during the General Recidivism Period: Regression A and B (N = 155)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>( \hat{R} )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regression A: Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Maladjustment</td>
<td>.01</td>
<td>.02</td>
<td>0.12</td>
<td>.00</td>
</tr>
<tr>
<td>Value Orientation</td>
<td>-.02</td>
<td>.03</td>
<td>0.28</td>
<td>.00</td>
</tr>
<tr>
<td>Alienation</td>
<td>.04</td>
<td>.03</td>
<td>1.44</td>
<td>.00</td>
</tr>
<tr>
<td>Asocial Index</td>
<td>.01</td>
<td>.02</td>
<td>0.43</td>
<td>.00</td>
</tr>
<tr>
<td>Antisocial Tendencies</td>
<td>.02</td>
<td>.01</td>
<td>3.07</td>
<td>.07</td>
</tr>
<tr>
<td><strong>Regression B: Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street-Self&quot;</td>
<td>.02</td>
<td>.01</td>
<td>2.09</td>
<td>.02</td>
</tr>
<tr>
<td><strong>Regression A and B: Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street-Self&quot;</td>
<td>-.01</td>
<td>.02</td>
<td>0.18</td>
<td>.00</td>
</tr>
<tr>
<td>Social Maladjustment</td>
<td>.01</td>
<td>.02</td>
<td>0.09</td>
<td>.00</td>
</tr>
<tr>
<td>Value Orientation</td>
<td>-.01</td>
<td>.03</td>
<td>0.21</td>
<td>.00</td>
</tr>
<tr>
<td>Alienation</td>
<td>.04</td>
<td>.03</td>
<td>1.47</td>
<td>.00</td>
</tr>
<tr>
<td>Asocial Index</td>
<td>.01</td>
<td>.02</td>
<td>0.49</td>
<td>.00</td>
</tr>
<tr>
<td>Antisocial Tendencies</td>
<td>.02</td>
<td>.01</td>
<td>2.90</td>
<td>.07</td>
</tr>
</tbody>
</table>

**Note.** GML = .51 for the constant, and GML = .50 for the baseline value.

For Regression A: \( \Delta \text{GML} = .02 \ (p < .05) \) for Step 1, and \( \Delta \text{GML} = 0 \ (p = .67) \) for Step 2.

For Regression B: \( \Delta \text{GML} = 0 \ (p = .14) \) for Step 1, and \( \Delta \text{GML} = .02 \ (p = .12) \) for Step 2.
speculated that it is this subscale that demonstrates the closest relationship with the dependent variable.

**Adult Recidivism:** Table 8 presents the statistics from Regressions A and B in the prediction of the density of convictions during the adult recidivism period (Adult Conviction Density). The results demonstrate that although both the SSQ and the other subscales significantly improved $R^2$ over the constant when considered independently, $F(1, 119) = 7.65, p < .01$, and $F(5, 115) = 3.12, p < .01$ respectively, neither the SSQ nor the other measures significantly added to the predictive capacity of the other, $\Delta F(1, 119) = 2.22, p = .14$, and $\Delta F(5, 115) = 2.00, p = .08$, respectively. However, the addition of the Jesness and Carlson subscales did result in more than doubling the size of the $R^2$ (133% increase in $R^2$ and 80% increase in the adjusted $R^2$), compared to the addition of the SSQ which only increased the $R^2$ by 16% and the adjusted $R^2$ by 13%. This result suggests that there is something of interest occurring with the addition of the Jesness and Carlson subscale variables (see Table 8; Regression B). Regarding these measures, the Social Maladjustment and Value Orientation subscales were the only two to demonstrate a statistically significant relationship with Adult Conviction Density when all of the independent variables were considered in the regression equation, $\beta = -.43$, $t(119) = -2.40, p < .05$, and $\beta = .33$, $t(119) = 2.20, p < .05$, respectively.

Table 9 depicts the statistics from Regressions A and B in the prediction of Future Contact with the Adult Correctional System. Neither the SSQ nor the other antisocial measures significantly added to the predictive capacity of the other, $\Delta \chi^2(1, N = 120) = 4.95, p = .42$, and $\Delta \chi^2(5, N = 120) = 0.75, p = .39$, respectively. In
Table 8
Summary of the Hierarchical Regression Analyses for the Relative Significance of the Antisocial Measures in Predicting Density of Convictions during the Adult Recidivism Period: Regression A and B (N = 120)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression A: Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Maladjustment</td>
<td>-0.12</td>
<td>0.04</td>
<td>-0.49**</td>
</tr>
<tr>
<td>Value Orientation</td>
<td>0.16</td>
<td>0.06</td>
<td>0.38**</td>
</tr>
<tr>
<td>Alienation</td>
<td>0.02</td>
<td>0.07</td>
<td>0.04</td>
</tr>
<tr>
<td>Asocial Index</td>
<td>0.09</td>
<td>0.04</td>
<td>0.37*</td>
</tr>
<tr>
<td>Antisocial Tendencies</td>
<td>0.01</td>
<td>0.02</td>
<td>0.05</td>
</tr>
<tr>
<td>Regression B: Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street-Self&quot;</td>
<td>0.08</td>
<td>0.03</td>
<td>0.23**</td>
</tr>
<tr>
<td>Regression A and B: Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street-Self&quot;</td>
<td>0.06</td>
<td>0.04</td>
<td>0.19</td>
</tr>
<tr>
<td>Social Maladjustment</td>
<td>-0.11</td>
<td>0.06</td>
<td>-0.43*</td>
</tr>
<tr>
<td>Value Orientation</td>
<td>0.14</td>
<td>0.07</td>
<td>0.33*</td>
</tr>
<tr>
<td>Alienation</td>
<td>0.02</td>
<td>0.07</td>
<td>0.03</td>
</tr>
<tr>
<td>Asocial Index</td>
<td>0.08</td>
<td>0.04</td>
<td>0.31</td>
</tr>
<tr>
<td>Antisocial Tendencies</td>
<td>-0.01</td>
<td>0.02</td>
<td>-0.05</td>
</tr>
</tbody>
</table>

Note. For Regression A: $R^2 = .12$ ($p < .01$), Adj. $R^2 = .08$ for Step 1; and for Step 2, $\Delta R^2 = .02$ ($p = .14$), Adj. $R^2 = .01$. For Regression B: $R^2 = .06$ ($p < .01$), Adj. $R^2 = .05$ for Step 1; and for Step 2, $\Delta R^2 = .09$ ($p = .08$), Adj. $R^2 = .04$.

*p < .05. **p < .01.
Table 9
Summary of the Hierarchical Logistic Regression Analyses for the Relative Significance of the Antisocial Measures in Predicting Future Contact with the Adult Correctional System: Regression A and B (N = 120)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>ˆR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression A: Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Maladjustment</td>
<td>-.05</td>
<td>.04</td>
<td>1.45</td>
<td>.00</td>
</tr>
<tr>
<td>Value Orientation</td>
<td>.01</td>
<td>.04</td>
<td>0.11</td>
<td>.00</td>
</tr>
<tr>
<td>Alienation</td>
<td>.06</td>
<td>.04</td>
<td>1.96</td>
<td>.00</td>
</tr>
<tr>
<td>Asocial Index</td>
<td>.05</td>
<td>.03</td>
<td>2.53</td>
<td>.06</td>
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<tr>
<td>Antisocial Tendencies</td>
<td>.02</td>
<td>.01</td>
<td>2.67</td>
<td>.07</td>
</tr>
<tr>
<td>Regression B: Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street-Self&quot;</td>
<td>.04</td>
<td>.02</td>
<td>6.45*</td>
<td>.17</td>
</tr>
<tr>
<td>Regression A and B: Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street-Self&quot;</td>
<td>.02</td>
<td>.02</td>
<td>0.74</td>
<td>.00</td>
</tr>
<tr>
<td>Social Maladjustment</td>
<td>-.05</td>
<td>.04</td>
<td>1.27</td>
<td>.00</td>
</tr>
<tr>
<td>Value Orientation</td>
<td>.01</td>
<td>.04</td>
<td>0.04</td>
<td>.00</td>
</tr>
<tr>
<td>Alienation</td>
<td>.05</td>
<td>.04</td>
<td>1.87</td>
<td>.00</td>
</tr>
<tr>
<td>Asocial Index</td>
<td>.05</td>
<td>.03</td>
<td>2.13</td>
<td>.03</td>
</tr>
<tr>
<td>Antisocial Tendencies</td>
<td>.01</td>
<td>.01</td>
<td>0.70</td>
<td>.00</td>
</tr>
</tbody>
</table>

Note. GML = .52 for the constant, and GML = .52 for the baseline value.

For Regression A: ΔGML = .03 (p < .05) for Step 1, and ΔGML = 0 (p = .39) for Step 2.
For Regression B: ΔGML = .02 (p < .01) for Step 1, and ΔGML = .01 (p = .42) for Step 2.
*p < .05
fact, adding one to the other actually reduced the accuracy of the classification table by 2% in Regression A, and 3% in Regression B. However, each lead to a significant reduction in the error of prediction when considered alone, $\chi^2(1, N = 120) = 6.98$, $p < .01$, and $\chi^2(5, N = 120) = 11.19$, $p < .05$, respectively. Moreover, each lead to the correct classification of approximately 70% of the cases when considered in isolation from the other. This suggests that either group of variables could be used to predict with equally successful results. Given that conclusion, the SSQ may be the more parsimonious choice.

Table 10 summarizes the statistics from Regressions A and B in the prediction of violent convictions in the adult correctional system (Violent Adult Recidivism). Neither the SSQ nor the other antisocial measures significantly decreased the error of prediction over that of the other, $\Delta\chi^2(1, N = 120) = 0.90$, $p = .34$, and $\Delta\chi^2(5, N = 120) = 4.62$, $p = .46$, respectively; nor did either group of predictors result in a significant reduction in the error of prediction when considered independent from the other, $\chi^2(5, N = 120) = 3.84$, $p = .57$, and $\chi^2(1, N = 120) = 0.10$, $p = .76$, respectively. In addition, none of the variables approached significance in relationship to the dependent variable. These findings suggest that none of the antisocial inclination measures reviewed here are useful predictors for this aspect of recidivism.

The Stepwise Regression Results

In no instance was more than one variable selected as a significant predictor of recidivism (see Table 11). The SSQ was the only variable chosen as a significant predictor for the following indices of recidivism: (1) General Conviction Density, $\beta = .30$; $t(154) = 3.90$, $p < .001$; (2) Serious Recidivism (General), $\text{Wald}(154) = 11.04$, ...
Table 10

Summary of the Hierarchical Logistic Regression Analyses for the Relative Significance of the Antisocial Measures in Predicting Violent Convictions within the Adult Recidivism Period: Regression A and B (N = 120)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>( \hat{R} )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regression A: Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Maladjustment</td>
<td>0.01</td>
<td>0.03</td>
<td>0.11</td>
<td>0.00</td>
</tr>
<tr>
<td>Value Orientation</td>
<td>-0.01</td>
<td>0.04</td>
<td>0.04</td>
<td>0.00</td>
</tr>
<tr>
<td>Alienation</td>
<td>0.04</td>
<td>0.04</td>
<td>0.97</td>
<td>0.00</td>
</tr>
<tr>
<td>Asocial Index</td>
<td>0.00</td>
<td>0.03</td>
<td>0.01</td>
<td>0.00</td>
</tr>
<tr>
<td>Antisocial Tendencies</td>
<td>0.00</td>
<td>0.01</td>
<td>0.19</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Regression B: Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street Self&quot;</td>
<td>0.01</td>
<td>0.01</td>
<td>0.10</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Regression A and B: Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street Self&quot;</td>
<td>-0.02</td>
<td>0.03</td>
<td>0.87</td>
<td>0.00</td>
</tr>
<tr>
<td>Social Maladjustment</td>
<td>0.00</td>
<td>0.03</td>
<td>0.10</td>
<td>0.00</td>
</tr>
<tr>
<td>Value Orientation</td>
<td>0.00</td>
<td>0.04</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Alienation</td>
<td>0.05</td>
<td>0.04</td>
<td>1.09</td>
<td>0.00</td>
</tr>
<tr>
<td>Asocial Index</td>
<td>0.01</td>
<td>0.03</td>
<td>0.09</td>
<td>0.00</td>
</tr>
<tr>
<td>Antisocial Tendencies</td>
<td>0.01</td>
<td>0.01</td>
<td>0.79</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Note.** GML = .58 for the constant, and GML = .58 for the baseline.

For **Regression A**: \( \Delta \text{GML} = .02 \ (p = .57) \) for Step 1, and \( \Delta \text{GML} = 0 \ (p = .34) \) for Step 2.

For **Regression B**: \( \Delta \text{GML} = 0 \ (p = .76) \) for Step 1, and \( \Delta \text{GML} = .01 \ (p = .46) \) for Step 2.
Table 11

Part A: Summary of the Stepwise Linear Regression Analyses to Select the Significant Antisocial Measures in the Prediction of Recidivism

<table>
<thead>
<tr>
<th>Recidivism Variable</th>
<th>$R^2$</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Conviction Density ($N = 155$):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street Self&quot;</td>
<td>.09</td>
<td>0.18</td>
<td>0.04</td>
<td>0.30***</td>
</tr>
<tr>
<td>Adult Conviction Density ($N = 120$):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value Orientation</td>
<td>.06</td>
<td>0.11</td>
<td>0.04</td>
<td>0.25**</td>
</tr>
</tbody>
</table>

Part B: Summary of the Stepwise Logistic Regression Analyses to Select the Significant Antisocial Measures in the Prediction of Recidivism

<table>
<thead>
<tr>
<th>Recidivism Variable</th>
<th>$\Delta GML^a$</th>
<th>$B$</th>
<th>$SE$</th>
<th>Wald</th>
<th>$\hat{R}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious Sentence (Gen.) ($N = 155$):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street Self&quot;</td>
<td>.02</td>
<td>.05</td>
<td>.02</td>
<td>11.04***</td>
<td>.21</td>
</tr>
<tr>
<td>Violent Recidivism (Gen.) ($N = 155$):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antisocial Tendencies</td>
<td>.01</td>
<td>.02</td>
<td>.01</td>
<td>5.96**</td>
<td>.14</td>
</tr>
<tr>
<td>Contact with Adult System ($N = 120$):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street Self&quot;</td>
<td>.02</td>
<td>.04</td>
<td>.02</td>
<td>6.45**</td>
<td>.17</td>
</tr>
</tbody>
</table>

$^a$refers to the change in the GML compared to that of the constant.

*p < .05. **p < .01. ***p < .001.
$p < .001$; and (3) Future Contact with the Adult Correctional System, $Wald(119) = 6.50$, $p < .01$. In contrast, the subscale of Antisocial Tendencies was the only significant predictor chosen for Violent General Recidivism, $Wald(154) = 5.96$, $p < .01$, and the subscale of Value Orientation was the only significant predictor chosen for Adult Conviction Density, $\beta = .25$; $t(119) = 2.80$, $p < .01$. There were no predictors chosen from the antisocial variables with regard to Violent Adult Recidivism. These results confirm the conclusions drawn from the findings of the hierarchical regressions.

**Conclusion**

The SSQ was superior to the antisocial subscales of the Jesness and the Carlson in the prediction of both Conviction Density and Serious Sentences acquired during the general recidivism period, and in the prediction of Future Contact with the Adult Correctional System. However, the SSQ did not perform as well as the other established measures in predicting either Violent General Recidivism or Adult Conviction Density. None of the antisocial measures included in the investigation appear to predict Violent Adult Recidivism. Therefore, Hypothesis #1 is supported, but only in the prediction of certain forms of recidivism.
Hypothesis #2: The measures of antisocial inclination will remain significant predictors of recidivism even when the commonly accepted predictors of age of onset, criminal history, and I.Q. are added to the regression equation.

The Stepwise Regression Results

Table 12 presents the results of the stepwise regression analyses. Violent Adult Recidivism was the only dependent variable that was not predicted significantly by this subset of variables. Of the control variables, only Criminal History (measured by past density of convictions) was a significant predictor. The relationship of Age of Onset and I.Q. to recidivism was never of sufficient magnitude to be included in the regression equation. In three instances, a measure of antisocial inclination significantly improved upon the predictive capacity of Criminal History: (1) The SSQ added significantly to prediction of both Conviction Density and Serious Sentencing in the general recidivism period, $\Delta F(1, 154) = 9.07, p < .01$, and $\Delta \chi^2(1, N = 155) = 5.40, p < .05$, respectively; and (2) Value Orientation added significantly to the capacity of Criminal History to predict Adult Conviction Density, $\Delta F(1, 119) = 4.49, p < .05$. In a fourth instance, one of the antisocial measures was the lone significant predictor: Violent General Recidivism was significantly predicted by the Antisocial Tendencies subscale, $\chi^2(1, N = 120) = 6.76, p < .01$; Wald (119) = 5.96, $p < .01$.

Of the entire set of recidivism indices, only Future Contact with the Adult Correctional System was predicted by a historical variable alone, $\chi^2(1, N = 120) = 10.67, p < .001$; Wald(119) = 7.41, $p < .01$. Moreover, in this case, the Antisocial Tendencies subscale definitely approached significance for entry into the
Table 12

Part A: Summary of the Stepwise Linear Regression Analyses to Select the Significant
Predictors of Recidivism when the Controls are added to the Possible Pool of
Predictors

<table>
<thead>
<tr>
<th>Selected Variables</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Conviction Density ($N = 155$):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV1: Historical Conviction Density</td>
<td>0.74</td>
<td>0.21</td>
<td>0.28***</td>
</tr>
<tr>
<td>SV2: &quot;Street Self&quot;</td>
<td>0.14</td>
<td>0.04</td>
<td>0.23**</td>
</tr>
<tr>
<td>Adult Conviction Density ($N = 120$):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV1: Historical Conviction Density</td>
<td>0.66</td>
<td>0.14</td>
<td>0.40***</td>
</tr>
<tr>
<td>SV2: Value Orientation</td>
<td>0.08</td>
<td>0.04</td>
<td>0.18*</td>
</tr>
</tbody>
</table>

Note. For General Conviction Density: $R^2 = .11 \, (p < .001)$, Adj. $R^2 = .11$ for SV1; and $\Delta R^2 = .06 \, (p < .01)$, Adj. $R^2 = .04$ for SV2. For Adult Conviction Density: $R^2 = .18 \, (p < .001)$, Adj. $R^2 = .17$ for SV1; and $\Delta R^2 = .03 \, (p < .05)$, Adj. $R^2 = .03$ for SV2.  
* $p < .05$. ** $p < .01$. *** $p < .001$. 

Table 12 continued

Part B: Summary of the Stepwise Logistic Regression Analyses to Select the Significant Predictors of Recidivism when the Controls are added to the Possible Pool of Predictors

<table>
<thead>
<tr>
<th>Selected Variables</th>
<th>$B$</th>
<th>$SE$</th>
<th>Wald</th>
<th>$R$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious Sentence (Gen.) (N = 155):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV1: Historical Conviction Density</td>
<td>.56</td>
<td>.13</td>
<td>19.53***</td>
<td>.29</td>
</tr>
<tr>
<td>SV2: &quot;Street Self&quot;</td>
<td>.04</td>
<td>.02</td>
<td>4.97*</td>
<td>.12</td>
</tr>
<tr>
<td>Violent Recidivism (Gen.) (N = 155):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antisocial Tendencies</td>
<td>.02</td>
<td>.01</td>
<td>5.96**</td>
<td>.14</td>
</tr>
<tr>
<td>Contact with Adult System (N = 120):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Historical Conviction Density</td>
<td>.31</td>
<td>.12</td>
<td>7.41**</td>
<td>.19</td>
</tr>
</tbody>
</table>

Note. For Serious Sentence (Gen.): $\Delta GML = .07$ ($p < .001$) for SV1, and $\Delta GML = .01$ ($p < .05$) for SV2. For Violent Recidivism (Gen.): $\Delta GML = .03$ ($p < .001$); and for (Future) Contact with the Adult System: $\Delta GML = .01$ ($p < .01$).

*p < .05. **p < .01. ***p < .001.
regression equation at $p = .0513$. Overall, the analyses demonstrated that antisocial measures remained significant predictors of recidivism even when historical factors were included in the regression equation. These results provide support for Hypothesis #2.

**Hypothesis #3**: The capacity to predict recidivism will be significantly improved when only those participants that received higher scores on self-esteem while incarcerated at T1 are considered.

**The Stepwise Regression Results**

Table 13 presents the results of the stepwise selection of recidivism predictors for participants reporting higher levels of self-esteem at T1. Table 12 can be readily compared to Table 13 in order to contrast the capacity to predict recidivism for the entire sample with the capacity to predict recidivism in participants who reported higher levels of self-esteem at T1. The results of this comparison are summarized in Table 14 for the continuous measures of recidivism. As is readily apparent from the table, both the $R^2$, the Adjusted $R^2$, and the effect size of the regression equation have increased substantively. In fact, the effect sizes have increased from better-than-moderate, to large effect sizes (Cohen, 1992). This clearly suggests that the magnitude of prediction for these forms of recidivism is enhanced when the participant demonstrates higher levels of self-esteem at T1.

Similarly, the logistic equations show increases in both the $\hat{R}$ and the GML (over the baseline referent) from Table 12 to Table 13, but the magnitude of the increase is
Table 13

Part A: Summary of the Stepwise Linear Regression Analyses to Select the Significant Predictors of Recidivism for Subjects with High Self-Esteem

<table>
<thead>
<tr>
<th>Selected Variables</th>
<th>B</th>
<th>SE</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Conviction Density (N = 106):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV1: Historical Conviction Density</td>
<td>0.97</td>
<td>0.24</td>
<td>0.35***</td>
</tr>
<tr>
<td>SV2: “Street Self”</td>
<td>0.16</td>
<td>0.05</td>
<td>0.28**</td>
</tr>
<tr>
<td>Adult Conviction Density (N = 85):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV1: Historical Conviction Density</td>
<td>0.69</td>
<td>0.16</td>
<td>0.42***</td>
</tr>
<tr>
<td>SV2: Value Orientation</td>
<td>0.11</td>
<td>0.04</td>
<td>0.24**</td>
</tr>
</tbody>
</table>

Note. For General Conviction Density: $R^2 = .18\ (p < .001)$, Adj. $R^2 = .17$ for SV1, and $\Delta R^2 = .07\ (p < .01)$, $\Delta$ Adj. $R^2 = .07$ for SV2. For Adult Conviction Density: $R^2 = .21\ (p < .001)$, Adj. $R^2 = .20$ for SV1, and $\Delta R^2 = .06\ (p < .01)$, $\Delta$ Adj. $R^2 = .05$ for SV2. *$p < .05$. **$p < .01$. ***$p < .001$. 
Table 13 continued

**Part B: Summary of the Stepwise Logistic Regression Analyses to Select the Significant Predictors of Recidivism for Subjects with High Self-Esteem**

<table>
<thead>
<tr>
<th>Selected Variables</th>
<th>$B$</th>
<th>$SE$</th>
<th>Wald</th>
<th>$\hat{R}$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Serious Sentence (Gen.) (N = 106):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV1: Historical Conviction Density</td>
<td>.60</td>
<td>.15</td>
<td>15.66***</td>
<td>.31</td>
</tr>
<tr>
<td>SV2: Value Orientation</td>
<td>.10</td>
<td>.03</td>
<td>7.46**</td>
<td>.20</td>
</tr>
<tr>
<td><strong>Violent Recidivism (Gen.) (N = 106):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antisocial Tendencies</td>
<td>.03</td>
<td>.01</td>
<td>8.79**</td>
<td>.22</td>
</tr>
<tr>
<td><strong>Contact with Adult System (N = 85):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Street Self&quot;</td>
<td>.07</td>
<td>.02</td>
<td>10.67***</td>
<td>.28</td>
</tr>
<tr>
<td><strong>Violent Recidivism (Adult) (N = 85):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alienation</td>
<td>.08</td>
<td>.04</td>
<td>4.84*</td>
<td>.18</td>
</tr>
</tbody>
</table>

**Note.** For **Serious Sentence** (Gen.): $\Delta GML = .08 \ (p < .001)$ for SV1, and $\Delta GML = .03 \ (p < .01)$ for SV2. For **Violent Recidivism** (Gen.): $\Delta GML = .03 \ (p < .001)$. For (Future) **Contact with the Adult System**: $\Delta GML = .04 \ (p < .001)$. For **Violent Recidivism** (Adult): $\Delta GML = .02 \ (p < .05)$.

$p < .05. \ **p < .01. \ ***p < .001.$
Table 14

The Predictive Capacity for the Continuous Measures of Recidivism: A Comparison

<table>
<thead>
<tr>
<th>Recidivism Variable</th>
<th>All Participants</th>
<th>High S/E Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adj. $R^2$</td>
<td>$R^2$</td>
</tr>
<tr>
<td>Gen. Conviction Density</td>
<td>.15</td>
<td>.17</td>
</tr>
<tr>
<td>Adult Conviction Density</td>
<td>.20</td>
<td>.21</td>
</tr>
</tbody>
</table>

<sup>a</sup>refers to the effect size of $R^2$
more difficult to interpret. Further perusal of the Tables reveals that the Beta and Wald statistics showed substantive increases, particularly for the antisocial measures. An additional indication that the capacity to predict recidivism had improved was provided by the fact that Violent Adult Recidivism gained its first predictor: the Jesness subscale of (societal) Alienation.

Some shifts occurred in the regression equations involving the SSQ. Value Orientation replaced the SSQ in the prediction of Serious Recidivism, and the SSQ replaced Criminal History in the prediction of Future Contact with the Adult Correctional System. These shifts imply that a slightly different predictor set could be called for when attempting to forecast recidivism for those who report higher self-esteem during the T1 incarceration period.

There were a total of 30 participants that received comparatively lower scores on the Rosenberg Self-esteem Questionnaire. That number decreased to 21 when only those that had gone on to the adult system were considered. Although these cell sizes are too low to conduct multiple regression analyses with any degree of power, one exploratory stepwise regression was completed with the continuous general recidivism measure (General Conviction Density). It is interesting that the subscale of Antisocial Tendencies was the only variable to gain significance as a predictor, $R^2 = .14; \beta = -.38, t(29) = -2.08, p < .05$. This suggests that it is possible that somewhat different variables predict recidivism when a participant indicates high versus low self-esteem. However, given the sample sizes of the two groups, the only conclusion that can be

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32. A general recidivism measure was chosen for the exploratory analysis because it allowed the use of the maximum number of participants possible ($N = 30$). In addition, the continuous general recidivism measure was chosen because the chance of observing a significant result would have been further decreased by the use of one of the dichotomous measures.
made with any certainty is that there is a substantive increase in the effect size for predicting continuous measures of recidivism for participants who demonstrate comparatively higher self-esteem at T1.

**The Hierarchical Regression Results:**

Table 15 reports the results of the one hierarchical regression analysis in which the SSQ/Self-Esteem interaction term significantly added to the predictive capacity of the main effects. General Conviction Density is the only aspect of recidivism for which this was the case.\(^{33}\) Not only did the interaction term significantly improve the predictive capacity of the main effects, but its inclusion in the regression equation rendered the main effect for the SSQ nonsignificant. This suggests that the interaction between the SSQ and Self-Esteem outweighs the importance of the SSQ itself, in the prediction of General Conviction Density.

**C. Exploratory Analyses of the T1 Data**

**Impulse Control**

As Table 12 indicates, three of the four times that an antisocial subscale was found to be a significant predictor, it was a behavioral measure (either the SSQ or the Antisocial Tendencies subscale of the Carlson Personality Inventory). As was noted in the literature review, impulsivity is one of the factors that has been linked to future recidivism. Therefore, the question arises as to whether or not these measures are

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33. The studentized residuals of the relationship between the SSQ and the dependent variable were plotted against the moderator variable, self-esteem. This procedure verified that heteroscedasticity was not occurring. Moreover, additional regression analyses verified that this was indeed a linear x linear interaction and not a quadratic relationship. Finally, self-esteem was not significantly correlated with either the SSQ ($r = -.04, p = .30$) or the dependent variable ($r = .09, p = .14$). These results confirm that there is a genuine interaction between self-esteem and the SSQ in the prediction of General Conviction Density.
Table 15

Summary of the Hierarchical Linear Regression Analyses to Investigate Moderator Effects in the Prediction of General Conviction Density (N = 155)

<table>
<thead>
<tr>
<th>Selected Variables</th>
<th>B</th>
<th>SE</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>0.49</td>
<td>0.31</td>
<td>0.12</td>
</tr>
<tr>
<td>Historical Conviction Density</td>
<td>0.76</td>
<td>0.20</td>
<td>0.29***</td>
</tr>
<tr>
<td>“Street Self”</td>
<td>0.14</td>
<td>0.04</td>
<td>0.24**</td>
</tr>
<tr>
<td>Step 2:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Street Self” x Self-Esteem</td>
<td>0.07</td>
<td>0.03</td>
<td>1.41**</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>-4.88</td>
<td>1.92</td>
<td>-1.17**</td>
</tr>
<tr>
<td>Historical Conviction Density</td>
<td>0.76</td>
<td>0.20</td>
<td>0.29***</td>
</tr>
<tr>
<td>“Street Self”</td>
<td>-0.19</td>
<td>0.12</td>
<td>-0.33</td>
</tr>
</tbody>
</table>

Note. $R^2 = .18 \ (p < .001), \ Adj. R^2 = .16 \ for \ Step \ 1; \ and \ for \ Step \ 2, \ \Delta R^2 = .04 \ (p < .01), \ \Delta Adj. R^2 = .04.$

*p < .05. **p < .01. ***p < .001.
simply replicating this result by virtue of the overlap between behavioural self-report measures of antisocially oriented activity, and behavioural self-report measures of impulsive actions.\textsuperscript{34}

To test this supposition, the stepwise regression analyses described for Hypothesis 2 were replicated including the Offer subscale of Impulse Control in the predictor set. Only one of the resulting regression equations demonstrated a shift: the SSQ was replaced by Impulse Control in the prediction of Serious Recidivism (see Table 16). This shift in the equation suggests that it is the impulsivity aspect of the SSQ measure that held predictive significance for this aspect of recidivism. In contrast, Impulse Control did not replace the SSQ in the prediction of General Conviction Density, nor did it replace the Antisocial Tendencies subscale in the prediction of Violent General Recidivism, suggesting that it is not merely the impulsivity dimension of these scales that holds predictive capacity for these recidivism measures.

\textbf{To Test or Not to Test?}

The analyses for Hypothesis \#2 affirmatively answered the theoretical question of whether or not antisocial measures would continue to be selected as significant predictors of recidivism if control variables were also considered in the predictor set. The "real world" version of the above hypothesis is as follows: Given that the Criminal History and the Age of Onset of an inmate are always available from their criminal records, is there anything to be gained in the prediction of recidivism by administering psychological tests, and if so, which tests?

\textsuperscript{34} The Impulse Control measure is correlated with both the Antisocial Tendencies Measure ($r = -0.43; p < 0.001$), and the SSQ ($r = -0.42; p < 0.001$).
Table 16

The Stepwise Regression Results for the Prediction of Serious General Recidivism when Impulse Control is Added to the Predictor Set (N = 155)

<table>
<thead>
<tr>
<th>Selected Variables</th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>$\hat{R}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV1: Historical Conviction Density</td>
<td>.63</td>
<td>.13</td>
<td>23.47***</td>
<td>.32</td>
</tr>
<tr>
<td>SV2: Impulse Control</td>
<td>-.03</td>
<td>.01</td>
<td>6.74**</td>
<td>-.15</td>
</tr>
</tbody>
</table>

Note. $\Delta GML = .07\ (p < .001)$ for SV1, and $\Delta GML = .01\ (p < .01)$ for SV2.

*p < .05.  **p < .01.  ***p < .001.
In order to investigate this question, the historical variables Criminal History and Age of Onset were forced into the regression equation as the first step of a hierarchical regression. The second step allowed for the forward selection of measures that added to the predictive capacity of the two historical variables. Measures that were included in the potential predictor set were all five of the antisocial measures, I.Q., Self-esteem, and Impulse Control. The summary of the results of these analyses are presented in Table 17. With the exception of Violent Adult Recidivism, which was not predicted from this set of variables, an additional variable significantly added to Criminal History and Age of Onset in each and every case. With regard to the continuous recidivism measures, the SSQ significantly added to the capacity of the historical control variables to predict General Conviction Density, \( \Delta F(1, 154) = 8.80, p < .01 \), and Value Orientation significantly added to the predictive power for Adult Conviction Density, \( \Delta F(1, 154) = 4.50, p < .05 \). These results are exactly as predicted from the preceding analyses conducted to test Hypothesis #2.

With regard to the dichotomous recidivism measures, Impulse Control significantly added to the predictive capacity of the control variables for Serious Recidivism, \( \Delta \chi^2(1, N = 155) = 7.63, p < .01 \). Moreover, the SSQ was the "runner-up" for inclusion into the equation following Impulse Control, Score = 5.10, \( p < .05 \), \( \hat{R} = .16 \), compared to Score = 7.40, \( p < .01 \), \( \hat{R} = .18 \) for Impulse Control. In fact, if Impulse Control is replaced by the SSQ in the predictor set, the corresponding drop in the log likelihood is not significant, \( \chi^2(1, N = 155) = 2.30 \). Again, this result replicates those presented in the previous sections.
Table 17

Part A: Summary of the Hierarchical Linear Regression Analyses to Determine Whether or not Testing is Necessary to Predict Recidivism

<table>
<thead>
<tr>
<th>Selected Variables</th>
<th>B</th>
<th>SE</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Conviction Density (N = 155):</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV1: Historical Conviction Density</td>
<td>0.67</td>
<td>0.24</td>
<td>0.25**</td>
</tr>
<tr>
<td>Age of Onset</td>
<td>-0.30</td>
<td>0.50</td>
<td>-0.05</td>
</tr>
<tr>
<td>SV2: &quot;Street Self&quot;</td>
<td>0.13</td>
<td>0.05</td>
<td>0.23**</td>
</tr>
<tr>
<td><strong>Adult Conviction Density (N = 120):</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV1: Historical Conviction Density</td>
<td>0.65</td>
<td>0.16</td>
<td>0.39***</td>
</tr>
<tr>
<td>Age of Onset</td>
<td>-0.07</td>
<td>0.32</td>
<td>-0.02</td>
</tr>
<tr>
<td>SV2: Value Orientation</td>
<td>0.08</td>
<td>0.04</td>
<td>0.18*</td>
</tr>
</tbody>
</table>

Note. For General Conviction Density: \( R^2 = .12 \) (\( p < .001 \)), Adj. \( R^2 = .11 \) for SV1, and \( \Delta R^2 = .05 \) (\( p < .01 \)), Adj. \( R^2 = .04 \) for SV2. For Adult Conviction Density: \( R^2 = .18 \) (\( p < .001 \)), Adj. \( R^2 = .17 \) for SV1, and \( \Delta R^2 = .03 \) (\( p < .05 \)), Adj. \( R^2 = .02 \) for SV2. *\( p < .05 \). **\( p < .01 \). ***\( p < .001 \).
Table 17 continued

Part B: Summary of the Hierarchical Logistic Regression Analyses to Determine Whether or not Testing is Necessary to Predict Recidivism

<table>
<thead>
<tr>
<th>Selected Variables</th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>$\hat{r}$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Serious Sentence (Gen.) (N = 155):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV1: Historical Conviction Density</td>
<td>.57</td>
<td>.14</td>
<td>16.04***</td>
<td>.31</td>
</tr>
<tr>
<td>Age of Onset</td>
<td>-.18</td>
<td>.18</td>
<td>1.02</td>
<td>.00</td>
</tr>
<tr>
<td>SV2: Impulse Control</td>
<td>.03</td>
<td>.01</td>
<td>7.04**</td>
<td>-.17</td>
</tr>
<tr>
<td><strong>Violent Recidivism (Gen.) (N = 155):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV1: Historical Violent Convictions</td>
<td>-.30</td>
<td>.17</td>
<td>2.99</td>
<td>-.07</td>
</tr>
<tr>
<td>Age of Onset</td>
<td>-.30</td>
<td>.14</td>
<td>4.46*</td>
<td>-.11</td>
</tr>
<tr>
<td>SV2: Social Maladjustment</td>
<td>.02</td>
<td>.01</td>
<td>5.62*</td>
<td>.13</td>
</tr>
<tr>
<td><strong>Contact with Adult System (N = 120):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SV1: Historical Conviction Density</td>
<td>.31</td>
<td>.13</td>
<td>5.78*</td>
<td>.16</td>
</tr>
<tr>
<td>Age of Onset</td>
<td>.09</td>
<td>.18</td>
<td>0.24</td>
<td>.00</td>
</tr>
<tr>
<td>Antisocial Tendencies</td>
<td>.02</td>
<td>.01</td>
<td>3.78*</td>
<td>.11</td>
</tr>
</tbody>
</table>

*Note. For Serious Sentence (Gen.): $\Delta GML = .07 \ (p < .001)$ for SV1, and $\Delta GML = .02 \ (p < .01)$ for SV2. For Violent Recidivism (Gen.): $\Delta GML = .01 \ (p < .05)$ for SV1, and $\Delta GML = .01 \ (p < .01)$ for SV2. For (Future) Contact with the Adult System: $\Delta GML = .03 \ (p < .01)$ for SV1, and $\Delta GML = .01 \ (p < .05)$ for SV2.

*p < .05. **p < .01. ***p < .001.
Similarly, Antisocial Tendencies significantly improved prediction over the control variables for Continuance into the Adult Correctional System, 
$\Delta \chi^2(1, N = 120) = 3.90, p < .05$. This result confirms the trend observed in the Hypothesis #2 analyses. The measure chosen in the earlier analysis (that did consider the control variables) was the SSQ. In fact, the SSQ is the "runner up" for inclusion in the regression equation, Score = 3.30, $p < .05$, $\hat{R} = .10$, compared to Score = 3.90, $p < .05$, $\hat{R} = .12$ for Impulse Control. Again, if Antisocial Tendencies is artificially replaced by the SSQ in the regression equation, the corresponding drop in the log likelihood is nonsignificant, $\chi^2(1, N = 120) = 0.05$. These results suggest that the SSQ could be used in the prediction of both Serious Recidivism and Future Adult Contact without a significant reduction in predictive power.

The only significant shift in results from those reported for the Hypothesis 2 analyses occurred for the prediction of Violent General Recidivism. In this instance, Social Maladjustment was the variable chosen to significantly add to the historical variables in the regression equation, $\Delta \chi^2(1, N = 155) = 5.90, p < .01$. The measure chosen in the earlier analysis (that did not force Age of Onset into the equation) was the Antisocial Tendencies Measure. In fact, the Antisocial Tendencies measure is the "runner up" for inclusion in the regression equation, Score = 4.30, $p < .05$, $\hat{R} = .11$, compared to Score = 5.80, $p < .05$, $\hat{R} = .14$ for Value Orientation. However, artificially exchanging Antisocial Tendencies with Social Maladjustment in the regression equation does significantly decrease the log likelihood, $\chi^2(1, N = 155) = 4.47, p < .05$. This finding indicates that Violent Recidivism may be the only dependent variable for which Age of Onset does make a significant difference when it is included. This
hypothesis is supported by the fact that Violent Recidivism is the only dependent variable for which Age of Onset achieves significance as a predictor when it is forced into the equation, \( \text{Wald}(154) = 4.46, p < .05 \).

**D. Exploratory Analyses of the T2 Data**

**Comparison to the Initial Sample**

As noted in the description of the participants, the T1 and T2 data samples are quite similar with regard to basic demographic information. In addition, there were no significant differences between groups with regard to self-esteem or to any of the Offer Self-Image Questionnaire (OSIQ) subscales, indicating that both groups provided similar ratings for each level of self-concept measured by the OSIQ (see Connors, 1992 for a full description of the OSIQ profile for a subgroup of the T1 participants).

In contrast, there were significant differences between groups for eight of the eleven Jesness subscales. The T2 sample scored higher than the initial sample on both the Social Maladjustment subscale, \( t(250) = -3.77, p < .001 \), and the Asocial Index, \( t(232) = -6.70, p < .001 \); and the T2 sample scored lower than the initial sample on the following subscales: (1) Value Orientation, \( t(250) = 1.97, p < .05 \); (2) Immaturity, \( t(250) = 2.17, p < .05 \); (3) Autism, \( t(250) = 2.00, p < .05 \); (4) Alienation, \( t(128) = 2.78, p < .01 \); and (5) Withdrawal-Depression, \( t(250) = 2.60, p < .01 \).

These results suggest that although the T2 sample is less adept at getting their needs met in socially acceptable ways, they are also less alienated from society, less oriented toward lower SES values, less immature, less inclined to distort reality to fit
with personal needs and desires, and less isolated from others. Overall, this suggests that the T2 sample may be somewhat less disconnected from people and the world around them than the initial sample appeared, but they are by no means less disregardful of societal convention and rules in getting their needs met. In other words, they may be less "disconnected" but they are no less "deviant".

In contrast to the significant differences between groups with regard to the "antisocial orientation" subscales of the Jesness, the two groups did not differ significantly on scores for the SSQ. Both groups produced a mean score of approximately 73, \( t(295) = -0.19, p = .85 \). The stability of the SSQ among groups of inmates increases the validity for generalizing from the T2 sample to the initial sample with regard to the results of the following analyses.

**Properties of the New Variables**

The T2 sample demonstrated mean scores of 9.66 (SD = 8.40) on the MAST and 9.15 (SD = 5.18) on the DAST. Both of these scores exceed the cutoffs thought to be suggestive of significant substance abuse problems. As for the Friendship Questionnaire, out of a possible score of 100, this sample scored an average of 70.72 (SD = 9.75).

**Investigation of the Tentative Hypotheses**
Hypothesis #1(T2): Extent of substance abuse is expected to correlate positively with the SSQ and with the extent of antisocial peer relationships (all measured at T2).

The SSQ measure did not demonstrate a significant relationship with either alcohol use \((r = .09)\) or illicit drug use \((r = .11)\). Therefore, the first half of Hypothesis #1(T2) is not supported. With regard to the other measures of antisocial orientation utilized in this investigation, the Alienation subscale of the Jesness Personality Inventory is the only subscale that demonstrated a similarly nonsignificant relationship with the substance use measures \((r = .10, \text{and } r = .08, \text{respectively})\). However, the Social Maladjustment \((r = .30, p < .01; r = .22, p < .05)\), Value Orientation \((r = .29, p < .01, r = .20; p < .05)\), and Asocial Index \((r = .23, p < .05; r = .29, p < .01)\) subscales of the Jesness Personality Inventory demonstrated a significant relationship with both forms of substance use. This suggests that these subscales measure a dimension that overlaps with substance use, whereas neither the SSQ nor the Alienation subscales have this measurement overlap.\(^{35}\)

The extent of deviant peer relationships (as indicated by total scores on the Friendship Questionnaire) correlated significantly with alcohol use \((r = .21, p < .05)\) and with illicit drug use \((r = .27, p < .01)\). These results support the second half of Hypothesis #1(T2).

\(^{35}\) Unfortunately, these relationships cannot be compared to those for the Carlson Personality Inventory, as this measure was not included in the T2 test package.
Hypothesis #2(T2): Extent of antisocial peer relationships is expected to correlate positively with the SSQ.

The total score for the Friendship Questionnaire (FQ) demonstrated a strong and positive relationship with the SSQ ($r = .63$, $p < .001$), supporting Hypothesis #2(T2). Given previous discussion of the extent to which the SSQ captures an impulsivity dimension, the relationship of the FQ to impulsivity was also investigated. As expected, the FQ was significantly negatively correlated with Impulse Control at a moderate magnitude ($r = -.38$, $p < .001$). This result indicates that as impulse control improves, the extent of involvement with deviant peers decreases.

The FQ is also significantly and positively correlated with the Jesness subscales reflective of an antisocial orientation, but none achieve the magnitude of the correlation between the FQ and the SSQ. The FQ demonstrated a significant relationship with Social Maladjustment ($r = .37$, $p < .001$), Value Orientation ($r = .40$, $p < .001$), Alienation ($r = .21$, $p < .05$), and the Asocial Index ($r = .31$, $p < .01$).

Conclusion

The SSQ is strongly correlated with the FQ while remaining unconfounded with measures of substance use. In contrast, the antisocial subscales of the Jesness Inventory do not demonstrate such a clear separation in relationship to the two measures.
DISCUSSION

This investigation firmly established that indicators of antisocial inclination significantly add to the capacity of historical variables to predict various aspects of recidivism in a sample of incarcerated young offenders. This finding is in agreement with the existing recidivism literature for both young offenders (e.g., Hoge, Andrews, & Leschied, 1994; Shields & Whitehall, 1994) and adult criminals (e.g., Andrews & Bonta, 1994; Gendreau, 1996). A unique contribution of the current investigation has been the ability to compare the effectiveness of different antisocial orientation measures as predictors of adolescent recidivism. Moreover, the assurance with which these measures are compared is increased by the use of several recidivism indices. Hawkins et al. (1977) recommended that one generalize across different measures of recidivism in order to choose a good predictor set (i.e., if a variable is a strong predictor for many different aspects of recidivism, then one can be more secure that it is an actual predictor, versus an artifact of measurement).36

Attitudes versus Actions

Results of the various multiple regressions conducted in the current study revealed two measures as consistent and robust predictors of most aspects of recidivism (i.e., those that were consistently chosen as significant predictors, or that were consistently "runner-up" for entry into the regression equations). In essence,

36. This approach also reduces reliance on the interpretation of beta scores. Some of the independent variables in this study are correlated with each other, in particular the SSQ with the Carlson subscale of Antisocial Tendencies, and the Jesness subscales of Social Maladjustment with the Asocial Index (see Appendix J). Therefore, it would be extremely unlikely for a participant to demonstrate changes in one of the measures without also demonstrating changes in the related variable. This interdependence means that the betas cannot be directly translated into weights for future prediction with any certainty (Cohen, 1990; Huberty, 1984). However, the approach advocated by Hawkins et al. (1977) obviates the need for direct translation of weights, as it focuses on the general identification of predictors as opposed to the creation of a mathematical equation.
these measures, namely the SSQ and Antisocial Tendencies scale from the CPS, augment official measures of criminal activity by measuring past activities that are associated with a criminal lifestyle and orientation (without inquiring about criminal acts per se). Given the robustness of criminal history as a predictor, it is not surprising that these "historical" measures would also be significant predictors. However, it is interesting that these measures add to the predictive capacity of official criminal history, suggesting that the SSQ and the Antisocial Tendencies scale measure a dimension that is separable from past (official) criminal behaviour. This finding suggests that in order to predict what an inmate may do in the future, it is important to take a wider range of his prior behavioral habits into account beyond a simple recording of past criminal acts. Moreover, the current results demonstrated that a mere measure of impulsivity is not sufficient to capture this "wider dimension" of antisocially oriented activity that is related to recidivism.

As indices of antisocially-oriented activities, both the SSQ and the Carlson subscale of Antisocial Tendencies can be considered behavioural in nature. Therefore, the results of the current research demonstrate that behavioral measures of antisocial inclination outperform attitudinal measures in the prediction of young offender recidivism. This finding is consistent with research that demonstrates Factor 2 of the Psychopathy Checklist (PCL) to be superior to Factor 1 of the PCL for the prediction of adult recidivism (Hart, 1994; Hart, Kropp, & Hare, 1988). Factor 2 is the behavioural component of the PCL, reflecting a chronically impulsive and antisocial lifestyle, whereas Factor 1 is the attitudinal component, reflecting callousness and contempt.
toward others. In both the Hart studies and the current investigation, the behavioural index of antisocial orientation was the superior recidivism predictor.37

One explanation for the finding that attitudinal measures are not as useful as behavioural or "activity" measures of antisocial inclination for predicting recidivism can be derived from Erikson's theory of ego identity. The ego is the structure that mediates between internal needs and the demands of the external environment, and therefore is directly responsible for our actual behaviours. It may be that the SSQ and the Antisocial Tendencies subscale are reflecting the results of this mediational process, whereas the attitudinal measures are reflecting the attitudinal needs that the ego mediates in order to produce behaviour. Consequently, the estimate of the mediational process would naturally demonstrate a closer relationship with future criminal behaviour, which is also a result of the mediational processes, as it more closely approximates the criterion. In other words, actions predict actions.

This supposition may be extended to the finding that Density of Adult Convictions was the only recidivism measure for which an attitudinal measure, Value Orientation, was consistently found to be a significant predictor. It is possible that this result reflects the fact that the mediational process of adolescent inmates is still developing, whereas the underlying attitudes have already been established. Therefore, future behaviour is predicted best by the construct that is the most stable. It may be the underlying attitudinal consistency, as opposed to the behavioural habit, that results in the persistence of criminal activity into adulthood. However, due to the

37. No further assumptions are made regarding the potential similarities between the SSQ or Antisocial Tendencies subscale and Factor 1 of the PCL. The SSQ was designed to estimate the inculcation of a criminal identity; it does not purport to measure the construct of psychopathy.
mediational process, the attitudinal measures will not predict immediate behaviour as well as do the "activity" measures. The implication of both the theory and the findings is that intervention must occur early in order to circumvent continuing criminality in young offenders.

Having established the potential role of "activity" (behavioural) versus attitudinal predictors, it is important to note that whereas both of the behavioural measures performed consistently as predictors, the Value Orientation scale is the only attitudinal measure that demonstrated any consistency across analyses as a predictor of recidivism. The other Jesness subscales did not perform as well. In particular, the Asocial Index, although developed as a predictive measure, did not perform as well as the subscales that comprise it. Two possible explanations for this result are: (1) the other more "psychological" subscales included in this index may actually lower its predictive power; and/or (2) the Asocial Index loses predictive power due to the heavy weighting assigned to the subscale of Social Maladjustment, which did not demonstrate usefulness as a recidivism predictor. Regardless of the explanation, the lack of predictive power of the Asocial Index has direct implications for young offender assessment practices which, at least locally, rely heavily on the interpretation of Asocial Index elevations.

The Neutralization of I.Q. and Age of Onset

Erikson's theory can also be applied to the following result: Whereas the literature review revealed both I.Q. and Age of Onset of criminal activity to be strong predictors of recidivism, the current investigation did not. An explanation for this discrepancy may be found in the age-old caveat associated with the interpretation of
multiple regression results: a variable can only be interpreted as "important" or clinically significant within the context of the other variables that were included in the analyses (e.g., Benda, 1987; Huberty, 1984).

The current investigation considered the predictive significance of I.Q. and Age of Onset within the context of measures of antisocial inclination, whereas the majority of the studies reviewed in the Introduction did not. As proposed in the Introduction, it may be that measures of I.Q. and Age of Onset indirectly estimate the likelihood of a "criminal identity", and thus tap the same construct as the measures of antisocial orientation, but in a less efficient manner. Therefore, the inclusion of antisocial inclination measures in the regression equation may have had the effect of neutralizing the predictive significance of I.Q. and age of onset of criminal behaviour.

Closer inspection of the studies discussed in the literature review reveals some support for this theory of "neutralization". Spellacy and Brown's (1984) work represents the only young offender recidivism study reviewed by this author that included both a measure of antisocial tendencies (from the California Test of Personality) and the Weschler I.Q. in their pool of possible recidivism predictors. As was found in the current study, when both of the variables were considered only antisocial tendencies gained significance as a predictor whereas I.Q. did not. However, in contrast to what would be expected if I.Q. and measures of antisocial inclination were tapping the same dimension, Weschler I.Q. was not correlated with any of the antisocial orientation measures included in the current investigation. Overall, it would appear that this theory, although plausible, receives less support than does its counterpart discussed below.
The fact that measures of antisocial orientation appear to have neutralized the predictive capacity of Age of Onset of criminal activity can be interpreted as supporting the theory that the two variables are tapping aspects of the same dimension, namely criminal self-concept. Earlier criminal activity indicates earlier contact with both the correctional system, which increases criminal status, and with other young offenders whom provide reinforcement for both the criminal acts and rising criminal status. Moreover, younger adolescents may be more vulnerable to the impact of this experience (e.g., Wells & Rarkin, 1983). As two Toronto lawyers stated:

Individuals facing criminal charges at an impressionable age may be in the process of being initiated into a life of crime. Significant terms of imprisonment can often ensure that a young person becomes a criminal. A number of recent criminological studies based on Canadian statistics indicate a positive relationship between length of imprisonment and recidivism. The training effect of imprisonment may be one reason for such a correlation. ... Correctional facilities for young offenders tend to regiment and discipline them without providing an environment for developing independence and individuality. Without these attributes, peer group pressure frequently inculcates criminal lifestyle at an impressionable age. (Kopyto & Codina, 1986, p. 8)

The results of the current study are consistent with Kopyto and Codina's view, namely that it is possible that earlier Age of Onset reflects greater inculcation of a criminal identity in the same manner that elevated scores on antisocial inclination scales do, albeit less directly. Therefore, the predictive significance of Age of Onset could be "neutralized" by the inclusion of antisocial measures in the possible pool of predictors. In fact, the research that has demonstrated Age of Onset as a significant recidivism predictor has not included measures of antisocial inclination as competing variables (e.g., Fendrich, 1991; Hansen et al., 1985; Moore, Parker, & Moore, 1984;
Wielson & Forehand, 1995). Again, Spellacy and Brown (1984) were the only researchers that included both a measure of antisocial tendencies and Age of Onset in the pool of possible recidivism predictors. As was found in the current study, antisocial tendencies significantly predicted recidivism whereas Age of Onset did not. Loeber (1985) found similar results in the prediction of self-reported delinquent behaviour.

Further evidence of an association between the Age of Onset and criminal self-concept is provided by the fact that Age of Onset is correlated with both the SSQ ($r = -.18, p < .01$) and the Antisocial Tendency subscale ($r = -.19, p < .01$). Moreover, the fact that Age of Onset only demonstrated a significant relationship with the two behavioural indices of antisocial orientation further reinforces the notion that there is a meaningful separation between the "activity" and the attitudinal measures of antisocial orientation in terms of the construct they reflect.

The current study directly demonstrated the neutralization of Age of Onset by the two-step regression in which Age of Onset was forced into the regression equation. A measure of antisocial inclination was always chosen to add to the predictive capacity of the regression equation, often with the result of rendering Age of Onset nonsignificant as a predictor. Moreover, in the only instance that Age of Onset retained significance as a predictor, there was a shift in the antisocial measure chosen from a behavioural to an attitudinal index. This finding further reinforces the notion of a connection between Age of Onset and "activity" measures of antisocial inclination. In sum, it appears that Age of Onset may be a less direct, and therefore less accurate, measurement of antisocial identification. Although this finding lends credence to the commonly accepted practice of using Age of Onset as a predictive measure,
particularly for younger offenders, it also shows that behaviourally oriented measures of antisocial inclination may be more appropriate, particularly in the prediction of recidivism.

**Nonviolent versus Violent Recidivism**

Violent General Recidivism was the only measure of recidivism for which Age of Onset gained significance as a predictor when forced into the regression equation. Otherwise, the predictor set for Violent Recidivism did not differ substantially from the predictor sets for the other measures of general recidivism (with the exception of Adult Conviction Density), in that all of them were predicted by one of the behavioural measures of antisocial inclination. This raises the important question of whether or not it is of practical utility to separate out violent reconvictions as a unique form of recidivism.

Although there is a great deal of literature on the prediction of dangerousness and violent behaviour (e.g., Cooper, 1994; Lattimore, Visher, & Linster, 1995; Monahan & Steadman, 1994; Otto, 1992; Palermo, Liska, Palermo, & Forno, 1991; Pollock, 1990; Webster, Harris, Rice, Cormier, & Quinsey, 1994), many authors have concluded that there is little point in classifying offenders into "types" (e.g., Gibbons, 1988; Gottfredson & Hirschi, 1990; Piper, 1985; Rojek & Erickson, 1982; Smith, Smith, & Jarjoura, 1986). Generally, such typologies tend to fail, perhaps because criminals tend to be quite versatile and to engage in diverse forms of criminal activity (e.g., criminals who commit violent offenses also commit property offenses).

Unfortunately, the literature on risk prediction has focused almost exclusively on adults. The young offender research has remained largely focused on the simple
differentiation between violent and nonviolent offenders (e.g., Cornell, 1990; Cornell & Wilson, 1992; Mezzich, 1990; Mezzich, Coffman, & Mezzich, 1991). However, consistent with the adult literature, the results of the present investigation do not offer evidence that the prediction of violent recidivism differs radically from that of general recidivistic behaviour in young offenders. It appears that "activity" oriented measures of antisocial inclination significantly predict both forms of recidivism in the current sample.

The fact that violent recidivism is the only form of recidivism for which Age of Onset had any predictive value suggests that there may be some subtle differences in the underlying cause of violent versus nonviolent criminal recidivism. Although this distinction could result in important theoretical differences in the explanation of the two forms of recidivistic behaviour, these differences in theory do not necessarily translate into separate predictor sets. However, this finding does have implications for programming. Specifically, it appears that early intervention programs may have particular value in arresting the development of chronic violent behaviour.

The "Street Self" Questionnaire (SSQ)

Not only have the findings of the current research clearly supported the usefulness of measures of antisocial orientation in predicting recidivism, but in addition, they have consistently pointed to the SSQ as a significant recidivism predictor. In fact, the SSQ outperforms the other established measures of antisocial tendencies, in

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38. One difference that was observed in the prediction of nonviolent versus violent recidivism was that although the continuous measure of past criminal conviction density was a significant predictor for all nonviolent indices of recidivism, the dichotomous measure of past violent convictions did not gain significance as a predictor. However, given the superiority of the continuous measure in comparison to the dichotomous measure, and the relatively lower base rate of violent offending, it is quite possible that this result is simply an artifact of measurement. Given the confound of measurement error, no conclusions were made regarding this finding.
particular the Jesness subscales, in the prediction of certain forms of recidivism.

Furthermore, the results of the exploratory analyses indicate that the SSQ captures a slightly different construct than the Jesness subscales. In sum, these findings establish that, compared to the Jesness subscales, the SSQ was: (1) more stable across inmate groupings; (2) unconfounded by substance abuse; and (3) more reflective of delinquent peer involvement. Together, these findings suggest that the SSQ may be a more "pure" measure of criminal self-concept than the Jesness subscales.

In addition, these results provide further evidence as to why the SSQ is a more robust predictor of recidivism than the Jesness subscales. Table 3 shows that substance abuse has not been found to be a significant predictor of young offender recidivism. In contrast, Table 1 shows that relationships with delinquent peers has demonstrated a strong relationship with young offender recidivism. Therefore, the SSQ incorporates a dimension that is strongly related to recidivism, while remaining separate from the measurement of a construct that is unrelated to recidivism. Hence, it is unsurprising that the SSQ would be a strong recidivism predictor.

The SSQ incorporates an estimate of association with criminal associates with other "activity" oriented indications of antisocial inclination (e.g., committing crime for the "thrill of it"). These factors are what Andrews and Bonta (1994) have referred to as criminogenic needs (i.e., variables that are directly associated with recidivism). These authors referred to criminogenic needs as dynamic predictors, given that "attitudes, values and beliefs are highly personal cognitive-affective variables with relatively great potential for change" (p. 42). As such, Andrews and Bonta have targeted indications of
both antisocial attitudes and criminal associations as the top two foci of correctional and rehabilitative programming.

It would appear that the SSQ has potential as a screening device for young offender programming, given the following findings: (1) the SSQ was consistently chosen as a significant recidivism predictor; (2) the SSQ was highly correlated with the extent of criminal associations, a recidivism correlate with potential for change, while remaining unconfounded by substance use; and (3) the SSQ is a relatively brief instrument to complete (i.e., five minutes), compared to the more commonly used Jesness and Carlson inventories (i.e., twenty minutes).

**The Self-concept/Self-esteem Interaction**

This investigation has also provided some information regarding self-esteem and its interaction with the criminal self-concept in the prediction of recidivism. The results of the exploratory analyses have indicated that there is an interaction between the SSQ and self-esteem but only in the prediction of General Conviction Density.\(^{39}\) Moreover, only the self-esteem and interaction components were significant predictors, indicating that the adoption of a criminal self-concept is not as important in predicting recidivism as is self-esteem and its interaction with the criminal self-concept. This finding replicates those reported by both Culbertson (1975) and Wormith (1984). Essentially, both studies suggest that a criminal self-concept functions differently for someone who feels good about oneself while incarcerated (which probably indicates the presence of

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\(^{39}\) Again, the fact that the interaction term only gained significance in the prediction of General Conviction Density may be an artifact of the fact that General Conviction Density is the "biggest target" of the recidivism measures. General Conviction Density can be thought of as the "true" recidivism measure from which all of the other recidivism measures are derived. Measurements that contain part information reduce the probability of observing significant results.
certain personality characteristics that are necessary to "succeed" in this kind of environment) compared to someone who feels poorly about oneself while incarcerated.

It is possible that this interaction is related to the construct of psychopathy. One may hypothesize that a psychopath, whom by definition is callous and lacking in empathy, has less difficulty feeling good about himself while incarcerated, and has fewer barriers to the internalization of a criminal identity, than the average inmate does. Clearly further investigation of this relationship is warranted, particularly given the successful use of the PCL for predicting recidivism in adults.

Only 19% of the inmates in the current study reported having comparatively low self-esteem, replicating earlier findings that rather few inmates feel quite poorly about themselves while incarcerated (e.g., Gold & Mann, 1972). Therefore, it may be that this minority represents a subgroup of inmates whom have different needs, and thus must be given special consideration for classification and programming. Again, further investigation is required to address these speculations. At this point the evidence allows the conclusion that measures of antisocial orientation are more accurate recidivism predictors for inmates with high self-esteem, but the results do not allow conclusions about why this may be so, or how the low self-esteem inmate differs from the high self-esteem inmate in terms of recidivism prediction.

Limitations of the Current Investigation

The two main limitations of the current investigation concern the follow-up period and issues of generalizability. A longer follow-up period would have allowed a greater period of time "at risk" for recidivism into the adult system. Although the current study followed the participants for an average of two years into adulthood, when time
incarcerated was controlled for, the amount of time that most participants were "at risk" for adult recidivism decreased to six months. A more extensive follow-up period is preferable, particularly for capturing lower base-rate behaviours such as violent crime. Andrews, Wormith, & Kiessling (1985) demonstrated that shorter follow-up periods result in a decreased capacity to detect predictors. This may explain why none of the variables achieved significance as predictors for Violent Adult Recidivism.

There are several limits to the generalizability of the current results that must be noted. First, this investigation was specifically restricted to the prediction of the type of offending that results in a reconviction. Although some authors have noted that predictors are similar for both official reports and self-reports of criminal activity (e.g., Andrews & Bonta, 1994), other authors have suggested that these dependent variables measure slightly different constructs (e.g., Davidson et al, 1987; Smith, Smith, & Noma, 1986). Therefore, caution must be used in generalizing from the results of this study to the prediction of continued nonofficial delinquent behaviour. Similarly, Smith, Fisher, and Jarjoura (1991) demonstrated that the factors related to the persistence of criminal activity differ somewhat from those related to either the initial onset or continued frequency of self-reported delinquent activity. Therefore, as this investigation looked at the persistence of criminal activity, its results cannot be generalized to either the onset or frequency of offending.

As a final note, Wormith & Goldstone (1984) recommend that any prediction system should be re-evaluated every two years as a matter of course to compensate for any shifts in the process of adjudication. Therefore, it must be acknowledged that the results of this study are affected by the political climate and resulting (inmate)
processing practices operating in British Columbia at the current time. For example, there is currently an increased focus on the incarceration of young offenders as opposed to the treatment and diversion of young offenders from the correctional system (e.g., Corrado & Markwart, 1988; Markwart, 1992). It is likely that future shifts in that climate may yield somewhat different results.

**Recidivism Rate**

It is possible that the political climate in B.C. regarding young offenders has contributed to the rather alarming finding of a recidivism rate of 90% for the participants in the current sample. This high rate is surprising, distressing, and far above that cited by other researchers. The most common recidivism rate noted in the research for both Canadian and American young offenders is between 50% and 60% (e.g., Brenda, 1987; Brown et al, 1990; Gendreau et al., 1979; Grenier & Roundtree, 1987; Leudger & Cadman, 1982; McGurk, McEwan, & McEwan, 1984; Molinelli et al., 1986; Wormith, 1984). However, it is quite possible that these other recidivism rates are underestimates of eventual recidivism, given that the follow-up periods of the studies cited above range from between one to two years post-release. This hypothesis gains some support from the finding that the two studies that instituted three year follow-up periods (as did the current study) found recidivism rates in the 70% range (McGurk, McEwan, & McEwan, 1983; Wormith, 1984).

Ninety percent recidivism is still substantively greater than recidivism in the 70% range. Unfortunately, the researchers cited above did not compute an estimate of time at risk when time incarcerated in the recidivism period is controlled for. Therefore, it is impossible to tell whether or not the current sample of inmates simply had more time "on the street" in which they were at risk to commit crimes. On the other hand, it may
be that the extreme reconviction rate observed in the current study was a byproduct of the age range spanned by the follow-up period (16.6 years to 19.9 years). It is a commonly noted fact that arrest rates for young males tend to peak around age 19 years (e.g., Tanner, 1996). The two studies cited as having three year follow-up periods began their studies with slightly older participants (18.4 years, and 20.8 years respectively). Therefore, it may be that the participants included in these two studies had passed their "peak" in criminal offending prior to the follow-up period. Both of these explanations open the possibility that the current study has uncovered a rate of recidivism that is not uncommon for inmates of this age, but that other studies have failed to detect due to participant age and shorter follow-up periods.

Another possibility is that B.C. simply convicts young offenders with greater frequency than do other provinces and states, which may make greater use of diversion and treatment options. A fourth possible explanation for the high rate of recidivism found in the current sample is that, due to classification practices, young offenders incarcerated at BYSCC and BYOCC represent a select group of high frequency reoffenders. This theory is not without grounds, given that BYSCC and BYOCC are the two highest security young offender facilities in the lower mainland of British Columbia. Thus, given that the "true" reason for the alarmingly high rate of recidivism is unclear, some caution should be used when generalizing the current results to young offenders incarcerated at other, less secure facilities.

Predictive Capacity

The predictive power for the regression equation when only density of past convictions, antisocial orientation, and self-esteem are considered is substantial (effect
size of .33 for General Conviction Density; and effect size of .37 for Adult Conviction Density). This finding is commensurate with the effect sizes reported in both the Canadian and the American young offender recidivism research (Gendreau, Gendreau, & Leipciger, 1979; Hansen et al., 1985; Nairhos & Routh, 1992; Weilson & Forehand, 1995). Moreover, the current regression equations contain few variables, therefore, the Adjusted $R^2$ is almost as robust as the unadjusted $R^2$ (see Table 16). As most of the studies reviewed by this author did not report the Adjusted $R^2$, and also included more variables, it is difficult to truly compare amongst studies.

Tolan and Lorion (1988) noted a dissatisfaction with reports of significant predictors which account for less than 15% of the variance of recidivism. Both the current study and the studies cited above have accounted for approximately 25% of the variance of recidivism. Although, this proportion is sufficient to produce a large effect size, it still leaves a great deal of variance unaccounted for. Therefore, although the variables in this study have performed as well as those cited in the literature, it appears that there is still room for improvement. The importance of continuing to investigate the complex phenomenon of young offender recidivism, and to improve our knowledge regarding prediction, is highlighted by the 90% recidivism rate uncovered in the current investigation.

**Summary and Implications**

In conclusion, the results of the current research have many implications for young offender assessment and programming practices, most of which have already been referred to. With regard to assessment practices, it appears that "activity" or behavioural indices of antisocial inclination may be more appropriate for predicting
recidivism in young offenders than are attitudinal measures. In particular, reliance on the Jesness Asocial Index as indicative of future criminal behaviour is not supported, nor is the reliance on simple measures of impulse control. In addition, the focus on Age of Onset as an important predictor is not supported, whereas the evidence shows that a continual measure of criminal history is a strong predictor for more "active" young offenders, such as those incarcerated at BYSCC and BYOCC.

Finally, the two most successful predictors of recidivism, the SSQ and the Antisocial Tendencies scale, are substantially face valid measures. This finding suggests that greater reliance may be placed on the self-reports of this population than is commonly believed. Although it is possible that the usefulness of these instruments was enhanced by the assurance of confidentiality, this sample of young offenders often voiced suspicions regarding the extent to which confidentiality could and would be maintained, suggesting that the assurance may have influenced their responses far less than it was designed to.

The sheer magnitude of young offender recidivism uncovered in this investigation clearly indicates that programming targeted at recidivism reduction is a priority, if young offenders are to be effectively deterred from continuing on into an adult criminal career. Given the entrenched nature of criminality apparent in the current sample of 16 year old offenders, it is clear that intervention must begin early. The findings with regard to the prediction of Violent Recidivism suggest that early intervention may be particularly important in the deterrence of this specific form of offending.
Moreover, it is evident that relying on the "shock value" or punitiveness of incarceration at BYSCC as a deterrent to crime is ultimately unsuccessful. Thus, the results of the current investigation indirectly support the assertions of previous researchers that community based programming has the greatest potential for reducing crime rates (e.g., Andrews & Bonta, 1994; Garret, 1985; Lab & Whitehead, 1988; Whitehead & Lab, 1989). Community based programming allows for more individualized intervention, such as may be required for young offenders who exhibit low self-esteem. Finally, screening for entry into a community program would be essential in order to identify those inmates who are appropriate for the goals of treatment (e.g., Andrews & Bonta, 1994). The SSQ shows great promise as such a screening tool.

In conclusion, the results of the current study suggest that the increasingly restrictive judicial and correctional measures that have been taken toward young offenders in British Columbia have been ineffective in deterring recidivistic crime. In order to increase public safety, these measures must be re-evaluated and replaced with approaches that have been empirically supported, such as those outlined above (see Leschied, Jaffe, Andrews, & Gendreau, 1992; Shamsie, 1981; VanVoorhis, 1987).
References


Illustrated substantively with the hypothesized (“synergistic”) relation between


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APPENDIX A

Environmental Settings

As data was collected from three correctional facilities that are similar in environment and routine, the description of correctional settings will be limited to a depiction of one closed-custody, and one open-custody institution.

**Burnaby Youth Secure Custody Centre (BYSCC)**

This is a high security correctional institution for young offenders aged 12 to 18 years. BYSCC has an average resident population of 80 adolescents, 10% to 15% of whom are female. Sentenced residents comprise only 35% of the total population; the remaining 65% are individuals on remand. Sentenced residents are individuals serving a court imposed sentence; remanded individuals are those awaiting their court hearing.

The institution consists of a single-story building, including a gymnasium and swimming pool, and two additional mobile units. Windows are barred and security is emphasized. There are 12 units within the institution, representing differing levels of structure. A less structured unit dictates greater personal responsibility of the residents. When residents are first admitted to the institution, they are often placed in a large secure unit. Based on behaviour displayed in this unit, residents are moved to units of higher or lower structure. Nondisruptive behaviour earns each resident points on a "level" system. Once a resident reaches a certain "level", he has earned the opportunity to be moved to a unit of lesser structure. However, high resident counts often thwart this incentive program.
Residents under the age of 16 years are required to attend school within the institution. Those over the age of 16 years have the option to attend. Recreational activities usually occur on a daily basis; although all of these are limited to the indoor facilities. Some crafts and quasi-therapeutic programs are available, such as "Art Therapy", but they have a limited number of spaces available to residents. Many residents, who do not avail themselves of these opportunities, spend a great deal of time in their units watching T.V..

Residents are woken up at 7:00 am to begin the daily routine. Breakfast is served at 8:00 am, followed by the commencement of programs at 8:30 am. Lunch is provided from 12:00 to 1:00 pm. Residents are confined to their cells from 2:30 to 3:30 pm during the staff shift change. Between the shift change and dinner at 5:00 pm, there are few programs offered. This is also true of the period between dinner and bed-time (6:00 to 9:00 pm). Residents do not always get outside every day. There is only one courtyard (paved), and residents are brought out one unit at a time to decrease the chances of an infraction.

The institution employs approximately 65 permanent staff members, and 30 full-time auxiliary employees. In addition, there are several contract employees who provide services such as: medical services, psychological services, pastoral counseling, alcohol and drug counseling, arts and crafts programs, native awareness, etc. Staff members are 50% male and 50% female. However, of those who work in the units to maintain order, the majority are male. The main goal of the staff that have direct contact with the residents is the maintenance of security.
Burnaby Youth Open-Custody Centre (BYOCC)

BYOCC is a medium security correctional facility designed to hold 23 sentenced young offenders. The daily count ranges from 16 to 35 individuals, approximately 20% of whom are female. BYOCC receives all of the young offenders from the lower mainland who are sentenced to open-custody. Individuals are subsequently classified and often sent on to other open-custody facilities. As a result, 75% of the individuals who are sent to BYOCC spend two weeks or less at the facility.

There are only two units at BYOCC, which are undifferentiated in terms of structure. Obtaining progressively higher "levels" at BYOCC is rewarded with increased access to community outings, rather than movement to units that are less structured. (Although school is not mandatory for individuals who are past the age of 15, attendance is required to reach the levels that allow community outings.) Individuals from both units are mixed for most activities, including outdoor team sports. (BYOCC has a large secure grassy field that is often utilized.)

The institution employs 23 full-time staff and 16 auxiliary employees that are utilized "as needed". Sixty percent of the employees are male. The services and programs that are offered at BYOCC are very similar to those offered at BYSCC. In fact, there is a great deal of communication between the two facilities as they are physically located "next door" to one-another.
APPENDIX B

CANADIAN RECIDIVISM INDEX
Gendreau & Leipciger (1978)

(0) - "Clean": No illegal activities of any kind recorded.

(1) - Reconvicted: Convicted of an offense for which a fine of $25.00 to $100.00 has been imposed.

(2) - Reconvicted: Convicted of an offense for which one of the following sentences has been imposed: (1) probation; (2) suspended sentence; and/or (3) fine exceeding $100.00.

(3) - Absconded: Arrested but not adjudicated as a result of absconding (includes Failure To Appear).

(4) - Parole Violation: Reincarceration due to parole violation (i.e., returned to serve balance of sentence); no further convictions. (Note: any convictions incurred that resulted in a sentence of incarceration whilst violating parole are included in the following sections.)

(5) - Reincarceration (Provincial): Convicted of an offense for which a provincial sentence of 90 days or less has been imposed (with or without a fine).

(6) - Reincarceration (Provincial): Convicted of an offense for which a provincial sentence of more than 90 days has been imposed (with or without a fine). (Note: provincial sentences do not exceed two years less one day.)

(7) - Reincarceration (Federal): Convicted of an offense for which a federal sentence has been imposed (in excess of two years).
Auxiliary Instruments

All of the instruments to be reviewed in this section have met acceptable standards for psychometric properties unless otherwise stated.

Offer Self-Image Questionnaire (OSIQ)

Offer, Ostrov & Howard (1982)

The OSIQ is a 124-question self-report measure designed to assess the self-image (self-concept) of adolescents between the ages of 13 and 19. The development of this instrument was based on the theory that self-image is multifaceted; "since the teenager can master one aspect of his world while failing to adjust in another" (Offer & Ostrov, 1981, p. 31). The test measures adjustment in 11 areas in order to reflect how each individual feels about him/her self in that area. Thus, this instrument reflects what has been referred to in this paper as aspects of self-concept.

The 11 areas of self-concept are organized into five categories: (1) Psychological Self - comprised of the following three scales: Impulse Control, Emotional Tone, and Body and Self-Image (scales 1, 2, and 3); (2) Social Self - comprised of the following three scales: Social Relationships, Morals, and Vocational and Educational Goals (scales 4, 5, and 9); (3) Sexual Self - comprised of scale 6, Sexual Attitudes; (4) Familial Self - comprised of scale 7, Family Relationships; and (5) Coping Self - comprised of scales 8, 10, and 11: Mastery of the External World, Psychopathology, and Superior Adjustment, respectively.
Items were chosen for these 11 areas on the basis of "theoretical propositions, clinical experience, and a review of empirical findings" (Offer & Ostrov, 1981). Approximately one half of the items are worded negatively, and intermixed with those worded positively. Each item must be responded to with a number from one to six (1 = "describes me very well"; 6 = "does not describe me at all"). Negatively worded items are reversed for scoring purposes, as higher standard scores represent a more positive self-image. The manual provides male and female norms for younger (13 to 15) and older (16 to 18) "normal" adolescents. A score of 50 (standard deviation = 15) signifies a score equal to the appropriate normal reference group mean. A score lower than the mean signifies adjustment that is below that of the "normal" reference group. Similarly, a score higher than the mean indicates adjustment that is better than that of "normals".

This questionnaire was first developed in 1967. Since that time, data has been collected from over 10,000 adolescents. Data includes large samples of high school ("normal") adolescents, adolescents from other cultures, and "deviant" adolescents. This last group includes those who were delinquent, psychiatrically disturbed, or physically ill at the time of testing. The latest revision of the manual was completed recently in 1992. It incorporates data from studies conducted over the last three decades using this instrument. Several studies demonstrating strong validity data are cited in the manual. For example Offer, Ostov, and Howard (1977) demonstrated that the OSIQ reliably differentiates among "normal", delinquent, and emotionally disturbed

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28. The Revised version of the Offer Self-Image Questionnaire was published in September of 1992 by Offer, Ostrov, Howard, and Dolan. However, as the original OSIQ was the only version available at the time of the initial testing session, it has been maintained in the T2 assessment package for comparison purposes.
adolescents. As well, individuals who are classified in one of these three categories are reliably reclassified in the same category over an eight year period.

There are only two factors that present cause for concern. The first presents itself in the recent data concerning scale 6: Sexual Attitudes (Offer, Ostrov, & Howard, 1992). Findings suggest that this scale has a curvilinear relationship with adjustment rather than a linear relationship. This has an impact on the interpretation of scale scores. Both low and high scores in Sexual Attitudes can indicate poor adjustment.

Reports of the internal consistency of the scales also warrants some attention (ranging from .48 to .84). Martin (1988) in a review of the OSIQ concluded that the scales are not made up of homogeneous sets of items. However, this does not negate the usefulness of the OSIQ, merely indicating caution in the interpretation of scale scores. Hogan (1988) summed up his review of the OSIQ by stating "As a quick measure of personality to be used with normal teenaged populations, it is among the very best measures available" (p. 1080).

**Rosenberg Self-Esteem Questionnaire (RSEQ)**

Rosenberg (1979)

The RSEQ has been used extensively to explore the nature of self-esteem in young offenders. It is a ten-item Guttman scale designed to assess "general favorable or unfavorable global self-attitude" (Rosenberg, 1979, p. 292), in both adolescents and adults. Factor analysis supports the existence of a single dimension, referred to by Carmines and Zellers (1974) as positive self-esteem/negative self-esteem.
One half of the questions are worded negatively and intermixed with those worded positively. Subjects respond to each question by choosing one of four responses (strongly agree, agree, disagree, strongly disagree). Scores on this scale range up to a high of 7 points, with higher scores originally denoting lower self-esteem. However, for ease of interpretation, the RSIQ was reversed scored so that higher scores would reflect higher self-esteem. Reliability and validity data demonstrate this measurement to be psychometrically sound. For example, two-week test-retest reliability averages at \( r = .87 \) (Rosenberg, 1979).


These scales were developed for the purpose of assessing cognitive abilities in adults over 16 years (WAIS-R), and children between the ages of 6 and 16 (WISC-R). The Weschler scales are widely accepted as psychometrically sound measures of cognitive ability (e.g., Sattler, 1988).

For the purposes of this research, three subtests were administered:

**Vocabulary** - subjects must provide verbal definitions to a list of words provided both visually and orally; **Similarities** - each subject must indicate in what ways two items are alike (e.g., wheel and ball), items are presented both visually and orally; and **Block Design** - subjects are timed as they arrange blocks to replicate various designs presented visually. The first two subtests indicate the degree of verbal comprehension, verbal concept formation, and abstract thinking demonstrated by each subject. The
third subtest indicates the degree of perceptual organization, integrated brain functioning, and synthesis demonstrated by each individual.

All subtest scores were converted to scaled scores according to age group norms. Higher scaled scores indicate greater cognitive ability in that area. A scaled score of 10 indicates average performance. The first two subtests measure verbal ability and the third, performance ability. Vocabulary is the subtest most strongly correlated with "g" (general intelligence), and is the verbal subtest most strongly correlated with Verbal "I.Q." Similarly, Block Design is the performance subtest most strongly associated with Performance "I.Q.". These subtests were included in the larger study (of which this investigation grew from) to provide estimates of the specific abilities that each subtest measures.

The current study has utilized these subtest scores to estimate an I.Q. score for each subject using the formula provided by Sattler (1988). The validity coefficients of this particular three-subtest short-form is $r = .92$ for the WAIS-R and $r = .93$ for the WISC-R, suggesting that these three subtests can be used as valid estimators of I.Q. The literature contains many cautions not to use short-form I.Q.'s as the basis for clinical or psycho-educational classification purposes (e.g., Sattler, 1988). This author is in complete agreement with these arguments. In this investigation, the short-form I.Q. estimates were investigated for their strength as recidivism predictors as compared to other predictors, they were never used to classify, separate, or divide the subjects in any way.
APPENDIX D

THE "STREET SELF" QUESTIONNAIRE

NAME: ___________________________________ AGE: _________

For each of the following questions, please circle the one answer that best describes you.

1. Compared to your other friends, how good are you at doing crime?
   (R) excellent  good  average  not very good  poor

2. How many of your friends respect you because you do crime?
   (R) all  most  some  hardly any  none

3. When you are doing crime, how much of the time do you feel nervous?
   all of the time  most of the time  some of the time
   hardly any of the time  none of the time

4. When you are doing crime, how much of the time do you feel excited?
   all of the time  most of the time  some of the time
   hardly any of the time  none of the time

5. When you are with your friends, how much of your time is spent thinking about, talking about or doing crime?
   all of the time  most of the time  some of the time
   hardly any of the time  none of the time

6.a) How many of your friends (outside of YDC) would be considered (by police) to be delinquents or criminals?
   (R) all  most  some  hardly any  none

6.b) In your opinion, how many of your friends (outside of YDC) are delinquents or criminals?
   (R) all  most  some  hardly any  none

7. How many of your friends would still hang out with you if you stopped doing crime?
   all  most  some  hardly any  none

8. After doing time in jail, will your friends like you
   (R) a lot more  more  the same  less  a lot less

9. Do you think you deserve to be here for what you've done?
   totally  mostly  some  hardly at all  not at all

10. Do you consider yourself to be a delinquent?
    (R) totally  mostly  some  hardly at all  not at all

APPENDIX D - continued (Page 2 of SSQ)
Criminal Identity

11. How much time do you usually spend hanging out "on the street"?
    (R) all of the time  most of the time  some of the time
         hardly any of the time  none of the time

12. How would you rate your ability to live on the street?
    (R) excellent  good  average  not very good  poor

13. How much crime have you done compared to the other residents at the Youth Detention Center?
    (R) a lot more  more  the same  less  a lot less

14. How would you rate your ability to do O.K. at YDC:
    a) With the staff?
       excellent  good  average  not very good  poor
    b) With the other residents?
       excellent  good  average  not very good  poor

15. What are the chances that you will do crime in the future?
    (R) excellent  good  average  not very good  poor

16. What are the chances that you will do time as an adult?
    (R) excellent  good  average  not very good  poor

17. How many people think you are strong and tough?
    (R) all  most  some  hardly any  none

18. How much do you think you are responsible for where you are today?
    totally  mostly  some  hardly at all  not at all

19. How would you rate your "street smarts"?
    (R) excellent  good  average  not very good  poor

20. When you do crime, is it because you want
    a) To get "things"/cash?
       (R) totally  mostly  some  hardly at all  not at all
    b) To gain respect?
       (R) totally  mostly  some  hardly at all  not at all
    c) To fit in with others?
       (R) totally  mostly  some  hardly at all  not at all
    d) To feel the excitement?
       (R) totally  mostly  some  hardly at all  not at all

Note. (R) indicates reverse scoring
**APPENDIX E**

**Factor Analyses Results for the Street Self Questionnaire**

<table>
<thead>
<tr>
<th>SSQ Question</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FACTOR 1  CRIMINAL IDENTITY</strong></td>
<td></td>
</tr>
<tr>
<td>(R) 1. Compared to your other friends, how good are you at doing crime?</td>
<td>.72</td>
</tr>
<tr>
<td>(R) 6. How many of your friends (outside of YDC) would be considered (by police) to be delinquents or criminals?</td>
<td>.72</td>
</tr>
<tr>
<td>(R) 7. In your opinion, how many of your friends (outside of YDC) are delinquents or criminals?</td>
<td>.69</td>
</tr>
<tr>
<td>(R) 14. How much crime have you done compared to the other residents at the Youth Detention Center?</td>
<td>.65</td>
</tr>
<tr>
<td>(R) 22. When you do crime, is it because you want to get &quot;things&quot;/cash?</td>
<td>.59</td>
</tr>
<tr>
<td>(R) 4. When you are doing crime how much of the time do you feel excited?</td>
<td>.54</td>
</tr>
<tr>
<td>(R) 5. When you are with your friends, how much of your time is spent thinking about, talking about or doing crime?</td>
<td>.54</td>
</tr>
<tr>
<td>(R) 25. When you do crime, is it because you want to feel the excitement?</td>
<td>.51</td>
</tr>
<tr>
<td>3. When you are doing crime, how much of the time do you feel nervous?</td>
<td>(.48)</td>
</tr>
<tr>
<td><strong>FACTOR 2  PEER ACCEPTANCE</strong></td>
<td></td>
</tr>
<tr>
<td>(R) 23. When you do crime, is it because you want to gain respect?</td>
<td>.88</td>
</tr>
<tr>
<td>(R) 24. When you do crime, is it because you want to fit in with others?</td>
<td>.84</td>
</tr>
<tr>
<td>8. How many of your friends would still hang out with you if you stopped doing crime?</td>
<td>.60</td>
</tr>
<tr>
<td>(R) 2. How many of your friends respect you because you do crime?</td>
<td>(.40)</td>
</tr>
</tbody>
</table>
APPENDIX E - continued

Factor Analyses Results for the Street Self Questionnaire

<table>
<thead>
<tr>
<th>SSQ Question</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FACTOR 3  FUTURE CRIMINALITY</strong></td>
<td></td>
</tr>
<tr>
<td>(R)17. What are the chances that you will do crime in the future?</td>
<td>.84</td>
</tr>
<tr>
<td>(R)18. What are the chances that you will do time as an adult?</td>
<td>.82</td>
</tr>
<tr>
<td>(R)12. How much time do you usually spend hanging out &quot;on the street&quot;?</td>
<td>.50</td>
</tr>
<tr>
<td><strong>FACTOR 4  STREET SURVIVAL</strong></td>
<td></td>
</tr>
<tr>
<td>(R)13. How would you rate your ability to live on the street?</td>
<td>.81</td>
</tr>
<tr>
<td>(R)21. How would you rate your &quot;street smarts&quot;?</td>
<td>.67</td>
</tr>
<tr>
<td><strong>FACTOR 5  LACK OF PERSONAL RESPONSIBILITY</strong></td>
<td></td>
</tr>
<tr>
<td>10. Do you think you deserve to be here for what you've done?</td>
<td>.84</td>
</tr>
<tr>
<td>20. How much do you think you are responsible for where you are today?</td>
<td>.79</td>
</tr>
<tr>
<td><strong>FACTOR 6</strong></td>
<td></td>
</tr>
<tr>
<td>(R)9. After doing time in jail, will your friends like you:</td>
<td></td>
</tr>
<tr>
<td>a lot more more the same less a lot less</td>
<td>.73</td>
</tr>
<tr>
<td>(R)11. Do you consider yourself to be a delinquent?</td>
<td>.72</td>
</tr>
</tbody>
</table>
### FACTOR 7

<table>
<thead>
<tr>
<th>SSQ Question</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>(R)16. How would you rate your ability to do O.K. at YDC</td>
<td></td>
</tr>
<tr>
<td>b) With the other residents?</td>
<td>.70</td>
</tr>
<tr>
<td>15. How would you rate your ability to do O.K. at YDC</td>
<td></td>
</tr>
<tr>
<td>a) With the staff?</td>
<td>.63</td>
</tr>
<tr>
<td>(R) 2. How many of your friends respect you because you do crime?</td>
<td>(.42)</td>
</tr>
</tbody>
</table>

### FACTOR 8

<table>
<thead>
<tr>
<th>SSQ Question</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>(R)19. How many people think you are strong and tough?</td>
<td>.83</td>
</tr>
</tbody>
</table>

**Note.** (R) indicates reverse scoring.
APPENDIX F

FRIENDSHIP QUESTIONNAIRE

Name: ____________________________________________

The following questions all refer to the friends that you had before coming to jail.
For each question please circle the one answer that best describes your experience and friendships.

Before you came to jail, how many of the your friends had . . .

1. . . . broken the law and not been caught?
   none     hardly any     some     most     all

2. . . . been in trouble with the police?
   none     hardly any     some     most     all

3. . . . been arrested?
   none     hardly any     some     most     all

4. . . . been held (remanded) in jail?
   none     hardly any     some     most     all

5. . . . been convicted of a crime?
   none     hardly any     some     most     all

6. . . . served a jail sentence?
   none     hardly any     some     most     all

How many days a week did you hang out with your friends (not including at school)?
   none     hardly any     some     most     all
   (0)     (1-2)     (3)     (4-5)     (6-7)

How often did you skip school in order to hang out with your friends?
   never     hardly     some of     most of     all of
   at all    the time    the time    the time

Out of all the time you spent with your friends, what percent of the time did you spend with...

   _____%  friends who might do things that could lead to trouble with the police.

   _____%  friends who would never do things that could lead to trouble with the police.
<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can talk to my friends about anything</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>In the past I have hung around with people that I knew would get me into trouble</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>I don't fit in well with my friends</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>I know my friends are behind me 100%</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>You have to be willing to break some laws if you want to be popular with your friends</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>I consider my friends to be my family</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>I have a lot in common with my friends</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>In order to gain the respect of your friends, it's sometimes necessary to beat up on other kids</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>My friends respect me</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>My friends don't take an interest in my problems</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>I feel close to my friends</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>It may be necessary to break some of your parent's rules in order to keep some of your friends</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>I feel lonely even when I'm with my friends</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>It's okay to lie to keep your friends out of trouble</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>While I've been in jail...</td>
<td></td>
</tr>
<tr>
<td>I've found it easy to get along with the other residents</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>I have made some good friends</td>
<td>SA . A . N . D . SD</td>
</tr>
<tr>
<td>I have met some friends that I already knew</td>
<td>SA . A . N . D . SD</td>
</tr>
</tbody>
</table>
APPENDIX F - continued (Page 3 of the FQ)

The following questions all refer to the friends that you had before coming to jail.

For the following questions please circle the letter that best indicates how much the friends (that you hang out with the most) would approve if you...

SA = strongly approve  N = neither approve nor disapprove  D = disapprove  SD = strongly disapprove

<table>
<thead>
<tr>
<th>Question</th>
<th>Letter Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>... stole something worth less than $5?</td>
<td>SA ... A ... N ... D ... SD</td>
</tr>
<tr>
<td>... sold hard drugs?</td>
<td>SA ... A ... N ... D ... SD</td>
</tr>
<tr>
<td>... stole something worth more than $50?</td>
<td>SA ... A ... N ... D ... SD</td>
</tr>
<tr>
<td>... hit or threaten to hit someone?</td>
<td>SA ... A ... N ... D ... SD</td>
</tr>
<tr>
<td>... destroyed property?</td>
<td>SA ... A ... N ... D ... SD</td>
</tr>
<tr>
<td>... broke into a vehicle or building to steal something?</td>
<td>SA ... A ... N ... D ... SD</td>
</tr>
</tbody>
</table>

Yes......No  Do you have a best friend?

Has your best friend ever...

Yes......No  ... broken the law and not been caught?
Yes......No  ... been in trouble with the police?
Yes......No  ... been arrested?
Yes......No  ... been held (remanded) in jail?
Yes......No  ... been convicted of a crime?
Yes......No  ... served a jail sentence?
APPENDIX G

CONSENT FORM

It has been explained to me that the purpose of this study is to further an understanding of the personalities and behaviours of residents at the Burnaby Youth Secure Custody Centre and Burnaby Youth Open Custody Centre. I understand that my participation in this research is voluntary and that I am free to withdraw my participation in this research at any time. I also understand that my answers on these questionnaires are confidential and will not be seen by the security or clinical staff at this institution, or by any other persons not directly involved in this research. In addition, I have been assured that my responses to the questionnaires will in no way influence my status, classification, or release from this correctional facility.

A copy of the results of this study can be obtained by contacting the principle researcher, Angela Connors, at Simon Fraser University (291-3354).

I understand that any complaints regarding the nature of my participation in this research may be registered with the principle researcher named above, or with Dr. Chris Webster, the Chair of the Psychology Department at Simon Fraser University.

Name: ___________________________________________________________

Date: _____________________________________________________________

Institution: _______________________________________________________

Witness: __________________________________________________________
APPENDIX H

DEMOGRAPHIC QUESTIONNAIRE

Date of Birth: ________________________________ Age: __________________
Ethnic origin: white____ black____ native____ other____
List three words or phrases that describe who you are (what you are like):
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
What area did you grow up in? ________________________________
Area living when arrested? ________________________________
How long had you been living there? ________________________________
How many different communities do you remember living in? _________
What were you arrested for? ________________________________
Was anyone injured as a result of this crime? Y N
Have you been arrested before? Y N For a similar crime? Y N
How long is your sentence? ________________________________
How much time have you served already? ________________________________
Are you sentenced to: _____OPEN or _____CLOSED custody?
How old were you the first time you got in trouble with the police? ________________________________
Do you (or will you) have any visitors at YDC? Y N
Who? (no names) ________________________________ How often? ________________________________
What was the last grade you officially completed on the outside? ________________________________
Have there been any incident reports filed on you? Y N
How many? few some many ________________________________
Who did you live with when you were growing up? (List the people who lived in the house. For example: mom, 2 sisters, and a friend.) ________________________________
If you lived with different people when you were growing up, is there one place that you would consider to be home? (Ex. a place you lived at for a longer period of time) Y N
If yes, list the people who lived there:

When did you last live at "home"? ________________________________
How long did you live there? ________________________________
Where will you be going when you leave here? ________________________________
Are you, or have you ever been, a ward of the court? Y N
When, and for how long? ________________________________
How many placements have you had? ________________________________
Effect Size in Logistic Regression:

(Dr. Ray Koopman, 1996)

"For each case $i$ we have a dichotomous dependent variable $y_i$ (which we assume to be coded 0/1 for the purposes of this discussion), and numeric predictor scores $x_{i1},...,x_{ik}$ (which could include dummy-coded qualitative information). The basic assumption is that each observed $y_i$ is the result of an inherently probabilistic process in which there was some probability $p_i$ that $y_i$ would be 1; and that each $p_i$ is a function of the predictor scores $x_{i1},...,x_{ik}$. Thus the role of the predictors is not to predict whether or not something will happen, but to specify the probability that it will happen.

Logistic regression expresses $p_i$ as a logistic function of a linear combination of the predictors: $p_i = 1/[1 + \exp(-t_i)]$, where $t_i = b_0 + b_1x_{i1} + ... + b_kx_{ik}$. As $t_i$ is the natural log of the odds that $y_i = 1$, another way of stating the logistic regression model is that the log odds is taken to be a linear function of the predictors.

Given this model we need to find regression weights $b_0,...,b_k$ that make $p_i$ large (close to 1) when $y_i = 1$, and small (close to 0) when $y_i = 0$. Thus, the computer output tells you the maximum likelihood solution: the weights that maximize the overall likelihood of the data.

For each case $i$, the likelihood $L_i$ is the probability of the observed $y_i$: if $y_i = 1$, then $L_i = p_i$, and if $y_i = 0$, then $L_i = 1 - p_i$. The usual way of writing this is $L_i = p_i^{y_i}(1 - p_i)^{1 - y_i}$. The overall likelihood $L$ is the product of the individual likelihoods: $L = \prod L_i$.

The overall likelihood is a systematic function of $N$, the number of cases. Since each $L_i$ is a number between 1 and 0, their product gets smaller as $N$ gets larger. To undo this dependence on $N$, we take the $N$th root of $L$. This gives us the geometric mean likelihood, $GML = L^{1/N}$, which is a measure of effect size.

Since the GML is not given explicitly in the computer output, it must be calculated by hand from the values given in the output. SPSS produces the -2 Log Likelihood (-2LL), from which the following formula can be calculated: $GML = \exp[(-2LL)/(-2N)]$.

The next obvious question is: How large should GML be to be considered of "worthy" magnitude? This is similar to asking how large a correlation should be, and of course there are no black-and-white rules that cross all situations and samples. However, every sample does have a baseline value that can be used as the referent. If $p$ is the proportion of cases with $y = 1$, then the referent GML = $p^p(1 - p)^{1-p}$. The referent GML represents the GML for a model that ignores the predictors and sets all $p_i = p$ (all cases are assigned the same probability)."
## APPENDIX J

**Correlation Matrix of the Independent Variables (N = 153)**

<table>
<thead>
<tr>
<th></th>
<th>S.M.</th>
<th>V.O.</th>
<th>Aln.</th>
<th>Asoc.</th>
<th>A.T.</th>
<th>SSQ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Maladjustment</strong></td>
<td>1.00</td>
<td>.397</td>
<td>.279</td>
<td>.803</td>
<td>.250</td>
<td>.210</td>
</tr>
<tr>
<td>(pvalue)</td>
<td>.</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.001</td>
<td>.005</td>
</tr>
<tr>
<td><strong>Value Orientation</strong></td>
<td>.397</td>
<td>1.00</td>
<td>.725</td>
<td>.055</td>
<td>.377</td>
<td>.397</td>
</tr>
<tr>
<td>(pvalue)</td>
<td>.000</td>
<td>.</td>
<td>.000</td>
<td>.250</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td><strong>Alienation</strong></td>
<td>.279</td>
<td>.725</td>
<td>1.00</td>
<td>-.02</td>
<td>.381</td>
<td>.346</td>
</tr>
<tr>
<td>(pvalue)</td>
<td>.000</td>
<td>.000</td>
<td>.</td>
<td>.401</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td><strong>Asocial Index</strong></td>
<td>.803</td>
<td>.055</td>
<td>-.02</td>
<td>1.00</td>
<td>.087</td>
<td>.133</td>
</tr>
<tr>
<td>(pvalue)</td>
<td>.000</td>
<td>.250</td>
<td>.401</td>
<td>.</td>
<td>.142</td>
<td>.051</td>
</tr>
<tr>
<td><strong>Antisocial Tendencies</strong></td>
<td>.250</td>
<td>.377</td>
<td>.381</td>
<td>.087</td>
<td>1.00</td>
<td>.630</td>
</tr>
<tr>
<td>(pvalue)</td>
<td>.001</td>
<td>.000</td>
<td>.000</td>
<td>.142</td>
<td>.</td>
<td>.000</td>
</tr>
<tr>
<td><strong>&quot;Street Self&quot;</strong></td>
<td>.210</td>
<td>.397</td>
<td>.346</td>
<td>.133</td>
<td>.630</td>
<td>1.00</td>
</tr>
<tr>
<td>(pvalue)</td>
<td>.005</td>
<td>.000</td>
<td>.000</td>
<td>.051</td>
<td>.000</td>
<td>.</td>
</tr>
</tbody>
</table>