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Operationalizing the Good Lives Model:
An Examination of Holland's RIASEC Theory
and Vocational Congruence with Offenders

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by

Kelly Taylor

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Legend

A	Artistic
C	Conventional
CAAT	Canadian Adult Achievement Test
CAPS	Career Ability Placement Survey
CD	Commissioner's Directive
CEC	Community Employment Centre
CI	Congruence Index
CIC	Community Interest Code
CIS	Community Intervention Scale
CoI	Correspondence Index
COPS	Career Occupational Preference System
COPES	Career Orientation Placement and Evaluation Survey
CRS	Custody Rating Scale
CSC	Correctional Service of Canada
DFIA	Dynamic Factor Identification and Analysis
DHOC	Dictionary of Holland's Occupational Codes
DOT	Dictionary of Occupational Titles
E	Enterprising
HRDC	Human Resources Development Canada
HRSDC	Human Resources and Social Development Canada
I	Investigative
IIC	Institutional Interest Code
LCVT	Lustig Color Vector Test
MDS	Multi-Dimensional Scaling
NESP	National Employability Skills Program
NOC	National Occupational Classifications
OIA	Offender Intake Assessment
OMS	Offender Management System
PCC	Psychology of Criminal Conduct
PCI	Position Classification Inventory
PIC	Personal Interest Code
R	Realistic
RIASEC	Realistic-Investigative-Artistic-Social-Enterprising-Conventional
RNM	Risk-Needs Management
RP	Reintegration Potential
RRP	Registered Rehabilitation Professional
S	Social
SDT	Self-Determination Theory
SIR	Statistical Information on Recidivism Scale
SOC	Standard Occupational Classifications
SRS	Security Reclassification Scale
SRSW	Security Reclassification Scale for Women
TWA	Theory of Work Adjustment
VPI	Vocational Preference Inventory
WED	Warrant Expiry Date

Abstract

Lack of employment has been identified as a contributing factor to criminal behaviour (Andrews & Bonta, 2003). Canadian Correctional Services have responded accordingly through the provision of interventions directed toward addressing offender needs as they relate to employment issues. Nonetheless, critics have argued that intervention efforts are still largely based on the principles of risk reduction, with limited attention given to a theoretically integrated view of the rehabilitation process. Ward and Stewart (2003) proposed a "Good Lives" model of rehabilitation in hopes of moving toward an enhancement model rather than a strictly harm avoidance model. "Good lives" (Ward & Stewart, 2003) are referred to as methods of living that are beneficial and fulfilling for individuals, and it is argued that any conception of a possible "good life" should take note of an offender's capabilities, temperament, interests, skills, values and support networks.

The current research operationalized a 'good lives' model by exploring the theoretical construct of vocational congruence as a protective factor, leading to greater success within correctional environments and upon release in the community. Two studies explored the relevance of Holland's theory of vocational personalities and work environments (1997) for offender populations. The first study examined the validity of Holland's RIASEC Structure for a convenience sample of 305 federally sentenced offenders. Three RIASEC models (i.e., Holland, 1997; Gati, 1982; Round & Tracey, 1996) were also examined in Study I. Results indicated that two of these models are valid for an offender population.

The second study examined Holland's theory of vocational congruence (1997) with a convenience sample of 304 federally sentenced offenders. Results revealed minimal support for the statistical significance of vocational congruence for this sample of offenders. Nevertheless, post-hoc analyses showed interesting differences for Aboriginal and women

offenders, as well as offenders over 30 years of age. Furthermore, vocational congruence emerged as a significant factor in predicting time to recidivism.

The role of behavioural adaptability and relevance of career counselling are introduced. Theoretical and operational implications, as well as implications for the 'Good Lives' model are discussed. The author argues for the value of continued research regarding Holland's RIASEC typology and vocational congruence with offender populations.

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Operationalizing the Good Lives Model: An Examination of Holland's RIASEC Theory and Vocational Congruence with Offenders

"When dealing with released offenders that have incomplete education, poor work history, substance abuse issues and poor coping skills, the task of finding and keeping employment becomes almost insurmountable...Not always, but sometimes an effective resume is all one needs to begin turning the corner. Generally though, it runs much deeper and requires a long-term commitment to deal with employability through retraining and re-education." (Small, 2005, p. 40)

In 2007, Correctional Services Canada (CSC) reported a 4.1% increase in the annual average cost of incarceration, per offender. In 2004-05, this cost was $68,216 and in 2005-06, this cost was $71,004 (CSC, 2007a). At any given time, approximately 55% of federally sentenced female offenders and approximately 40% of federally sentenced male offenders are serving their sentence within the community. In fact, the first of CSC's five strategic priorities is the safe transition of eligible offenders into the community. This transition assists the offenders in their successful reintegration efforts as they move from life in prison, to life in the community, and, in most cases, their eventual freedom. The renowned question is: "what can be done to ensure that the offenders remain in the community and desist from crime?"

Andrews and Bonta (1994; 1998; 2003; 2006) argue that offenders exhibit criminogenic needs. They maintain that when these needs are appropriately addressed through counselling and intervention efforts, reductions in recidivism are probable. One of these criminogenic needs reflects aspects of the offender's life related to employment, and more specifically, the inability to gain and maintain employment. This has direct implications for the question above as, presumably, being employed will result in a higher likelihood of offenders remaining in the community and desisting from crime. There is ample research to support this deduction and CSC has responded accordingly through the

provision of rehabilitation programs directed toward addressing offender needs as they relate to unemployment issues. It is reasonable to say that in the past decade, advancements have been made in rehabilitation efforts related to the improvement of the employment situation of offenders. Nonetheless, there is still room for improvement and some would assert that CSC is unsuccessful in effectively addressing unemployment, as a criminogenic need.

In their consideration of rehabilitation programming interventions and approaches currently employed by CSC, Ward and colleagues (Ward, 2002; Ward & Stewart, 2003) argued for the consideration of a "Good Lives Model" for offenders; a model that goes beyond traditional correctional practices and moves towards the accurate consideration of offenders' capabilities, temperament, interests, skills, values and support networks. Yet little research has been able to successfully operationalize a conception of the "Good Lives Model". In fact, Andrews & Bonta (2003) contended that arguments supporting the "Good Lives Model" are based largely on theoreticism, with little empirical evidence to support the value of the model.

In an effort to operationalize the "Good Lives Model", in the context of the criminogenic need of unemployment, new research designs will need to be considered. Researchers, in the area of corrections, would benefit by moving beyond traditional approaches to employment research and incorporating broader theoretical concepts into their research design. The work of John Holland (1958; 1959; 1973; 1985a; 1992; 1997), through his theory of careers, provides an ideal platform to commence this work. Holland and his disciples consider vocational constructs, such as vocational congruence, as critical to a successful work life, and ample research supports their claims. Integrating traditional psychological constructs (e.g., criminogenic need) with vocational constructs (e.g.,

vocational congruence), has the potential to provide new knowledge concerning unemployment, crime and what works in efforts to reduce recidivism.

In sum, cognizant of the fact that the incarceration of offenders is a significant expense for Canadian tax payers, while at the same time acknowledging that work is actively being done to determine how to decrease this expense by reducing recidivism, this research sets out to operationalize the "Good Lives Model" in hopes of contributing to our understanding of unemployment as it relates to offenders and their criminal behaviour. Chapter 1 will provide an introduction to this research by reviewing the literature as it relates to the above mentioned themes. Chapters 2 and 3 will provide the methodology and results related to the first study undertaken in this initiative, while Chapters 4 and 5 will provide the methodology and results related to the second study undertaken in this initiative. Finally, Chapter 6 will provide a discussion based on the results of Studies 1 and 2.

Chapter 1: Introduction

Research examining the link between unemployment and crime indicates that as many as two in every three men admitted to Canadian federal correctional institutions are unemployed at the time of their arrest and as many as 8 of every 10 new admissions have completed less than a high school diploma (Boe, 2005). Research examining the transition from school to work suggests that unemployment and job instability during this transition may be precursors to criminal behaviour (Hartnagel, 1997; 1998). Rattner and McKie (1990) examined violent crimes in the province of Ontario, finding that the unemployment rate was important in the prediction of the violent crime rate. Rowan (1960) discussed information relating to problems of the employment of offenders and their possible solutions. Public opinion, the personal adjustment of offenders, improved employment possibilities, community support and transitional release were some of the key areas being discussed at

that time. Almost fifty years later, much focus is still placed on these general areas relating to *the problems of employment of offenders*.

The significance of employment for an offender population is not a novel concept. Employment and prison industries have long been recognized as critical in the operations of correctional institutions (Funke, Wayson, & Miller, 1982; Guynes & Greiser, 1986; Miller, Funke, & Grieser, 1983; Townsend, 1996). According to Andrews and Bonta (1994), well-established correlates of criminal behaviour include long periods of unemployment. Furthermore, they argue that low levels of personal educational, vocational and financial achievement and unstable employment are major risk factors for recidivism. Employment opportunities, along with vocational training programs, offered to offenders both within and outside of institutional environments are designed to assist in preparing them for their eventual release. Accordingly, offender employment programs such as CORCAN[1] in Canada and UNICOR in the United States aim to provide offenders with employment and vocational training opportunities comparable to those found in the private sector (Motiuk & Belcourt, 1996). Notably, the policies and procedures guiding these interventions have been largely influenced by principles emerging from the Psychology of Criminal Conduct.

The Psychology of Criminal Conduct

For more than a decade, the Psychology of Criminal Conduct (PCC) proposed by Andrews and Bonta (1994; 1998; 2003, 2006) has dominated both the field of forensic psychology and many of the operational approaches implemented by Canada's federal correctional system. Andrews and Bonta provide a working definition of PCC arguing that:

[1] CORCAN and UNICOR are rehabilitation programs / initiatives that aim to provide offenders with the employment experience and skills needed to enhance post release employment and become productive citizens as they reintegrate in to the community. (Correctional Services Canada, 2007c; UNICOR Federal Prison Industries Inc., 2007).

> As a science, the psychology of criminal conduct is an approach to understanding the criminal behaviour of individuals through: (a) the ethical and humane application of systematic empirical methods of investigation, and (b) the construction of rational explanatory systems. Professionally, a psychology of criminal conduct involves the ethical application of psychological knowledge and methods to the practical tasks of predicting and influencing the likelihood of criminal behaviour, and to the reduction of the human and social costs associated with crime and criminal justice processing (p. 15, 2003).

The work of Andrews and Bonta outlines the principles of risk, need, responsivity and professional discretion. The principle of risk suggests that when intervening with offenders, higher levels of service should be reserved for higher risk cases (Andrews, Bonta & Hoge, 1990). Andrews and colleagues argue that higher risk cases respond better to more intensive service than to less intensive service, while lower risk cases do as well or better with minimal as opposed to more intensive service. With respect to the principle of need, they state that intervention efforts need to be matched to the criminogenic needs of the offender. "Criminogenic needs are a subset of an offender's risk level. They are dynamic attributes of the offender that, when changed, are associated with changes in the probability of recidivism" (Andrews & Bonta, 1998, p. 243). Andrew and colleagues argue that, if the intervention sets reduced criminogenic needs as the intermediate goal, there will be a reduction in the chances of recidivism. Their responsivity principle states that the modes of intervention need to be matched to the learning styles and abilities of the offenders. Finally, the principle of professional discretion allows for professional override of decisions in which

the risk, need and responsivity principles have been applied but the present context of a situation demands an alternative decision.

There is also evidence for the relevance of both static and dynamic risk factors in the prediction of crime (Andrews & Bonta, 1994; 1998; 2003, 2006). Andrews and colleagues describe static risk factors (e.g., age, previous convictions, early family factors) as aspects of an offender's past that are predictive of recidivism but are not subject to change and dynamic risk factors (i.e., criminogenic needs) as reflecting the present, and changeable, circumstances and behaviour of an offender. Static and dynamic risk factors are often used interchangeably with other terms. In general, static risk factors are those factors that are more likely to be associated with criminal history and risk as a whole, while dynamic risk factors are those factors more likely to be associated with criminogenic need.

Within the Psychology of Criminal Conduct, Andrews and Bonta identify the "Big Eight" risk factors, seven of which are dynamic: antisocial attitudes, antisocial associates, antisocial personality pattern, problematic circumstances at home (family / marital), problematic circumstances at school or work, problematic leisure circumstances, substance abuse and one of which is static: a history of antisocial behaviour. They argue that these are the best validated risk factors of crime in the research literature. Accordingly, the following 'criminogenic needs' have been identified and are widely used in assessment approaches utilized by the Correctional Service of Canada:

1. Employment
2. Marital / Family
3. Associates / Social Interaction
4. Substance Abuse
5. Community Functioning
6. Personal / Emotional Orientation
7. Attitude

Guided by empirically based evidence, the Correctional Service of Canada (CSC) incorporates the principles of risk, need and responsivity into their operational practices[2] and therefore includes both static (i.e., those factors contributing to knowledge concerning the appropriate application of the risk principle) and dynamic (i.e., factors contributing to knowledge concerning the appropriate application of the need principle) predictors of crime into their Offender Intake Assessment (OIA) process (Motiuk, 1997). Accordingly, static predictors of crime are measured during the OIA process via the assessment of the offender's criminal history record, an offence severity record, and the sex offence history checklist (Commissioner's Directive (CD) # 705-6; CSC, 2006a). Dynamic predictors of crime are measured during the OIA process with an assessment entitled the Dynamic Factor and Identification Analysis (DFIA) (Motiuk, 1997; Taylor, 1997). Together, these assessments provide correctional workers with an offender's overall level of risk and overall level of need.

Level of Risk: Static Predictors of Crime

The assessment of offender characteristics related to static predictors of crime not only contributes to operational requirements (e.g., determination of security level, placement decisions, level of intervention, program allocation) but also plays a critical part in decisions related to the release plans of an offender. An assessment of risk is normally completed at the beginning of an offender's sentence and is also used at intervals throughout the sentence to re-assess an offender's re-integration potential (Motiuk & Nafekh, 2001). In Canada, the Statistical Information on Recidivism (SIR)[3] scale (Nuffield, 1982) is used to examine static

[2] This is reflected in CSC's Community Supervision, Standard Operating Practices # 700-06 as well as their Standards for Correctional Programs # 726-1 (http://www.csc-scc.gc.ca/text/home_e.shtml).
[3] In 1992, the SIR was revised to reflect changes in legislation. The scale is currently known as the Statistical Information on Recidivism – Revised (SIR-R1) scale (Nafekh & Motiuk, 2002).

factors and demonstrates reliability and validity in the prediction of post-release recidivism (Hann & Harman, 1988; Hann & Harman, 1992; Luciani, Motiuk, & Nafekh, 1996; Wormith & Goldstone, 1984).

Level of Need: Dynamic Predictors of Crime

As introduced above, in Canada, in order to examine dynamic predictors of crime, the DFIA and the Community Intervention Scale (CIS) are administered. The DFIA is completed for each inmate upon admission to a federal institution. It is used in order to provide an overall rating for the offender on each of the seven criminogenic need domains. In addition to the seven need domains, the DFIA provides an overall assessment of risk and need. The information from this assessment assists in the correctional planning for an offender, ensuring appropriate program interventions, capable of targeting areas of need.

The CIS is a parallel assessment completed prior to release and intermittently during an offender's release period. Similarly to the DFIA, the CIS is used by the CSC to determine levels of need in the seven criminogenic need areas, as well as an offender's overall levels of need and risk, prior to release. This information is critical for the development of an appropriate reintegration[4] plan and is used to allocate resources in terms of frequency of contact for offenders who are under community supervision (Dowden, Serin, & Blanchette, 2001).

The seven domains represented in the DFIA and the CIS have received considerable empirical support for their association with criminality and recidivism (Brown & Motiuk, 2005). Evidence for the link between these dynamic criminogenic needs and recidivism was provided in a meta-analytic review conducted by Gendreau, Little, and Goggin (1996). Their

[4] Reintegration refers to the safe transition of an offender from the institution to the community. Given that almost all offenders will return to the community, the CSC is mandated to ensure the safe and successful reintegration of offenders by preparing them for eventual release to the community.

meta-analysis, including 131 studies, and producing 1,141 correlations with recidivism, revealed criminogenic needs as one of the strongest predictor domains. These authors asserted that "...criminogenic needs and antisocial associates are two of the strongest correlates of criminal conduct" (p. 590). This meta-analysis did not refer specifically to employment; however, 'social achievement' (which would comprise employment) was one of the seven dynamic factors examined. Across the 131 studies sampled, the relationship between the predictor social achievement and recidivism was reported on 168 occasions and involved a total of 92,662 subjects. The associated mean Pearson *r* for social achievement was .15 (*SD* = .11), with poor social achievement being positively correlated with poorer outcome.

Notably, in examining these domains, approximately 75% of offenders are identified with employment needs upon entry to federal institutions (Motiuk, 1997). Furthermore, offenders have identified education and employability skills as integral for their successful community reintegration (Erez, 1987), and research supports this self-identified need (e.g., Dale, 1976; Gillis & Nafekh, 2005; Motiuk, 1991; Motiuk & Brown, 1994; Rossi, Berk, & Lenihan, 1980).

Unemployment as a Criminogenic Need: Links to Recidivism

Andrews, Bonta, and Wormith (2006) assert that enhancing performance, rewards, and satisfactions, in relation to work is a promising intermediate target for the reduction of recidivism. Recognizing evidence for not only the seven areas of criminogenic need, but specifically employment as a critical factor in efforts to reduce recidivism, many researchers have focused their attention on better understanding aspects of employment that are related to recidivism.

Unemployment and Crime. In a study of barriers to employment, Dale (1976) highlighted not only the stigma attached to being an ex-offender but also the relationship between unemployment and recidivism. In this study, offenders who were unemployed or underemployed were four times more likely to return to custody as compared to those who were fully employed. It is argued that occupational skills that are developed during an offender's period of incarceration enhance the likelihood of offender post-release employment, accordingly decreasing the likelihood of recidivism (Rossi, Berk, & Lenihan, 1980). On the other hand, for those who fail to obtain and demonstrate required occupational skills, unemployment is probable and studies suggest that unemployment and low-paid and/or temporary jobs among ex-offenders are associated with recidivism (Berk, Lenihan & Rossi, 1980; McGinnis, Klocksiem, & Wiedeman, 1977).

Motiuk (1991) found that the education / employment subscale from the Level of Service Inventory Revised (LSI-R[5]; Andrews & Bonta, 1995) predicted community adjustment in a sample of provincial offenders on day parole, and Rowe (1995) found significant correlations between this subscale and both recidivism ($r = .16$) and re-incarceration ($r = .21$).

While conducting a follow-up study (six-month follow-up) with a sample of 573 federally sentenced male offenders who were released from institutions in Ontario, Motiuk and Brown (1994) found that, compared to offenders not exhibiting employment needs, offenders assessed as exhibiting employment needs had a greater likelihood of failing on conditional release ($p<.001$). They reported that 47.6% of the offenders within their sample

[5] The Level of Service Inventory-Revised is a copy written instrument used in the classification of offenders when predicting various correctional outcomes. The key areas that are measured include criminal history, education/employment, financial, family/marital, accommodation, leisure/recreation, companions, alcohol/drug problem, emotional/personal, attitudes/orientation.

were identified with an employment need and of those offenders, 27.9% were suspended within 4 months of their release. They found unstable job history to be a particularly relevant predictor of failure on conditional release and argued that, on the whole, employment is critical to the successful reintegration of offenders.

Research with women offenders further supports the link between unemployment and recidivism. Blanchette and Motiuk (1995) indicated that a poor employment history was associated with both general and violent re-offending among women offenders. Furthermore, while examining the relationship between criminal history, mental disorder, and recidivism among federally sentenced female offenders, Blanchette (1996) suggested that employment need was associated with a return to custody, and more specifically, with revocations of release for technical violations. In order to explore the utility of the CIS, Dowden, Serin, and Blanchette (2001) examined 725 women offenders who were on some form of conditional release. They found that the employment domain of the CIS was particularly relevant for this sample of women offenders, demonstrating that employment need assessed in the community was associated with general, but not violent, recidivism. This finding was reaffirmed by Law (2004) during her comprehensive study of women offenders' criminogenic needs.

Gendreau, Goggin, and Gray (1998; 2000) expanded on the work of Gendreau *et al.*, (1996) by exploring specific employment indicators from the DFIA protocol. In their meta-analysis, Gendreau and colleagues (1998; 2000) reported education ($r = .26$), employment needs at discharge ($r = .15$), and employment history ($r = .14$) as some of the most powerful predictors of recidivism within the employment domain.

Gillis and Nafekh (2005) explored the relationship between community employment status and the likelihood of an offender returning to federal custody. They studied 23,525

federal offenders who had been released on conditional release between January 1, 1998 and January 1, 2005. Using an unemployed comparison group, they found that, compared to their matched counterparts, employed offenders were more likely to remain on conditional release until the end of their sentence and less likely to return to federal custody with a new offence.

Job Stability. Reconstructing data originally collected and analyzed by Gleuck and Glueck (1953), Sampson and Laub (1993) looked longitudinally at the employment patterns of offenders and found that job stability was an important predictor of criminal behaviour, more specifically implicated with crime desistance, for both delinquents and non-delinquents. More recently, Kerley and Copes (2004) studied the employment stability of white-collar and street-level offenders through an examination of the offenders' employment history over a two-year period. They found that age and other demographic variables (number of prior arrests, total time sentenced, number of arrests before age 24, and incarceration before age 24) all had significant effects on employment stability. They also highlighted that, compared to street-level offenders, white-collar offenders are perhaps more successful following contact with the criminal justice system. Yet, if there is an increase of multiple arrests, and if they are arrested or incarcerated before the age of 24, white-collar offenders face the same obstacles to employment stability as their street-level counterparts.

In sum, countless studies, conducted over several decades, in both the US and Canada, involving thousands of offenders, suggest that unemployment impacts crime, and correctional organizations have responded accordingly. Education, vocation, and work programs for inmates permeate both Canadian and American correctional systems. In his survey of all State and federal adult correctional facilities in the United States, Stephan (1997) found that 87% of the facilities had education programs, one-third employed inmates

in a prison industry, and approximately half provided vocational training. In Canada, a Performance Report from the Correctional Service of Canada (CSC, 2006b) indicated that in 2005/2006, 3,988 men and 86 women inmates worked a total of 2.347 million hours in CORCAN shops (i.e., prison industry) and 12,019 men and 483 women inmates worked in other work assignments through other institutional operations.

The Impact of Institutional Employment Programs. Employment programming appeared to be (Parker, 1978), and continues to emerge as, consistent with the notion of offender rehabilitation. Accordingly, Motiuk and Vuong (2005) recently argued that "education and work programs are the cornerstone of correctional intervention" (p. 21). Such interventions have been shown to reduce criminal behaviour and increase positive behaviour in prison (Motiuk, 1996). In addition, research findings support the role of education and employment in facilitating offenders' successful transition to the community (e.g., Gillis, 2002; Gillis & Andrews, 2002; Gillis & Nafekh, 2005). Moreover, inmates recognize the importance and availability of, and the desire to participate in, job skills programs during periods of incarceration (Henderson, 2001).

In the New York correctional system, a comparison of those who successfully participated (n=249), unsuccessfully participated (n=56), and did not participate (n=82,600) in industry programs found that those offenders who successfully completed employment programming were less likely to recidivate (Canestrini, 1993, as cited in Gillis, Motiuk & Belcourt, 1998). Finn (1998) evaluated three American programs in Chicago, New York City and the State of Texas. In considering the effectiveness of programs in improving clients' educational scores, helping them find permanent jobs, and reducing recidivism, he argued that replicating selected features of each program in other jurisdictions was warranted.

Motiuk and Belcourt (1996) explored the post-release recidivism (re-admission to federal custody, with and without new offences) and new convictions of former CORCAN participants. Offenders (n=277) who had completed the prison work program between 1992 and 1994 and were available for at least a one-year post-release follow-up were included in the study. They found that, compared to released offenders who were not involved with the CORCAN program, CORCAN participants who had been released on full parole were less likely to return to federal custody. Their findings also supported the literature on risk prediction (i.e., Andrew and Bonta's principle of risk), as higher levels of risk were associated with more negative post-release outcomes. This underscores the need to control for levels of risk in studies examining the impacts of correctional interventions.

Extending this work, Gillis, Motiuk and Belcourt (1998) examined a sample of offenders (n=300) who were employed by CORCAN for a minimum of six months prior to release. In examining the relationship between risk rating and employment status, they found that 61% of low risk offenders were employed during the first six months of release, whereas only 19% of high risk offenders were employed during this same time period (p = .001). When these data were interpreted based on offenders who were unemployed, twice as many high risk offenders (81%) were unemployed as compared to low risk offenders (39%). Their study also indicated that, compared to offenders who were unemployed, offenders who obtained employment in the first six months of release, were less likely to recidivate.

Wilson, Gallagher and MacKenzie (2000) conducted a meta-analysis examining the recidivism outcomes of 33 independent experimental and quasi-experimental evaluations of education, vocation, and work programs. Although methodological weaknesses in the studies used prevented the attribution of observed effects on criminal behaviours directly to program activities, they did find that program participants recidivated at lower rates than

non-participants. More specifically, they found that program participants had a recidivism rate of 39%, with a rate for a non-participant comparison group of 50%. They reported a distribution of odds ratios across 53 program-comparisons, ranging from a modest negative program effect (odds ratio of .47) to a large positive program effect (odds ratio of 7.33). They considered whether generally positive findings were driven by the poorest quality studies (i.e., weak methodology), arguing that any bias was small and did not fully account for the generally positive findings.

All in all, employment interventions targeting the development of occupational skills are critical and appear to demonstrate some effectiveness in assisting with the reduction of recidivism. Importantly, when considering involvement in employment programs, it seems evident that the offender's level of motivation would play a critical role in their level of success. This contention is supported by research (Cady, Winters, Jordan, Solberg, & Stinchfield, 1996; Kennedy, 2001; McMurran, Tayler, Hogue, Cooper, Dunseath, & McDaid, 1998) and underlines the necessity to control for an offender's level of motivation in research examining correctional program interventions and their impact on correctional outcomes (e.g., recidivism).

Although recidivism is the outcome variable of primary interest for many individuals and organizations, research examining outcome variables other than recidivism is also important while considering the effectiveness of programs targeting employment needs. The following section will consider alternative outcomes relevant to research examining employment and crime.

Expanding the Criterion for Measuring Program Effectiveness. Despite the fact that recidivism is often used as the benchmark for evaluating the effectiveness of correctional programs, researchers have highlighted concerns with the use of recidivism as the sole

outcome criterion of program effectiveness (Hodanish, 1976; Hylton, 1979/80). Accordingly, a variety of outcome criteria are now utilized in research concerning the effectiveness of correctional programs. These criteria may be differentiated from recidivism by considering the difference between 'outputs', which are direct products of program activities, and 'outcomes', which are often viewed as the longer-term objectives of a program. A reduction in recidivism is a long-term objective or 'outcome' of involvement in correctional programming. The following examples from the literature provide illustrations of more immediate 'outputs' of involvement in correctional programs.

In their typology of objectives of "correctional industries", Guynes and Grieser (1986) discussed the impact of prison employment on the offender and the institution. In considering these objectives, one critical aspect is that of ensuring the well-organized operation of an institution. Employment programming assists in reducing idleness and structuring daily activities (Greiser, 1996), consequently occupying an offender's time constructively (Maguire, 1996) and potentially contributing to the adaptation to institutional life (Flanagan & McGuire, 1987; Gleason, 1986). Moreover, employment interventions within institutional environments have been shown to reduce the number of institutional infractions (Maguire, 1996) and decrease general misconduct (Motiuk, 1991; Saylor & Gaes, 1995).

At the level of criterion measures for the impact of employment programming, beyond recidivism, the work of Taggart (1972) and Moors and Naoum (1982) underscored the relevance of increased employability skills. Employability itself is an important outcome of correctional employment experience and is receiving increasing interest in both American and Canadian correctional systems (Braithwaite, 1980; Fabiano, Laplante & Loza, 1996; Gillis, Robinson, & Porporino, 1996; Mulgrew, 1996; Ryan, 1998).

Recently, Latendresse and Cortoni (2005) provided preliminary support for the Correctional Services Canada's National Employability Skills Program (NESP). NESP assists offenders in developing generic employability skills in accordance with the Employability Skills 2000 (Conference Board of Canada, 2000) and accepted community standards. Although limited by a small sample size (n=29), their results indicated that NESP program participants exhibited a statistically significant increase from pre- to post-program on the employability skills of communication, management of information and the demonstration of positive work–related attitudes and behaviours.

Finally, given the links between unemployment and crime, another logical criterion measure for the effectiveness of employment programming should be that of simple employment acquisition upon release from prison. Saylor and Gaes (1996) examined results based on more than 7,000 offenders who had served their sentence between 1983 and 1987. The post-release follow-up period was as long as 10 years for many offenders. Their results indicated that, compared to a matched comparison group of offenders who had not received employment interventions, offenders who had worked in prison industry or received vocational instruction or apprenticeship training while incarcerated were 24% more likely to obtain a full-time or day-labour job upon release from prison.

To this point, research has been reviewed that provides evidence for the links between unemployment and recidivism; and the relevance of employment interventions as they relate to institutional adjustment, employability skills, and job attainment. Nonetheless, cognizant of the critical link between unemployment and crime, it is surprising to note that more complex analyses of employment related constructs, and theories pertaining to job satisfaction and retention, as they relate to offender populations, are seemingly absent from

the literature. The next section will briefly consider some of the weaknesses of previous research pertaining to unemployment and crime.

Weaknesses of Previous Employment / Crime Research

Although critical to the advancements of correctional policies and procedures, much of the research to date has focused primarily on unemployment as a criminogenic need, without moving beyond the seminal concepts raised in the Psychology of Criminal Conduct (PCC). The theoretical, empirical, and applied progress within the PCC have been described as nothing less than revolutionary (Andrews, Bonta, & Wormith, 2006), and the current author agrees. Unfortunately, methodology utilized in the majority of studies has been limited by the mass use of simple dichotomous predictor variables (e.g., exhibiting employment need yes/no; employed yes/no) with minimal attention given to alternative, well validated, vocational theories and constructs; theories and constructs that may prove critical in the advancement of knowledge concerning unemployment and crime.

Furthermore, when considering rehabilitative approaches related to unemployment, little is known regarding what works, and why. Andrews and colleagues (2006) argued that, in terms of treatment responsivity, there is a 'high-priority' need to better understand the interactions of offender and treatment characteristics. In the current author's opinion, research design needs to move past the isolated use of the PCC. 'Digging deeper' in order to better understand the concept of employment will only be achieved by broadening theoretical paradigms and research designs.

The Complexity of Employment: Digging Deeper

In spite of much evidence supporting the relevance of employment and employment interventions and their impact on successful correctional outcomes, there is a paucity of research examining the relevance of, and associations between, vocational assessment and

appropriate employment intervention with offender populations. It is clear that static factors, dynamic factors, and unemployment contribute to crime, and that correctional interventions are critical to the rehabilitation process. However, there is little evidence regarding why some interventions fail, while others succeed.

Undoubtedly, there are additional factors that impact upon the employability of offenders and the employment / crime link. There is research linking substance abuse and employment difficulties among offenders (Brecht, Greenwell, von Mayrhauser, & Anglin, 2006; Bullis & Yovanoff, 2006; Ettner, Huang, Evans, Ash, Hardy, Jourabchi, & Hser, 2006). Affordable housing, child care, mental illness, learning disabilities, racial discrimination in arrest and conviction, and emotional difficulties, have also been identified as barriers to securing and maintaining employment (Finn, 1998; Kethineni & Falcone, 2007). Other researchers have emphasized the relevance of human capital, employment and crime (Hagan, 1993; Needles, 1996). Offenders have also expressed their own perceptions regarding obstacles to employment. In 1998, the Probation Journal summarized some of those perceptions, including high local unemployment and low paid jobs, lack of skills and qualifications, lack of specialist services, and holding a criminal record.

Notably, research highlights the reciprocal nature of crime and employment, underscoring that crime is not a simple product of unemployment but the two variables appear to influence one another mutually over time (Bushway, 1998; Thornberry & Christenson, 1984)[6]. By recognizing and acknowledging the complex nature of employment and crime, and yet deciding to focus strictly on current employment intervention approaches,

[6] It is also important to acknowledge that some view the penal system as a method for controlling employment (M. Yeager, personal communication, June 6, 2008). This claim is supported in particular areas of theory and research (e.g., Christianson, 1998; Christie, 2000; Melossi & Pavarini, 1981; Rusche & Kirschheimer, 1939; Shelden, 2001; Western, 2006).

it becomes clear that little effort has been made to truly understand not only what is necessary to ensure that offenders have the skills to obtain employment but also to ensure that offenders are interested in, and able to, retain that employment.

As suggested by Gendreau and colleagues (2000), more attention needs to be focused on the employment needs of offenders and related skill acquisition. Saylor and Gaes (1995) suggest that employment-related variables, different from those traditionally examined, need to be studied for their potential impact on correctional outcomes. Wormith, Althouse, Simpson, Reitzel, Fagan, and Morgan (2007) assert that future understanding about correctional interventions may emerge through the examination of in-program issues. Others (Wilson, Gallagher & MacKenzie, 2000) point to an absence of theoretical clarification of the connection between work programs and the post-release offending behaviour of inmates. They argue that empirical evaluations of the effects of programs address questions of effectiveness but "fail to illuminate the mechanics of why and how programs work" (p. 348). Accordingly, more attention needs to be focused on how and why employment programming and intervention efforts are, or are not, successful.

Chen (1989) discussed theory-driven perspectives and how they relate to our assessment of programs and program theory. Distinguishing "normative" and "causal" theories, Chen indicated that normative theory "provides some theoretical guidance on how to design and implement the program" while causal theory "specifies how the program works and under what conditions it will have what kind of consequences or processes" (p. 391). Considering employment programming, the work of Andrews and Bonta (1994) provides the normative theory that has often guided the development and implementation of employment interventions. In spite of this, as expressed above, to date, little has been done to provide causal theory in our understanding of how and why employment interventions are, or are not,

successful. The next section will provide an introduction to causal theory as it relates to employment related issues.

Causal Theory: Better Understanding the Nature of Employment Intervention

Glaser (1964) suggested that many prisons struggle to provide "meaningful" work. Unfortunately, more than four decades later, this message is still apparent, with both staff and offenders questioning the "meaningfulness" of work opportunities in institutional environments (B. Caughey, personal communication, January 16, 2008). Perhaps the "Good Lives" Model (Ward, 2002; Ward & Stewart, 2003) is capable of supporting efforts to ensure opportunities for "meaningful" work in prison environments.

"Good Lives" Model

Ward (2002) argues that "every rehabilitation program presupposes conception of possible 'good lives' for offenders and, associated with this, an understanding of the necessary internal and external conditions for living such lives" (p. 513). The author refers to "good lives" as methods of living that are beneficial and fulfilling for individuals, stating further that any conception of a possible "good life" should take note of an offender's capabilities, temperament, interests, skills, values and support networks. Ward argues that "a necessary condition for the reduction of offending is the instillation of ways of living that are more fulfilling and coherent" (p. 514).

Ward and Stewart (2003) maintain that traditional correctional intervention efforts are concerned with risk reduction (i.e., reducing crime and disruptive behaviour) and propose that correctional intervention efforts need to consider the enhancement of an offender's well-being and capabilities. Stated simply, Ward and colleagues suggest an enhancement model of rehabilitation rather than a strictly harm avoidance model of rehabilitation. They further argue that a strictly criminogenic need perspective fails to offer a theoretically integrated

view of the rehabilitation process. They argue that the theories of criminogenic needs specify that there is a problem, but fail to adequately indicate how or what to do about the problem. Accordingly, there is a requirement for "...additional substantive theories about the need in question" (p. 131).

Recently, Ward and colleagues (e.g., Ward & Marshall, 2007) have discussed the more positive aspects of a risk-need model (RNM), acknowledging that components of the model have become accepted as the most effective and ethical approach to the treatment of offenders. Nevertheless, they still speculate about issues surrounding the principle of responsivity, arguing that correctional practices continue to ignore this principle, or at least makes it difficult to accommodate the 'idiosyncratic' features of offenders. Ward and Birgden (2007) make use of a human rights perspective, conceptualizing human rights as the "ethical heart of strength based approaches such as the GLM" (p. 637). The offender, as an individual, is at the centre of both the principle of responsivity and human rights. The challenge is in understanding what motivates that individual and what ensures their well-being.

The work of Ward and colleagues is closely linked to Deci and Ryan's (2000) self-determination theory which defines and describes the critical nature of the primary goods (i.e., innate psychological needs) of relatedness, autonomy and competence in the achievement of well-being. Within their description of competence, meaningful work is an example of achieving competence. Vocational training is viewed as an external condition that facilitates the development of psychological characteristics such as skills, beliefs, attitudes and values (Ward, 2002). Ward further identifies vocational factors as being incorporated in a model of human well-being within a rehabilitation context and contributing to "good lives". However, there is a need to explicitly construct a conception of "good lives"

to guide the rehabilitation of each offender. Given this context, it seems that considering the vocational interests of offenders provides the opportunity to develop a concrete realization of the conception of "good lives". Importantly, offenders also indicate a need to have the opportunity to complete vocational interest assessments (Gillis & Crutcher, 2005).

The research of Ward and colleagues (2002; 2003) stresses the relevance of an individual's fundamental interests. Likewise, they clearly argue for the necessity to consider additional theory in each area of criminogenic need in order to supplement our knowledge and enhance intervention efforts. Importantly, response from Bonta and Andrews (2003) indicates openness to debates regarding the relevance of various models to explain criminal behaviour and the best way to intervene. However, Bonta and Andrews (2003) suggest that Ward and Stewart's (2003) arguments are based largely on theoreticism ("the acceptance or rejection of knowledge in accordance with one's personal views and not in accordance with evidence" (p. 215)). In turn, they state that moving in the direction suggested by Ward and colleagues should be based on evidence.

Beyond Theoreticism & Toward Evidence: Testing a Theory of Careers

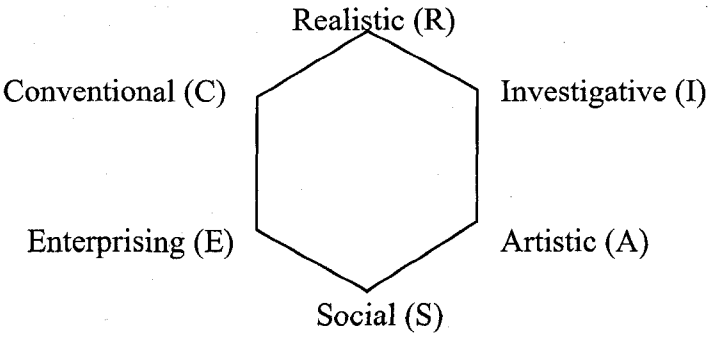
In the domain of vocational psychology, Holland's theory of careers (1958; 1959; 1973; 1985a, 1992, 1997) sets out "...to explain vocational behaviour and suggest some practical ideas to help...people select jobs, change jobs, and attain vocational satisfaction" (1973, p. 1). Holland maintains that people can be characterized by their resemblance to one of six interest types and that we can further characterize their environment by its resemblance to six model environments. The author argues that vocational satisfaction, stability, and achievement depend, in part, on the level of congruence between an individual's interests and the environment in which that individual works. This type of theory has yet to be incorporated within a Psychology of Criminal Conduct framework and

has rarely been utilized with an offender population. However, in view of the enhancement model proposed by Ward and Stewart (2003), the significance of incorporating such vocational theory to more effectively understand successful intervention efforts and to construct a conception of "good lives" (i.e., providing an operational definition that is linked to this concept) seems apparent. More specifically, vocational congruence could be operationalized as a construct critical to contributing to the "good life" of an offender. The reader's attention will now be directed toward the specific principles underling Holland's model.

Holland's six interest types include: realistic (R), investigative (I), artistic (A), social (S), enterprising (E), and conventional (C). The six types are arranged in a hexagonal structure following the order of R-I-A-S-E-C (Holland, 1958; 1959; 1973; 1985a, 1992, 1997)[7]. Types that are more proximal to one another on the hexagon are more similar than are types farther apart on the hexagon (Figure 1).

[7] Importantly, different views on the structure of vocational interests have been presented (see Roe (1956), Prediger (1981; 1982) and Gati (1991)). However, research has generally been supportive of the circular normative RIASEC model (Day & Rounds, 1998; Day, Rounds, & Swaney, 1998; Rounds & Tracey, 1993; Tracey & Rounds, 1993).

Figure 1: Holland's Hexagon (Circular Structure of Holland's RIASEC Types)

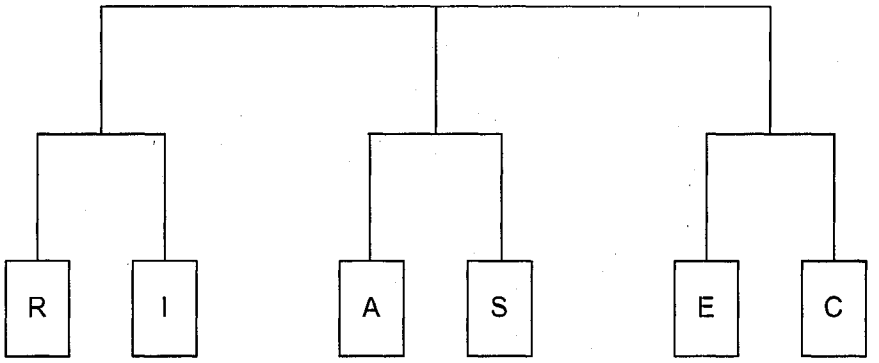


According to Holland, this hexagon has corresponding mathematical relations between the different RIASEC types. This model is in turn referred to as a circumplex (Guttman, 1954). When considering the mathematical relations, Holland maintains that distances between adjacent types (e.g., RI, IA, AS, SE, EC, CR) are smaller than distances between the alternate types (e.g., RA, IS, AE, SC, ER, CI), and that the distances between the alternate types are smaller than the distances between the opposite types (e.g., RS, EI, CA). In turn, correlations among adjacent types will be largest, followed by correlations among alternate types, and then opposite types. Although widely accepted in the United States, Holland's model has not gone unchallenged (Gati, 1979; 1982; 1991). Gati (1982) and Rounds and Tracey (1996) have both proposed alternative models based on Holland's six RIASEC types. In research examining structural equivalence, the models of Holland, Gati, and Rounds and Tracey are the most often examined.

Claiming that Holland's circular order structure does not adequately account for the relations among RIASEC types (Gati, 1979, 1982, 1991), Gati's three-group partition model (1982; Figure 2) collapses Holland's types into three clusters [(R, I), (A, S), and (E, C)] and predicts that correlations within clusters will be greater than correlations among types that do not belong to the same cluster. This model results in only 36 unique order predictions,

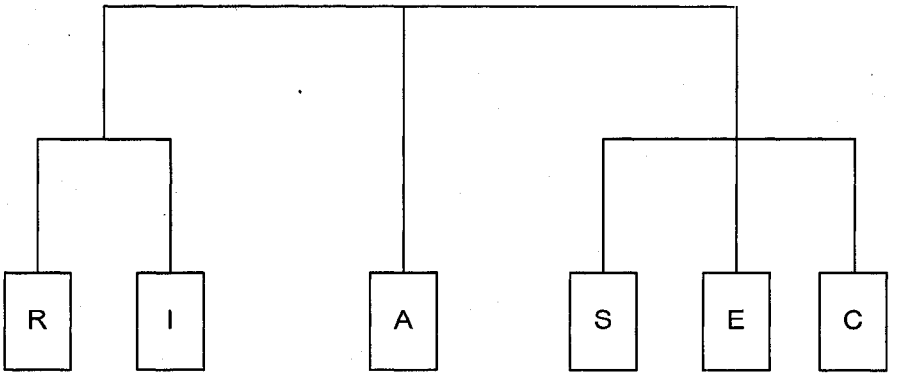
thereby suggesting that correlations among other possible pairs of types are insignificant (Tracy & Rounds, 1993).

Figure 2: Gati's Three-Group Partition



Rounds and Tracey's alternative partition model (1996; Figure 3) respects an observed discontinuity between the artistic interest type and the other Holland types (see Fouad & Dancer, 1992; Swanson, 1992). This model makes 44 order predictions regarding three interest clusters [(R, I), (A), (S, E, C)]. Similar to expectations described for Gati's model, correlations between Holland types within each cluster are predicted to be greater than correlations among types in different clusters.

Figure 3: Rounds and Tracey's Alternative Three-Class Partition



As outlined by Glidden-Tracey and Parraga (1996), "the fit of each model to the data is compared to the fit of the model to all possible permutations of the rows and columns of

the correlation matrix. This analysis provides an exact probability of obtaining the model-to-data fit, and also gives the correspondence index (CoI)[8] as an interpretive aid. The correspondence index is the number of observed correlations in the RIASEC proximity matrix that agree with the model predictions minus the number of disagreements divided by the total number of predictions made for that model" (p. 100-101).

In view of the fact that Holland's hexagonal structure serves as a foundational element for the theoretical tenets of vocational interest structures (Swanson, 1992) and the fact that others have questioned Holland's model for use with unique populations, research extending its validity with different populations is essential. Although there is support for the equivalence of Holland's structure with various populations, all in all, results concerning the validity of this model with diverse populations are quite varied. The following section will demonstrate this point.

Assessing the Structure of Vocational Interests with Different Populations

Hansen (1987) and Holland (1985a) provided evidence to suggest that Holland's circular model generalizes across cultures. However, Rounds and Tracey (1996) examined the cross-cultural structural equivalence of Holland's model, finding contradictory conclusions. Using the randomization test of hypothesized order relations (Hubert & Arabie, 1987) to evaluate the model fit for 20 U.S. ethnic correlation matrices[9], 76 international correlation matrices (representing 18 countries), and a U.S. benchmark sample of 73

[8] Importantly, in considering person – environment fit and interest congruence indices; there has been on-going debate regarding both the types of congruence indices being used and the challenges with understanding and measuring congruence. Please refer to Camp and Chartrand (1992), Chartrand and Walsh (1999), Tinsley (2000), and Tracey, Darcy, and Kovalski (2000).

[9] Data informing the correlation matrices used in the randomization test of hypothesized order relations could emerge from, but are not limited to, a variety of vocational interest tests, including, for example: Vocational Preference Inventory (Holland, 1985b), Self-Directed Search (Holland, 1985c), Unisex Edition of the ACT Interest Inventory (Swaney, 1995), and the Strong Interest Inventory (Harmon, Hansen, Borgen, & Hammer, 1994).

correlation matrices, they found that the cross-cultural structural equivalence of Holland's circular order model was not supported. However, both Gati's partition and the alternative partition proposed by Rounds and Tracey fit the U.S. benchmark and international samples equally well. In analyzing the Canadian results separately, they found that "only one RIASEC [correlation] matrix based on a U.S. edition of the VPI [Holland's Vocational Preference Inventory (Holland, 1977; 1985b)] had a correspondence index of .71 that exceeded the 99% lower bound confidence interval of the U.S. benchmark" (p. 322). According to Rounds and Tracey, this was an unexpected finding, given that Canada has an economy and occupational structure similar to that of the United States.

Glidden-Tracey and Parraga (1996) examined the structure of vocational interests with a sample of 98 Bolivian university students. Using Hubert and Arabie's (1987) randomization text of hypothesized order relations and multidimensional scaling, they fit correlation matrices to three different structural models (Holland's Hexagon, Gati's three-group partition and Round and Tracey's three-group partition), finding that none of the models characterized the structure for this sample.

Day, Rounds and Swaney (1998) examined the circular structure of Holland's interest types across five racial-ethnic groups (African Americans, Mexican Americans, Asian Americans, Native Americans, and Caucasians). Using the randomization test of hypothesized order (Hubert & Arabie, 1987), targeted principal components, and three-way multidimensional scaling with a sample of 11,610 participants, they found that Holland's model adequately represented the interest structures of both men and women in all identified samples.

In examining the structure of vocational interests in Iceland, Einarsdottir, Rounds, Aegisdottir, and Gerstein (2002) found that both Holland's and Gati's models demonstrated a

good fit with Icelandic and American samples. Using the randomization test (Hubert & Arabie, 1987) and multidimensional scaling with a sample of 887 career counseling clients and university students, they provided evidence for the continued use of both Gati's and Holland's models with diverse populations.

Oliver and Waehler (2005) conducted another study examining the validity of Holland's six types of themes by applying the typology to populations viewed as culturally different from populations with whom the typology was developed. Their sample included 156 residents of Hawaii, 13.4% of which identified as solely "Native Hawaiian" and 86.6% who identified as coming from mixed backgrounds, including: Caucasian, Chinese, Japanese, Filipino, Latino, "other" Pacific Islander, Korean, Native American and Native Alaskan. Conducting the randomization test of hypothesized order and performing multidimensional scaling analysis, they found that the construct validity of Holland's typology was fully supported with this Native Hawaiian sample.

Evaluating the fit of four different representations (Holland's, Gati's, Rounds and Tracey's and an alternative proposed in the article) of the relations among RIASEC types, Long and Tracey (2006) indicated that Holland's model had the worst fit and was lower than that for American samples; while Gati's and Rounds and Tracey's models had the best fit. Using a structural meta-analysis examining 29 RIASEC correlation matrices from a Chinese sample, they argued that lack of support for the validity of Holland's model in China could have been attributable to the invalidity of the model itself or the inadequacy of the vocational interest measures used in forming the correlation matrices.

Altogether, it is evident that more research is required to determine the cultural universality of Holland's model and other widely accepted vocational interest models. Nonetheless, the majority of research still supports the theory's use with North American

populations. Importantly, Holland's model is more fully specified than that of Gati's or Rounds and Tracey's because it makes order predictions for all possible pairs of correlations with the exception of the 33 adjacent, alternate, and opposite pairs. Moreover, "the partition models [of Gati and Rounds and Tracey] do not offer a completely competitive structure to Holland's order model. Gati's model has no strict order prediction that is contrary to Holland's order predictions" (p. 316); with 75% of the predictions made by Gati being identical to those of Holland (Rounds & Tracey, 1996). In applying the RIASEC model to an offender population, testing the validity of Holland's and alternative models will be critical to the validity and reliability of the findings, while at the same time providing the opportunity to contribute to knowledge concerning the use of this model with unique populations.

Holland's Hexagon and the Environment

Holland claims that an environment can be defined by the situation or atmosphere that is created by the people who dominate the environment of interest. He maintains that "where people congregate, they create an environment that reflects the types they are, and it becomes possible to assess the environment in the same terms as we assess people individually" (Holland, 1973, p. 3). However, the current author would argue that assuming an environment reflects the types that are in it is not necessarily an accurate supposition for all environments.

Institutional environments such as prisons are composed of a multitude of personalities that have been brought together not by conscious choice but by circumstance. In addition, the prison reflects a structured environment, often void of choice and free will; that is instead characterized by the rules, goals and needs of the institution and those charged with its administration, rather than the goals and needs of the persons inhabiting that space.

Accordingly, environments for inmates may not include only work environments (i.e., job placements during incarceration), but also programming environments (i.e., vocational programs delivered in hopes of developing job related skills) and living environments. These environments are filled with people that are there not by choice but by decree. In turn, the type of environment under these circumstances may not necessarily be a reflection of the people in it, but more so the administrative needs, being imposed upon it.

Holland suggests that one's satisfaction, career stability, and achievement will be more certain in a work environment that is *congruent* with his or her interest type. Considering congruence permits the examination of both the person and the environment, in turn leading to more precise predictions about human behaviour. The majority of research examining the congruence / satisfaction relationship has demonstrated some support for the relevance of person-environment congruence in employment. Tinsley (2000) stated that "job satisfaction is the most frequently investigated job outcome, by far, with employee stress a distant second" (p. 150).

Congruent Environments and Job Satisfaction

Mount and Muchinsky (1978) used Holland's Self-Directed Search to examine the congruence between occupations and the expressed vocational interests of 362 employees from five environmental typologies (Realistic, Investigative, Social, Enterprising and Conventional). Using only the first letter of the occupational and or vocational interest codes[10], these researchers identified participants as congruent or incongruent, and found that,

[10] Notably, this congruence factor comprises only two levels instead of the three levels recommended by Holland (1973). For example, in considering an occupation code of RES and its level of congruence with a vocational interest code of RIA, using a congruence factor of only two levels (R-R) would provide very different results to that of four levels (RE-RI), or six levels (RES-RIA). Six levels provide substantially increased specificity concerning the level of congruence.

compared to incongruent employees, congruent employees were significantly more satisfied with their jobs.

In a study in a Canadian high school, Gade, Fuqua, and Hurlburt (1988) provided evidence for the relation between Holland's interest typologies and satisfaction with education. With a sample of 596 Native-American students, they found that those students with Investigative or Social personality type codes had significantly higher scores on educational satisfaction as compared to those students with Realistic type codes. This provides support for Holland's theory of congruence, as educational environments provide a better "fit" for investigative and social personality types.

Recognizing the different conclusions emerging in the literature, Tranberg, Slane and Ekeberg (1993) conducted a meta-analysis of 27 published studies, finding that the overall mean congruence / satisfaction correlation was not significant. However, some authors argued that weak congruence indices may have been responsible for this finding, claiming that congruence-satisfaction outcomes differ depending on the indices being used (Assouline & Meir, 1987; Camp & Chartrand, 1992; Spokane, 1985).

Arguing that the majority of research examining Holland's theory had been conducted with students or employees in occupations that require a college degree, Upperman and Church (1995) investigated the validity of the congruence-satisfaction hypothesis in an arguably different context. One hundred and fifty four men from four representative Army specialties completed the Vocational Preference Inventory. Calculating congruence based on Iachan's (1984, 1990) M index, Kwak and Pulvino's (1982) K-P index, and Brown and Gore's (1994) C index[11] (i.e., congruence factors based on six levels, for

[11] The M index, K-P index, and C index are all measures of vocational congruence, or person X environment fit. The K-P and C indices will be discussed in detail later in this document.

example, RIE-RIS), they found no significant differences between those Army specialists in congruent versus incongruent environments. They proposed that contextual factors in the military may outweigh or inhibit the role of congruence in determining satisfaction. In considering contextual factors within correctional environments, it seems fair to deduce that examining the congruence / satisfaction hypothesis may also be faced with certain limitations. In turn, in considering the role of congruent environments for offenders within correctional institutions, it seems that placing emphasis on some of Holland's alternative outcomes (i.e., achievement) may prove more suitable.

Swan (2005) did not examine the congruence – satisfaction hypothesis but was interested in the vocational interests of female carpenters. She provided a profile of carpenters' vocational interests by administering the Self-Directed Search (Holland, 1985c) to 548 members (female: n=411; male: n=137) of the United Brotherhood of Carpenters. Her results indicated that the vocational interests of both female and male carpenters are dominated by Realistic interests. Estimating carpentry as a non-traditional occupation for women, Swan draws on the work of Herr and Cramer (1984) who argued that women in non-traditional occupations are more oriented toward ideas and things and less to social environments. Swan also highlighted that, compared to traditional women, women in non-traditional occupations tend to score higher on Holland's investigative and enterprising scales as well.

All in all, the evidence for the congruence-satisfaction relationship is equivocal. There is support for, and against, this relationship; and some question the strength of different congruence indices, and the resulting impact on outcomes. Much of the research has also focused on satisfaction outcomes with little focus on alternative outcomes (i.e., achievement). The next section of this document will consider how the "Good Lives"

model, self-determination theory, and vocational congruence, all evoke aspects of positive psychology; and why this is important in the context of offender-related research.

Good Lives, Self-Determination & Congruent Environments

In considering the work of Ward and Stewart (2003), Deci and Ryan (2000), and perhaps even that of Holland (1992), it becomes clear that "positive psychology" (Seligman & Csikszentmihalyi, 2000; Seligman, Linley, & Joseph, 2004) is a predominant theoretical consideration. In their consideration of positive psychology, Wormith and colleagues (2007) argued that investigating offender behaviour and interventions, in terms of positive psychology, invites a paradigm shift from a deficit-based model to a strength-based model. Likewise, Caprara *et al.* (2000) suggested that "there is an emerging conceptual shift in psychology from the prevailing focus on the impact of negative factors…toward a focus on the influential role of positive factors" (p. 302). For the matter at hand, 'unemployment' is the negative factor, 'employment' is the positive factor, but 'congruent employment' may actually push us beyond identification, toward understanding. Is it conceivable that congruent environments are conducive to resilience among offenders?

Risk and Resilience: Employment as a Protective Factor

Working within a risk and resilience conceptual framework, Nash and Bowen (1999) stated that "in epidemiology, risk factors are factors that have a statistically significant association with the occurrence of one or more harmful outcomes. Similarly, protective factors are associated with positive outcomes or with reduced occurrence of harmful outcomes" (p. 172). Rutter (1985; 1987) described the main processes of resilience as a reduction of risk impact, reduction of negative behaviour patterns, the establishment and maintenance of self-esteem and self-efficacy, and the beginning of opportunities. He further argued that protective factors are those factors that modify, alter or ameliorate the response

of an individual to various events preceding maladjustment. In considering resilience and protective factors, it is argued that clear definitions of the central constructs being employed are required (Luthar, 1993). Furthermore, attention to the processes and personal characteristics which together serve to modify risk in a more favourable direction is critical (Jackson, Born & Jacob, 1997).

Born, Chevalier and Humblet (1997) identified a variety of types of protective factors, including social support, educational and residential climate, relationships with a reference person and personal resources. Within the realm of educational and residential climate, they present evidence to suggest that compared to non-resilient individuals, resilient individuals are immersed in "non-conflictual, cohesive environments in which autonomy and open-mindedness are enhanced" (p. 680). Although it is difficult to provide this type of environment within a correctional setting, considering the relevance of congruent environments may assist in achieving this ideal.

Although resilience and protective factors are concepts used primarily within the child and adolescent literature, recently, Kosterman and colleagues (2005) considered positive adult behaviour and its relationship to crime and substance abuse. They identified 'constructive engagement' as one of seven measures of positive adult behaviour and, within this category, employment was considered a key component. They found that being constructively engaged in school or work was related to significantly less criminal activity. They further argued that the seven measures of positive adult behaviour are likely useful as predictors for studies seeking to understand the protective effects of crime.

Respecting the issues raised by Luthar (1993) and Jackson and colleagues (1997), defining "congruent employment / vocational interventions" as a protective factor in the desistance of crime (given that congruence considers both the organizational requirements

and the individual interests) may assist in understanding individual differences in the capacity for resilience among offenders. Perhaps congruent environments act as a protective mechanism (a resilience factor) through which employability is enhanced. As described by Ungar (2004), resilience is really the result of negotiations between individuals and their environments, thereby allowing for the maintenance of a self-definition as healthy. However, is a correctional setting capable of providing congruent environments?

Congruent Employment Interventions in Correctional Settings?

Correctional organizations do their best to ensure that offenders have employment opportunities within correctional environments and vocational interventions within such environments. Consequently, they continuously strive to assist offenders in gaining appropriate skills and experience in hopes of decreasing recidivism. Accordingly, it becomes critical that offenders receive appropriate vocational interventions within an institutional environment during their period of incarceration.

The first step to successful vocational intervention is the appropriate and valid assessment of an offender's needs. As discussed earlier, the Correctional Service of Canada (CSC) begins this assessment with the Dynamic Factor Identification and Analysis (DFIA; Motiuk, 1997) during the Offender Intake Assessment (OIA) process. Following this, and after appropriate screening for education level, CSC administers the COPSystem (Knapp-Lee, 2000), which is an assessment of vocational interests, aptitudes, and values, to obtain accurate information regarding an offender's specific vocational needs. Such assessments are completed in hopes of ensuring that an offender's correctional plan appropriately addresses his or her identified needs while at the same time incorporating Andrew and Bonta's principle of responsivity (1994; 1998; 2003). The goal is to contribute to improved correctional outcomes during the period of incarceration and upon release.

The capacity of correctional institutions to provide congruent intervention environments is uncertain. Although interventions used in Canadian federal institutions are developed to target identified criminogenic needs, thereby contributing to rehabilitation and reintegration efforts, the ability to meet the vocational interests of individual offenders is questionable. Prior to understanding the capacity to intervene according to the principles outlining the relevance of congruent environments in vocational settings, there is a need for research examining offender's vocational interest patterns and existing employment interventions offered by correctional agencies.

In considering appropriate and congruent environments, and particularly congruence within correctional institutions, it is important to consider not only settings that are congruent with an individual's interests but also the level of congruence between the abilities required to successfully handle a particular job and the abilities of the individual. The responsivity principle outlined by Andrews and Bonta (1994, 1998, 2003, 2006) attends to this concern. As outlined earlier, this principle states that the modes of intervention need to be matched to the learning styles and abilities of the offenders. Moreover, general mental ability and cognitive ability have been raised as an important predictor of successful job outcomes (e.g., Hunter, 1983; Schmidt, 1981; Smith & Robertson, 1989), and Kandel and colleagues (1988) have also demonstrated that enhanced cognitive abilities (i.e., high IQ) protect against committing crime.

Cognitive Ability and Job Performance

Examining the economic impact of job selection methods, Schmidt, Hunter, Outerbridge, and Trattner (1986) indicated that valid measures of cognitive ability produced increases in output worth up to $600 million for each year that the new employees remained employed. Focusing on the joint relation of mental ability and job experience with job

performance, Schmidt, Hunter, Outerbridge, and Goff (1988) argued that the validity of mental ability and its relation with job performance remains relatively constant regardless of the level of job experience.

Schmidt and Hunter (2004) provided evidence suggesting that general mental ability was predictive of both occupational level attained and performance within a chosen occupation. They further argued that it was more predictive than other ability, trait or disposition and job experience variables. Reviewing 12 meta-analyses, these authors provided further support for the relation between general mental ability and performance in job training and performance on the job. In 2006, Hunter, Schmidt, and Le estimated that previous meta-analyses had underestimated the correlation between general mental ability and job performance by about 25%.

All things considered, in examining relations between vocational congruence and the prediction of both institutional and community correctional outcomes, it will be judicious to ensure the consideration of the cognitive abilities represented by the sample in question. It is evident that vocational interests could be significant in CSC's ability to enhance the "good lives" of offenders. Furthermore, CSC's administration of vocational assessments facilitates research in this area; however, how practical is the application of vocational theories and the RIASEC model?

Practicality of Vocational Theories and the RIASEC model?

In considering the process involved in the determination of levels of congruence in different environments, it is important to draw attention to the fact that Holland's RIASEC theory and resulting vocational interest codes (occupational codes) also permit direct access to seven of the most widely used classification systems and informational sources in the United States (Gottfredson & Holland, 1996). Gottfredson and Holland's Dictionary of

Holland Occupational Codes (1996) cross-references Holland Occupational Codes with the Dictionary of Occupational Titles, Occupational Employment Statistics, Standard Occupational Classification, Census Occupational Classification, Classification of Instructional Programs, Guide for Occupational Exploration, and Occupational Outlook Handbook. Furthermore, this dictionary also cross-references alphabetical lists of occupations to individual Holland Codes.

In Canada, the National Occupational Classifications (NOC) is a system for describing the occupations of Canadians. This system provides statisticians, labour market analysts, career counsellors, employers and individual job seekers a standardized way of describing and understanding the nature of work. Human Resources and Social Development Canada (HRSDC) worked closely with Statistics Canada to ensure strong links between the NOC and the Standard Occupational Classification (SOC), for the collection and use of labour market data (Human Resources Development Canada; HRDC, 2001).

In considering the labour market and how offenders are implicated, Kitagawa (2005) highlighted the importance of assisting offenders in developing employability skills and suggested that generating meaningful work records during an offender's period of incarceration will help prepare offenders for employment upon release. Kitagawa also reported that "the Conference Board [of Canada] is forecasting a labour force deficit of 1.2 million skilled workers by 2025, even assuming aggressive immigration policies" (p. 6). The ability to apply Holland's theory to offenders and in turn link this information to Canada's NOC system provides the CSC with additional methods for ensuring that their intervention efforts are consistent with labour market needs.

Holland makes no specific predictions or claims regarding his theory and its applicability with an inmate population. He does, however, suggest that the theory is not

likely to be useful for understanding "unusual populations". The current author maintains that although inmates may be "unusual" in that they are extraordinary in comparison to the population as a whole, there is little reason to anticipate that Holland's theoretical contributions would not be appropriate for an offender population. However, as suggested by Swanson (1992), this does necessitate a process to ensure that Holland's primary tenets (i.e., hexagonal structure) are valid with an offender population. Although these tenets have yet to be assessed with an offender population, there is a limited sampling of articles pertaining to Holland's theory and inmate populations. This research will be reviewed in the next section.

Past Research: Holland's Theory and Inmate Populations

Laufer (1980) used the Vocational Preference Inventory (VPI; Holland, 1977) to examine the vocational interests and personality characteristics of a sample of 201 criminal offenders. He concluded that these offenders exhibited moderate interest in traditional non-criminal vocations, finding that the means from the offender sample were similar to that of those reported by employed adults and college students. Using correlational analysis to examine the relationship between the various scales in the VPI, Laufer found that although heavily intercorrelated, the results failed to support Holland's Hexagonal model. He further suggested that the number of prior arrests and the number of years spent in prison did not significantly modify an inmate's interests in traditional vocations.

Weiser, Klimek and Hodinko (1981) used Holland's theory of careers to present a profile of career perspectives among male prison inmates who were attending college courses. More specifically, the authors were interested in assessing the maturity of inmate attitudes, which are viewed as critical to the career decision-making process. They administered the Vocational Preference Inventory (Holland, 1975) and the Career

Assessment Inventory (Johansson, 1986) to 118 inmates, from four correctional facilities, who were enrolled in at least one community college course. In comparisons between inmate means on the VPI and a normative population of 6290 male freshmen, they found that the mean for the inmate population was significantly different ($p<.01$) for five of the six VPI vocational interest scales. More specifically, inmate means were higher in realistic, social, conventional, enterprising, and artistic interest areas. The mean on the intellectual vocational interest was identical for both samples.

In hopes of providing evidence for the validity of the Lustig Color Vector Test (LCVT[12]) as a vocational interest measure, Pullo, Lustig and Livneh (1993) administered the Vocational Preference Inventory to a sample of 92 incarcerated offenders. They hypothesized that if the LCVT was measuring similar vocational interests, a significant relationship would exist between the LCVT and the VPI. Even though they found a non-significant correspondence between the LCVT and expressed vocational interests, they suggested that their study provides preliminary support for the LCVT as a measure of vocational interest. They argued that limited vocational interests and / or experience among the sample contributed to the low correspondence between the two measures.

Most recently, Penney and Cahill (2002) examined the relationship between work personality (i.e., vocational interests), learning style and client intervention preferences. Their examination of a Canadian sample of 60 adult Federal and Provincial parolees used the Self-Directed Search (Holland, 1973, 1985c) and provided results to indicate that the most common Holland vocational interest type exhibited by this sample of offenders was the Realistic type. They further indicated that when considering career counselling preferences

[12] The LCVT is a nonverbal vocational interest and personality test based on the vector theory of behaviour which describes human behaviour in terms of motion and the laws of physics. As a result of the high rate of functional illiteracy among imprisoned offenders, it is difficult to administer most standardized instruments.

among offenders, those individuals exhibiting Holland's Artistic, Investigative, Social and Enterprising types would be most responsive to a "thinking" (i.e., opportunity for reflection) approach to career interventions. Within the sample, approximately 25% were found to be "thinkers". In considering learning style, they found significant correlations between Holland's Investigative, Artistic and Conventional vocational interest scores and learning style items from Kolb's (1985) Learning Style Inventory (a measurement of learning style).

Overall, although Holland's theory has rarely been applied with offender populations, the research to date provides initial support for the utility and applicability of the RIASEC types for an offender population. Unfortunately, none of these studies tested the validity of the circumplex model for offenders nor did they consider the impact of congruent interventions on institutional and community correctional outcomes.

In sum, research indicates that unemployment contributes to increased levels of crime. In addition, evidence suggests that static and dynamic predictors are important in the prediction of crime and employment interventions assist in reducing crime. Ward and colleagues (2002; 2003) argue that correctional rehabilitation efforts need to focus on an enhancement model in which the offender's conception of "good lives" is incorporated. Finally, Holland argues that vocational congruence is important to vocational satisfaction, stability and achievement. Nevertheless, it is evident that concrete examples of research concerning enhancement models for offenders that consider variables that may contribute to "good lives" are rare. The current author argues that congruence between institutional employment and vocational interventions, and originally assessed vocational interests, will contribute to more successful correctional outcomes and has the potential of adding incremental validity to the prediction of these outcomes. Also, operationalizing Holland's

theory of congruence in this way is an example of an explicit conceptualization of the "good lives" model.

Study Rationale

Recognizing the limitations in our knowledge concerning how to most effectively intervene and how to keep offenders employed, the current study offers an innovative perspective that incorporates forensic, vocational and positive psychology. In doing so, correctional researchers and practitioners will be encouraged to reanalyze predominant theories and consider new possibilities in the area of employment and crime.

The current research will focus on the vocational interests of offenders and in turn the level of congruence between:

1. Vocational interests expressed during the Offender Intake Assessment (OIA) process and employment or vocational interventions during incarceration
2. Vocational interests expressed during the OIA process and employment upon release into the community.

Research Objectives

There are three objectives to this research:

1. Examine the applicability of RIASEC models with an offender population.
2. Examine the relevance, validity and potential contributions of Holland's theory of congruence with an offender population.
3. Examine the incremental validity of congruent employment interventions in the prediction of recidivism.

This research was based on a retrospective, longitudinal design and focused, not on the onset of crime, but rather contributions to more positive institutional adjustment and the

prevention, in the context of rehabilitation and intervention, of repetitive involvement in crime (i.e., recidivism).

The research was comprised of two studies:

Study I (RIASEC models)

The main purpose of Study I was to examine the structure and applicability of vocational interest models, as proposed by Holland (1973; 1985a), Gati (1982), and Rounds & Tracey (1996), with an offender population.

Study II (Vocational Congruence)

This study involved the examination of levels of vocational congruence among offenders within a correctional environment and levels of vocational congruence among job-placed offenders within the community. Potential contributions to more successful institutional adjustment, achievement of lower security status, and more stable involvement in vocational interventions were examined. In examining levels of vocational congruence in the community, the study explored potential contributions to a higher likelihood of offenders gaining and maintaining congruent job placements upon release, whether those offenders who gain *congruent* job placements on release were less likely to return to federal custody, and if higher levels of congruence added incremental validity in the prediction of recidivism.

Hypotheses

Foundational Hypothesis: RIASEC models will be applicable and valid for an offender population.

As discussed, the applicability and validity of three RIASEC models, including Holland's hexagon, has been examined for a variety of unique populations. However, it has yet to be examined with an offender population. Ensuring the validity of the hexagon with an offender population sets the foundation for all other hypotheses in this study. This

foundational hypothesis will be examined in Study I. All other hypothesis will be examined as part of Study II.

Hypothesis 1: The most frequently occurring primary personal interest type, from Holland's RIASEC types, will be the Realistic interest category.

Normative information from the Vocational Preference Inventory (Holland, 1977) and the Self-Directed Search (Holland, Powell, & Fritzsche, 1997) suggest that men are more likely to exhibit Realistic interests, and women are more likely to exhibit Social interests. Given that the majority (94-96%) of federally sentenced offenders are men, it is hypothesized that the most frequently exhibited personal interest type will be Realistic. Furthermore, given that 80% of newly admitted offenders have completed less than a high school education (Boe, 2005) and the majority of occupations falling within the Realistic interest category require only elementary school training or no special training at all (Holland, 1992), it is anticipated that an offender population will express more interest in these areas because they have more knowledge and experience with Realistic job types. However, this does not negate the possibility of the expression of diverse interest areas and the necessity to provide vocational counselling in order to inform and educate offenders regarding different occupational choices.

Hypothesis 2: Compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with more stable periods of involvement with employment and vocational interventions.

Holland (1992) maintains that incongruence between vocational interests and environments will lead to negative interactions which will in turn lead to dissatisfaction, ineffective coping behaviour and the eventual departure from the incongruent environment. A person's tendency to leave one environment increases as levels of incongruence of the interactions within that environment increase. For this reason, it is anticipated that congruent

vocational interventions will be associated with more stable periods of involvement in vocational interventions.

Hypothesis 3: Compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with less involvement in poor institutional behaviour.

Vocational interventions within a correctional environment have been shown to increase positive behaviour within the prison environment (Motiuk, 1996). Furthermore, Holland (1992) argues that the greater the discrepancy between a person's interest patterns and the environmental patterns (i.e., incongruence), the more uncomfortable and destructive interactions become. In turn, it is hypothesized that congruent interventions will lead to lower levels of poor institutional behaviour while incongruence will result in more "destructive interactions" reflected in poor institutional behaviour patterns.

Hypothesis 4: Compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with higher likelihood of decreasing to lower levels of employment need.

Within the Correctional Service of Canada's (CSC) OIA process, successful involvement in an offender's correctional plan (i.e., completion and involvement in identified programming needs) is something that is viewed as critical in addressing criminogenic needs during the period of incarceration. Given the assumption that congruent interventions will be associated with more stable periods of programming involvement, it is further hypothesized that this involvement will in turn be reflected in the assessment of employment needs and will therefore result in a higher likelihood of decreasing to lower levels of employment need.

Hypothesis 5: Compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with higher likelihood of decreasing to lower levels of security.

Within the CSC's security reclassification process, successful involvement in an offender's correctional plan (i.e., completion and involvement in identified programming needs) is an item considered in the determination of security level. Given the assumption that congruent interventions will be associated with more stable periods of involvement, it is further hypothesized that this involvement will in turn be reflected in the assessment of security levels and will therefore result in a higher likelihood of decreasing to lower levels of security.

Hypothesis 6: Compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with higher likelihood of attaining employment in the community.

Holland (1992) claims that increased involvement in congruent environments will result in the direction of a person's vocational choice being stabilized and maintained. Furthermore, involvement in vocational interventions has been shown to result in improved skills to keep or advance in employment, in turn increasing the likelihood of post-release employment (Latendresse & Cortoni, 2005). In addition, the CSC strives to provide a continuum of care in which intervention efforts begin in the institutional environment but extend to the community. More specifically, as part of CSC's broader mission, they strive to facilitate offender job acquisition, with the related intention of enhancing the offenders' successful community reintegration. Given that congruence is associated with higher achievement and in turn more stability and the CSC strives to ensure a continuum of care, it is hypothesized that this combination of factors will result in the attainment of more readily applied skills which will in turn lead to a higher likelihood of attaining employment.

Hypothesis 7: Compared to incongruent employment in the community, congruent employment in the community will be associated with more stable periods of employment in the community.

Similarly to the arguments in hypothesis two, because a person resolves incongruence by leaving incongruent environments in hopes of seeking a new and congruent environment, and because people are more likely to achieve success (Holland, 1992) in congruent environments, it is hypothesized that congruent employment in the community will be associated with more stable periods of community employment.

Hypothesis 8: Compared to incongruent employment in the community, congruent employment in the community will be associated with lower likelihood of recidivism.

Research based largely on the principles originating from the psychology of criminal conduct indicates that unemployment is an important factor in the prediction of recidivism. Additionally, research based on vocational psychology indicates that congruent employment is more likely to lead to higher stability and achievement in vocational aspirations. In turn, it is hypothesized that congruent employment will be associated with a lower likelihood of recidivism.

Hypothesis 9: Congruent employment will add incremental validity in the prediction of recidivism.

Research demonstrates that unemployment is a critical factor in crime and it is clear that being employed contributes to the desistance of crime. However, advancing this framework theoretically will allow us to identify a plausible protective factor in the employment / crime framework, that is, congruent employment. Offenders who are unemployed, employed and congruently employed will be compared in order to examine the impact of these situations and in turn advance our understanding of this complex area.

Merging prominent theory from forensic, vocational and positive psychology, this dissertation will contribute to theoretical knowledge concerning the associations between employment and crime, and factors contributing to successful vocational interventions and outcomes, by extending Holland's theory of congruence and proposing that *congruent*

employment and vocational interventions will contribute to increased success within the institutional environment and increased success upon release.

Chapter 2: Methodology Study I

Participants: Study I

This study included a convenience sample of 305 federally sentenced, incarcerated, male offenders, ranging in age from 19 to 65, with an average age of 34. Within the sample, 88.2% of the participants were Non-Aboriginal and 11.8% were Aboriginal. The majority of offenders (90.8%) identified English as their first language, while the remaining 9.2% identified French, Mandarin, Spanish, Russian, Punjabi, Lebanese, Vietnamese, Cantonese, Tagalog, Chinese, Farsi, Carrier, and Hindi as their mother tongue. In considering marital status, 41.3% were single, 24.3% common law, 9.5% married, 6.2% divorced, 1.3% widowed, and 1% separated. Marital status was unknown for 16.4% of this sample.

Measures: Study I

Vocational Preference Inventory (VPI)

Holland's Vocational Preference Inventory (Holland, 1977; 1985b) includes 160 occupational titles to which the respondent is asked to identify his or her interest/disinterest by selecting yes or no for each title. The completion of this inventory results in scores for six different interest types. The details regarding these interest types are provided in Appendix 1. In total, the inventory takes 15-20 minutes to complete and results in scores for six interest types as follows:

1) Realistic
2) Investigative
3) Artistic
4) Social
5) Enterprising
6) Conventional

Predictive and concurrent validity coefficients range from .50 to .60, whereas reliability coefficients range from .61 to .93 (Holland, 1978; 1985b). At the time of this research, only 2 published studies used the VPI with offender populations and provided specific information regarding the potential validity of the scale. Laufer (1980) stated that the means from the offender sample he used were similar in elevation to VPI data reported on employed adults and college students. Conversely, Weiser, Klimek, and Hodinko (1981) found that mean VPI scores for inmates were significantly different from those of students enrolled in post-secondary institutions. Specifically, inmates had higher mean scores for realistic, social, conventional, enterprising, and artistic interest types.

Procedure: Study I

This study included offenders who had completed a vocational assessment (i.e., Holland's VPI) in the Pacific Region of Canada between June 2006 and May 2007. This timeframe was selected because the Registered Rehabilitation Professional (RRP) responsible for administering the vocational assessments in that region commenced the specific collection and data management regimes concerning the VPIs in June 2006. Prior to this, only qualitative data were being systematically filed. Quantitative information was limited to hard copy forms and therefore inaccessible. The end date was determined as May 2007, as it was estimated that one year of data would provide a sufficient sample size for this study.

This region was selected because the RRP working for CSC in this region was the only RRP using Holland's Vocational Preference Inventory as an indicator of validity for the COPSystem Vocational assessment. The COPSystem is the vocational assessment utilized nationally (excluding Quebec) by the CSC; however, utilizing the VPI for this study allowed for direct examination of Holland's six interest types. The RPP was tracking the raw data

associated with the resulting interest codes from the VPI. Raw data from the Career Occupational Preference System (COPS) are not available. Accessible data from the COPS are limited to the three-letter interest code.

Data were entered into Excel by the RRP and then transferred to the principal researcher at the end of the data collection period. All identifying information was stripped from the files prior to the primary researcher receiving these data files. These data were then transferred to SPSS for the appropriate analyses. The RRP had also been tracking demographic information, which was also included in the Excel file. In turn, this study required no additional data extraction from traditional CSC data systems.

Analytic Approach Study I

Examining the Structure and Validity of Three Vocational Interest Models, including Holland's Hexagon.

Descriptive statistics on Holland's six interest types provided a general profile of vocational interests for this sample of offenders. The structural relationships of the three RIASEC models were examined using the randomization test of hypothesized order relations and the resulting correspondence index (Hubert & Arabie, 1987; Rounds, Tracey, & Hubert, 1992). This test assessed the fit of the circular order model by testing for the number of proposed predictions that were met by these data (i.e., the correlation matrix formed from the VPI results). The correspondence index (CoI) aided in the interpretation by providing the number of confirmed predictions (agreements) minus the number of violations of order predictions (disagreements) divided by the total number of order predictions. The CoI varies from -1 to 1, with 0 indicating equal agreement and disagreement. As discussed, Holland's specifications yield 72 unique order predictions (Tracey & Rounds, 1993), Gati's

specifications yield 36 unique order predictions (Gati, 1982), and Tracey and Round's specifications yield 44 unique order predictions (Rounds & Tracey, 1996).

The structural fit between Holland's RIASEC model and the data gathered for this sample of offenders was also examined using two-dimensional multidimensional scaling (MDS). MDS is related to principal components analysis, factor analysis, and cluster analysis. It displays a pattern of proximities (i.e., similarities or distances) among a set of objects (e.g., RIASEC hexagonal distances) as a picture. This pictorial representation is based on the configuration of a set of objects (e.g., RIASEC interest types) that approximate the distances between these objects. This exploratory analysis provided a spatial representation of the structure of vocational interests of offenders.

Chapter 3: Results Study I

Study I set out to examine the foundational hypothesis: RIASEC models will be applicable and valid for an offender population. This section begins with a presentation of results related to the personal interest codes (PICs) of offenders in this sample, as well as how those interest codes compare to the interest codes of other offender samples. Following this, the structural fit of three RIASEC models is examined. This includes the presentation of the spatial representations (i.e., RIASEC ordering) of the RIASEC categories, as exhibited by the current sample.

Personal Interests Codes

The PICs for this study were determined with the VPI. The personal interests expressed by this sample of offenders were only somewhat varied, with Realistic, Investigative and Enterprising interests emerging as the most commonly identified primary and secondary interest areas. The most commonly expressed tertiary interests were Enterprising, Conventional and Investigative interests. As a whole, all six of Holland's

interest types were represented to some extent, and the order for the primary interest was Realistic (62%), Investigative (13%), Enterprising (12%), Artistic (8%), Social (4%), and Conventional (1%). Table 1 provides details regarding the primary, secondary and tertiary interests that were identified by this sample of offenders.

Table 1 Primary, Secondary and Tertiary Interests of the PICs ($N = 305$)

Holland's Interest Category	Primary Interest	Secondary Interest	Tertiary Interest
Realistic	62%	15%	10%
Investigative	13%	44%	15%
Artistic	8%	5%	13%
Social	4%	11%	14%
Enterprising	12%	17%	28%
Conventional	1%	9%	20%

In order to examine how mean scores in each of the six interest types may have differed across inmate populations, t-tests were conducted between the current sample and two other inmate reference groups (Weiser, Kilmek, & Hodinko, 1981; Laufer, 1980). The career interests of the current sample and the two reference groups differed significantly with regard to all of the six interest types. Table 2 demonstrates that, compared to both of the reference samples, the current sample expressed higher levels of interest in Realistic and Investigative occupations and lower levels of interest in Social occupations. However, the first reference group (i.e., Weiser, Kilmek, & Hodinko, 1981) expressed significantly higher levels of interest in Artistic occupations as compared to both the current and second reference samples. Finally, compared to Laufer's sample (i.e., second reference group), the current sample expressed significantly higher levels of interest in Conventional and Enterprising occupations, but these levels were similar to those expressed by the first

reference group. Notably, in examining the two reference groups, there were significant differences in three of the six interest types. Specifically, Laufer's group expressed significantly lower interest in Artistic, Social and Enterprising occupations.

Table 2 Means, Standard Deviations, and t Test Comparisons of RIASEC Interest Types for the Current Inmate Sample (*N*=305), Weisner, Kilmek, & Hodinko's (1981, *N*=118) Inmate Sample, and Laufer's (1980, *N*=201) Inmate Sample

Scale	Group	*M*	*SD*	*t*	*df*
Realistic	Current sample	9.72	3.75		
	Weiser, Kilmek, & Hodinko	5.4	4.1	10.35***	421
	Laufer	6.03	3.95	10.60***	504
Investigative	Current sample	7.56	4.13		
	Weiser, Kilmek, & Hodinko	5.4	4.7	4.64***	421
	Laufer	4.65	4.35	7.59***	504
Social	Current sample	5.07	3.9		
	Weiser, Kilmek, & Hodinko	8.1	4.6	6.81***	421
	Laufer	6.12	4.46	2.80**	504
Conventional	Current sample	5.30	3.8		
	Weiser, Kilmek, & Hodinko	5.3	4.4	0	421
	Laufer	4.59	4.16	1.98*	504
Enterprising	Current sample	7.03	4.2		
	Weiser, Kilmek, & Hodinko	6.5	4.3	1.16	421
	Laufer	5.35	4.22	4.39***	504
Artistic	Current sample	4.99	4.2		
	Weiser, Kilmek, & Hodinko	6.4	4.6	3.01**	421
	Laufer	5.32	4.20	.86	504

* $p < .05$, ** $p < .01$, *** $p < .001$

Structural Fit by RIASEC Model

The structural fit of Holland's circumplex, Gati's three-group partition and Rounds and Tracey's alternative three-class partition model was examined following the rationale

and methods of Hubert and Arabie (1987), using Tracey's (1991) RANDORD Program (i.e., the Randomization Test of Hypothesized Order Relations). As presented in Table 3, the randomized test of the fit of Holland's circumplex model to the data indicated that 63 of the 72 model predictions were confirmed, yielding a probability level of less then .05 and a correspondence index of .75. For Gati's model, 32 of 36 model predictions were satisfied; however, this yielded a probability level of .07 and a correspondence index of .78. Finally, Rounds and Tracey's model resulted in a perfect correspondence index (1.00, $p<.05$), with all 44 model predictions being met.

Although it was unanticipated and quite rare to see a perfect correspondence index for Rounds and Tracey's model, this finding has emerged in other research efforts (T. Tracey, personal communication, August 20, 2007). Even though what appears to be a reasonable correspondence index emerged for Gati's model, the probability level suggests that this was not a statistically significant finding. Finally, the correspondence index emerging from Holland's model was significant and compares well with American Benchmark information presented by Rounds and Tracey (1996) in which the mean correspondence index was .70 (SD = .14).

Table 3 Randomization Tests of Differences in Fit by RIASEC model

		Predictions Met and Correspondence Indices								
		Holland			Gati			Rounds & Tracey		
	N	#	%	CoI	#	%	CoI	#	%	CoI
Offender Sample – VPI	305	63	88	.75*	32	89	.78	44	100	1*

Note: * = p<.05; Total number of predictions made by Holland's, Gati's, and Rounds & Tracey's models 72, 36, and 44 respectively; VPI = Vocational Preference Inventory, CoI = Correspondence Index

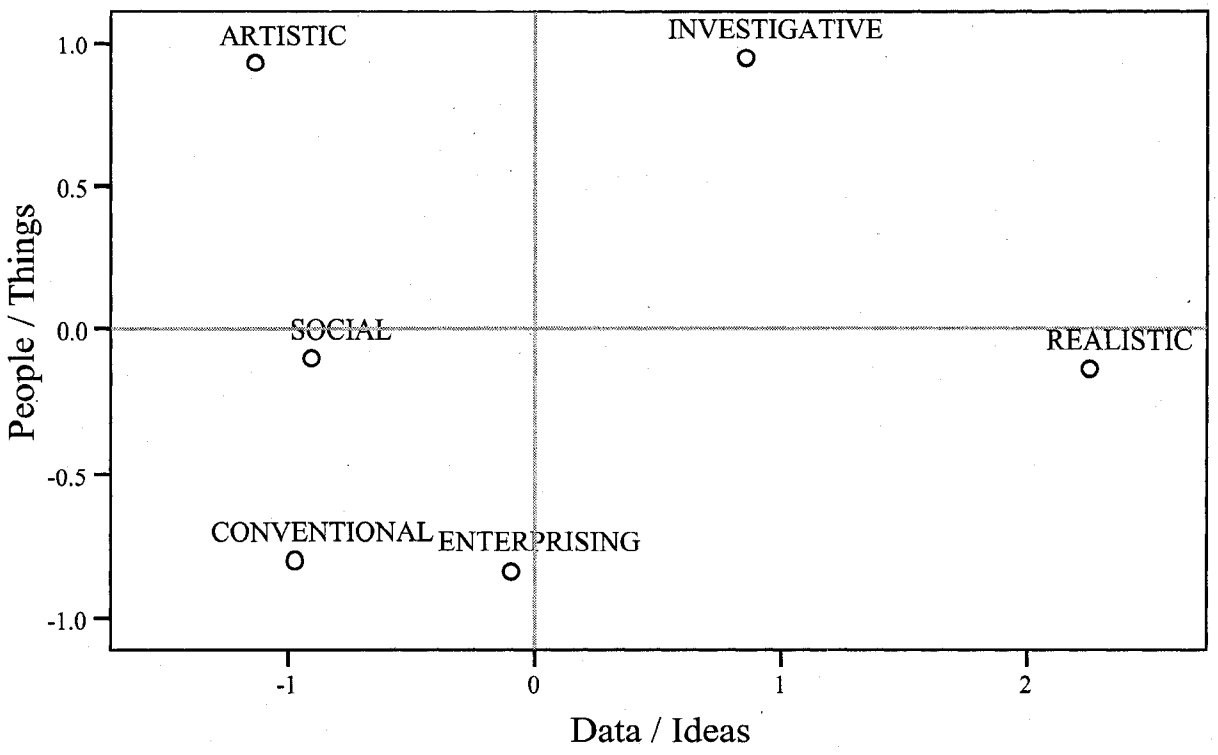
Although comparable to the benchmark sample of Rounds and Tracey (1996), examining Canadian samples from their benchmarking exercise in isolation, indicated that results emerging for this sample are somewhat different than those of other Canadian samples. More specifically, data from the current study indicate that Rounds and Tracey's alternative three-class partition model is the strongest model, followed by Holland's circumplex model and Gati's three-group partition model. Conversely, for Canadian samples within Round and Tracey's benchmarking study, the three-class partition model was the strongest, followed by Gati's three-group partition, with Holland's circumplex model demonstrating the weakest fit. Contradictory results are not uncommon in this type of research. As Rounds and Tracey (1996) indicated, the interest test that is utilized with a given sample may have an impact on the correspondence index. However, the VPI has been described as the 'benchmark' of RIASEC inventories and is one of the most supported and widely used interest measures.

Spatial Representation of the RIASEC Themes

In order to examine the RIASEC structure in more detail for this sample, a further examination of the structural fit between the RIASEC model and the offender data was conducted using two-way, non-metric classical multi-dimensional scaling (MDS) using SPSS ALSCAL. 'Stress' (Kruskal, 1964) for a given MDS solution is a measure of 'badness of fit', measuring the difference between the interpoint distances in computed MDS space and the corresponding actual input distances. The smaller the stress value, the better the fit of the reproduced distance matrix to the observed distance matrix. Kruskal and Wish (1978) identify a stress value of less than .05 as an indication of adequate fit. Results for the current MDS solution indicate a stress value of .02 (Young's S-stress), thereby providing support for the fit of these data. However, as a general rule of thumb, the number of 'objects' (i.e., variables) for a two-dimensional space should be nine (Garson, 2007); however, given the six RIASEC themes of interest, only six objects were entered into this solution. In turn, this particular goodness of fit index may be inflated. An alternative fit measure is the squared correlation index, R^2. This reflects the proportion of variance of the input distance data accounted for by the scaled data and vice versa. An R^2 =.60 is considered an acceptable fit (Garson, 2007). Results from the current MDS indicate an R^2 = .99, in turn providing additional support for the fit of this solution.

The pictorial representation of the RIASEC themes (Figure 4) suggests that there is a general RIASEC ordering, with the exception of the Conventional (C) theme which is separated from the traditional structure, falling in the bottom left quadrant, closer to the Social (S) and Enterprising (E) themes. This is interesting, given Round and Tracey's alternative three-class partition model (see Figure 3), which suggests that these three categories should be grouped together.

Figure 4 Two-dimensional MDS of VPI RIASEC scores for an offender sample (N=305)



This two-dimensional solution also provides support for Prediger's (1982) derived dimensions of 'People-Things' / 'Data-Ideas'. Prediger argues that the 'People / Things' dimension characterizes the differences between Social and Realistic on opposite sides of Holland's hexagon while the 'Data / Ideas' dimension characterizes the differences between Enterprising and Conventional types (on the Data side) and Artistic and Investigative types (on the Ideas side). A great deal of research provides support for Prediger's dimensions and their relation to Holland's RIASEC types (e.g., Deng, Armstrong, & Rounds, 2007; Ding, 2001; Petrides & McManus, 2004).

In all, both the randomization test of hypothesized order and the MDS analysis provide evidence for the validity and applicability of two of the most commonly investigated RIASEC models, that is, both Rounds and Tracey's alternative three-class partition and Holland's RIASEC circumplex, while at the same time providing additional support for

Prediger's 'People-Things' and 'Data / Ideas' dimensions. In turn, these results provide preliminary support for the applicability of RIASEC models with an offender population, thereby providing support for continued investigation using Holland's RIASEC theory with an offender sample. This type of empirical evidence has not yet been demonstrated with an offender population; however, it does provide preliminary support for the RIASEC model and its utility for describing the vocational interests of offenders.

Chapter 4: Methodology Study II

Participants: Study II

The sample for Study II was a convenience sample and was selected from offenders who were on some form of conditional release and had used the Community Employment Centers (CECs) for employment services or job placements between April 1, 2006 and March 31, 2007. CSC has 48 CECs that provide recently released offenders with employment counselling and job placement services. Although this sampling procedure precluded the possibility of including all federally sentenced offenders on conditional release and in the community at that time, this approach allowed for the ascertainment of job titles of offenders who had obtained employment in the community (required for the calculation of congruence between originally assessed vocational interests and community job placements) and permitted the collection of post-release follow up data (3 and 6 month follow-up for job placement after release). Notably, community job titles and 3 and 6 month follow-ups with offenders were not being routinely gathered or tracked by any other methods implemented by CSC.

Of the original sample of offenders drawn from the CEC (n = 2885), 24% (n = 690) had completed an employment assessment (i.e., determines if an offender requires and is

eligible for a more in-depth vocational assessment[13]) and 44% (n = 304) of those who had employment assessments had then completed a vocational assessment (this represents only 11% of the originally identified sample (304 / 2885)). The final sample (N=304) had an average age of 31, ranging from 18 to 66 years of age. Roughly half (47%) of the sample was less then 30 years of age. The majority of this sample was male (93.4%) and Non-Aboriginal (80.6%) with 6.6% of the sample being female and 19.4% self-identifying as Aboriginal. These proportions are commensurate with that of the prison population as a whole. The majority of offenders (98.4%) identified English as their first language, while the remaining identified French or Portuguese as their mother tongue. In considering marital status, 56.3% were single, 28.9% common law, 5.9% married, 4.3% separated, 3.3% divorced, and the remaining (1.3%) self-identified as widowed or 'not determined'.

This sample had an average sentence length of 1198 days (SD = 708), with a range of 703 days to 6006 days as their designated sentence length. However, the time actually spent in the institution (i.e., time at risk in the institution) was substantially lower then this. Specifically, the actual 'length of stay' in the institution ranged from 117 days to 5728 days, with an average stay of 615 days (SD = 552).

The Offender Intake Assessment (OIA) process identified 67% (n=203) of the sample as exhibiting high need, 26% (n=78) moderate need, and 7% (n=23) low need. Forty-three percent (n=131) of the offenders were identified as moderate risk, 42% (n=129) as high risk and 15% (n=44) as low risk. Measures of the offender's level of motivation, also assessed at intake, identified 70% (n=214) of the sample as demonstrating moderate motivation, 19%

[13] In order to determine if vocational assessments were completed, it was necessary to first determine if employment assessments were completed. If an employment assessment was on file, the files were then further analyzed to determine if a vocational assessment had been completed. Offenders must have a minimum of a grade 8 education to be eligible for a vocational assessment.

(*n*=58) high motivation and 9% (*n*=27) low motivation. An assessment of the level of motivation was missing for 5 (2%) offenders. The level of reintegration potential (RP) among this sample of offenders was somewhat equally split among the three categories, with 38% (*n*=117) assessed as having high RP, 31% (*n*=93) moderate RP, and 29% (*n*=89) low RP. An assessment of RP was missing for 5 (2%) of this sample. Specifics concerning the seven areas of criminogenic need are outlined in Table 4.

Table 4 Criminogenic Need Domains (*N*=300)

Criminogenic Need Domain	Factor Seen as an Asset	No Need for Improvement	Some Need for Improvement	Considerable Need for Improvement
Employment / Education	3%	20%	67%	10%
Family	6%	44%	35%	15%
Associates	1%	17%	52%	30%
Substance Abuse	n/a	19%	19%	62%
Community Functioning	2%	54%	39%	5%
Personal / Emotional	n/a	9%	33%	58%
Attitude	2%	23%	39%	36%

In examining the indicators associated specifically with the employment / education domain, these data indicate that 65% (*n*=199) of the sample had no high school education, 61% had no skill, area, trade or profession, and 69% were unemployed at the time of arrest. Furthermore, these data indicate that this sample of offenders had a minimum overall grade level of five and a maximum of thirteen, with an average overall grade level of 10.48 (*SD* = 1.66). Additional details regarding each of the employment / education indicators are provided in Appendix 2.

Risk as measured by the Statistical Information on Recidivism Scale (SIR) was a measure of risk utilized in analyses concerning recidivism. However, because the SIR is not

administered to Aboriginal and women offenders, a SIR Proxy (Nafekh & Motiuk, 2002) was calculated for these groups of offenders. In order to examine the relationship between the SIR and the SIR Proxy, the SIR Proxy was calculated on the entire sample and then correlated with the original SIR scores. The SIR and SIR Proxy were correlated at .842 (p<.001). The descriptives for these variables are provided in Table 5. Although it is not generally recommended to use the SIR Proxy for decision making purposes, using it as a control variable is argued to be seen as an acceptable practice (M. Nafekh, personal communication, September 2007).

Table 5 SIR vs. SIR Proxy

	n	Minimum	Maximum	*M*	*SD*
SIR[a]	226	-22	24	-2.72	9.52
SIR Proxy[b]	281	-22	22	-3.80	9.69
SIR Proxy[c]	72	-19	22	-4.93	9.43
SIR – ALL[d]	298	-22	24	-3.26	9.53

[a] SIR as completed with only non-Aboriginal Male Offenders. [b] SIR Proxy as completed with the entire sample. [c] SIR Proxy as completed with only Aboriginal and women Offenders. [d]Resulting SIR score based on SIR or SIR Proxy, depending on appropriate measure.

Offence Characteristics of the Sample

The types of offences linked to the current sentence for this sample of offenders demonstrate a variety of both violent and nonviolent offence types. In total, 61% (n=185) of the offenders in this sample were serving time for at least one violent offence. Offences were defined as violent if they included homicide, attempted murder, assault, robbery (with or without a weapon), kidnapping/forcible confinement, sexual assault, arson or weapons offences. Nonviolent offences included uttering threats, drug-related offences, property-theft related offences, fraud, and other non-violent offences (e.g., failure to comply with probation

order, possession of property by crime, failure to attend court). A detailed breakdown is provided in Table 6.

Table 6 Offence Characteristics

Present conviction(s)	% with (*N*=303)
Violent	
Homicide	5.3 (16)
Attempted Murder	.3 (1)
Assault	25.1 (76)
Robbery	27.7 (84)
Kidnapping / Forcible Confinement	4.3 (13)
Sexual Assault	5.9 (18)
Arson	1 (3)
Weapons Offences	12.2 (37)
Nonviolent	
Fraud-Related	6.6 (20)
Property / Theft Related	38.6 (117)
Drug-Related	19.8 (60)
Uttering Threats	7.9 (24)
Other (non-violent)	57.8 (175)

Measures: Study II

Table 7 provides specifics concerning each of the variables and respective measures used in this study and whether they were being used as predictor, outcome or control variables. A description of each of the measures and, where appropriate, additional methodological procedure, are presented after this table. Where possible, psychometric properties for the measures utilized are provided in the associated text of the document. If no psychometric properties are presented, this is because minimal or no research has been conducted, in this area.

Table 7 List of Variables and Measures Used in Study

Measure	Brief Description / Role
Related to Predictor Variables	
Career Occupational Preference System (COPS)	• Assessment used by CSC to determine an offender's vocational interests • Used in describing vocational interest patterns • Used in the determination of levels of institutional and community congruence
Vocational Preference Inventory (VPI)	• Assessment used by CSC to determine an offender's vocational interests • Used in describing vocational interest patterns • Used in the determination of levels of institutional and community congruence
Position Classification Inventory (PCI)	• Assessment used by CSC to determine vocational interest codes associated with a given vocational environment • Used in the determination of institutional interest codes and in turn, levels of institutional congruence
ESPORT	• Pilot tool being used by CSC during the study period. Used to determine offender's vocational interests • Used in describing vocational interest patterns • Used in the determination of levels of institutional and community congruence
Dictionary of Holland's Occupational Codes (DHOC)	• Manual used by CSC to determine vocational interest codes associated with a job-title • Used in the determination of institutional and community job-placement interest codes and, in turn, levels of institutional and community congruence

Table continued

Level of Vocational Congruence	• Person by Environment Fit between personal and environmental vocational interest codes • Predictor Variable
Related to Outcome Variables	
Involvement in Employment Programming / Interventions	• Percentage of time, as a function of length of incarceration, spent in employment programming / interventions • Outcome variable
Institutional Incidents	• Number of institutional incidents during programming involvement and the period of incarceration • Outcome variable
Custody Rating Scale (CRS)	• Actuarial tool used by CSC to determine offender's security level at intake • Implicated in determining changes in security level throughout the offender's sentence
Security Reclassification Scale (SRS) / Security Reclassification Scale for Women (SRSW)	• Actuarial tools used by CSC for reclassification of security level throughout an offender's sentence • Implicated in determining changes in security level throughout the offender's sentence
Dynamic Factor Identification and Analysis (DFIA) and the Community Intervention Scale (CIS)	• Assessment tool used by CSC for the identification of criminogenic needs at intake and upon release • Implicated in identifying the offender's level of employment need
Job Attainment	• Job attainment information was received by CSC's CEC • Outcome variable

Table Continued

Job Retention	• 3 and 6 month follow-up information on originally attained jobs was received from CSC's CEC • Outcome variable
Recidivism	• Revocation, as determined by data from the OMS was broken down by technical revocations (i.e., breach of release conditions), revocations with an offence and revocations with a violent offence • Outcome variable
<u>Related to Control Variables</u>	
General Level of Risk	• Variable resulting from the DFIA • Control Variable for institutional outcomes
General Level of Need	• Variable resulting from the DFIA • Control Variable
Level of Employment Need	• Variable resulting from the DFIA • Control Variable
Statistical Information on Recidivism Scale (SIR-R1; Nuffield, 1982)	• Actuarial tool used by CSC to assess the probability of general recidivism upon release • Control Variable post-release outcomes
Level of Motivation	• Part of CSC's Offender Intake Assessment Process • Control Variable
Period of Incarceration / Length of Intervention Specific Employment Program	• Period of Incarceration in days • Length of time involved in a given employment program • Control Variables
Overall Grade level from the Canadian Adult Achievement Test (CAAT)	• Assessment used by CSC to determine cognitive ability • Control variable

Measures and procedure implicated in Predictor Variables

Career and Occupational Preference System (COPSystem) (Knapp-Lee, 2000). The COPSystem is the vocational assessment package utilized by the CSC. This inventory is "designed to assist individuals in the career decision-making process" (Knapp-Lee, 2000, p. 295). The package is comprised of three primary instruments focusing on an individual's interests (Career Occupational Preference System; COPS), abilities (Career Ability Placement Survey; CAPS) and values (Career Orientation Placement and Evaluation Survey; COPES). Knapp-Lee (2000) argues that the COPSystem is "valuable in the career counselling process because it is a complete battery of coordinated instruments well established through research, all related to a proven structure of occupations and of very practical relevance to the client and counselor" (p. 335). Notably, the CSC uses only the CAPS and COPS components of the COPESystem.

The COPS (measure of vocational interests) includes a listing of 168 activities performed in many different types of occupations. The individual completing the assessment determines whether the activity listed is something he or she would like to perform and indicates his/her degree of interest or disinterest by selecting from a 4-point likert-type scale. The options on the likert-type scale are as follows:

L = Like very much (score of 3)
l = like moderately (score of 2)
d = dislike moderately (score of 1)
D = Dislike very much (score of 0)

The COPS assessment reveals levels of interest in 14 occupational areas. There are 12 items for each of the 14 clusters. The higher the score in any given cluster, the higher the interest in that area. The occupational clusters are as follows:

1) Science, Professional
2) Science, Skilled
3) Technology, Professional
4) Technology, Skilled
5) Consumer Economics
6) Outdoor
7) Business, Professional
8) Business, Skilled
9) Clerical
10) Communication
11) Arts, Professional
12) Arts, Skilled
13) Service, Professional
14) Service, Skilled

Brief descriptions of each cluster (see excerpts in Appendix 3) assist the individual in determining the areas in which exploration of specific occupations should be directed. Professional occupations in appropriate clusters are those requiring college training and often advanced degrees. Skilled occupations are said to require vocational or on-the-job training in which a college degree may not be required for acceptance.

The COPS assessment forms the basis of the information required for the current project; however, the following provides a brief description of the CAPS and COPES components of this package in an effort to demonstrate the comprehensive nature of this vocational assessment battery.

The CAPS (measure of abilities) includes eight 5-minute ability tests as follows:

1) mechanical reasoning (20 items),
2) spatial relations (18 items),
3) verbal reasoning (6 items),
4) numerical ability (24 items),
5) language usage (30 items),
6) word knowledge (56 items),
7) perceptual speed and accuracy (150 items),
8) manual speed and dexterity.

Occupational clusters within the COPSystem are intended to assist in the selection of available courses and/or training options. Notably, the 14 clusters have been matched with

the six interest types from Holland's Vocational Preference Inventory (VPI) (Knapp-Lee, Michael, & Grutter, 1984a), a vocational assessment instrument that examines the six interest types introduced by Holland (VPI is introduced below).

Alpha reliability coefficients for the COPS Interest Inventory range in magnitude from .86 to .93, demonstrating a high degree of internal consistency of the scales (Knapp-Lee, 2000). There is also evidence for its construct validity (Best & Knapp-Lee, 1982; Knapp-Lee, Michael, & Grutter, 1984a; 1984b; Knapp-Lee & Michael, 1985; Omizo & Michael, 1983).

Vocational Preference Inventory (VPI; Holland, 1977, 1985b). This inventory was described in the measures section for Study I. Although the majority of regions use the COPSystem for the vocational interest assessment, as mentioned above, the VPI is utilized as a measure of reliability in the Pacific region and, because of its direct mapping onto Holland's RIASEC categories, where possible, it was the vocational assessment tool used in Study II.

ESPORT. The ESPORT (Essential Skills Portfolio; HRDC, 2006) is an internet / intranet enabled assessment and planning tool for entry-level occupations. It includes a vocational interest inventory, essential skills assessment, learning plan development, and resume preparation. The interest inventory utilized within ESPORT is the Canadian Work Preferences Inventory (CWPI; HRDC, 1992; see Appendix 4 for interest type descriptions). This inventory results in five different interest types, including Directive, Innovative, Methodical, Objective, and Social. ESPORT was being piloted by the CSC during the study period. Unfortunately, there is no information regarding the statistical validity of this tool. However, an evaluation of the ESPORT pilot project suggested that the vocational facilitator

was critical to its success and that it was an effective tool for clients with low levels of literacy (Fahy, 2006).

Position Classification Inventory. The Position Classification Inventory (PCI; Gottfredson & Holland, 1991) was developed to assess jobs and occupations using Holland's hexagonal theory of careers (Holland, 1973, 1985). The goal was to develop practical and reliable methods for classifying work environments, as opposed to people, who are classified using the Vocational Preference Inventory (Holland, 1977; 1985).

The PCI consists of 78 items (13 for each of the 6 Holland dimensions) to which respondents indicate the degree to which each item applies to the work environment. The response options include: Often, Sometimes, or Seldom/Never with final scores ranging from 0 to 13. Items are organized under the following six headings: activities, outlooks, personal style or values, skills/abilities/personal characteristics, abilities/skills/talents and frequency of activities, and personal characteristics.

Although the PCI has not yet been used with offenders, evidence of the reliability and validity of the PCI is offered in the PCI manual (Gottfredson & Holland, 1991). Specifically, they report alpha coefficients ranging from .70 to .94 and argue that this is satisfactory for brief scales with diverse item content. This evidence is also supplemented by more recent large-sample, longitudinal research (DeFruyt & Mervielde, 1998; Maurer & Tarulli, 1997 as cited in Gottfredson & Richardson, 1999).

Dictionary of Holland Occupational Codes. The Dictionary of Holland Occupational Codes (Gottfredson, Holland, & Ogawa, 1982, Gottfredson & Holland, 1989; 1996) organizes 12,860 occupations according to the three-letter Holland codes and provides corresponding Dictionary of Occupational titles (DOT) and numbers for each occupation. The latest edition (1996) links Holland's occupational codes to seven of the most widely

used occupational classifications and information sources in the U.S. and the codes are said to reflect current job analysis information, changes in work environments, and industry needs. Nonetheless, Chartrand and Walsh (1999) argue for the need of more accurate measures of environment, suggesting that occupational titles may not be the best unit of analysis. Alternatively, they state that one could improve the measurement of congruence by utilizing job activities and/or tasks.

Levels of Vocational Congruence (Institutional & Community). After obtaining the institutional employment interventions and community job-placements for the sample, environmental interest codes related to institutional employment interventions and community job placements were determined, in order to calculate levels of congruence between the vocational interests assessed at intake and the vocational types assigned to employment interventions and community job titles. Vocational interests at intake represent the "person" in a person by environment interaction, whereas employment interventions and community job titles represent the "environment".

Calculation of levels of vocational congruence involved the determination of:

1. the offender's personal 3-letter code interest type,
2. Holland's environmental 3-letter code interest type for institutional employment interventions,
3. Holland's environmental 3-letter code interest type for community employment / job titles.

Personal interest codes (i.e., vocational interests at intake) were determined with the vocational assessment files located on the Offender Management System (OMS) which contained the interest outcomes of the COPSystem (COPS), VPI, and ESPORT assessments. The VPI maps directly onto Holland's RIASEC model. That is, the six scales of the VPI are

the Realistic, Investigative, Artistic, Social, Enterprising, and Conventional scales. However, given that there is no one-to-one correspondence between COPSystem clusters and Holland's RIASEC codes, the COPSystem outcomes were used as a proxy for the Holland Codes. This conversion was based on previous approaches of Knapp-Lee, Michael and Grutter (1984a) and correlational outcomes of Omizo and Michael (1983). Knapp-Lee and colleagues (1984a) and Omizo and Michael (1983) matched scales on the COPS Interest Inventory and the VPI according to the name of the constructs and the theoretical assumptions underlying those constructs. Their results indicated high correlations between scales of the two instruments measuring similar constructs.

Similarly, the CWPI from the ESPORT assessment provides no one-to-one correspondence with Holland's RIASEC codes. However, the ESPORT was also used as a proxy for the Holland Codes. This conversion was based on the names of the constructs, the theoretical assumptions underlying those constructs, and a pilot project that was conducted by the CSC in the summer of 2007. Table 8 provides the proxy conversions that were used in order to permit an in-depth examination of Holland's vocational interest model for an offender population.

Table 8 Conversion of COPSystem Clusters and ESPORT Interests into Holland's Codes

Holland's Interest Type Codes	COPSystem Clusters	ESPORT Interest Types
Realistic (R)	Technology Outdoor Consumer Economics[14]	Objective
Investigative (I)	Science	Innovative
Artistic (A)	Arts Communication	
Social (S)	Service	Social
Enterprising (E)	Business	Directive
Conventional (C)	Clerical	Methodical

Traditionally, Holland's three-letter environmental interest code is determined by using Holland's Occupational Finder (Holland, 1973; 1985; 1992), the Dictionary of Holland Occupational Codes, and/or more recently, through the examination of job activities (DHOC; Gottfredson, Holland, & Ogawa, 1982; Gottfredson & Holland, 1989; 1996). In addition, with reference to a specific environment (i.e., intervention types within the institution), Holland's PCI (Gottfredson & Holland, 1991) has shown to be of value in such efforts. In turn, the approach followed in the current undertaking respected this convention.

The determination of environmental interest 3-letter codes represented by institutional employment interventions was completed with the PCI (Gottfredson & Holland, 1991). The PCI was completed by appropriate intervention experts from CSC, thereby

[14] Within the literature, 'Consumer Economics (CE)' is generally mapped onto the 'Enterprising' category of the RIASEC model. However, a pilot study was conducted by CSC (in collaboration with the current author) in the summer of 2007 and the results demonstrated that for an offender population, based on the definitions of categories, and the types of jobs listed as examples from the COPS manual, the 'Realistic' category was the most appropriate mapping for the CE category.

ensuring the accuracy of information provided. The details concerning the completion of these scales are provided in Appendix 13. Where appropriate, the Dictionary of Holland Occupational Codes (Gottfredson & Holland, 1996) and/or job activities were examined to further augment the reliability of coding. Environmental interest 3-letter codes represented by community job titles and/or job tasks and activities were also determined by using The Dictionary of Occupational Codes (Gottfredson & Holland, 1996). Where necessary, job activities / tasks were also considered.

Measures and Procedure Implicated in Outcome Variables

Time in Employment Programming / Intervention. Time in employment programming / intervention was calculated as a function of the offender's period of incarceration. For example, if an offender's length of incarceration was 300 days and 150 of those days was spent in some form of employment intervention, the offender would receive a percentage score of .50, that is 50% of his/her incarceration was involved in some form of employment intervention.

Institutional Misconduct. Institutional misconduct was calculated based on the number of institutional incidents identified for the offender during his / her period of incarceration. This variable included incidents classified as minor (e.g., talking back to a staff member, being late for count) or major (e.g., positive urinalysis, contraband, inmate fights, assaulted a staff member, hostage-taking) by the CSC.

Custody Rating Scale (CRS). The CSC is mandated by the Corrections and Conditional Release Act (CCRA) to assign a security classification to all offenders upon admission to a federal institution and periodically throughout the offender's period of incarceration. The CRS (Solicitor General Canada, 1987; Appendix 5) is used by the CSC to assign a security classification of minimum, medium, or maximum to all offenders. The

CRS is restricted to use during the intake assessment period and / or re-admissions to federal institutions after some form of conditional release. It includes two independently scored sub-scales: a five-item institutional adjustment scale and a seven-item security risk scale.

The CRS was piloted on a sample of incarcerated offenders between 1988 and 1989 (see Porporino, Luciani, Motiuk, Johnston, & Mainwaring, 1989). It was then approved for national implementation following field testing in 1991 (as cited in Grant & Luciani, 1998) and reaffirmed in 1996 after an extensive, national validation study (Luciani, Motiuk, & Nafekh, 1996).

Security Reclassification Scale (SRS) and the Security Reclassification Scale for Women (SRSW). As discussed and as outlined in the CSC's CD # 710-6 (CSC, 2006c), the CRS is used by the CSC to assign offenders with an initial security classification level. The SRS and SRSW are used by the CSC to reclassify offenders as minimum, medium, or maximum security at regular intervals throughout their period of incarceration. Security classification plays a critical role in the correctional decision making process with respect to custody/security designations, program placement, temporary and conditional release, and supervision requirements (Motiuk, 1997).

There are 15 factors in the SRS (Appendix 6) and 9 factors in the SRSW (Appendix 7). The SRS has an approximate 25-point scoring range, while the SRSW has an approximate 30-point scoring range. Higher scores represent higher risk and result in higher security ratings. Taken together, these factors in these scales assess the security risk and in-custody performance of a given offender and the resulting scales provide numerical "cut-off levels" which determine the appropriate security rating. There is empirical support for the reliability and validity of the SRS (Luciani, 1998; Luciani, Taylor, & Motiuk, 1998) and the SRSW (Blanchette & Taylor, 2005; 2007).

Dynamic Factor Identification and Analysis (DFIA) and Community Intervention Scale (CIS). The DFIA and the CIS (formerly known as the Community Risk / Needs Management Scale (Motiuk & Porporino, 1989) represent intake and pre-release assessments respectively, and are based on the appraisal of the following seven domains (Commissioner's Directive (CD) # 705-6; CSC, 2006a):

1) Employment – the value placed on literacy, education and work and their role in one's life; (35 indicators)
2) Marital / Family – the value placed on being with family and the support one derives from them; (31 indicators)
3) Associates / Social Interaction – the value placed on non-criminal associates and the opportunity for positive social interaction; (11 indicators)
4) Substance Abuse – the value placed on living without reliance on alcohol and/or drugs; (29 indicators)
5) Community Functioning – the value placed on having the knowledge and necessary skills for daily living; (24 indicators)
6) Personal / Emotional Orientation – the value placed on being in control of one's life; and (46 indicators)
7) Attitude – the value placed on living in law-abiding ways (24 indicators).

Each domain is divided into principal components, in some cases subcomponents, and indicators (please see Appendix 8). The domains are ranked in order of priority based on the number of yes/no responses to each of the 197 indicators. Each domain is then given an overall score on a four point scale: 1 "Factor seen as an asset" to community adjustment (not applicable to personal/emotional and substance abuse domains), 2 "no immediate need for improvement", 3 "some need for improvement", and 4 "considerable need for improvement". Notably, the personal / emotional and substance abuse domains only include 3 levels as these domains are not seen as allowing for the possibility of the "factor seen as an asset" category. Correctional staff use pre-established guidelines outlined in the CSC Commissioner's Directive 705 and 705-6 to complete the DFIA (CSC, 2006d; 2006a).

The DFIA[15] is administered at intake and periodically throughout an offender's period of incarceration and is used to gain a detailed understanding of both the strengths and problems related to each of the seven domains. This understanding is then in turn utilized in the development of the offender's correctional plan. The CIS is used by correctional staff to estimate an offender's risk of failure on conditional release and to determine the required level of community support and supervision. It is completed prior to the offender's release into the community and every six months thereafter until the offender's warrant of expiry date. Analyses in this study will use the CIS scores taken at the time of offender's release.

In 2005, Brown and Motiuk provided a meta-analytic, psychometric and consultative review of the DFIA. Their research provides evidence for the reliability and predictive validity of the DFIA. Examining a cohort of 15,479 male offenders, their results indicate statistical reliability of each domain of the DFIA, ranging from acceptable to superior (alpha coefficients ranging from .62 to .96) and predictive validity for all domains ranging from moderate to strong.

There is evidence for the predictive validity of assessing and combining criminal history risk and needs in relation to release outcome (Andrews, 1982; Baird, Heinz, & Bemus, 1979; Motiuk & Porporino, 1989). However, Motiuk and Porporino (1989) provided specific evidence for the validity of the Community Risk/Needs Management Scale. Their results indicated that offenders rated as high-risk / high-need had higher rates of re-offending and revocation than offenders rated as low-risk / low-need.

Job Attainment and Retention. Variables pertaining to job attainment and retention were accessed from CSC's Community Employment Centers (CEC). Job attainment was a

[15]Notably, only the initial DFIA rating was used in this study.

simple yes/no; the offender did or did not receive a job, whereas retention information was gathered by three and six month follow-up information, again provided by the CEC.

Recidivism. Recidivism information was accessed from CSC's Offender Management System (OMS) and was examined by looking at revocation rates. Revocation was further divided into technical revocations (i.e., breach of release conditions), revocations with an offence, and revocations with a violent offence.

Measures and Procedures Implicated in Control Variables

Level of Motivation. Level of motivation is assessed at intake during the Offender Intake Assessment process and provides an overall rating of motivation (low, medium, or high) based upon seven different criteria (Correctional Service Canada, 2007b):

1. Recognition that a problem exists with lifestyle, behaviour and resulting consequences.
2. Level of comfort with problem and its impact on offender's life.
3. Level of feeling of personal responsibility for the problem(s).
4. Willingness to change.
5. Possession of skills and knowledge required to effect change in behaviour.
6. Level of external support from family, friends or other community members.
7. The offender's past history related to demonstrating change.

An offender is determined as having a low motivation level if he / she strongly rejects the need for change or is unwilling to participate in recommended programs. A medium motivation level is assigned when the offender does not fully accept CSC's overall assessment but participates in recommended programs or alternative interventions. A highly motivated offender is self-motivated and actively addresses problem areas (CSC, 2007b).

General Levels of Risk and Need / Level of Employment Need. The previously discussed DFIA scales provide an overall rating of risk (low, medium, or high) based upon static factors that are associated with future misconduct and overall rating of need (low, medium, or high) reflective of the presence of dynamic criminogenic factors. The DFIA also

provides a rating of employment need based on a four point scale: 1 "Factor seen as an asset" to community adjustment (not applicable to personal/emotional and substance abuse domains), 2 "no immediate need for improvement", 3 "some need for improvement", and 4 "considerable need for improvement".

Statistical Information on Recidivism - Revised (SIR-R1). The General Statistical Information on Recidivism Scale (GSIR: Nuffield, 1982) was developed as part of the "Parole Decision Making Project" initiated by the National Parole Board in 1975 and has since been endorsed as a component of pre-release decision policies for non-aboriginal male offenders in Canada's federal correctional facilities (National Parole Board, 1988). In 1996, the GSIR was revised to improve face validity and reflect changes in legislation. This resulted in the Statistical Information Recidivism – Revised 1 (SIR-R1), currently utilized for non-aboriginal men in federal correctional facilities across Canada. As outlined in CSC's Commissioner's Directive (CD) 705-6 (CSC, 2006a), the SIR-R1 is only appropriate for Non-Aboriginal male offenders. In turn, the SIR-Proxy (Nafekh & Motiuk, 2002) was used for women and aboriginal offenders.

The Statistical Information on Recidivism – Revised (SIR-R1) is a 15 item scale yielding probability estimates of re-offending within three years of release (see Appendix 9 for list of 15 items). Each item is reflective of demographic or criminal history. Positive or negative scores are applied to the individual items, based on differences between endorsed item and population success rates. Simple summation of the scores yields a total score ranging from -30 (poor risk) to +27 (very good risk). Total scores are clustered into five SIR-R1 groupings, ranging from very good (4/5 offenders are predicted to succeed) to poor (1/3 offenders are predicted to succeed). Numerous studies have established this instrument as valid and reliable in the prediction of post-release recidivism for federal offenders. (Hann

& Harman, 1988; Hann & Harman, 1992; Luciani, Motiuk, & Nafekh, 1996; Wormith & Goldstone, 1984).

Overall Grade Level: Canadian Adult Achievement Test (CAAT). The CAAT was published in 1986 (Campbell, 2006) and has been adopted by the CSC (Porporino & Robinson, 1992). This instrument measures an individual's current functional level in mathematics, reading and language as well as an overall grade level. It was designed to ensure appropriateness for Canadian adults, regardless of previous school experience. The measure assists in determining an individual's present educational level and readiness for literacy instruction, general academic upgrading, core skills development and vocational selection. In a Canadian snapshot of student assessment in adult basic education (Campbell, 2006), the CAAT was ranked as the most frequently utilized standardized assessment across a number of different educational agencies.

Hypotheses and relations to Predictor, Outcome and Control Variables: Study II

Predictor Variables

As identified in Table 7, the primary predictor variable in this study was level of congruence for both institutional and community environments. Level of congruence was implicated in hypotheses two through nine. Hypotheses two through six used level of congruence as identified within the institutional environment and hypotheses seven through eight used level of congruence as identified within the community.

Outcome Variables

Hypotheses two through five involved pre-release outcomes including: time in employment programs / interventions, institutional incidents, changes in levels of employment need and changes in security level, respectively. Hypotheses six through nine

included the post-release outcome variables, including: job attainment, job retention and recidivism, respectively.

Control Variables

Table 7 also identifies a number of control variables. Due to the complexity of the employment / crime relation and a variety of factors that impact upon correctional outcomes, it was important to use statistical control where appropriate. As discussed in the first section of this document, risk and criminogenic need have both been highlighted as important in the prediction of correctional outcomes and are therefore implicated as control variables in hypotheses two, three, four, five, eight and nine.

Level of motivation was viewed as an important control variable when considering time spent in employment programming (Hypothesis two) and when considering involvement in institutional incidents (Hypothesis three), period of incarceration (or length of program, where appropriate) may also have an impact on the likelihood of offenders having the opportunity to become involved in institutional incidents. In turn, length of incarceration / program was used as a control variable. Finally, corresponding to research indicating the role of cognitive ability and its impact on employment outcomes (e.g., Hunter, 1983; Schmidt, 1981; Smith & Robertson, 1989), measures of cognitive ability were also used as control variables in hypotheses six and seven.

Procedure: Study II

Data used in this study were secondary in nature, as they had been previously gathered by Correctional Services Canada for operational requirements and / or accountability efforts. Given the use of strictly secondary data, a brief discussion on the construct, and discussions of reflexivity seems appropriate. Rennie (2004) defined *reflexivity* as "self-awareness and agency within that self-awareness" (p. 183). Often discussed in

reference to qualitative research (e.g., Morrow, 2005) or therapeutic change (e.g., Auerbach & Blatt, 2001); exhibiting reflexivity is also critical to the area of psychological research (e.g., Gadlin & Ingle, 1975). The discussions around reflexivity emphasize the idea that a person's values, thoughts, and ideas will be represented in their work which could in turn lead to bias. This bias exists within all knowledge areas, including the knowledge held by not only the current author, but those individuals who completed initial assessments on the offenders within this sample, thereby potentially reflected in the secondary data utilized for the analyses within this research. One method for circumventing this issue is through the triangulation of data. From a researcher's perspective, self-reflexivity, and appropriate methodology, can be used to elucidate quantitative data by identifying concepts and categories used by participants to make sense of their own actions (as related to the quantitative assessments). Qualitative methodology, such as interviews or focus groups, for example, could be utilized to permit different forms of knowledge (above and beyond that of the quantitative data) as expressed by participants. This type of self-reflexivity would ensure a methodological process in which both the participants and the researcher were engaged. The use of strictly secondary data precludes this possibility.

The identification of the original sample and community job attainment and retention information were accessed through the Community Employment Centres (CECs). The data concerning demographic information, institutional adjustment information, employment interventions and recidivism were extracted from the Correctional Service of Canada's (CSC) OMS.

Offender Management System (OMS)

The OMS is a computerized case file management system used by CSC, the National Parole Board and other criminal justice partners. It is critical to the management of

information on federal offenders throughout their sentence. OMS collects and secures information required for tracking offenders and their progress and for making decisions concerning their cases.

Information on the offender's demographics at intake (e.g., age, ethnicity), offence types, sentence length, admission date, release date, security level(s), release type, and release region were extracted from the OMS. Case-specific information concerning static criminal risk and dynamic programming need (at intake and prior to release), level of motivation, employment assessments and vocational assessments were retrieved from the Offender Intake Assessment (OIA) and Community Intervention Scale (CIS) modules on the OMS. Finally, comprehensive information regarding each offender's institutional employment and vocational intervention involvement, institutional incident reports, and recidivism data was also extracted from the OMS.

Additional data concerning the offenders' post release outcomes and community employment opportunities were received from CSC's CORCAN division through their Community Employment Centres. These data were received in Excel files, transferred to SAS for appropriate data manipulation and then transferred to SPSS for data analyses. All identifying information was removed from the files prior to the primary researcher receiving the data files.

All offenders who used the CECs between April 1, 2006 and March 31, 2007 formed the original sample for this study. The files of these offenders were examined to determine if they had completed an employment assessment, and in turn, a vocational interest assessment. This resulted in a final sample size of 304. Recidivism data for this sample were extracted from the OMS on August 31st, 2007, in turn defining a variable follow-up period depending on the release dates of those offenders in the final sample. For example, if an offender was

released from custody in March, 2007, immediately used a CEC, and was then job placed in March 2007, the longest possible follow-up period for both job follow-up and follow-up in relation to recidivism would be five months (March – August). However, if an offender was released from custody in April, 2006 (or prior to this date), and utilized a CEC in the year of interest, the study allows for at least a 16 month follow-up period for recidivism (April 2006 – August 2007). The follow-up period for job retention would depend on job start dates in the community; however, in most cases there were 3 and 6 month follow-ups for job retention. Accordingly, this study was both retrospective and longitudinal in design.

After determining Holland's personal and environmental interest codes (details follow) for originally assessed personal interest type, intervention interest type, and community job titles, congruence indices (CIs) for institutional and community congruence were established. Institutional congruence was based on a Congruence Index (CI) between the personal interest codes and the environmental interest codes (corresponding to the employment intervention). Community congruence was based on a CI between the personal interest codes and the environmental interest code (corresponding to job titles in the community). Notably, if the offender was not community job-placed within the study period, there was no determination of community congruence for that offender.

Table 9: Predictor and Outcome Variables: Study II

	Predictor Variables	Outcome Variable
Pre-Release Outcomes (Institution)	• Levels of Vocational Congruence: Institution	• Proportion of days (as a function of length of incarceration) employed or involved in employment or vocational interventions • Involvement in minor and/or major incidents • Decreasing levels of employment need • Decreasing levels of security
Post-Release Outcomes (Community)	• Levels of Vocational Congruence: Institution • Levels of Vocational Congruence: Community	• Job attainment • Retention of employment • Recidivism: any return to federal custody (including technical violations, new convictions (all), and new violent convictions)
Incremental Validity in the Prediction of Recidivism	• Employment Status o Unemployed o Employed in low congruent jobs o Employed in high congruent jobs	• Recidivism: any return to federal custody (including technical violations, new convictions (all), and new violent convictions.)

Control Variables:
- Level of Risk / SIR
- Level of Need (including level of employment need)
- Level of Motivation
- Cognitive Ability
- Length of Incarceration / Length of Program

Note: The seven criminogenic factors as measured at intake (DFIA) were incorporated where appropriate. This was included in order to provide descriptive information.

Analytic Approach: Study II

Data Cleaning

Prior to proceeding with inferential analyses, data were examined and cleaned. This included an inspection for data entry errors and missing data, screening continuous variables for univariate / multivariate outliers, collinearity, and normality of the distribution (i.e., skewness and kurtosis) and screening dichotomous and ordinal variables for extremely high response rates for any one response option (i.e., over 90%). The results section begins with an overview of this process, including information about sample representativeness, missing data, variable reduction / transformation methods and specific data screening techniques.

Calculation of Congruence Indices (CI)

The issue of calculating a congruence index has received some attention in the literature, particularly given the fact that meta-analytic reviews have suggested that research concerning the relation between vocational congruence and job satisfaction is impacted by how congruence is assessed (Assouline & Meir, 1987; Tranberg, Slane, and Ekeberg, 1993). Exhaustive reviews of different congruence indices (Camp & Chartrand, 1992; Young, Tokar, & Subich, 1998) debate the problems that are associated with particular congruence indices and suggest that correlations between congruence and several outcome variables may differ depending on how congruence is calculated. The Kwak and Pulvino (K-P) Index (1982) and the Brown and Gore Congruence (C) Index (1994) are argued to be the only indices that incorporate the circumplex assumption which is fundamental to Holland's hexagonal model (Camp & Chartrand, 1992), and Young and colleagues (1998) prefer the K-P and C indices because of their strong theoretical underpinnings.

As a consequence of their sensitivity to Holland code order and hexagonal distance, and because they are the most widely used and widely recommended indices, level of

congruence was calculated using Kwak and Pulvino's K-P Index (1982) and Brown and Gore's C Index (1994). Following the approach of Young, Tokar & Subich (1998), the KP Index was calculated using the following mathematical formula: $K\text{-}P = 7^{-1} [W_1(AD) + W_2(BE) + W_3(CF)]$, where W_1, W_2, and W_3 refer to weights of 4, 2, and 1 (constants), respectively; and AD, BE, and CF represent the correlations (based on intercorrelations among Holland's RIASEC personality types[16]) between the first letters, second letters and third letters in the two codes, respectively. K-P index scores range from 0 to 1, with higher scores indicating greater levels of congruence.

The C Index (Brown & Gore, 1994) was calculated using the following mathematical formula: $C = 3(X_i) + 2(X_i) + (X_i)$, where X_i are values (3, 2, 1, or 0) assigned to each interest-intervention/job comparison on the basis of hexagonal distance between the letters [3 = identical interest and intervention/job letters, 2 = adjacent hexagonal positions for interests and intervention/job letters (e.g., R and I), 1 = alternate hexagonal positions (e.g., R and A), and 0 = opposite hexagonal positions (e.g., R and S)]. C index scores can range from 0 – 18, with higher scores indicating greater levels of congruence.

Both the K-P Index and the C Index necessitate that there be three interest letters (i.e., primary, secondary and tertiary interests) for the personal-interest outcome and three interest letters for the environmental-interest outcome. In turn, for those individuals / environments that did not have three interest letters, alternative methods, as outlined in Young, Tokar and Subich (1998) were utilized. More specifically, a First-Letter Holland Index was used when there was only a one interest code agreement available.

[16] These correlations were taken from Study I. They were seen as more representative for an offender population than correlations based on those for other unique populations.

The First-Letter Holland Index (as outlined in Young, Tokar & Subich, 1998) is based only on first-letter agreement and is based on Holland's hexagon. In turn, participants were assigned a congruence score ranging from one to four on the basis of hexagonal distance between first-letter person and environment codes. A score of four represented perfect person-environment match, three represented adjacent hexagonal positions for person and environment (e.g., R and I; I and A, A and S, S and E, E and C), two represented alternate hexagonal positions (e.g., R and A, I and S, A and E, S and C) and one represented opposite hexagonal positions (e.g., R and S, I and C, A and E). Higher scores reflect greater levels of congruence. Given the exploratory nature of this research, correlations among these indices were conducted and descriptive analyses included an examination of levels of vocational congruence for offenders and how these levels compare with those of offender and normative non-offender populations.

Aggregate and Intervention Specific Congruence. Importantly, in considering institutional employment interventions and community job-placements, there were multiple interventions / job-placements per participant. In turn, as outlined in Table 10, there were multiple intervention- and job-specific CI's to be examined, depending upon the rate of involvement in institutional interventions and the number of jobs in the community. Aggregate CI's were based on an average of the intervention / employment specific CI's. This approach was confirmed as viable by Steven Brown (personal communication, July 24, 2006).

Table 10: Determining Aggregate and Intervention-Specific Levels of Congruence

	Aggregate and Intervention-Specific Outcome Variables	Predictor Variable Implicated in the analyses
Institutional Outcomes		
Involvement in employment intervention	Aggregate: Total # of days (as a proportion based on period of incarceration)	A
Cascade to lower levels of security	Aggregate: Level of change in security level during period of incarceration	A
Involvement in institutional incidents	Intervention-specific: During intervention involvement (# of incidents)	B
	Aggregate: During period of incarceration (# of incidents)	A
Community Outcomes		
Attainment of Employment	Only one definition (yes/no)	A
Three and six month follow-up	Only one definition (yes/no)	C
Recidivism	According to definition (yes/no)	C

Note: Composite Predictor Variable: A=Overall Institutional CI, B=Intervention-specific institutional CI's, C=Overall Community CI.

General Analyses: Study II

Descriptive and correlational statistics were utilized and presented at the beginning of each hypothesis section. Regression models were utilized for all analyses with continuous outcome variables. Logistic regression models were utilized for dichotomous outcome variables. Cox Regression Survival Analysis was utilized in exploratory analyses related to time to recidivism. Survival analysis (via Cox Regression Model) examines the relationship between an independent variable(s) and a continuous outcome variable, that is, survival time. Survival analysis handles both uncensored (i.e., recidivists) and censored (i.e., non-recidivists) cases. Survival time is coded as the length of time between the release date and the recidivism date (or the study termination date in the case of non-recidivists). Survival analysis is well suited to an outcome such as time to recidivism because it naturally controls for variable follow-up intervals. It is also a unique analysis in that it permits the comparison of the relative contribution of multiple variables (both dichotomous and continuous) simultaneously. Traditional survival analysis (e.g., Kaplan-Meier method) is restricted to the examination of categorical variables and is unable to incorporate information regarding continuous predictors. Furthermore, it does not consider the relative contribution of multiple variables simultaneously.

Chapter 5: Results Study II

Data Screening

As previously indicated, data screening took place prior to the completion of inferential statistics. All variables were first examined for data entry errors and missing data. The primary independent variable of interest was level of vocational congruence. As discussed, in calculating congruence, the person by environment fit was examined, in other words, congruence was determined by examining the relationship between the personal

interest code (PIC) and the environmental interest codes (Institutional Interest Code-IIC: interest code based on institutional employment interventions -- institutional congruence and Community Interest Code-CIC: interest code based on community job placements – community congruence). There were no missing data for IICs or CICs; however, there were missing data for the PIC. This issue is addressed later.

All continuous variables were screened for univariate outliers and normality of the distribution (skewness and kurtosis). Variables exhibiting skewness and kurtosis were addressed by truncating the distribution of each affected variable. Outliers were recoded to +/- 3 (or +/- 2) standard deviations of the overall group mean (Tabachnick & Fidell, 2007). See Appendix 10 for a description of the data transformations. Multivariate outliers were examined via the Mahalanobis distance test (alpha =.001; Tabachnick & Fidell, 2007), and no multivariate outliers were detected. Dichotomous variables with extreme uneven splits (90% to 10% or worse) were dropped from inferential analyses, as were ordinal variables with extremely high rates (over 90%) for a given value. Finally, continuous predictor/control and outcome variables were examined for multicollinearity (correlations in excess of .80) via an inter-correlation matrix. See Appendix 11 for these matrices. None of the correlations implicated in a given hypothesis exceeded .80. Correlations between the predictor / control variables and outcome variables are also provided in Appendix 12.

Cox regression survival analysis requires that for any two cases, the ratio of the estimated hazard over time remains constant. Examining the log minus log plots of the hazard functions for each of the median-split predictor variables readily tests this assumption. The assumption is violated if the lines are not parallel. For the current study, this assumption was not violated.

Study II set out to examine nine different hypotheses, all of which relied heavily on the variable of congruence, which was determined with the personal and environmental interest codes of the participants. The following section begins with an examination of the PICs and results concerning the first hypothesis. Following this, data concerning the levels of congruence exhibited by this offender sample are presented. Finally, comparisons between the levels of congruence of offender and non-offender samples are provided.

Personal Interest Codes

As discussed above, the PICs were determined with one of three interest inventories administered by the Correctional Service of Canada. The most commonly used inventory was the COPS, with 52% (n=158) of the PICs resulting from this assessment. The second most common inventory was the VPI (45%, n=136) and, although rare, the ESPORT was used in 3% (n=10) of the cases. Importantly, the potential influence of these three interest tests was examined by running all relevant analyses by COPS and VPI groupings. Overall, the type of test utilized in the determination of PICs had a negligible impact upon the results, with the exception of one exploratory analysis examining time to recidivism. This difference will be highlighted when these results are discussed.

The personal interests expressed by this sample of offenders were quite varied, with Realistic, Enterprising and Investigative interests emerging as the most commonly identified primary interest areas and Social, Realistic and Enterprising categories most commonly identified as secondary interests. As a whole, all six of Holland's interest types were represented and the order for the primary interest was Realistic (38%), Enterprising (22%), Investigative (14%), Social (11%), Conventional (10%), and Artistic (5%). Table 11 provides details regarding the primary, secondary and tertiary interests that were identified by this sample of offenders.

Table 11 Primary, Secondary and Tertiary Interests of the PICs (*N*=304)

Holland's Interest Category	Primary Interest	Secondary Interest	Tertiary Interest
Realistic	38%	21%	6%
Investigative	14%	12%	12%
Artistic	5%	10%	16%
Social	11%	22%	16%
Enterprising	22%	18%	19%
Conventional	10%	12%	12%
Missing	n/a	5%	19%

Hypothesis 1: Realistic Interests among Federally Sentenced Offenders

It is interesting to note that all six interest types were reflected by this sample of offenders, as research indicates (Holland, 1992) that this result does not always emerge for all samples. For example, it is not uncommon to have samples that exhibit only two or three interest types as primary interests, with the remaining interest types failing to emerge at all within the primary interest category. With 38% of the offenders expressing Realistic interests as their primary interest type, it is safe to conclude that Hypothesis 1: *the most frequently occurring primary personal interest type from Holland's RIASEC types will be the Realistic interest category,* was supported.

Environmental Interest Codes

Environmental interest codes for this study came from two different sources. The first source was an assessment of the interest type provided by a given environment based on the institutional employment interventions (implicated in institutional outcomes), and the second was based on interest types provided by given environments based on community

employment opportunities (implicated in job retention outcomes). In all, 89% (n=272) of the sample took part in 790 different types of institutional employment interventions. The largest majority (80%) of interventions were job placements or on the job training, while 14% involved vocational programming (see Appendix 13 for details). Those offenders who found employment after release (n=139) were involved in 213 different types of job placements (see Appendix 14 for details).

Institutional interest codes (IIC) were determined with the Dictionary of Holland's Occupational Codes (DHOC), for cases in which the employment intervention was similar to an actual job opportunity (i.e., job placement or on the job training; 80%), or the Position Classification Inventory (PCI), for cases in which the employment intervention was a vocational programming opportunity (14%). The determination of an interest code for 6% of the vocational programming was excluded as it was not possible to complete a PCI (see Appendix 13 for details). CICs were always determined with the DHOC and, where necessary, inquiries regarding specific job details were made with employment coordinators from the Community Employment Centres.

As previously mentioned, the majority (89%, n=272) of this sample received some type of employment intervention. This will be discussed in more detail below; however, because the majority of these offenders (63%) had between one and three employment programs, it was determined that only the first three programs would be examined in detail. Furthermore, sample sizes beyond the first three programs were quite small. Importantly, the average congruence levels were based on all employment programming involvement, thereby ensuring the most accurate representation of vocational congruence during the period of incarceration.

The data from the IICs indicate a very restricted range of opportunities within the correctional environment, with realistic opportunities emerging as highly dominant over all other interest areas, and investigative and artistic opportunities rarely presenting themselves among this sample. Table 12 provides details on the three most frequently identified IICs across the first three employment interventions for this sample of offenders.

Table 12 Dominant Institutional Intervention Interest Codes

	Most Common IIC	%	Second Most Common IIC	%	Third Most Common IIC	%
First Employment Intervention (n=263)	RCE	30	REC	28	RES	21
Second Employment Intervention (n=200)	REC	27	RCE	19	RES	18
Third Employment Intervention (n=129)	REC	22	RES	19	RCE	15

Note: Acronyms represent primary, secondary and tertiary interest codes. For example, RCE indicates **R**ealistic interests as primary, **C**onventional interests as secondary and **E**nterprising interests as tertiary.

Examination of the CICs reveals a similar situation for job placements in the community. That is, the majority of employment gained by the offenders fell in the realistic category. Table 13 provides details on the three most frequently identified CICs across the first two community employment opportunities for this sample of offenders. It was decided to examine only two community employment opportunities, as 91% of the sample had between one and two job placements in the community.

Table 13 Dominant Community Job Interest Codes

	Most Common CIC	%	Second Most Common CIC	%	Third Most Common CIC	%
First Community Employment (n=139)	RES	35	RCE	14	REI	11
Second Community Employment (n=43)	RES	28	RSE	19	RCE	14

Levels of Vocational Congruence

Levels of vocational congruence were determined for both institutional and community environments. Institutional congruence was determined by analyzing the level of agreement between the PIC and the IIC, whereas the community congruence was determined by analyzing the level of agreement between the PIC and the CIC. In considering the institutional congruence, the C and KP Indices were both calculated for those offenders with a three-letter index for the PIC (217 / 269, 81%). However, for those individuals with less then a 3-letter PIC index (52 / 269, 19%), Holland's first-letter agreement based on the hexagon was utilized. Likewise, community congruence was calculated with the C and KP Indices for those offenders with a three-letter index for the PIC (105 / 139, 76%). However, for those individuals with less then a 3-letter PIC index (34 / 139, 24%), once again, Holland's one-letter agreement based on the hexagon was utilized. It was decided to include Holland's first-letter index in order to ensure the largest sample size possible. The means and standard deviations of these congruence indices are provided in Table 14.

Table 14 Indices of Vocational Congruence

	Institutional			Community		
Congruence Index	n	Mean	S.D	n	Mean	S.D.
C Index (CI)	217	10.06	3.38	105	9.78	3.38
CI Environment 1	212	10.45	3.77	105	9.81	3.51
CI Environment 2	160	9.77	3.77	32	9.25	3.05
CI Environment 3	98	9.62	4.05	n/a	n/a	n/a
KP Index (KP)	217	.54	.20	105	.52	.18
KP Environment 1	212	.55	.22	105	.52	.19
KP Environment 2	160	.53	.21	32	.47	.16
KP Environment 3	98	.52	.22	n/a	n/a	n/a
Holland Index (HI)	269	2.84	.94	139	2.87	.99
HI Environment 1	263	2.89	1.04	139	2.86	1.02
HI Environment 2	200	2.83	1.03	43	2.84	.90
HI Environment 3	129	2.84	1.04	n/a	n/a	n/a

Offender's Levels of Congruence as Compared to Non-Offender Samples

A visual examination of the means and standard deviations in Table 14 suggests that the level of vocational congruence for this sample of offenders, within an institutional environment and outside of the institution (i.e., within a community environment), is comparatively similar. Furthermore, it appears that the level of congruence being exhibited by offenders is commensurate with that which would be seen exhibited in non-offender samples. In order to consider how the level of vocational congruence for an offender sample may differ from a non-offender sample, a selection of available congruence indices (based on

the C, KP, or first-letter indices) was extracted from the literature. Table 15 provides a selection of congruence levels for non-offender samples.

Table 15 Indices of Vocational Congruence for Non-Offender Samples

	C Index		KP Index		First-Letter			
Author	*M*	*SD*	*M*	*SD*	*M*	*SD*	*N*	Sample
A. Camp & Chartrand (1992)	--	--	.37	.12	2.25	.66	125	Students in Career Planning Course
B. Brown & Gore (1994)	9.00	3.69			2.50	.96	10,560	Computer Generated
Based on SDS			.33	.21				
Based on SII			.41	.20				
C. Upperman & Church (1995)								Military Personnel
Enlisted	11.00	3.82	.58	.25	--	--	154	
Supervisor	11.06	3.27	.60	.24			61	
Army	10.91	3.71	.59	.24				
D. Oleski & Subich (1996)								Employed Non-
Current Occupation	10.09	3.52	.41	.22	--	--	42	Traditional
Pursued Occupation	12.83	3.49	.64	.26			42	Students
E. Lent & Lopez (1996)								Managers / Executives
Site 1 DHOC	10.56	3.55	.52	.20	--	--	63	
Site 1 EAT	11.37	3.68	.52	.25			63	
Site 2 DHOC	8.48	3.34	.38	.15			103	
Site 2 EAT	11.08	3.29	.51	.22			103	
F. Young, Tokar & Subich (1998)	11.09	4.04	.50	.28	3.05	1.03	483	Employed Adults
G. Kieffer, Schinka, & Curtiss (2004)								Employed Adults
Men	10.30	3.50	--	--	--	--	191	
Women	9.70	3.60					323	

Note: SDS = Self Directed Search, SII = Strong Interest Inventory, DHOC = Dictionary of Holland's Occupational Codes, EAT = Environmental Assessment Technique; Site 1 = engineers, chemists; Site 2 = nurses, clinical specialists.

An examination of Table 15 suggests that there is large variability in levels of congruence among non-offender samples. In some instances, this is a direct result of methodological approach. For example, within Oleski and Subich's (1996) examination of 'current' and 'pursued' occupations, one would expect the 'pursued' occupations to have higher levels of congruence, as the 'pursued' occupations reflect the individuals 'ideal' job, or in other words, a job more in line with his or her interests and goals. Additionally, Brown and Gore's (1994) computer-generated congruence levels reflect all possible combinations of personal and environmental agreement but do not reflect agreement based on an actual sample of individuals. Finally, the findings from Lent and Lopez (1996) are interesting, given that they provide information regarding how different methods utilized in the determination of environmental interest codes can impact levels of congruence; however, the congruence levels may, in turn, be impacted as a result of the chosen methodology.

In order to determine if there were any statistical differences in the mean levels of vocational congruence for offender and non-offender samples, t-tests were conducted for those samples that were not identified as being impacted by methodological choice and, where appropriate, those samples using the same methodological approach as that of the current study. Mean differences on the C and KP indices were calculated on aggregate (institutional and community), intervention-specific (institutional), and job-specific (community) levels of congruence. The tables providing the results for these t-tests are provided in Appendices 13 and 14, respectively. In all, 52 t-tests were conducted, 26 examining institutional congruence levels compared to non-offender populations, and 26 examining community congruence levels compared to non-offender populations. The current author acknowledges that running multiple t-tests can lead to an excessive type 1

error rate; nevertheless, this exercise was seen as beneficial given the exploratory nature of this research.

Overall, the majority (56%) of the t-tests resulted in no significant differences between offender and non-offender populations. Of the remaining tests, 27% revealed non-offenders as having higher levels of congruence and 17% revealed offenders as having higher levels of congruence. However, in breaking these results down by institutional and community congruence, it became clear that differences in congruence varied as a function of environment. Table 16 provides details regarding institutional versus community environments and how congruence among offenders compared to that of non-offenders as a function of environment.

Table 16 Offender versus Non-Offender Congruence as a Function of Environment

	Institutional	Community
Offenders higher in congruence	5 (19%)	4 (16%)
Non-offenders higher in congruence	4 (16%)	10 (38%)
No significant difference in congruence	17 (65%)	12 (46%)
Total # of t-tests	26	26

Even though the aggregate results suggested that, compared to a non-offender population, offenders were less likely to exhibit higher levels of congruence, that is, 27% versus 17%. Table 16 demonstrates that these results varied as a function of the environment being examined. More specifically, when examining the institutional congruence of offenders in comparison to non-offender levels of congruence, there was a higher likelihood of finding non-significant results (i.e., 65%), and, where differences appeared, they were minimal (19% versus 16%). Conversely, when examining community congruence of

offenders in comparison to non-offender levels of congruence, non-offenders appeared to be more likely to exhibit significantly higher levels of congruence (38% versus 16%). This suggested that the institutional environment was more likely to provide levels of vocational congruence for offenders that are comparable to that found in the general population. However, upon release into the community, when the offender is left to find his/her own employment, the level of congruence appeared to be impacted.

It is also worth noting that the C Index was more likely to show non significant differences as compared to the KP Index. Furthermore, t-tests of the KP Index suggested that offenders consistently exhibited higher levels of congruence then student samples (this finding did not emerge with the C Index, which suggested no significant differences). In sum, given the variation in levels of congruence among the general population (i.e., non-offender samples), these results, although somewhat inconclusive, provide preliminary evidence to suggest that the levels of congruence exhibited by offenders were most likely relatively comparable to that of the general population. Nevertheless, the more congruent environment provided by the institutional setting is noteworthy. Given the slightly varied results emerging from the different congruence indices, the following section briefly discusses the intercorrelations among the different congruence indices for the current sample; and how these intercorrelations compare to those reported in past research.

Relations among Congruence Indices

Given the different indices utilized within this research, intercorrelations were run between each index in order to ensure that the indices were comparable and would not have an adverse impact on the results. Table 17 provides the results from this analysis and demonstrates significant correlations between all three indices.

Table 17 Intercorrelations between Vocational Congruence Indices

	C Index	KP Index
	Institutional (n=217)	
KP Index	.909**	
First-Letter Holland Index	.883**	.837**
	Community (n=105)	
KP Index	.858**	
First-Letter Holland Index	.815**	.812**

These intercorrelations appear to correspond with those reported within non-offender samples. Based on the current author's review, normally, correlations between the C and KP indices range from .81 to .91, those between the KP and First-Letter Indices from .69 to .84, and those between the C and First-Letter Indices from .80 to .85. Table 18 provides intercorrelations as cited in the literature.

Table 18 Intercorrelations between Congruence Indices of Non-Offender Samples

	C & KP Indices	C & First-Letter Indices	KP & First-Letter Indices
Camp & Chartrand (1992) (N=125)	--	--	.69
Brown & Gore (1994) (N=10,560)	.83	.80	.74
Upperman & Church (1995) (N=154)	.81	--	
Lent & Lopez (1996) (N=166)	.91	--	
Young, Tokar & Subich (1998) (N=483)	.90	.85	.84
Hoeglund & Hansen (1999) (N=1473)	.85	.82	.78

Given the high correlations among these congruence indices and the larger sample size that is gained by using the First-Letter Holland Index, results from this point forward will be presented using the First-Letter Index. However, all analyses were always conducted using all three indices and where necessary, emerging differences are discussed. Furthermore, given the exploratory and innovative nature of this work, all results were broken down by gender, Aboriginal status[17] and age groupings (i.e., < / > 30 years of age). Once again, where appropriate, findings in relation to said analyses are discussed.

Institutional Outcomes

The following section presents the results as they relate to hypotheses concerning institutional outcomes. Specifically, while controlling for relevant variables, vocational congruence was examined for its relation to and impact upon percentage of time spent in correctional programming, institutional misconduct, level of employment need, and security level. Descriptive results are presented followed by inferential analyses. All analyses were conducted using SPSS.

Hypothesis 2: Time in Employment Programming

Hypothesis 2 theorized that, compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with more stable periods of involvement with employment and vocational interventions. The following section discussed results in relation to this hypothesis.

As discussed, 272 (89%) offenders from this sample were involved in some form of employment intervention. The majority of offenders (72%, n=196) were involved in

[17] In some analyses, the sample size for women and Aboriginal offenders precluded the possibility of analyzing these groupings as an independent group. However, analyses by gender and Aboriginal status were still conducted in order to ensure that the results for male and Non-Aboriginal offenders did not change significantly as a result of the women or Aboriginal offenders within the sample.

employment interventions that were actual job placements or on the job training. The remaining 28% (n=76) were involved in both employment and vocational programming. These offenders spent a minimum of 2% and a maximum of 100% of their period of incarceration involved in some form of employment intervention (M = .54, SD = .27). The most common types of employment intervention opportunities were comprised of cleaning jobs (21%), vocational programming (14%), groundskeeping / landscaping / yard work (14%) or kitchen / food services (12%). However, an examination of Appendix 13 demonstrates that the Correctional Service of Canada offers a rather diverse range of employment intervention opportunities.

A hierarchical multiple regression was conducted in order to determine if, after controlling for level of employment need, level of motivation, and level of risk, level of vocational congruence would contribute to the variability in time in employment programming. Table 19 displays the correlations between variables, means, standard deviations, unstandardized regression coefficients (B), the standardized regression coefficients (β), semi partial correlations (sr^2), R^2, the adjusted R^2, and the change in R^2 (ΔR^2).

The multivariate results indicated that r was significantly different from zero at the end of each step. After Step 2, with all independent variables in the equation, R^2 was .05. This indicates that the combination of these variables account for 5% of the variance in time spent in employment programming. After Step 1 with level of employment need, level of motivation and level of risk in the equation, R^2 = .05, F (3,256) 4.77, p<.01. After Step 2 with level of congruence added to the prediction of time in employment programming, R^2 remained at .05, F (4,255) 3.58, p<.01. The addition of level of congruence to the equation did not reliably improve R^2. In examining the regression coefficients, it is clear that level of

motivation is the primary variable of interest within this regression model. Level of motivation uniquely accounts for 4% of the variability in time in employment programming.

Table 19 Hierarchical Multiple Regression of Level of Motivation (IV1), Level of Employment Need (IV2), Level of Risk (IV3) and Level of Vocational Congruence (IV4) on Time in Employment Programming (DV) (N=259)

Variables	DV	IV1	IV2	IV3	IV4	B	β	sr^2
Level of Motivation	.20					.106**	.205	.04
Level of Employment Need	-.12	-.14				-.044	-.103	
Level of Risk	-.003	-.29	.18			.028	.074	
Level of Congruence	-.03	-.06	.05	-.07		-.003	-.012	
Intercept						.391		
Means	.541	2.10	2.85	2.28	2.84			
S.D.	.266	.515	.617	.699	.944			

R^2=.05[a]
Adjusted R^2=.04
r=.23**

Note. R^2=.05 for Step 1; ΔR^2=.000 for Step 2 (*ns*).
[a] Unique variability =.04; shared variability = .01, 95% confidence limits from .04 to .17.
** $p < .01$

The size and direction of the relationship suggests that those offenders exhibiting higher levels of motivation spend more time in employment programming. This finding appears to be consistent across the difference indices of levels of congruence, gender and Aboriginal status (i.e., Aboriginal vs. non-Aboriginal offenders). However, in examining these findings by age groupings (i.e., < / > 30 years of age), an exception to this finding emerges. More specifically, level of motivation remains the variable of significant interest for those offenders greater than 30 years of age; however, for those offenders less than 30 years of age, the regression coefficient for level of employment need becomes significant

($p<.05$), while level of motivation no longer emerges as a significant predictor of time in employment programming.

Given these results, it is concluded that hypothesis two which stated that, *compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with more stable periods of involvement with employment and vocational interventions* was not supported. Levels of vocational congruence were not significantly associated with time spent in employment programming. Of note, it was decided to perform regression analyses in order to maintain the variability in the predictor variable; however, categorizing levels of congruence into low and high congruence groups and running MANOVA resulted in findings similar to that found in the regression analyses. This was true for all hypotheses.

Hypothesis 3: Involvement in Institutional Incidents

Hypothesis 3 stated that, compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with less involvement in poor institutional behaviour. Poor institutional behaviour was assessed by examining involvement in institutional incidents. Results from these analyses are presented below.

Incidents were examined based on any type of involvement in institutional incidents, involvement in major incidents, and involvement in minor incidents. In addition, incidents during programming and outside of programming periods were examined. Overall, 68% (n=207) of the sample was involved in some form of institutional misconduct. Of those involved in incidents, 34% (n=70) were involved in major incidents, 93% in (n=192) minor incidents, and 28% (n=58) in both major and minor incidents. Given that 32% (n=97) of the sample was not involved in any form of institutional incident, this resulted in extremely

positively skewed variables. Transformations of these variables are outlined in Appendix 10; however, because the transformed variables did not alter the overall statistical significance of the results, findings are presented with the original variables.

A hierarchical regression was conducted in order to determine if level of vocational congruence improved prediction of involvement in institutional incidents beyond that afforded by period of incarceration (block one) and level of risk (block 2). Table 20 displays the correlations between variables, means, standard deviations, unstandardized regression coefficients (B), the standardized regression coefficients (β), semi partial correlations (sr^2), R^2, the adjusted R^2, and the change in R^2 (ΔR^2).

The multivariate results indicated that R^2 was significantly different from zero at the end of each step. After Step 3, with all independent variables in the equation, R^2 was .31. This indicates that the combination of these variables account for 31% of the variance in involvement in institutional incidents. After Step 1 with period of incarceration in the equation, $R^2 = .28$, F (1,267) 104.20, $p<.001$. After Step 2 with level of risk added to the prediction of involvement in institutional incidents, R^2 was .31, F (2,266) 59.47, $p<.001$. This addition results in a significant increment of R^2. After Step 3 with level of congruence added to the prediction of involvement in institutional incidents, R^2 remained at .31, F (3,265) 39.65, $p<.001$. The addition of level of congruence to the equation did not reliably improve R^2. An examination of the semipartial correlation signifies that length of incarceration uniquely accounts for 25% of the variability in involvement in institutional incidents. This is not surprising, given the skewness of these variables; this is why it was decided to control for period of incarceration. It is fair to say that had the period of incarceration been consistent across offenders, level of risk would have played a more significant role in the prediction of institutional incidents.

Table 20 Hierarchical Multiple Regression of Period of Incarceration (IV1), Level of Risk (IV2), and Level of Vocational Congruence (IV3) on Involvement in Institutional Incidents (DV) (N=268)

Variables	DV	IV1	IV2	IV3	*B*	*β*	sr^2
Period of Incarceration	.530				.006***	.506	.25
Level of Risk	.246	.151			1.59**	.168	.03
Level of Congruence	-.015	.052	-.073		-.202	-.029	
Intercept					-3.24		
Means	3.57	613.18	2.29	2.84			
Standard Deviation	6.57	544.01	.695	.943			

R^2=.31[a]
Adjusted R^2=.30
r=.56***

Note. R^2=.28 for Step 1; ΔR^2=.028 for Step 2 (p<.001); ΔR^2=.001 for Step 3 (*ns*).
[a] Unique variability =.28; shared variability = .03, 95% confidence limits from .005 to .007 (period of incarceration) and .621 to 2.55 (level of risk).
** p < .01, *** p< .001

In order to further examine any effect that the skewed variable may be having on the multiple regression results, after categorizing the number of institutional incidents variable, an analysis was conducted using multinomial logistic regression. The categorization resulted in three possible outcomes: no involvement in institutional incidents (32%), involvement in 1or 2 incidents (33%) and involvement in three or more incidents (35%). The multinomial logistic regression analysis provided similar results to that of the multiple regression findings, thereby providing additional support for the validity of the results presented above.

Overall, the size and direction of the relationship suggests that the higher the level of risk and the longer the period of incarceration, the higher number of institutional incidents. Level of congruence appears to play no significant role in the prediction of institutional incidents. In analyzing institutional incidents by major and minor categories, as well as

during and outside of programming periods, there was little variability with regard to the impact of congruence. Furthermore, these findings appear to be consistent across the difference indices of congruence, gender and age. However, breaking the results out by Aboriginal status (i.e., Aboriginal vs. non-Aboriginal offenders), resulted in some interesting findings in relation to level of congruence. More specifically, it appears that level of congruence emerges as significant for Aboriginal offenders.

For Aboriginal offenders, the multivariate results indicated that r was significantly different from zero at the end of each step. After Step 3, with all independent variables in the equation, R^2 was .55. This indicates that the combination of these variables accounts for 55% of the variance in involvement in institutional incidents. After Step 1 with period of incarceration in the equation, $R^2 = .48$, F (1,51) 47.78, $p<.001$. After Step 2 with level of risk added to the prediction of involvement in institutional incidents, R^2 was .49, F (2,50) 24.36, $p<.001$. This addition did not result in a significant increment of R^2. After Step 3 with level of congruence added to the prediction of involvement in institutional incidents, R^2 was .55, F (3,49) 19.76, $p<.001$. The addition of level of congruence to the equation reliably improved R^2 with an R^2 change value of .05, F change of 5.84 ($p<.05$). While recognizing the exploratory nature of this analysis and the fact that a Bonferonni correction to compensate for an inflated Type I error rate, would negate these results, it was still decided, that given the primary variable of interest in this study was approaching significance for this particular segment of the sample, it was worth reporting the results. Table 21 presents details for this small sample of Aboriginal offenders. Notably, these results are based on the First-Letter Index; however, the findings were similar across all congruence indices.

Table 21 Hierarchical Multiple Regression of Period of Incarceration (IV1), Level of Risk (IV2) and Level of Vocational Congruence (IV3) on Involvement in Institutional Incidents (DV) for Aboriginal Offenders (n=52)

Variables	DV	IV1	IV2	IV3	B	β	sr^2
Period of Incarceration	.695				.028***	.808	.51
Level of Risk	.179	.388			-1.89	-.124	
Level of Congruence	-.033	.265	.044		-2.331*	-.241	.05
Intercept					-.885		
Means	3.60	580.83	2.55	2.89			
Standard Deviation	9.78	283.76	.637	1.01			

R^2=.55
Adjusted R^2=.52
r=.74***

Note. R^2=.48 for Step 1; ΔR^2=.010 for Step 2 (ns); ΔR^2=.054 for Step 3 (p<.05).
* p < .05, *** p< .001

Involvement in Institutional Incidents: First Program Involvement

In order to examine incidents during program-specific time periods, as opposed to the number of incidents throughout the entire period of incarceration, a hierarchical regression was conducted. Similarly to the analyses above, the purpose was to determine if level of vocational congruence improved prediction of involvement in program-specific institutional incidents beyond that afforded by length of program (block one) and level of risk (block 2). Using the first program the offenders were involved in, Table 22 displays the correlations between variables, means, standard deviations, unstandardized regression coefficients (B), the standardized regression coefficients (β), semi partial correlations (sr^2), R^2, the adjusted R^2, and the change in R^2 (ΔR^2).

Table 22 Hierarchical Multiple Regression of Length of Program (IV1), Level of Risk (IV2) and Level of Vocational Congruence (IV3) on Involvement in Institutional Incidents (DV) During the First Program (n=140)

Variables	DV	IV1	IV2	IV3	*B*	*β*	sr^2
Length of Program	.431				.005***	.422	.17
Level of Risk	.171	.165			.217	.108	
Level of Congruence	-.137	.053	.041		-.220*	-.163	.03
Intercept					-.277		
Means	.67	109.12	2.41	3.01			
Standard Deviation	1.290	111.25	.644	.960			

R^2 =.22[a]
Adjusted R^2 =.21
r =.47***

Note. R^2=.19 for Step 1; ΔR^2=.010 for Step 2 (*ns*); ΔR^2=.027 for Step 3 (p<.05).
[a] Unique variability =.20; shared variability = .02, 95% confidence limits from .003 to .007 (length of program) and -.240 to -.019 (level of vocational congruence).
* p < .05, *** p< .001

The multivariate results indicated that R was significantly different from zero at the end of each step. After Step 3, with all independent variables in the equation, R^2 was .22. This indicates that the combination of these variables account for 22% of the variance in involvement in institutional incidents during the first program involvement. After Step 1 with length of program in the equation, R^2 = .19, F (1,139) 31.70, p<.001. After Step 2 with level of risk added to the prediction of involvement in institutional incidents during the first program involvement, R^2 was .20, F (2,138) 16.82, p<.001. This addition does not result in a significant increment of R^2. After Step 3 with level of congruence added to the prediction of involvement in institutional incidents during the first program, R^2 was .22, F (3,137) 13.08, p<.001. The addition of level of congruence to the equation reliably improved R^2 (p<.05).

Once again, although it is of interest to present these results for exploratory purposes, it is possible that these findings are spurious. Similar analyses conducted on incidents during the second and third program opportunities did not result in significant findings for the congruence hypothesis. More specifically, for these programs, length of time in program was the only significant predictor of institutional incidents. Level of congruence during the program period did not emerge as a significant predictor.

In sum, although when broken down by different subgroups or examined based on program specific outcomes these analyses result in interesting findings regarding the relevance of vocational congruence, hypothesis three: *compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with less involvement in poor institutional behaviour* was not supported by this research. In general, involvement in institutional incidents was predicted by period of incarceration and level of risk. Level of vocational congruence had minimal bearing on these findings.

Hypothesis 4: Changes in Level of Employment Need

Hypothesis 4 proposed that, compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with higher likelihood of decreasing to lower levels of employment need. Decreases in levels of employment need were examined with change scores. The creation of this change score indicated that 96% (n=186) of the offenders exhibited no change in their level of employment need. In turn, no inferential analyses were conducted on this hypothesis as a result of an extremely high value for one of the categories on this variable. More specifically, 96% of offenders exhibited no changes in their level of employment need, from

the beginning to the end of their sentence. Levels of employment need, as identified at intake and at release, are outlined in Table 23.

Table 23 Levels of Employment Need -- At Intake and At Release

	Factor Seen as an Asset	No Need for Improvement	Some Need for Improvement	Considerable Need for Improvement	*n*
At Intake	3%	20%	67%	10%	300
At Release	3%	21%	64%	12%	197

In sum, hypothesis four: *compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with higher likelihood of decreasing to lower levels of employment need,* could not be examined in this research. It is interesting that the level of employment need did not change for more offenders during the period of incarceration. However, this finding should not be seen as unique to this particular sample of offenders. A research project currently being undertaken by the Correctional Services of Canada, with a sample size of approximately 20,000, found the same outcome in relation to 'pre' and 'post' changes in level of employment need (C. Gillis, personal communication, November, 2007).

Hypothesis 5: Changes in Level of Security

Hypothesis 5 proposed that, compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with higher likelihood of decreasing to lower levels of security. Potential changes in levels of security were examined in two ways. First, a change score was created for level of security and this was used as the dependent variable in a regression analysis with level of

congruence as the predictor variable, after controlling for level of risk. This analysis resulted in no significant findings. Second, given concerns and on-going debate regarding the use of change scores (e.g., Campbell & Kenny, 1999; Chronbach & Furby, 1970; Miller & Kane, 2001; Zimmerman, Williams, & Zumbo, 1993), a hierarchical regression analysis was conducted with level of security at release as the dependent variable, level of security level at intake as the predictor variable in the first block, level of risk added as predictor variables in the second block, and level of congruence added as the predictor variable in the final block.

The multivariate results indicated that R was significantly different from zero at the end of each step. After Step 3, with all independent variables in the equation, R^2 was .28. This indicates that the combination of these variables accounts for 28% of the variance in involvement in level of security at release. After Step 1 with level of security at intake in the equation, $R^2 = .27$, F (1,267) 100.65, $p<.001$. After Step 2 with level of risk added to the prediction of level of security at release, R^2 was .28, F (2,266) 52.38, $p<.001$. This addition was closing in on reaching significance but did not result in a significant increment of R^2. After Step 3 with level of congruence added to the prediction of level of security at release, R^2 remained at .28, F (3,265) 34.89, $p<.001$. The addition of level of congruence to the equation failed to improve R^2. Table 24 presents the correlations between variables, means, standard deviations, unstandardized regression coefficients (B), the standardized regression coefficients (β), semi partial correlations (sr^2), R^2, the adjusted R^2, and the change in R^2 (ΔR^2).

Table 24 Hierarchical Multiple Regression of Level of Security at Intake (IV1), Level of Risk (IV2) and Level of Vocational Congruence (IV3) on Level of Security at Release (DV) (*N*=268)

Variables	DV	IV1	IV2	IV3	*B*	*β*	sr^2
Level of Security at Intake	.523				.588***	.470	.17
Level of Risk	.334	.482			.095	.110	
Level of Congruence	.030	.028	-.073		.016	.024	
Intercept					.315		
Means	1.65	1.82	2.29	2.84			
Standard Deviation	.603	.481	.695	.943			

R^2=.28[a]
Adjusted R^2=.28
r=.53***

Note. R^2=.27 for Step 1; ΔR^2=.009 for Step 2 (*ns*); ΔR^2=.001 for Step 3 (*ns*).
[a] Unique variability =.17; shared variability = .11, 95% confidence limits from .44 to .73.
*** p< .001

When considering the primary variable of interest, that is, vocational congruence, these findings are relatively consistent across congruence index, gender, age and Aboriginal status. However, small differences across all of these groupings, although not reaching statistical significance, did emerge. More specifically, when different congruence indices were utilized in the equation, small differences in outcome emerged concerning the relative contribution of level of risk. That is, for the C and KP indices, level of risk emerged as a significant variable in the prediction of level of security at release. However, as described above, this was not the case when the First-Letter index is used in the modelling equation.

Breaking the analyses out by gender, age and Aboriginal status resulted in additional, non-significant but worthy of mention outcomes. Specifically, in examining the semipartial correlations being attributed to level of congruence and its relative predictive value, for these groupings, results suggested that congruence may play a larger role for certain groupings.

That is, the semipartial correlations appear substantially higher for women offenders (compared to men), Aboriginal offenders (n=41) (compared to non-Aboriginal; n=176) and older offenders (i.e., those greater than 30 years of age; n=118), compared to younger offenders (n=99). This result was even more pronounced for offenders who were greater than 40 years of age (n=41). In fact, for those offenders over 40 years of age, level of congruence added incremental validity to R^2 (p<.05) in the prediction of level of security at release. Again, the author recognizes that the exploratory nature of such analyses and a Bonferonni correction would negate these results, and it is possible that such findings are spurious as a result of the number of analyses being performed. However, given the consistency of these findings across different indices of congruence and the exploratory and innovative nature of this work, it seemed of value to report these differences.

Hypothesis five: *compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with higher likelihood of decreasing to lower levels of security,* was again not supported by this research. Although interesting findings emerge concerning sub-groups of this sample, these findings could be spurious and, although approaching significance, did not actually reach statistical significance. In turn, although worth mentioning for exploratory reasons, these results should not be viewed as significant support for this hypothesis.

Post-Release Outcomes

The following section presents the results as they relate to hypotheses concerning post-release outcomes. Specifically, after controlling for relevant variables, vocational congruence was examined for its relation to and impact upon the likelihood of gaining employment, retaining employment and recidivism. Descriptive results are presented followed by inferential analyses.

Given that the original sample was selected from offenders who had visited the Community Employment Centres (CEC), it was anticipated that the majority of offenders in the sample would, in fact, be on some form of conditional release. However, four offenders (1%) had not actually been released. This suggests that these offenders visited the CEC while on some form of temporary absence as opposed to parole. Thus, hypotheses related to post-release follow-up were conducted with a sample of only 300.

Hypothesis 6: Job Attainment

Hypothesis 6 stated that, compared to incongruent vocational interventions, congruent vocational interventions within an institutional environment will be associated with higher likelihood of attaining employment in the community. Of those offenders who were released to the community, 139 (46%) were identified by the CEC as finding employment in the community. Regionally, there were large differences in where the offenders were living, and in turn, where the employment was accessed. The majority of offenders were living in the Pacific Region, followed by the Prairie, Ontario, and Atlantic Regions. Quebec was not included in this study due to the types of vocational assessments they administer; however, one offender had completed a vocational assessment in one of the four regions included in this study but was living and found employment in the Quebec region after release. Table 25 outlines the number of offenders and number of job placements by region. Full details regarding the types of employment opportunities and the respective interest codes are presented in Appendix 14.

Table 25 Post-Release Employment Opportunities by Region

	Number of Job Placements *n*=213 *n* / (%)	Number of Offenders *n*=139 *n* / (%)
Atlantic	18 (8)	10 (7)
Ontario	33 (15)	24 (17)
Prairie	57 (27)	42 (30)
Pacific	104 (49)	62 (45)
Quebec	1 (<1)	1 (<1)

Importantly and as noted, this post-release employment information is based on data provided by the CECs. Remember that accessing these data in this way permitted the acquisition of specific job titles, thereby allowing the determination of community interest codes required for the calculation of community levels of congruence. However, after examining the release dates of these offenders in comparison to the timeframe within which they visited the CEC, it became apparent that the validity and reliability of these data were uncertain. Therefore, additional data concerning job acquisition were requested from Correctional Services Canada (CSC) and extracted from their Offender Management System (OMS). Accessing these data in this way precluded the possibility of determining community levels of congruence, as the OMS does not consistently track the type of employment gained. However, it was believed that data for this particular variable from OMS may be more reliable than that being provided by the CEC, and information provided in the next paragraph confirmed this to be the case. Consequently, inferential analyses concerning the job attainment variable was based on the data extracted from the OMS.

Data were missing for 16 offenders; however, the data from OMS indicate that 198 / 284 (70%) offenders were employed in the community after their release. This finding is

significantly different from that provided by the CEC (i.e., 139 / 300, 46%). This discrepancy is not surprising, given the possibility that offenders successfully gained employment prior to visiting a CEC (i.e., between their release date and the commencement date for the sample identification). Consequently, this suggests that even though offenders visited the CEC during the defined timeframe for the identification of this sample (i.e., April 1st, 2006 through March 31st, 2007), some offenders obtained and left employment prior to their visit to the CEC (the original employment opportunity would not be recorded by the CEC). In turn, this confirms concerns regarding the validity of the job attainment variable, as identified by the CEC, and subsequently raises certain concerns about the applicability of the community congruence indices calculated based on those employment opportunities.

Taking the most conservative approach, it was decided to identify those offenders with release dates from April 1, 2006 (i.e., study commencement date for sample identification) forward. After examining the release dates in relation to the study commencement date for the sample identification, it was determined that 25% (35 / 139) of the congruence indices may not be representative of all of the post-release employment opportunities for those offenders. Remember that the aggregate community congruence indices are based on all post-release community opportunities. However, 75% (104 / 139) of the offenders were released after April 1, 2006, and were therefore viewed as having valid and reliable community congruence indices. Consequently, although 100% of the community congruence information remains acceptable for descriptive purposes, outside of analyses relating to job retention (which correspond directly to job information received from the CEC), additional inferential analyses (i.e., prediction of recidivism) utilizing community levels of vocational congruence as a predictor variable used only 75% of the

sample, that is, the 75% of offenders who were seen as having representative average community congruence indices.

A logistic regression analysis was performed to assess the prediction of membership in one of two categories of outcome (attained a job, did not attain a job), with cognitive ability (i.e., overall grade level) and level of congruence acting as the independent variables. Results from this analysis did not reach statistical significance, suggesting a poor model fit. These results were consistent across congruence index, gender, Aboriginal status and age groupings.

Hypothesis 7: Job Retention

Hypothesis 7 proposed that, compared to incongruent employment in the community, congruent employment in the community will be associated with more stable periods of employment in the community. As discussed above, 139 offenders were identified by the CEC as finding employment in the community. In determining if these offenders were still working three months later, the CECs were able to follow-up with 90% (n=125) of the sample, finding that approximately half of the sample (n=63) was still employed at the three-month follow-up. Follow-up at six months resulted in more extreme data loss, as there were data for only 27% (n=38) of the sample. Nonetheless, 97% of these offenders were still employed at six months. However, this resulted in an extreme response rate for this outcome variable, in turn precluding the possibility of inferential analyses. Importantly, job retention data are not recorded in OMS, thereby precluding the possibility of looking at job retention for all offenders identified as job placed by OMS. However, because the community congruence indices correspond directly to the multiple job placements for these 139 offenders, as identified by the CEC, there was no concern with pursuing this analysis.

A logistic regression analysis was performed to assess the prediction of membership in one of two categories of outcome (employed at three months, not employed at three months), with cognitive ability and community level of congruence acting as the independent variables. Once again, this resulted in a poor model fit, with no significance emerging for these independent variables. Consequently, these findings fail to provide support for hypothesis seven: *compared to incongruent employment in the community, congruent employment in the community will be associated with more stable periods of employment in the community.*

Hypothesis 8: Recidivism

Hypothesis 8 proposed that, compared to incongruent employment in the community, congruent employment in the community will be associated with lower likelihood of recidivism. Recidivism was examined by looking at revocation rates. Revocation was further divided into technical revocations (i.e., breach of release conditions), revocations with an offence, and revocations with a violent offence. As discussed, post-release follow-up concerning revocation was based on a variable follow-up period, ranging from 112 days to 974 days. The average follow-up period was 449 days (SD = 166). Within this sample, 65% (n=195) of the offenders had not been revoked at the time of the study end (August 31, 2007). Of the remaining 35% (n=105), 21% (n=64) were readmitted based on a technical revocation, where as 14% (n=41) were revoked as a result of a new offence. Five (12%) of those offenders had committed a violent offence, the remaining 88% (n=36) had committed non-violent offences. In sum, this means that although 35% of the sample were readmitted, only 14% of the originally released sample (41/300) were readmitted as a result of new offences, and less then 2% of the originally released sample (5/300) came back as a result of a new violent offence.

A standard logistic regression analysis was performed on revocation as the outcome variable (i.e., any type of revocation, yes / no) and level of risk (as measured by the SIR), level of need, and level of community congruence acting as the predictor variables. A test of the full model (with all predictor variables) against a constant-only model was not statistically significant, χ^2 (3, n=104) = 4.89, p = .180, indicating that the predictor variables as a set did not reliably distinguish those who were and were not revoked. After examining the univariate results, according to the Wald criterion, only level of risk reliably predicted revocation, χ^2 (1, n=104) = 3.94, $p < .05$. Table 26 shows regression coefficients, Wald statistics, odds ratios and 95% confidence intervals for the odds ratios for each of the predictors. These findings remain consistent across congruence index, gender, Aboriginal status and age grouping.

Table 26 Logistic Regression of Recidivism as a Function of Level of Risk, Level of Need & Level of Community Vocational Congruence (n=104)

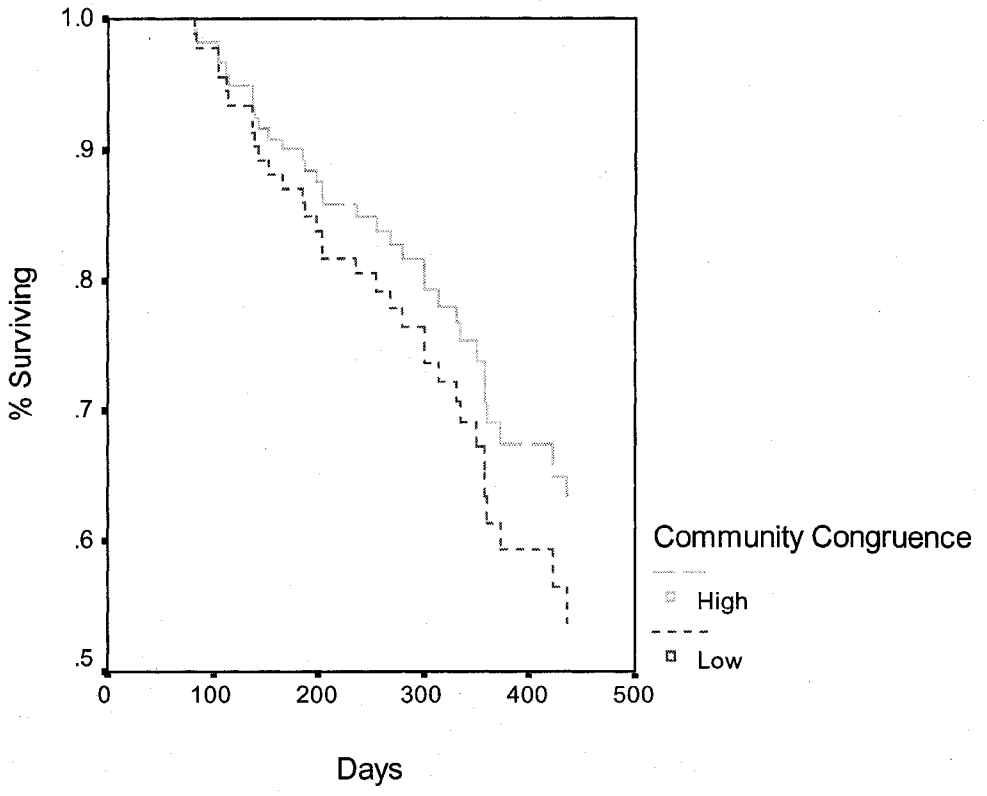
Variables	*B*	Wald Chi-Square	Odds Ratio	95% Confidence Interval for Odds Ratio	
				Lower	Upper
Level of Risk	-.057	3.94*	.945	.894	.999
Level of Need	-.095	.052	.910	.402	2.058
Level of Community Congruence	-.131	.369	.877	.575	1.339

* $p<.05$

In order to examine time to recidivism and potential differences among low and high congruence groups (as defined by a median-split), a Cox regression survival analysis was conducted. Survival analysis is a method commonly utilized in the analysis of post-release outcomes such as recidivism. Survival analysis permits the researcher to consider the time to

an event (in this case recidivism) and if this time varies significantly as a function of the predictor variables of interest. Time to recidivism ranged from a minimum of 56 days to a maximum of 650 days ($M = 230$, $SD = 120$). The results of the Cox regression survival analysis were similar to that of the logistic regression in that only the level of risk (as measured by the SIR) emerged as a significant predictor of time to recidivism (Wald = 4.065, $p < .05$). Overall level of congruence did not significantly add to the predictive power (Wald = .497, *ns*). However, the survival curves (Figure 5), although showing no statistically significant differences between the groups, suggest that those offenders in more congruent employment in the community are lasting longer (i.e., taking longer to recidivate).

Figure 5 Survival Analysis Examining Time to Failure for Recidivism by Congruence Level



Although it is interesting to note that the high congruence group appears to be lasting longer in the community, this finding did not reach statistical significance and, overall, the results of both the logistic regression and survival analysis provide evidence to suggest that hypothesis eight: *compared to incongruent employment opportunities, congruent employment opportunities will be associated with lower likelihood of recidivism*, is not supported by this analysis.

Hypothesis 9: Incremental Validity in the Prediction of Recidivism

Hypothesis 9 theorized that congruent employment will add incremental validity in the prediction of recidivism. Incremental validity was defined in terms of employment related variables. More specifically, an employment status variable was created, that is, being unemployed vs. being employed within environments rated as having low congruence vs. being employed within environments rated as having high congruence. Despite the results of Hypothesis Eight, a hierarchical logistic regression analysis was conducted in order to determine if the employment status variable would successfully predict recidivism. Recognizing the previously discussed limitations of the community congruence variable, analyses implicating the community congruence index were once again limited to the portion of the sample identified as having reliable and valid community congruence indices.

The results of the logistic regression on recidivism as the outcome variable (i.e., any type of revocation, yes / no) and level of risk (as measured by the SIR), level of need, and community employment status acting as the predictor variables revealed nothing different from those of Hypothesis Eight, that is, only risk was relevant in the prediction of recidivism. However, in order to determine if time to failure was influenced by employment status, a Cox regression survival analysis was performed to assess the effectiveness of employment

status after adjusting for the effects of the two covariates known to be predictive of survival: level of risk and level of need.

This analysis revealed a statistically significant effect of employment status after adjusting for the two covariates (i.e., risk and need), χ^2 (2, n=203) = 7.992, p = .018. Survival time was well predicted by the covariates χ^2 (2, n=203) = 17.459, p < .001; however, once again, the univariate results reveal that only risk (p<.01) emerged as a significant variable, with need not contributing significantly to this model (p=.598). The results of this analysis are provided in Table 27, including regression coefficients, degrees of freedom, probability values, and odds ratios.

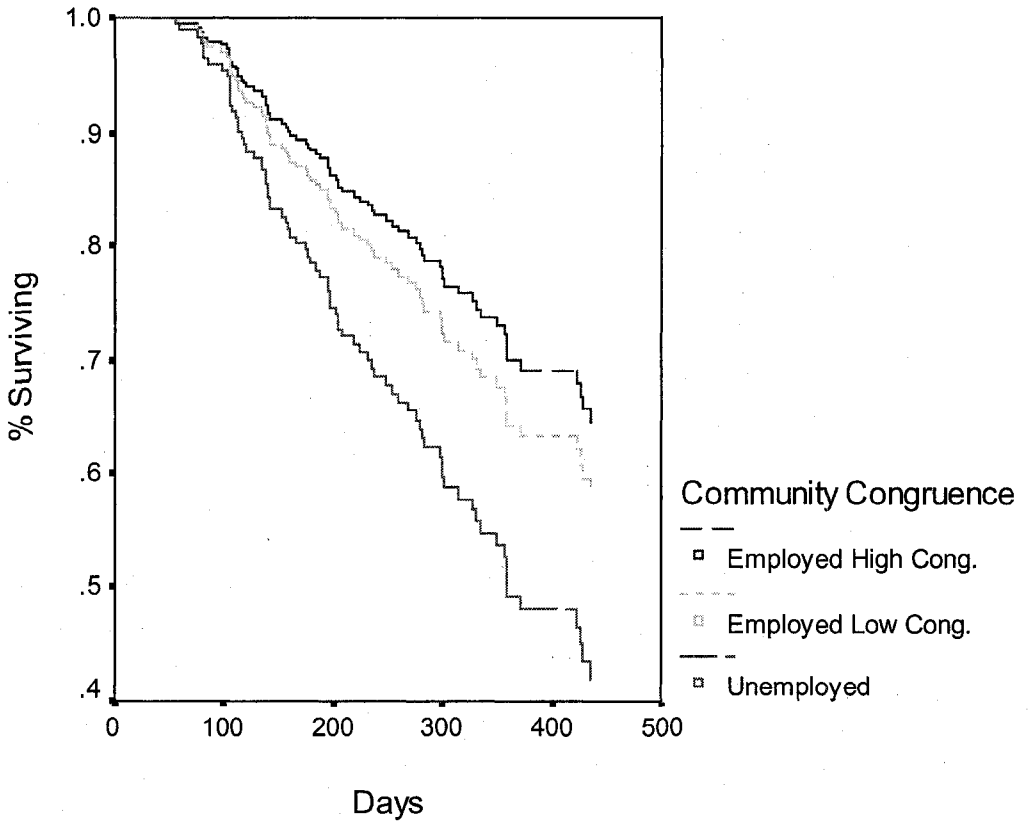
Table 27 Cox Regression Analysis of Employment Status on Survival Time after controlling for Risk and Need (n=203)

	B	*df*	Prob.	Odds Ratio
Level of Risk (SIR)	-.048	1	.001	.953
Level of Need	.132	1	.598	1.141
Employment Status				
Unemployed		2	.023	
Employed with Low Congruence	-.416	1	.146	.660
Employed with High Congruence	-.772	1	.008	.462

In analyzing time to failure for recidivism, these results indicate that both level of risk and employment status are predictive of time to recidivism. There were no statistical differences between unemployed offenders and those offenders in low-congruence employment positions. However, statistically significant differences emerged for unemployed offenders and those offenders in high-congruence employment positions. Specifically, compared to unemployed offenders, for those offenders in high congruence employment, each one point increase in congruence increased the probability of surviving by 54%. The survival curves (Figure 6) revealed that there is a clear linear relationship between

employment status designations and time to failure. As hypothesized, those designated as 'unemployed' had the shortest time to failure, followed by those rated as 'low congruent employment', followed by those rated as 'high congruent employment'. Importantly, this analysis was the only analysis that was significantly impacted by the type of interest test being utilized in the determination of Personal Interest Codes (PICs). Specifically, the above mentioned findings remained significant for those offenders assessed with the VPI; however, significant findings failed to emerge for those offenders who were assessed with the COPS. Nonetheless, the insignificant findings for this group were still in the anticipated direction.

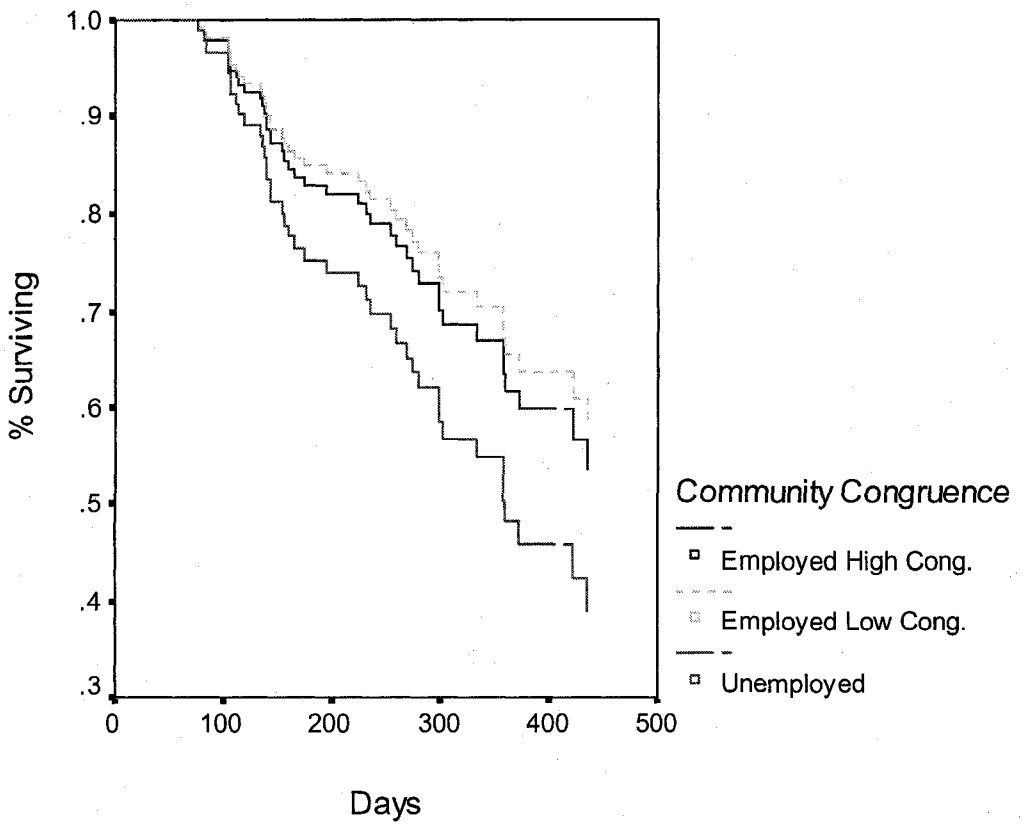
Figure 6 Survival Analysis Examining Time to Failure for Recidivism by Community Employment Status



Results of these analyses were similar across gender, Aboriginal status and congruence index. However, differences emerged for those offenders less than 30 years of

age. Specifically, employment status did not emerge as a significant variable for this age group (p=.314), and the survival curves (Figure 7) suggested that those in low-congruence employment positions were lasting longer in the community then both high-congruence and unemployed offenders.

Figure 7 Survival Analysis Examining Time to Failure for Recidivism by Community Employment Status for Offenders Less Than 30 Years of Age



Although it is interesting to review results in terms of time to recidivism and differences among groups, given the number of analyses being conducted, it is recognized that a Bonferonni correction to compensate for an inflated Type I error rate would negate these results. Consequently, the results from the logistic regression provide evidence to suggest that hypothesis nine: c*ongruent employment will add incremental validity in the prediction of recidivism*, is not supported by this research. However, an exploratory

examination of time to recidivism and results from the survival curve do suggest that those in higher congruence employment last significantly longer than their unemployed counterparts. This may provide evidence for the value of continued investigations in this area of research.

Chapter 6: Discussion

This research set out to examine Holland's (1958; 1959; 1973; 1985a, 1992, 1997) RIASEC theory of careers and his construct of vocational congruence. More specifically, this research examined how the theory could be applied, and how the theory relates to an offender population; as well as the predictive validity of the theory for a selection of both institutional and community correctional outcomes. Very few studies have examined Holland's RIASEC theory of vocational interests with an offender population. Of those that have, none have specifically verified the validity of using Holland's RIASEC structure with an offender population. Consequently, this work makes a significant contribution to the theoretical knowledge concerning the RIASEC model and its utility with an offender population. Study I examined the RIASEC structure and its validity for use with an offender population, while Study II focused on the predictive capacity of the construct of vocational congruence in the determination of correctional outcomes.

This section will begin by discussing the principal findings of this research, as they relate to Holland's RIASEC structure and vocational congruence for two offender samples. Institutional and community outcomes will then be reviewed. The focus will then turn to potential explanatory factors. Following this, the author will interpret these findings as they relate to the Good Lives Model and resilience. Finally, limitations and future directions will be proposed; and theoretical and operational implications will be provided.

Utilizing the RIASEC Structure with an Offender Sample

Study I demonstrated support for the use of the RIASEC theory with offender populations, as it revealed that Holland's circumplex model (1958; 1985a, 1992, 1997) as well as Round & Tracey's Alternative Three-Class Partition Model (1996) were both valid for this sample of offenders. Furthermore, results from the Multi-Dimensional Scaling (MDS) analysis revealed a general RIASEC ordering; however, specific similarities to Round & Tracey's model emerged, thereby supporting propositions made by Round and Tracey (1996) concerning the grouping of Social, Enterprising and Conventional interest themes (see Fouad & Dancer, 1992; Swanson, 1992).

Realistic, Investigative and Enterprising interest types emerged as most popular for both primary and secondary interests expressed by offenders. Within this sample, the majority (62%) expressed primarily Realistic Interests. Comparisons between this offender sample and two offender reference samples resulted in slight differences, as the current sample expressed significantly higher mean levels of Realistic and Investigative interests and significantly lower mean levels of Social interests. However, the mean levels of Enterprising and Conventional interests were comparable, and one of the reference samples expressed higher mean levels of Artistic interests. Overall, this demonstrates variability in occupational interests of offenders, which is what is seen in normative non-offender populations as well.

In examining the structural fit of three different RIASEC models, a statistically significant fit emerged for both Holland's circumplex model and Round & Tracey's Alternative three-class partition model. Correspondence indices exhibited by offenders in the current sample were also comparable to those of American benchmark samples. Furthermore, a spatial representation of these interests reveals a general RIASEC ordering.

However, the Conventional interest type was separated from the circular order, falling closer to the Social and Enterprising themes. This provides preliminary evidence for the relevance of Round & Tracey's alternative Three-Class Partition Model for an offender population. Overall, Study I provides support for the validity and applicability of two of the most widely utilized and cited RIASEC models. Additional research regarding the applicability of Round & Tracey's model appears warranted, and continued efforts using Holland's traditional RIASEC model would be appropriate.

Vocational Congruence with an Offender Sample

The majority of hypotheses for Study II were not confirmed. Overall, vocational congruence does not appear to be statistically significant in the prediction of correctional outcomes for this particular sample of offenders. However, post hoc analyses in order to further examine additional exploratory questions revealed interesting findings concerning time to recidivism, and potential relations with vocational congruence. This will be discussed in more detail shortly.

An analysis of the types of interests expressed by offenders revealed varied interests among this sample. Similar to those interests expressed by offenders in Study I, Realistic and Enterprising interests were the most commonly expressed themes. However, contrary to the findings in Study I, only 38% of this sample, compared to 62% for Study I, expressed Realistic interests as their primary interest type. The results from Study II are somewhat comparable to findings reported for normative populations (see Holland, 1977; Holland, Powell & Fritzsche, 1997). The discrepancy between Study I and Study II may be the result of the varied vocational assessment instruments implicated in each study. More specifically, Study I utilized only the VPI (Holland, 1977) while Study II utilized the VPI, and/or a conversion of the COPSystem (Knapp-Lee, 2000) and ESPORT (HRDC, 2006). It is also

conceivable that there is an inherent gender effect. Some research indicates that as compared to men, women may be less likely to exhibit primary Realistic interests (e.g., Harmon, Hanson, Borgen, & Hammer, 1994); however, more recent work (e.g., Herr & Cramer, 1984; Swan, 2005) highlights increasing numbers of women are exhibiting "non-traditional" Realistic interests. Nevertheless, the 7% of female participants in Study 2, in comparison to an entire male sample in Study 1, could have had an effect on the significant difference in the number of offenders expressing Realistic interest types in Study 1 and Study 2. These findings underline not only potential methodological implications, but also, the potential influence of gender and the type of assessment being utilized. This consequently calls attention to the significance of ensuring a national standard in assessment practices for CSC and the need for continued research examining gender differences in vocational interests.

In examining the types of environments provided by CSC's employment interventions, and the types of jobs attained by offenders upon release, Realistic interventions and occupations emerge most often. This should mean that adequate levels of vocational congruence are being achieved for at least some of the offenders within institutional and community settings. However, this also suggests that opportunities outside of the Realistic category are infrequent, and not all offenders will be able to achieve adequate levels of congruence, and / or exposure to, areas of employment that they have expressed as the most interesting to them.

Looking at levels of vocational congruence, the current results indicate that there is large variability both within non-offender samples and between offender and non-offender samples. However, the results suggest that offenders may be more likely to achieve congruence within the institutional environments as compared to community environments. It is encouraging to see that correctional institutions are providing congruent environments.

However, it is also possible that offenders are being set up for failure as they reintegrate to communities in which achieving similar levels of vocational congruence is more challenging. Overall, although the results are inconclusive, it appears that levels of congruence, as expressed by offender and non-offender samples, are relatively comparable.

Institutional Outcomes

As mentioned, vocational congruence failed to emerge as a significant predictor of time in employment programming, involvement in institutional incidents or changes in level of security. Control variables accounted for any significant variance in these outcome variables. Time in employment programming was largely predicted by level of motivation. Period of incarceration and level of risk were the only significant predictors of involvement in institutional incidents. Finally, only security level at intake was predictive of security level at release. Nonetheless, exploratory post-hoc analyses revealed that vocational congruence may be relevant for Aboriginal offenders (in the prediction of institutional incidents and decreasing levels of security), women offenders (and its relation to decreasing levels of security) and offenders greater than 30 years of age (again, relations to decreasing levels of security).

These findings lead the current author to speculate as to why vocational congruence may emerge as relevant for Aboriginal and women offenders. Aboriginal people have been largely ignored by career development theorists and researchers (Johnson, Swartz, & Martin, 1996). Accordingly, little is known about the career perspectives of Aboriginals. However, in the field of social work, Zapf (2005) underlined the spiritual sense of interconnectedness of Aboriginal people's values, traditions and perspectives and its relevance in the person by environment fit. Furthermore, in their exploration of relational theory and Holland's RIASEC typology, Rees, Luzzo, Gridley and Doyle (2007) discussed the relevance of a

'connected self' for women. A 'connected self' is an orientation to connection with others, interdependency, egalitarianism, and concern for self and others (Pearson *et al.*, 1998).

It is possible that vocational congruence, in and of itself, is a significant construct for Aboriginal and women offenders, and prospective research should continue to examine this possibility. However, given the expressed need for interconnectedness among Aboriginal and women offenders, it is also plausible that involvement in employment programming, in and of itself, is the primary contributing factor. In other words, programming involvement may provide a sense of interconnectedness with other offenders involved in programming, and with program delivery staff. This could be contributing to more positive institutional behaviour, for example, as opposed to the level of congruence being offered by that environment.

Findings regarding age are also interesting, given that they seemingly contradict traditional perspectives regarding age, vocational maturity and congruence. More specifically, congruence is typically viewed as a more significant construct prior to the age of 30, given that, for the majority of people, this is a stage in life at which careers become relatively stable (Holland, 1997). However, offenders do seem to reach maturity and stability at later stages in life and presumably at a slower rate than that of the general population. It is possible that a critical occupational life stage between the ages of 20 and 30 for a normative population is comparable to a critical occupational life stage between the ages of 30 and 40 for an offender population. Additional in-depth analyses regarding age and congruence among offender samples may prove fruitful.

It is also interesting to note that level of employment need did not emerge as a significant predictor of time in employment programming. Given CSC's policies to develop an offender's correctional plan based on the criminogenic needs exhibited by an offender at

intake, one would anticipate that level of employment need would have been related to time in employment programming. However, given the nature of many employment opportunities within correctional institutions (i.e., operational requirements to ensure the work is successfully completed or in the case of CORCAN, requirements to ensure the end product is delivered), it is possible that employment interventions are more likely to be assigned based on the ability and desire to perform the job as opposed to the level of employment need being exhibited. Wormith and Olver (2002) highlight that, it is sometimes easier, and more appealing to provide interventions to highly motivated, receptive, and accessible clients. It seems plausible that this would be particularly true for employment opportunities within institutional environments.

Post-Release Outcomes

Similar to the institutional outcomes, vocational congruence failed to emerge as a significant predictor variable in job attainment, job retention, or recidivism. Once again, control variables absorbed any variance in these outcomes. Level of risk was the only significant predictor variable of recidivism and, contrary to expectation, cognitive ability failed to emerge as a significant predictor of job attainment or job retention. There is limited research regarding successful predictors in the determination of job attainment and retention; however, a study currently being undertaken by CSC suggests that, compared to offenders who do not participate in employment programming, offenders involved in employment programming are more likely to obtain employment upon release (C. Gillis, personal communication, November, 2007). In fact, the research being conducted by CSC demonstrates that offenders who participated in CSC employment programming are 14% more likely to obtain employment in the community than those offenders who do not

participate in employment programming (D. Batten, personal communication, November 1, 2007).

Although time to recidivism was not included in originally expressed hypotheses within this research, post-hoc exploratory analyses did reveal that after controlling for level of risk, vocational congruence still emerged as a significant predictor of time to recidivism. The results indicated that even though there were no significant differences between unemployed offenders and those offenders in jobs providing low congruence environments, offenders obtaining jobs that provided high congruence environments lasted longer in the community than those offenders who were unemployed. The only exception to this finding was for those offenders who were less than 30 years of age. Again, this provided support for the relevance of congruence with older, not younger, offenders.

Overall, from a correctional perspective, it is interesting to note that with the exception of analyses concerning involvement in institutional incidents, level of risk failed to emerge as significant for any of the other institutional outcomes. Furthermore, level of need did not emerge as significant for any of the post-release outcomes. This is contrary to expectation as levels of risk and need are vital to the work that CSC performs, guiding much of their operational practices and procedures. Nonetheless, the current author speculates that these results are unique to the present sample and do not provide any type of evidence to suggest that levels of risk and need are somehow less important than continuously proposed within the literature.

From a vocational perspective, it is important to recognize that there is still considerable debate over the most appropriate method for calculating congruence (Assouline & Meir, 1987; Camp & Chartrand, 1992; Spokane, 1985; Young, Tokar, & Subich, 1998). Within this research, the chosen indices, that is, Brown & Gore's (1994) C Index, Kwak and

Pulvino's (1982) KP Index, and Holland's First-Letter Index (see Young, Tokar & Subich, 1998), were highly intercorrelated and did not have differential effects on any of the proposed outcomes. Nevertheless, researchers continue to suggest alternative congruence indices (Eggerth & Andrew, 2006) and debates concerning the potential impact of the method chosen to operationalize congruence will most likely continue for years to come. Even so, methodological precautions taken within the current research (e.g., the use of several congruence indices), leads the author to suggest that congruence, as a predictive construct, had limited utility with the current sample. Granted, a small sample size may have limited the power of the statistical tests; however, perhaps vocational congruence needs to be examined in a more complex manner.

In attempting to interpret and explain the current results, several rejoinders come to mind, including the possibility that there are a variety of vocational constructs that are associated with vocational congruence that could have: a) played a moderating role in the observed effects or b) should be considered as foundational constructs that need to be considered prior to, or along with, vocational congruence. These constructs will be raised again shortly. In addition to alternative vocational constructs as explanatory variables, it is possible that vocational congruence simply fails to play a critical role in the lives of offenders. Holland (1997) does question the use of his theory with unique populations. Even though the current author does not see offenders as being a distinctly unique population, perhaps Holland's cautionary note in this regard is of value. It is plausible that the environments within which offenders are placed are unique, and perhaps this negates the relevance of vocational congruence.

Regulating Incongruence between Personal and Environmental Identities

Holland (1997) defines two different types of identity: personal identity and environmental identity. He defines the former as "the possession of a clear and stable picture of one's goals, interests, and talents" and the latter as being "present when an environment or an organization has clear and integrated goals, tasks, and rewards that are stable over long time intervals" (p. 5). Within an institutional environment, Holland's definitions are faced with a unique situation in which the two sides are united by necessity rather than choice. Most certainly, the offenders have their own goals, interests, and talents, and naturally, the correctional environment has *its* own set of goals, tasks, and rewards. However, it is apparent that there is a high likelihood of conflict between the personal and environmental identities being paired in this instance. In this scenario, the offender is forced to adapt his or her behaviour to a potentially incongruent environment, both within and outside of employment interventions.

Meir (1994) outlined five defence mechanisms for dealing with incongruent environments, one of which includes an incongruent person who becomes an "alien" in his or her membership group. This seems like a feasible option for offenders, as they may choose to withdraw from fellow offenders and seclude themselves from institutional expectations and activities. However, in an effort to survive within an institutional environment, while at the same time make progress toward some form of conditional release, this is probably not the best option for success. An offender needs to be actively engaged in his or her correctional plan in order to successfully function in an institutional environment and successfully gain discretionary release.

The Minnesota Theory of Work Adjustment (TWA; Dawis & Lofquist, 1984), originally developed to assist people in career choice and adjustment, introduces three

different responses to incongruent environments, positing that 'activeness' involves an individual's attempt to change the environment in order to achieve a better fit, 'reactiveness' involves an individual changing him or her self in order to improve fit, and finally 'flexibility' involves the level of tolerance of a mismatch in personal and environmental fit. Griffin and Hesketh (2003) have utilized this framework in their work regarding behavioural adaptability for successful work and career adjustment.

The Role of Behavioural Adaptability

In their research concerning behavioural adaptability in response to incongruent environments, Griffin and Hesketh (2003) refer to 'proactive behaviour', 'reactive behaviour', and 'tolerant behaviour'. Their definitions for these concepts are similar to those of Dawis and Lofquist (1984); however, they provide additional detail regarding 'tolerant behaviour'. Specifically, they define it as the individual's capacity to continue functioning despite a changing environment or when either proactive or reactive behaviour may not be appropriate. The current author finds the concept of 'tolerance' within incongruent environments particularly relevant for an offender sample.

Within an institutional environment, behavioural adaptation is a necessity. Without it, an offender risks both social and administrative sanctions. Upon release into the community, behavioural adaptation is sometimes a question of survival. If an offender does not successfully adapt to the community environment, he / she risks returning to custody. It is difficult, if not impossible, for an offender to change the institutional environment; consequently, 'proactive behaviour' is not an option and, although it is possible to change one's own actions, the range of opportunities is limited, thereby constricting the possibility of using 'reactive behaviour' as well. In turn, it is likely that within institutional environments, 'tolerant behaviour' becomes the primary method of control. If 'tolerance' is

the key factor, tenets based on Holland's theory of congruence become inconsequential, as the individual is not working to achieve congruent environments, they are simply working on maintaining a reasonable level of 'tolerance'. They are simply coping by tolerating the situation they are facing.

Behavioural adaptability is a variable that has the potential to add clarity to discussions on vocational congruence. Perhaps examining congruence for individuals who are simply exhibiting high levels of 'tolerance' makes little sense. In considering Holland's cautionary note about unique populations, perhaps offenders are unique in that the levels of 'tolerance' demanded by correctional environments and lifestyles are uniquely different from those experienced by a normative population. All in all, perhaps readily understanding behavioural adaptability should play a more significant role in research regarding vocational congruence among offenders. Recognizing the potential role of levels of 'tolerance' exhibited by offenders, while at the same time acknowledging arguments regarding the importance of providing offenders with 'Good Lives', the author now turns the reader to implications for the Good Lives Model.

Implications for the Good Lives Model

Proponents of the Good Lives Model (Ward & Stewart, 2003) have criticized Andrew and Bonta's risk-need model for lacking a comprehensive, goal-oriented theory of aetiology. The current research has provided a theoretical framework related to goal oriented behaviour as it relates to employment. Vocational congruence, hypothesized to operationalize a Good Lives Model perspective, failed to emerge as significant in this particular study. However, explanatory factors have been proposed and the current author argues for the continued consideration of the operationalization of vocational congruence in efforts to support a Good Lives perspective.

Importantly, Ward, Mann & Gannon, 2007 proposed 'priorities' as a fourth area of explanation, above and beyond that of Andrew and Bonta's risk, needs, and responsivity principles. Despite the results of this study, the current author maintains that vocational interests are a valid illustration of offender 'priorities' and deserve continued exploration. Ward (2002) maintains that when dealing with offenders, it is critical to instill skills, knowledge, and resources to contribute to their possibility of living different kinds of lives. Vocational interest assessments and corresponding counselling contribute to this necessity.

As previously discussed, Ward and Stewart's Good Lives Model (2003) is partially inspired by Deci and Ryan's Self-Determination Theory (SDT; 2000). Placing emphasis on competence, relatedness and autonomy, the constructs of SDT are said to assist in our understanding of the 'what' (content) and the 'why' (process) of goal pursuits (Deci & Ryan, 2000). Deci and Ryan discuss 'amotivation' as representing a lack of both intrinsic and extrinsic motivation and thus a complete lack of self-determination with respect to a given behaviour. Amotivation is associated with a frustration of basic needs which, according to Deci and Ryan, will lead to diminished experience, performance, and wellness. It seems plausible that amotivation is linked to vocational constructs such as career salience (see Dik, 2006; Greenaus, 1971; Munson & Strauss, 1993) and vocational identity (Holland, 1997). If employment is not viewed as critical by the offender, there will be no motivation to seek this objective.

Ward and Stewart (2003), along with Maruna (2001), argue that traditional correctional interventions, aimed solely at targeting criminogenic needs and reducing risk, pay insufficient attention to the offender's personal identity. Ward, Melser and Yates (2007) argue that the strength of the good lives model is its attention to offender motivation and personal identity. Furthermore, Ward and Brown (2004) and Ward and Gannon (2006)

discuss 'weightings' that an individual gives to specific primary goods, arguing that the 'weighting' is constitutive of the offender's personal identity, and as the current author will argue, vocational identity (Holland, 1997). 'Weighting', within the context of employment research, represents career salience (Dik, 2006; Greenaus, 1971; Munson & Strauss, 1993). Increasing similarities among a variety of vocational constructs and those presented by Ward and colleagues emerge.

The work of Ward and Stewart (2003) is largely based on the premise that the best way to reduce the risk of offending is by helping offenders live more fulfilling lives. Within their Comprehensive Good Lives Model, Ward, Mann and Gannon (2007) stress a continuity between an 'old offending self' and the construction of a new self. All in all, Ward and colleagues are proposing a broader theoretical framework for correctional rehabilitation. The current author believes that vocational congruence and its related constructs, such as vocational identity, have the potential to contribute to both the 'construction of a new self' and a broader theoretical framework. Although the results of the current study may suggest otherwise, future research is recommended and will benefit from lessons learned in this effort. There appear to be many similarities between Ward and colleague's arguments and constructs raised as significant to vocational psychology initiatives. Furthermore, in considering this information, the author now turns the reader to earlier propositions regarding vocational congruence and resilience.

Does Vocational Congruence have anything to do with Resilience?

Vocational congruence did not emerge as a significant construct within this study. However, that does not necessarily imply that it is a construct that is not related to resilience or that it should be eliminated from future investigation. To the contrary, a better understanding of the correlates of vocational congruence and diverse constructs that may

affect its relevance for offenders will contribute to both improved intervention processes and strengthened investigations in the future. Masten and Powell (2003) argue that resilience is about protective processes and, in some instances, this protective process is witnessed through one's ability to adapt. As discussed, behavioural adaptability is something that is quite possibly occurring with offenders. Perhaps inadvertently, and yet through this adaptation, offenders are being exposed to new areas and learning new skills in relation to the world of work. Part of that includes exposure to vocational assessment processes and interventions and consequently an improved understanding of their 'personal' and 'potential' worlds of work. The relation that this has to the relevance of congruence and resilience is yet to be determined; however, continued investigations will most certainly provide additional interesting findings.

As previously mentioned, Ungar (2004) identifies resilience as the result of negotiations between individuals and their environments, thereby allowing for the maintenance of a self-definition as healthy. Vocational congruence may be secondary to more immediate environmental concerns, such as adapting to a new environment and determining what healthy is, on an individual basis. In their review of resilience frameworks for research, policy and practice, Masten and Powell (2003) highlight the difference between variable-focused and person-focused strategies. This study was variable-focused, examining the principal variable of vocational congruence; however, had it been person-focused, that is, focussing on identifying offenders who meet the definitional criteria for resilience, it is possible that different findings would have emerged with respect to both resilience and vocational congruence.

Finally, there may be other adaptive or protective mechanisms through which employment and vocational congruence is enhanced. Vocational constructs such as career

salience (Dik, 2006; Greenaus, 1971; Munson & Strauss, 1993), vocational identity (Holland, 1997), vocational indecision (Betz, 1992; Conneran, 1993; Greenhaus & Simon, 1977), and career decision-making self efficacy (Taylor & Betz, 1983), for example, may all be important factors in one's ability to reach and maintain a certain level of vocational congruence. Corresponding to the messages from Masten and Powell (2003), Hurban (2006) identifies two aspects of resilience: adaptive coping and protective factors. Perhaps adaptive coping (that is, learning the ability to make vocational decisions, for example) needs to be examined prior to the consideration of congruence as a protective factor. Adaptive coping may be achieved through career counselling, thus highlighting the significance of career counselling for offender populations.

Relevance for Career Counselling & Correctional Interventions

Finn and Fontaine (1985) recognized the value of being able to exercise an informed vocational choice. Vocational assessment instruments, vocational counselling and vocational interventions within an institutional environment are inextricably linked to an offender's knowledge concerning the world of work and consequently, his or her ability to make an informed vocational choice. Holland, Magoon, and Spokane (1981) argue that vocational counsellors, courses, career programs, interest inventories, workshops and related vocational treatments provide: 1) exposure to occupational information, 2) cognitive rehearsal of vocational aspirations, 3) acquisition of some cognitive structure for organizing information about self, occupations, and their relations, and 4) social support or reinforcement from counsellors or workshop members.

Even though the specific construct of congruence did not emerge as a significant predictor variable in the current study, the current author argues for the applicability of vocational assessments, which examine the theoretical constructs posited by Holland, impact

the type of interventions selected for an offender's correctional plan, and are of great utility to both correctional employees (i.e., vocational counsellors) and offenders. For example, if the administration of vocational assessments to offender populations can increase levels of career decision-making self-efficacy (Taylor & Betz, 1983), this may in turn decrease vocational indecision (Betz, 1992; Conneran, 1993; Greenhaus & Simon, 1977), and increase career salience (Dik, 2006; Greenaus, 1971; Munson & Strauss, 1993). As these constructs are defined for each offender, vocational congruence is more likely to emerge as relevant for him or her, subsequently changing his/her view of personal career possibilities and his/her personal self-efficacy perspectives on achieving those possibilities. Importantly, Tracey and Hopkins (2001) have also highlighted the link between ability and occupational choice, arguing that 19% of the variability in occupational choice is accounted for by self-estimates of ability.

In considering vocational counselling within a correctional environment, vocational congruence is also relevant to Andrew and Bonta's responsivity principle (2003). Ensuring that interventions are compatible with the offender's expressed interests may be one method of increasing an offender's responsivity to a given intervention. Amotivation (Deci & Ryan, 2000) is certainly a responsivity impediment and, if vocational counselling can improve career salience (Dik, 2006; Greenaus, 1971; Munson & Strauss, 1993) and career identity, the offender is more likely to respond positively to vocational interventions and consequently maintain engagement in those interventions. Wormith and Olver (2002) examined treatment attrition among offenders, finding that those offenders who completed programs score significantly more favourably on a number of treatment process variables, including motivation. Furthermore, they found that rates of recidivism were higher for those offenders who did not complete programming. A better understanding of what contributes to

motivation may assist in decreasing rates of program attrition. Finally, Ogloff and Davis (2004) discuss responsivity enhancements as factors that if addressed, will enhance the offender's psychological well-being, thereby increasing the probability of a reduction in risk of re-offending. Overall, there appear to be strong support for responding to offender's needs and interests and despite the negligible findings in the current study, vocational interests represent a possible responsivity enhancement.

Limitations

One of the most important limitations to this body of work may have been the conversion process used in the determination of personal interest codes. More specifically, because of the variety of vocational assessments being utilized by Correctional Services Canada (CSC), the author was forced to determine personal interest codes from three different sources, two of which failed to map directly onto the RIASEC structure. It is plausible that the conversion process used, influenced the validity and reliability of the determination of personal interest codes. Furthermore, two of the assessments being utilized by CSC (i.e., COPSystem and ESPORT) do not have significant research concerning reliability and validity. Without these instruments, the completion of this research would have been impossible; however, due to this limited psychometric evidence, the instruments utilized could have resulted in a decreased effect of vocational congruence.

As a result of the secondary data utilized in this research, significant moderating variables were not modeled. A variety of vocational constructs, including but not limited to, achievement orientation (Murray, 1938), career salience (Dik, 2006; Greenaus, 1971; Munson & Strauss, 1993), career decision-making self-efficacy (Taylor & Betz, 1983), vocational indecision (see Betz, 1992; Conneran, 1993; Greenhaus & Simon, 1977), and vocational identity (Holland, 1997) were not included, but may have been helpful in further

explaining the insignificant findings. Consequently, these vocational constructs may be useful in future research undertakings concerning vocational congruence and offenders.

It is also important to recognize that statistical control was generally restricted to adjustments for levels of risk, need and cognitive ability and demographic variables, including gender, age and race distribution of the group. Thus, the findings may result from differential characteristics of the variables utilized in the current research rather than a true negligible effect of vocational congruence. This research was further limited by a small sample size and an inability to conduct a fixed follow-up. With a larger sample size, statistical significance may have emerged and a fixed follow-up may have resulted in different outcomes regarding recidivism.

There were also potential limitations associated with using the CECs as a primary data source for job attainment. As discussed, the reliability of these data was questioned, and although the author took precautions to ensure the most reliable data were utilized, this limitation draws attention to the necessity for CSC to accurately track job attainment information for offenders, if they are interested in understanding the criminal related implications as they relate to job attainment and retention.

Furthermore, although customary, the methods utilised in the determination of Institutional Intervention Codes (IICs) and Community Intervention Codes (CICs) may be viewed as a limitation as there was no true way of ensuring their validity. Some authors argue that, above and beyond using the Dictionary of Holland's Occupational Codes (DHOC), activities performed within a given environment need to play a more significant role in the determination of environmental codes. Granted, where feasible, staff were consulted regarding such activities; however in the majority of cases, the Position

Classification Inventory (PCI) or DHOC was utilized without reference to on-going activities.

Finally, an important limitation of this research is the exclusion of any qualitative methodology. More specifically, structured surveys, interviews or focus groups were not conducted with offenders or staff who were involved in the employment assessment and intervention process. This precluded the possibility of contextualizing the quantitative findings through the provision of qualitative perspectives. Furthermore, as briefly discussed within Chapter Four, the absence of the collection of qualitative data limited the researcher's ability to triangulate the data, thereby impacting the possibility of exhibiting an increased level of reflexivity. Notably, the present author is actively engaged in a related program of research that incorporates qualitative methodology, including staff and community partner surveys and offender interviews. In turn, future papers will address this unfortunate caveat.

Future Directions

Unfortunately, with the exception of the foundational hypothesis and hypothesis one, this research has resulted in little support for the proposed hypotheses concerning Holland's congruence theory. However, the current author still advocates for continued efforts in gaining a deeper understanding of Holland's theoretical tenets, their applicability with offender populations, and relations between vocational congruence and a variety of alternative vocational constructs. Results provided preliminary support for the utilization of the RIASEC structure with an offender population. This research has also introduced the concept of vocational congruence in terms of a Good Lives Model and suggested additional vocational constructs that may be particularly pertinent for an offender population.

Continued efforts in this area of research are warranted. Future research agendas should ensure the utilization of diverse vocational constructs, including, but not limited to:

vocational congruence, achievement orientation, career salience (Dik, 2006; Greenaus, 1971; Munson & Strauss, 1993), career decision-making self-efficacy (Taylor & Betz, 1983), vocational indecision (Betz, 1992; Conneran, 1993; Greenhaus & Simon, 1977), vocational maturity and vocational identity (Holland, 1997). Prospective research on Holland's congruence-outcome relations, such as investigating new moderator variables and testing increasingly complex predictive models, will inevitably contribute to our understanding of Holland's model and how it relates to successful employment and the prevention of crime. Several questions for future research are listed below.

1. Among an offender population, what are the relations between vocational congruence and career salience, vocational identity and vocational maturity?
2. What role does age play in the relevance of vocational congruence among offenders?
3. Is vocational congruence particularly relevant for Aboriginal and women offenders?
4. Are the constructs of career salience, vocational identity and vocational maturity related to job attainment for an offender population?
5. What role does career salience play in an offender's likelihood of engaging in employment interventions (i.e., treatment readiness)?
6. Is career salience for an offender population different than that for a non-offender population?
7. Does involvement in institutional employment assessment and intervention increase an offender's career salience?
8. Is vocational congruence within an institutional environment associated with program attrition?
9. How do the vocational interests of offenders change during their period of incarceration or after release into the community?
10. How are the RIASEC types associated with achievement orientation?
11. Do vocational interests play a role in responsivity enhancement?

In addition to the above noted questions, the addition of a vocational identity scale to research methodology would assist in understanding the role that identity plays in congruence outcomes. Finally, analyzing these data by primary environmental type may prove fruitful, as research indicates that congruence outcomes may vary as a function of the environmental type being examined (e.g., Chartrand & Walsh, 1999).

Conclusion

Overall, RIASEC interest models are applicable and valid for use with offender populations and yet, largely non-significant findings regarding the relevance of vocational congruence among offenders have emerged from this research. Nonetheless, exploratory analyses regarding different sub-groups of this sample and time to recidivism do result in interesting findings that suggest continued research in this area may prove fruitful.

Theoretical Implications

This research contributes to theory as it provides preliminary evidence for the validity of applying Holland's RIASEC model to offender samples. It has also drawn attention to additional vocational constructs that are both conceivably linked to offender behaviour and theoretically linked to vocational congruence. Contributing to the on-going theoretical and empirical work and building on the solid foundations of Holland's theory, this research is unique in that the RIASEC structure had not yet been examined with an offender population. Not only did the results indicate that Holland's circumplex model was valid for use with an offender population, interesting findings emerged with respect to Round and Tracey's Alternative Three-Class Partition model and its fit for an offender population.

Operational Implications

Assessments of the personal vocational interest types being exhibited by offenders permits CSC to systematically examine the types of employment interventions being offered and consequently the 'fit' being provided within the institutional environment. Based on the results of this study, it seems that the institutional environment is providing relatively congruent intervention options. However, given a slight shift in exhibited levels of congruence in the community environment (i.e., compared to non-offenders, offenders in the community may be more likely to exhibit lower levels of congruence), it is possible that

there is a lack in continuity between institutional interventions and community job placements. CSC's efforts to successfully reintegrate offenders may benefit by ensuring there is more effort dedicated to transitioning offenders into work environments that are commensurate with their training during their period of incarceration.

It also appears that for this sample of offenders, level of employment need as assessed at intake is not predictive of time in employment programming. This could be the result of assessment-related issues or program-assignment related issues; however, given the results of this research, it seems valid to suggest that CSC investigate the possible reasons for this outcome and adjust their operational practices accordingly.

Furthermore, as discussed in the limitations section, CSC currently uses three different vocational assessments, two of which have potentially limited psychometric properties. It is therefore recommended that CSC: 1) investigate vocational assessment options and 2) begin using a more psychometrically sound vocational assessment. The current author would begin this investigation by considering the Self-Directed Search (Holland, Powell, & Fritzsche, 1997) or the Strong Interest Inventory (Harmon, Hansen, Borgen, & Hammer, 1994); and ensuring that, as an organization, they implement a national standard for vocational assessment practices. More specifically, it should become policy that the same instrument be utilized in all five regions by all staff conducting offender vocational assessments.

Finally, CSC needs to consider the possibility of an ideological shift in their practices, policies and procedures as they relate to employment initiatives. Specifically, they need to go beyond the traditional reliance on 'employment need' as the primary construct of interest. Although somewhat useful, this crude indicator limits the organization's accurate understanding of employment issues, thereby potentially limiting their ability to intervene

accordingly, and effectively address the offenders' employment needs. This ideological shift should begin with a more ambitious program of research and evaluation, one which incorporates multiple vocational constructs, all of which are inextricably linked to the employment needs being exhibited by offenders.

All in all, the results from this research provide support for the continued relevance of vocational assessment and intervention for offender populations. Holland's RIASEC model along with other related models appear valid for an offender population. Vocational assessments and vocational counselling contribute to vocational knowledge, understanding and aspirations. Consequently, the Correctional Service of Canada is urged to continue to utilize valid and reliable vocational assessment instruments, while at the same time considering some of the additional vocational constructs that have been raised within this paper.

In closing, I turn the reader to the concept of 'passion'. Perhaps it is difficult to conceive passion as relevant to offender employment; however, it is the author's opinion that 'passion' is critical to fully engaging in one's work. The opportunity to experience a passion for work in life is rarely achieved. However, it is evident that the ability to express and understand one's vocational interests may assist in achieving this goal. The reader is left with the following quotes as he/she ponders the significance of vocational interests, vocational congruence and their potential contribution to the "good lives" of offenders.

"It is the first of all problems for a man to find out what kind of work he is to do in this universe" (Thomas Carlyle, 1795-1881)

"In the Great Society, work shall be an outlet for man's interests and desires. Each individual shall have full opportunity to use his capacities in employment which satisfies personally and contributes generally to the quality of the Nation's Life" (Lyndon Baines Johnson, 1908-1973)

"No man will work for your interests unless they are his" (David Seabury, 1885-1960)

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Appendix 1 Vocational Preference Inventory: Interest Type Explanations

REALISTIC (R) -- Prefers technical, outdoor, and athletic pursuits
Realistic individuals are active, stable, and enjoy hands-on or manual activities such as building, mechanics, machinery operation and athletics. They prefer to work with things rather than ideas and people. They enjoy engaging in physical activity and often like being outdoors and working with plants and animals. People who fall into this category generally prefer to "learn by doing" in a practical, task-oriented setting, as opposed to spending extended periods of time in a classroom. Realistic types tend to communicate in a frank, direct manner and value material things. They perceive themselves as skilled in mechanical and physical activities, but may be uncomfortable or less adept with human relations. The preferred work environment of the realistic type fosters technical competencies and work that allows them to produce tangible results. Typical realistic careers include those in the military, electrician, engineer and veterinarian.

INVESTIGATIVE (I) -- Prefers scientific, research, and intellectual pursuits
Investigative individuals are analytical, intellectual and observant, and enjoy research, mathematical or scientific activities. They are drawn to ambiguous challenges and may feel stifled in highly structured environments. People who fall into this category enjoy using logic and solving highly complex, abstract problems. They are introspective and focused on creative problem-solving, therefore investigative types often work autonomously and do not seek leadership roles. They place a high value on science and learning, and perceive themselves as scholarly and having scientific or mathematical ability but lacking leadership and persuasive skills. The preferred work environment of the investigative type encourages scientific competencies, allows independent work, and focuses on solving abstract, complex problems in original ways. Typical investigative careers include medical technologist, biologist, chemist, and systems analyst.

ARTISTIC (A) -- Prefers creative, imaginative and intuitive pursuits
Artistic individuals are original, intuitive and imaginative, and enjoy creative activities such as composing or playing music, writing, drawing or painting, and acting in or directing stage productions. They seek opportunities for self-expression through artistic creation. People who fall into this category prefer flexibility and ambiguity, and have an aversion to convention and conformity. Artistic types are generally impulsive and emotional, and tend to communicate in a very expressive and open manner. They value aesthetics, and view themselves as creative, non-conforming, and as appreciating or possessing musical, dramatic, artistic, or writing abilities while lacking clerical or organizational skills. The preferred work environment of the artistic type fosters creative competencies and encourages originality and use of the imagination in a flexible, unstructured setting. Typical artistic careers include musician, reporter, and interior decorator.

SOCIAL (S) -- Prefers helping, developing others and interpersonal pursuits
Social individuals are humanistic, idealistic, responsible and concerned with the welfare of others. They enjoy participating in group activities and helping, training, caring for, counseling or developing others. They are generally focused on human relationships, and enjoy social activities and solving interpersonal problems. Social types seek opportunities to work as part of a team, solve problems through discussions, and utilize interpersonal skills, but may avoid activities that involve systematic use of equipment or machines. They genuinely enjoy working with people, therefore they communicate a warm and tactful manner, and can be persuasive. They view themselves as understanding, helpful, cheerful, and skilled in teaching, but lacking mechanical ability. The preferred work environment of the social type encourages teamwork and allows for significant interaction with others. Typical social careers include teacher, counselor, and social worker.

ENTERPRISING (E) -- Prefers leadership, influencing and persuasive pursuits
Enterprising individuals are energetic, ambitious, adventurous, sociable and self-confident. They enjoy activities that require them to persuade others, such as sales, and seek out leadership roles. They are invigorated by using their interpersonal, leadership, and persuasive abilities to obtain organizational goals or economic gain, but may avoid routine or systematic activities. They are often effective public speakers and are generally sociable, but may be viewed as domineering. They view themselves as assertive, self-confident and skilled in leadership and speaking, but lacking in scientific abilities. The preferred work environment of the enterprising type encourages them to engage in activities such as leadership, management, and selling, and rewards them through the attainment of money, power, and status. Typical enterprising careers include salesperson, business executive, and manager.

CONVENTIONAL (C) -- Prefers data management, numerical and organizational pursuits
Conventional individuals are efficient, careful, conforming, organized, and conscientious. They are comfortable working within an established chain of command and prefer carrying out well-defined instructions over assuming leadership roles. They prefer organized, systematic activities and have an aversion to ambiguity. They are skilled in and often enjoy maintaining and manipulating data, organizing schedules, and operating office equipment. While they rarely seek leadership or "spotlight" roles, they are thorough, persistent. and reliable in carrying out tasks. Conventional types view themselves as responsible, orderly, efficient, and possessing clerical, organizational, and numerical abilities, but may also see themselves as unimaginative or lacking in creativity. The preferred work environment of the conventional type fosters organizational competencies, such as record keeping and data management in a structured operation, and places high value on conformity and dependability. Typical conventional careers include secretary, accountant, and banker.

Appendix 2 Employment Domain Indicators

Employment Indicator	Indicator Identified at Intake (n = 304)		
Ability	**Yes**	**No**	**Missing**
Less then grade 8 education	7%	91%	2%
Less then grade 10 education	29%	68%	3%
No high school	65%	32%	3%
Learning difficulty	20%	78%	2%
Learning disability	9%	87%	4%
Physical impairment	4%	94%	2%
Memory problems	13%	85%	2%
Concentration problems	24%	74%	2%
Reading problems	17%	81%	2%
Writing problems	16%	82%	2%
Numeracy problems	35%	63%	2%
Comprehension problems	7%	91%	2%
No skill / area / trade / profession	61%	37%	2%
Dissatisfied with skill / area / trade / profession	54%	43%	3%
Physical problems	13%	85%	2%
Work Record			
Unemployed at arrest	69%	29%	2%
Unemployed 90% or more	30%	68%	2%
Unemployed 50% or more	56%	42%	2%
Unstable job history	68%	30%	2%
Poor punctuality	14%	78%	8%
Poor attendance	16%	77%	7%
No employment history	6%	92%	2%
Difficult meeting requirements	9%	85%	6%
Low initiative	31%	66%	3%
Quit without another job lined up	52%	44%	4%
Laid off	50%	47%	3%
Fired	36%	59%	5%
Rewards			
Inadequate salary	53%	44%	3%
No benefits	65%	32%	3%
Jobs lack security	65%	32%	3%
Relations			
Co-workers negative	5%	89%	6%
Supervisors negative	9%	86%	5%
Interventions			
Prior employment assessment	15%	81%	4%
Past participation in employment programs	18%	79%	3%
Past completion of employment programs	8%	88%	4%

Appendix 3 COPSystem Career Clusters: Brief Explanations

In addition the brief explanations[18] provided below, the COPSystem Comprehensive Career Guide provides numerous sample occupations, related courses of study, skills and abilities needed to perform the related jobs, suggested activities to get experience and relevant college majors.

1. Science (*Professional*) occupations involve responsibility for the planning and conducting of research. They include collecting and applying systematic accumulation of knowledge in the related branches of mathematical, medical, life and physical sciences.
2. Science (*Skilled*) occupations involve observing and classifying facts in assisting in laboratory research and applying this information in the fields of medicine and life and physical sciences.
3. Technology (*Professional*) occupations involve responsibility for engineering and structural design in the manufacture, construction, or transportation of products or utilities.
4. Technology (*Skilled*) occupations involve working with one's hands in a skilled trade concerned with construction, manufacture, installation, or repair of products in related fields of construction, electronics, and mechanics.
5. Consumer economics occupations involve the preparation and packaging of foods and beverages. They also include the production and care of clothing and textile products.
6. Outdoor occupations involve activities performed primarily out-of-doors. They include the growing and tending of plants and animals and the cultivation and gathering of crops and natural resources in the areas of agriculture and nature as in forestry, parks service, fishing, and mining.
7. Business (*Professional*) occupations include positions of high responsibility in the organization, administration, and efficient functioning of businesses and governmental bureaus. They involve finance and accounting, management, and business promotion.
8. Business (*Skilled*) occupations involve sales, promotion, and marketing. They also include financial and organization activities of businesses in regard to promotion of business.
9. Clerical occupations involve recording, posting, and filing of business records requiring great attention to detail, accuracy, neatness, orderliness, and speed. They include office work and contact with customers in keeping records.
10. Communication occupations involve language skill in the creation or interpretation of literature or in the written and oral communication of knowledge and ideas.
11. Arts (*Professional*) occupations involve individualized expression of creative or musical talent. They include fields of design, fine arts, and performing arts.
12. Arts (*Skilled*) occupations involve application of artistic skill in the fields of photography, graphic arts, and design.

[18] These descriptions are transcribed directly from the COPSystem Comprehensive Career Guide (Interest Unit) (2004) published by EdiTS.

13. Service (*Professional*) occupations include positions of high responsibility in caring for the personal needs and welfare of others in fields of social services, health, and education.
14. Service (*Skilled*) occupations involve providing services to persons and catering to the tastes, desires, and welfare of others in fields of personal service, social, and health related services, and protection and transportation.

Appendix 4 ESPORT (CWPI) Interest Types: Brief Descriptions

Directive

Directive persons like to take charge and control things. They like to take responsibility for projects which require planning, and coordinating the work of others. They are easily able to give directions and instructions. They see themselves as independent and self-directing.

Innovative

Innovative persons like to explore things in depth and to arrive at solutions to problems by experimenting. They are interested in initiating and creating different ways to solve questions or present information. They enjoy scientific subjects. Innovative persons prefer to be challenged with new and unexpected experiences. They easily adjust to change.

Methodical

Methodical persons like to have clear rules and organized methods to guide their activities. They prefer working under the direction and supervision of others according to given instructions. Methodical persons like to work on one thing until it is completed. They enjoy following a set routine and prefer work that is free from the unexpected.

Objective

Objective persons enjoy working with tools, equipment and machinery. They like to repair and/or fabricate things from various materials according to specifications and using established techniques. Objective persons are interested in finding out about how things work and how they are built.

Social

Social persons like dealing with people in either business or helping situations. They enjoy caring for and assisting others in identifying their needs and in solving their concerns. Social persons like working and co-operating with others. They prefer to be involved in work that requires interpersonal contact.

Appendix 5 The Custody Rating Scale (CRS)

Institutional Adjustment Scale

1. History of involvement in institutional incidents Points
a. no prior involvement 0
b. any prior involvement 2
c. prior involvement in one or more incidents in "greatest" or "high" severity categories..... 2
d. prior involvement during last five years of incarceration:
in an assault (no weapon or serious injury) 1
in a riot or major disturbance 2
in an assault (using a weapon or causing serious injury)..... 2
e. involvement in one or more serious incidents prior to sentencing and / or pending placement from current commitment 5

8 X Total of a. to e.: _____

2. Escape history
a. no escape or attempts 0
b. an escape or attempt from minimum or community custody with no actual or threatened violence:
over two years ago 4
in last two years 12
c. an escape of attempt from medium or maximum custody or an escape from minimum or community custody with actual or threatened violence:
over two years ago 20
in last two years 28
d. two or more escapes from any level within the last five years 28

Total: _____

3. Street stability
a. above average 0
b. average 16
c. below average 32

Total: _____

4. Alcohol / drug use
a. no identifiable problems 0
b. abuse affecting one or more life areas 3
c. serious abuse affecting several life areas 6

Total: _____

5. Age (at the time of sentencing)
a. 18 years or less 24
b. 19 22
c. 20 20
d. 21 18
e. 22 16
f. 23 14
g. 24 12
h. 25 10
i. 26 08
j. 27 06
k. 28 04
l. 29 02
m 30 years or more 00

Total: _____

Security Risk Score

1. Number of prior convictions Points
a. none 0
b. one 3
c. 2 to 4 6
d. 5 to 9 9
e. 10 to 14 12
f. over 15 15

Total: _____

2. Most serious outstanding charge
a. no outstanding charges 0
b. minor 12
c. moderate 15
d. serious 25
e. major 35

Total: _____

3. Severity of current offence
a. minor or moderate 12
b. serious or major 36

Total: _____

4. Sentence length
a. 1 day to 4 years..... 5
b. 5 to 9 years..... 20
c. 10 to 24 years 45
d. over 24 years..... 65

Total: _____

5. Street stability
a. above average 0
b. average..... 5
c. below average 10

Total: _____

6. Prior parole and / or statutory release
a. none..... 0
b. 1 point for each prior parole release.....___
c. 2 points for each prior statutory release .....___

Total: _____

7.Age
a. 25 years or less..... 30
b. 26..... 27
c. 27..... 24
d. 28..... 21
e. 29..... 18
f. 30..... 15
g. 31..... 12
h. 32..... 09
i. 33..... 06
j. 34..... 03
k. 35 years or more..... 00

Total: _____

Appendix 6 Security Reclassification Scale (SRS)

Field Rules/Calculation:

SERIOUS DISCIPLINARY OFFENCES

Possible Value	Score
None	0.5
One	1.0
Two	1.5
Three or more	2.0

- During the review period only count the institutional disciplinary offences that resulted in a conviction for a serious offence as defined by the court.
- Count all the "Institutional charges" (Institutional_Charges) where the "offence date" (inst_charge_offence_date) is within the review period and the "court finding" (court_finding_code) is convicted (i.e. 0001) and the "offence category" (charge_category_code) is serious (i.e. 0001).
- This field is automatically calculated by the application and cannot be modified by the user.

MINOR DISCIPLINARY OFFENCES

Possible Value	Score
None	0.5
One	0.5
Two	0.5
Three or more	1.0

- During the review period only count the institutional disciplinary offences that resulted in a conviction for a minor offence as defined by the court.
- Count all the "Institutional charges" (Institutional_Charges) where the "offence date" (inst_charge_offence_date) is within the review period and the "court finding" (court_finding_code) is convicted (i.e. 0001) and the "offence category" (charge_category_code) is minor (i.e. 0002).
- This field is automatically calculated by the application and cannot be modified by the user.

RECORDED INCIDENTS

Possible Value	Score
No record	0.5
One	1.0
Two	2.0
Three or more	3.0

- Mandatory
- The user will refer to the offender's electronic file to determine the number of recorded incidents that the offender has been involved in during the review period. These incidents may be recorded in casework records or preventive security information.
- This field is a manual entry.

PAY GRADE

Possible Value	Score
Zero Pay	1.5
Basic Allowance	1.0
Allowance	1.0
Level A	0.5
Level B	0.5
Level C	1.0
Level D	1.0

- Mandatory
- Report the most recent pay grade assigned to the offender on the date of the security reclassification review.
- This field is automatically calculated by the application, and can be modified by the user.

SEGREGATION PERIOD

Possible Value	Score
None	0.5
One or more	3.0

- Count the segregation periods where the offender actually spent time in segregation during the review period. An offender released and returned to segregation, is counted as two periods of segregation, even if the return is based on the initial reasons for segregation.
- This field is automatically calculated by the application and cannot be modified by the user.

DETENTION REFERRAL

Possible Value	Score
Not referred	0.5
Anticipated Referral	2.0
Referred for Detention Review	2.0
Detained	2.0
Life or Indeterminate Sentence	2.0

- Mandatory
- Report any referral or anticipated referral for detention regardless of the outcome of the referral.
- This field is a manual entry.

CORRECTIONAL PLAN PROGRESS

Possible Value	Score
Has addressed factors	2.0
Has partially addressed factors	3.5
Has not addressed factors	5.0

- Mandatory
- Assess the offender's progress in completing programs designed to address contributing risk and progress in reducing risk.
- This field is a manual entry.

CORRECTIONAL PLAN MOTIVATION

Possible Value	Score
Fully motivated, participated in programs to address identified factors in CP	2.0
Partially motivated, active in programs to address identified factors in CP	4.0
No motivation, limited participation in programs to address identified factors in CP	6.0

- Mandatory
- Assess the offender's motivation in programs and other interventions designated to address contributing factors identified in the Correctional Plan. The level of offender motivation assesses how actively the offender participates in programs and other interventions.
- This field is a manual entry.

DRUG AND ALCOHOL RATING

Possible Value	Score
No identifiable problems	0.5
Identified as a contributing factor, but has had no evidence of substance abuse during the review period.	1.0
Identified as a contributing factor, but has had evidence of substance abuse during the review period.	1.5

- Mandatory
- Assess the extent to which the use of drugs and /or alcohol continues to interfere with offender stability and / or influence contributing risk.
- This field is a manual entry.

SUCCESSFUL ETA RELEASES

Possible Value	Score
No ETAs	2.5
One ETAs	2.0
Two ETAs	1.0
Three or more ETAs	0.5

- Report the number of separate, successful ETAs that have taken place during the review period.
- Count the number of TA permits where the "absence type" (Permit_Type_Code) is ETA (0005) and "completion code" (TA_Compl_Code) is On time (0001) or Extension (0002) and the "depart. date/time" (authorized_depart_date) is greater than the start date of the review period.
- This field is automatically calculated by the application and cannot be modified by the user.

SUCCESSFUL UTA / WORK RELEASE

Possible Value	Score
None	1.0
One or more	0.5

- Report the number of separate, successful UTAs / Work Release that have taken place during the review period.
- Count the number of TA permits where the "absence type" (Permit_Type_Code) is UTA (0006) or Work Release (0202) and "completion code" (TA_Compl_Code) is On time (0001) or Extension (0002) and the "depart. date/time" (authorized_depart_date) is
  - Beginning prior to the start date of the review period and still in effect during that period;
  - Beginning prior to the start date of the review period and ended within the review period;
  - Beginning within the review period and still in effect during that period
  - Beginning within the review period and ended within that period.
- This field is automatically calculated by the application and cannot be modified by the user.

AGE AT REVIEW

Possible Value	Score
22 years or less	1.0
23 to 29 years	1.0
30 to 35 years	0.5
36 or older	0.5

- Calculate the offender's age using his/her birthdate.
- This field is automatically calculated by the application and cannot be modified by the user.

PSYCHOLOGICAL CONCERNS

Possible Value	Score
No Psychological Concerns	0.5
Psychological Concerns Noted	1.5

- Mandatory
- The user will identify if there are any psychological concerns.
- This field is a manual entry.

CRS ESCAPE HISTORY

Possible Value	Score
Score of 0	0.5
Score of 4	0.5
Score of 12	1.0
Score of 20	1.0
Score of 28	1.0

- Mandatory
- Report the Escape History score from the most recent locked CRS.
- This field is automatically calculated by the application and can be modified by the user.

CRS INCIDENT HISTORY

Possible Value	Score
Score of 0	0.5
Score of 16	1.0
Score of 24	1.0
Score of 32	1.5
Score of 40	1.5
Score of 48	2.0
Score of 56	2.0
Score of 64	2.0
Score of 72	2.0
Score of 80	3.0
Score of 88	3.0

- Mandatory
- From the most recent locked CRS, report the following "institutional incidents" ((Involve_In_Incident_Score + Involve_In_Last_5_Years + Incident_Severity_Score + Incident_Severity_Remand_Score) * 8)
- This field is automatically calculated by the application and can be modified by the user.

COMPUTED SECURITY CLASSIFICATION

The chart demonstrates how the discretionary ranges apply. The first category represents what an offender scored, the second represents what the security classification should be and the third represents the discretionary range.

From	To	Security Level	Discretionary Range
0	15.5	Minimum	Minimum
16.0	16.5	Minimum	Medium
17.0		Medium	Minimum
17.5	25.5	Medium	Medium
26.0	26.5	Medium	Maximum
27.0	28.0	Maximum	Medium
28.5	99.99	Maximum	Maximum

- The computed security classification will be

Security Level	From	To
Minimum	0	16.5
Medium	17.0	26.5
Maximum	27	99.999 99

- Discretionary Range

Security Level	From	To
Minimum	17.0	
Medium	16.0	16.5
Medium	27.0	28.0
Maximum	26.0	26.5

Appendix 7 Security Reclassification Scale for Women (SRSW)

Review of Adjustment and Functioning Factors during the review period

1. Correctional Plan: Program motivation/progress
(user entered and mandatory)

This item is intended to allow the user to assess the offender's motivation in programs designated to address criminogenic factors identified in the correctional plan. The user assesses how actively the offender participates in programs. Assessment is based on knowledge of the offender and on file review.

'limited motivation' is to be selected if the offender refuses to participate in programs to address needs outlined in her correctional plan, or if her participation is very sporadic.

'partial motivation' is to be selected if the offender participates in programming, with adequate attendance. Homework is at least partially (or sometimes) completed, and she sometimes applies lessons.

'full motivation' is to be selected if the offender is actively participating in her correctional plan, completes homework most of the time, and applies her lessons consistently.

Possible Value	Score
Limited motivation	(+3.20)
Partial motivation/active	(+0.70)
Full motivation/active	(-2.40)

2. Maintains regular positive family contact
(user entered and mandatory)

This item is intended to allow the user to assess whether the offender has social support through regular positive contact with family members. The assessment is based on knowledge of the offender and file review.

'no, very little positive contact with family' is to be selected if the offender has little to no positive, regular support from her family.

'yes, regular positive contact with family' is to be selected if the offender's family is consistently emotionally supportive and available to her.

Possible Value	Score
No, very little positive contact with family	(+1.00)
Yes, regular positive contact with family	(-0.30)

3. Maintains regular positive community contact
(user entered and non-mandatory)

This item is intended to allow the user to assess whether the offender has social support through regular positive contact with members of the community. Assessment is based on knowledge of the offender and file review.

'no regular positive contact with community' is to be selected if the offender has little to no regular positive community support.

'yes, regular positive contact with community' is to be selected if the offender has regular positive support from friends or volunteers in the community.

Possible Value	Score
No, regular positive contact with community (volunteers, friends, etc.)	(0.0)
Yes, regular positive contact with community	(0.0)

4. Number of convictions for serious disciplinary offences
(automatic download and cannot be modified by user)

During the review period only count institutional disciplinary offences that resulted in a conviction (not charges) for a serious offence, as per the conviction date on OMS.

Count all the "Institutional charges" (institutional_charges) where the "offence_date" (inst_charge_offence_date) is within the review period and the "court finding" (court_finding_code) is convicted (i.e. 0001) and the "offence category" (charge_category_code) is serious (i.e. 0001).

The actual score is then displayed under "Raw number of convictions".

Possible Value	Score
None	(-1.10)
One or two	(+1.90)
Three or more	(+4.40)

5. Number of recorded incidents during the review period
(automatic download and cannot be modified by user)

The application performs a count of all "institutional incidents" where the "incident date" (incident_date) is for the period under review regardless of severity, the offender's role, or whether they resulted in a formal conviction.

The actual score is then displayed under "Raw number of recorded incidents".

Possible Value	Score
None	(-1.50)
One	(0.40)
Two	(+0.75)
Three or more	(+3.50)

6. Pay level during the review period
(can be modified by user and mandatory)

The application reports in a drop-down list the most recent pay grade assigned to the offender on the date of the security review. In the event that there is no pay grade recorded for the offender, the application presents to the user a list of valid pay grades to choose from. If the offender is receiving a rate of pay other than those listed, the user has the option of choosing 'Other'.

Possible value	Score
Zero Pay $1.00	(+1.00)
Basic Allowance $1.00 [or Level 1]	(+1.00)
Allowance $2.50 [or Level 1]	(+1.00)
Level D Pay $5.25 [or Level 2]	(+0.70)
Level C Pay $5.80 [or Level 3]	(-0.30)
Level B Pay $6.35 [or Level 4]	(-1.10)
Level A Pay $6.90 [or Level 5]	(-1.10)
Other	(0.00)

7. Number of times offender was placed in involuntary segregation for being a danger to others or the institution
(cannot be modified by user and mandatory)

The application automatically tabulates a total count where segregation is involuntary and the reason for segregation is CCRA 31 (3-A). It will count only placements in segregation that occurred during the review period. If the inmate was in segregation during *any part* of the review period, it will be counted. The number of days in segregation is disregarded. If an offender is released from segregation and then returned to segregation, this is reported as two periods, even if the return was based on the initial reasons for segregation.

The actual score is then displayed under "Raw number of times in involuntary segregation during the review period".

Possible Value	Score
None	(-1.10)
Once or twice	(+3.25)
Three or more	(+5.35)

8. Total number of successful ETAs during the review period (cannot be modified by the user and mandatory)

The application automatically tabulates the number of TA permits where the "absence type" (permit_type_code) is ETAs (i.e. 0005) and that the offender has successfully completed (completion_code) is 'on time' (i.e. 0001) or 'extension' (i.e. 0002). ETAs granted for *any reason,* during *any part of the review period* will be considered by the Scale, that the "depart. date" (authorized_depart_date) is greater than the start date or the "required date" (required_arrival_date) is greater than the start date. The application will count the total number of separate ETAs, not the number of days released on ETA.

Possible Value (not from OMS)	Score
None	(+1.15)
One to three	(+0.70)
Four to eight	(-0.85)
Nine or more	(-1.40)

Review of Adjustment and Functioning Factors not during the review period

1. Ever UAL from work release, temporary absence or community (automatic download and can sometimes be modified by user)

The application automatically checks for any instances of UAL. If an official incident of UAL is found by the application, the field will be populated as 'yes', and the user will be unable to modify. If no official incident of UAL is found by the application, the field will be populated as 'no' and the user will have the option of overriding the selection to select 'yes'.

If the application selects 'no', the user will need to go further into the files to adequately respond to this item. Because not all UAL will result in formal charges, the user is to count any record of escape lawful custody on the offender's personal file as well (implication--if they escaped they must have been UAL). The user is NOT to count escape attempts - only successful escapes.

Also, if the user is certain that the offender has been UAL but there is no official record indicate "yes" and note this situation in the 'comments' section. For the purposes of the field test the user is not to include failure to appear, or breaches of trust. If these are the only indicators mark "no" but note this fact in the 'comments' section at the end of the report.

Possible Value	Score
No	(-0.25)
Yes	(+1.20)

2. CRS Incident History
(automatic download or user entered, and mandatory)

The application will report the "Incident History score" (involve_in_incident_score) from the most recent CRS completed at admission.

If the score is 0, then 'none' will be selected.

If the score is above 0, then 'Any prior involvement' will be selected.

If no CRS score is available and this is the offender's first custodial sentence (including provincial) then 'none' will be selected, and the user will be allowed to modify. If no score is available on OMS, the user must create a "proxy" Incident History score by using the guidelines contained in SOP 700-04 - Offender Intake Assessment and Correctional Planning.

Possible Value (not from OMS)		Score
None	[~ score=0]	(-0.95)
Any prior involvement	[~ score=2]	(+1.60)

3. CRS Escape History
(automatic download or user entered, and non-mandatory)

The application will download the "Escape History Score" (escape_history_score) from the most recent "locked" CRS. This field is automatically calculated by the application, and will allow the user to update if no score is returned.

If the score is 0, 'No escape/ attempt' will be selected.
If the score is 4, 'Non-violent escape/ attempt more than 2 years ago' will be selected.
If the score is 12, 'Non-violent escape/ attempt less than 2 years ago' will be selected.
If the score is 20, 'Violent escape/ attempt more than 2 years ago will be selected.
If the score is 28, 'Violent escape/ attempt less than 2 years ago or 2 or more escapes within the last 5 years will be selected.

It is up to the user to verify the accuracy of the score that has been downloaded from OMS. If no score is available on OMS, the user must create a "proxy" Escape History score using the guidelines contained in SOP 700-04- Offender Intake Assessment and Correctional Planning.

Possible Value (not from OMS)	Score
No escape/attempt [score=0]	(0.00)
Non-violent escape/attempt more than 2 years ago [score=4]	(0.00)
Non-violent escape/attempt less than 2 years ago [score=12]	(0.00)
Violent escape/attempt more than 2 years ago [score=20]	(0.00)
Violent escape/attempt less than 2 years ago or 2 or more escapes within the last 5 years [score=28]	(0.00)

Appendix 8 Dynamic Factor Identification and Analysis (DFIA)

Principle Components and Subcomponents[19]

DOMAIN	PRINCIPAL COMPONENT	SUB-COMPONENT	INDICATORS
Employment	Ability	Education/Skills	Has less than grade 8?
			Has less than grade 10?
			Has no high school diploma?
			Finds learning difficult?
			Has learning disabilities?
			Has physical problems which interfere with learning?
			Has memory problems?
			Has concentration problems?
			Has problems with reading?
			Has problems with writing?
			Has problems with numeracy?
			Has difficulty comprehending instructions?
			Lacks a skill area/trade/profession?
			Dissatisfied with skill area/trade/profession?
		Health	Has physical problems that interfere with work?
	Work Record	Work History	Has no employment history?
			Unemployed at the time of arrest?
			Unemployed 90% or more?
			Unemployed 50% or more?
			Has an unstable job history?
			Often shows up late for work?
			Has poor attendance record?
		Performance	Has difficulty meeting workload requirements?
			Lacks initiative?

[19] This table is transcribed directly from CSC's Commissioner's Directive (CD) 705-6 (CSC, 2006a)

DOMAIN	PRINCIPAL COMPONENT	SUB-COMPONENT	INDICATORS
		Dismissal/Departure	Has quit a job without another?
			Has been laid off from work?
			Has been fired from a job?
	Rewards	Economic Gain	Salary has been insufficient?
			Lacks employment benefits?
		Security	Job lacks security?
	Co-worker Relations	Quality	Has difficulty with co-workers?
	Supervisory Relations	Quality	Has difficulties with superiors?
	Interventions	History	Prior vocational assessment(s)?
			Has participated in employment programs?
			Has completed an occupational development program?
Marital/family	Family Background	Cohesion	Childhood lacked family ties?
		Maternal Relations	Mother absent during childhood?
			Maternal relations negative as a child?
		Paternal Relations	Father absent during childhood?
			Paternal relations negative as a child?
		Parental Inter-Relations	Parents relationship dysfunctional during childhood?
			Spousal abuse during childhood?
		Sibling Relations	Sibling relations negative during childhood?
		Other Relative(s) Relations	Other relative(s) relations negative during childhood?
		Criminality	Family members involved in crime?
	Marital Relation	Status	Currently single?
			Has been married/common-law in the past?

DOMAIN	PRINCIPAL COMPONENT	SUB-COMPONENT	INDICATORS
		Quality	Dissatisfied with current relationship?
			Money problems affect relationship(s) past/present?
			Sexual problem affect relationship(s) past/present?
			Communication problems affect the relationship(s)?
			Has been a victim of spousal abuse?
			Has been a perpetrator of spousal abuse?
	Parenting Responsibility	Dependants	Has no parenting responsibilities?
		Parenting Skills	Unable to handle parenting responsibilities?
			Unable to control the child's behaviour appropriately?
			Perceives self as unable to control the child's behaviour?
			Supervises child improperly?
			Does not participate in activities with the child?
			Lacks an understanding of child development?
			Family is unable to get along as a unit?
		Child Abuse	Has been arrested for child abuse?
			Has been arrested for incest?
	Interventions	History	Prior marital/family assessment(s)?
			Has participated in marital/family therapy?
			Has completed a marital/family intervention program?
Associates/ Social Interaction	Attachments	Status	Socially isolated?
		Substance Abusers	Associates with substance abusers?
		Pro-criminal	Has many criminal acquaintances?
			Has mostly criminal friends?
			Has been affiliated with a gang?
			Resides in a criminogenic area?
		Pro-social	Unattached to any community groups

DOMAIN	PRINCIPAL COMPONENT	SUB-COMPONENT	INDICATORS
	Interpersonal Relations	Style	Relations are described as predatory?
			Often victimized in social relations?
		Influence	Easily influenced by others?
		Communication	Has difficulty communicating with others?
Substance Abuse	Alcohol Abuse	Pattern	Abuses alcohol?
			Began drinking at an early age?
			Drinks on a regular basis?
			Has a history of drinking binges?
			Has combined the use of alcohol and drugs?
		Situations	Drinks to excess during leisure time?
			Drinks to excess in social situations?
			Drinks to relieve stress?
		Interference	Drinking interferes with employment?
			Drinking interferes with marital/family relations?
			Drinking interferes with social relations?
			Drinking has resulted in law violations?
			Drinking interferes with health?
	Drug Abuse	Pattern	Abuses drugs (solvents, prescription drugs, etc.)?
			Began using drugs at an early age?
			Uses drugs on a regular basis?
			Has gone on drug-taking sprees?
			Has combined the use of different drugs?
		Situations	Uses drugs during leisure time?
			Uses drugs in social situations?
			Uses drugs to relieve stress?
		Interference	Drug use interferes with employment?

DOMAIN	PRINCIPAL COMPONENT	SUB-COMPONENT	INDICATORS
			Drug use interferes with marital/family relations?
			Drug use interferes with social relations?
			Drug use has resulted in law violations?
			Drug use interferes with health?
	Interventions	History	Prior substance abuse assessment(s)?
			Has participated in substance abuse treatment?
			Has completed substance abuse treatment?
Community Functioning	Accommodation	Stability	Has unstable accommodation?
		Maintenance	Residence is poorly maintained?
	Deportment	Self-presentation	Has poor self-presentation?
		Hygiene	Has poor hygiene?
	Health	Physical	Has physical problems?
		Dental	Has dental problems?
		Nutritional	Has dietary problems?
	Finance	Budgeting	Difficulty meeting bills?
			Has outstanding debts?
		Accounts	Has no bank accounts?
		Credit	Has no credit?
		Collateral	Has no collateral?
	Communication	Written	Has problems writing?
		Verbal	Unable to express verbally?

DOMAIN	PRINCIPAL COMPONENT	SUB-COMPONENT	INDICATORS
	Leisure	Hobbies	Has no hobbies?
		Organized Activities	Does not participate in organized activities?
	Support	Social Assistance	Unaware of social services?
			Has used social assistance?
	Intervention	History	Prior assessment for community functioning?
			Has participated in a community skills program?
			Has completed a community skills program?
Personal/	Self-concept	Personal	Feels especially self-important?
Emotional			Physical prowess problematic?
Orientation			
		Social-Cultural	Family ties are problematic?
			Ethnicity is problematic?
			Religion is problematic?
			Gang member?
	Cognition	Cognition	Unable to recognize problem areas?
			Has difficulties solving interpersonal problems?
			Unable to generate choices?
			Unaware of consequences?
			Goal setting is unrealistic?
			Has disregard for others?
			Socially unaware?
			Impulsive?
			Incapable of understanding the feelings of others?
			Narrow and rigid thinking?
	Behavioural	Aggression	Aggressive?
		Assertion	Assertion problem?
		Coping	Copes with stress poorly?
			Poor conflict resolution?

DOMAIN	PRINCIPAL COMPONENT	SUB-COMPONENT	INDICATORS
			Manages time poorly?
		Gambling	Gambling is problematic?
		Frustration	Has low frustration tolerance?
		Hostility	Hostile?
		Neuroticism	Worries unreasonably?
		Risk Taking	Takes risks inappropriately?
		Sensation Seeking	Thrill-seeking?
		Self-Monitoring	Non-reflective?
		Conscientiousness	Is not conscientious?
		Manipulation	Manipulative?
	Sexual Behaviour	Dysfunction	Has difficulty performing sexually?
		Identity	Sexual identity problem?
		Preference	Inappropriate sexual preferences?
		Attitudes	Sexual attitudes are problematic?
	Mental Ability	Functioning	Mentally deficient?
	Mental Health	Disordered	Diagnosed as disordered in the past?
			Diagnosed as disordered currently?
	Interventions	Assessments	Prior personal/emotional assessment(s)?
		Medication	Prescribed medication in the past?

DOMAIN	PRINCIPAL COMPONENT	SUB-COMPONENT	INDICATORS
			Prescribed medication currently?
		Psychological/Psychiatric	Past hospitalization?
			Current hospitalization?
			Received outpatient services in the past?
			Receiving outpatient services prior to admission?
		Programs	Past programs participation?
			Current program participation?
Attitude	Justice	Laws	Negative towards law?
		Enforcement	Negative towards police?
		Judicial System	Negative towards courts?
		Corrections	Negative towards corrections?
			Negative towards community supervision?
			Negative towards rehabilitation?
	Society	Convention	Employment has no value?
			Marital/family relations have no value?
			Interpersonal relations have no value?
			Values substance abuse?
			Basic life skills have no value?
			Personal/emotional stability has no value?
		Elderly	Elderly have no value?
		Women (Men)	Women/men roles are unequal?
		Minorities	Ethnically intolerant?
			Intolerant of other religions?
			Intolerant of disabled persons?
	Property	Personal	Disrespectful of personal belongings?

DOMAIN	PRINCIPAL COMPONENT	SUB-COMPONENT	INDICATORS
		Communal	Disrespectful of public property?
		Commercial	Disrespectful of commercial property?
	Violence	Domestic	Supportive of domestic violence?
		Instrumental	Supportive of instrumental violence?
	Lifestyle	Goal Directed	Lacks direction?
		Conforming	Non-conforming?

Appendix 9 Items from the Statistical Information on Recidivism Scale - Revised 1 (SIR-R1)

1. Current Offence[20]
2. Age at Admission
3. Previous Incarceration
4. Revocation or Forfeiture
5. Act of Escape
6. Security Classification
7. Age at First Adult Conviction
8. Previous Convictions for Assault
9. Marital Status at Most Recent Admission
10. Interval at Risk Since Last Offence
11. Number of Dependants at Most Recent Admission
12. Current Total Aggregate Sentence
13. Previous Convictions for Sex Offenders
14. Previous Convictions for Break and Enter
15. Employment Status at Arrest

[20] These items are taken from Correctional Services Canada Commissioner's Directive 705-6 (CSC, 2006a) Annex D (formerly Standard Operating Practice 700-04).

Appendix 10 Description of Data Transformations

Variable	*N*	Distribution / Violation	Original *M (SD)* & Range	Correction	Revised *M (SD)* & Range
Congruence Indices: Institutional					
C Index	217	Normal	10.06 (3.38) [1.75-18]	NA	NA
KP Index	217	Normal	.54 (.20) [.21-1.00]	NA	NA
Holland First Letter Index	269	Normal	2.84 (.94) [1-4]	NA	NA
Holland-Index Program 1	263	Normal	2.89 (1.04) [1-4]	NA	NA
Holland-Index Program 2	200	Normal	2.83 (1.03) [1-4]	NA	NA
Holland-Index Program 3	129	Normal	2.84 (1.04) [1-4]	NA	NA
Congruence Indices: Community					
Community C Index	105	Normal	9.78 (3.38) [.00-18]	NA	NA
Community KP Index	105	Normal	.52 (.18) [.19-1.00]	NA	NA
Community Holland Index	139	Normal	2.87 (.99) [1-4]	NA	NA
Community Holland Index Job 1	139	Normal	2.86 (1.02) [1-4]	NA	NA

Table Continued

Community Holland Index Job 2	43	Normal	2.84 (.90) [1-4]	NA	NA
Variable	*N*	Distribution / Violation	Original *M (SD)* & Range	Correction	Revised *M (SD)* & Range
Institutional Outcome Measures					
Involvement in Institutional Incidents	304	None	'Yes' = 68%	NA	NA
Involvement in Major Incidents	207	None	'Yes' = 34%	NA	NA
Involvement in Minor Incidents	207	Baserate <10%	'Yes' = 93%	Dropped from inferential analyses	NA
Number of Institutional Incidents	304	Skew (+) Kurtosis (+) 11 outliers	3.48 (6.53) [0-67]	Truncated (> 2 *SD*) upper range of variable (i.e., recoded values ≥ 16 to 16).	3.01 (4.10) [0-16]
Number of Major Incidents**	304	Skew (+) Kurtosis (+) 4 outliers	.44 (1.30) [0-17]	Truncated (> 2 *SD*) upper range of variable (i.e., recoded values ≥ 3 to 3).	.38 (.786) [0-3]

Table Continued

Variable	*N*	Distribution / Violation	Original *M (SD)* & Range	Correction	Revised *M (SD)* & Range
Number of Minor Incidents	304	Skew (+) Kurtosis (+) 11 outliers	2.99 (5.58) [0-50]	Truncated (> 2 *SD*) upper range of variable (i.e., recoded values ≥ 14 to 14).	2.58 (3.68) [0-14]
Incidents During Program**	272	Skew (+) Kurtosis (+) 11 outliers	1.18 (3.11) [0-40]	Truncated (> 2 sd) upper range of variable (i.e., recoded values ≥ 7 to 7).	.99 (1.77) [0-7]
Incidents Outside of Program	272	Skew (+) Kurtosis (+) 10 outliers	2.36 (4.18) [0-36]	Truncated (> 2 sd) upper range of variable (i.e., recoded values ≥ 10 to 10).	2.03 (2.73) [0-10]
Number of Incidents Program 1	148	Skew (+) Kurtosis (+) 4 outliers	.66 (1.27) [0-10]	Truncated (> 2 *SD*) upper range of variable (i.e., recoded values ≥ 3 to 3).	.57 (.87) [0-3]

Table Continued

Variable	*N*	Distribution / Violation	Original *M (SD)* & Range	Correction	Revised *M* (*SD*) & Range
Change in Employment Need	193	Baserate <10%	'No' = 96% (n=186)	Dropped from inferential analyses	NA
Change in Security Level	304	None	'No' = 71% (n=215)	NA	NA
Proportion of time in employment programs	272	Normal	.54 (.27) [.02-1.00]	NA	NA
<u>Community Outcome Measures</u>					
Job Attainment	304	None	'Yes' = 46% (n=139)	NA	NA
Job Retention at 3 months	125	None	'Yes' = 50% (n=63)	NA	NA
Job Retention at 6 months	38	Baserate <10%	'Yes' = 97% (n=37)	Dropped from inferential analyses	NA
Returned to Custody	304	None	'Yes' = 35% (n=105)	NA	NA
Returned with Technical Violation	105	None	'Yes' = 61% (n=64)	NA	NA
Returned with New Offence	105	None	'Yes' = 39% (n=41)	NA	NA
Time to Recidivism	105	Normal	229.56 (120.05) [56-650]	NA	NA

Table Continued

Variable	*N*	Distribution / Violation	Original *M (SD)* & Range	Correction	Revised *M (SD)* & Range
Control Variables					
Level of Motivation	299	Normal	2.10 (.52) [1-3]	NA	NA
Overall Grade Level	240	Normal	10.48 (1.66) [5-13]	NA	NA
Overall Need	304	Normal	2.59 (.62) [1-3]	NA	NA
Overall Risk	304	Normal	2.28 (.70) [1-3]	NA	NA
SIR Score (Level of Risk)	298	Normal	-3.26 (9.53) [-22-24]	NA	NA
Period of Incarceration / Time at Risk – Institution	304	Skew (+) Kurtosis (+) 7 outliers	614.71 (552.03) [117-5728]	Truncated (> 2 *SD*) upper range of variable (i.e., recoded values ≥ 1663 to 1663).	571.44 (293.79) [117-1663]
Time at Risk - Community	300	Normal	448.82 (166.24) [112-974]	NA	NA

**Variable remains skewed after removing outliers.

Appendix 11 Intercorrelations: Predictor/Control Variables (A) and Outcome Variables (B)

A. Predictor / Control Variables

	1	2	3	4	5	6	7	8	9	10
1. Institutional Congruence[a]										
2. Community Congruence	.844**									
3. Intervention Specific Congruence 1	.922**	.854**								
4. Level of Risk	-.073	-.028	-.028							
5. SIR	.036	-.030	-.003	-.555**						
6. Level of Need	-.072	.041	-.033	.567**	-.560**					
7. Level of Employment Need	.046	.022	-.001	.135*	-.296**	.188**				
8. Period of Incarceration	.052	-.032	-.035	.174	.016	.148**	.074			
9. Length of Program 1	.021	.092	.038	.087	.027	.026	-.018	.098		
10. Overall Grade Level	-.100	-.117	-.102	-.069	.088	-.055	-.122	-.001	-.059	
11. Level of Motivation	-.066	-.196*	-.089	-.296**	.333**	-.276**	-.116*	-.018	.065	.052

B. Outcome Variables

	1	2	3	4	5	6	7
1. Time in Employment Programs							
2. Number of Institutional	-.106						
3. Number of Major Incidents	-.060	.760**					
4. Number of Minor Incidents	-.095	.987**	.653**				
5. Number of Incidents: Program 1	.027	.306**	.157	.324**			
6. Job Attainment	-.011	-.150*	-.131*	-.147*	.197*		
7. Job Retention	.070	-.125	-.118	-.114	-.068	.148	
8. Recidivism	-.017	.137*	.189*	.111	-.097	-.215**	-.257**

[a]Congruence Indices within these table are based on the First-Letter Index; *p<.05, ** p<.01

Appendix 12 Correlations between Predictor and Outcome Variables

	1	2	3	4	5	6	7	8	9	10	11	12
2	.844**											
3	-.073	-.028										
4	.036	-.030	-.555**									
5	-.072	.041	.567**	-.560**								
6	.052	-.032	.174**	.016	.148**							
7	-.100	-.117	-.069	.088	-.055	-.001						
8	-.066	-.196*	-.296**	.333**	-.276**	-.018	.052					
9	-.038	.007	.004	-.024	.042	-.090	.089	.117*				
10	-.015	-.069	.258*	-.139*	.167**	.535*	-.031	-.226**	-.106			
11	-.024	.053	-.158	.192**	-.145*	-.031	.039	.100	-.011	-.150*		
12	.155	.050	-.101	.189*	-.205*	.087	-.020	.171	.070	-.125	.148	
13	-.069	-.069	.125*	-.301*	.186*	-.066	-.127*	-.078	-.017	.137*	-.215**	-.257**

1. Institutional Congruence
2. Community Congruence
3. Level of Risk
4. Sir
5. Level of Need
6. Period of Incarceration
7. OGL
8. Level of Motivation
9. Percentage of Time in Employment Programs
10. Number of Incidents
11. Job Attainment
12. Job Retention
13. Recidivism

Congruence Indices within this table are based on the First-Letter Index; *p<.05, ** p<.01

Appendix 13 Coding for Institutional Employment Interventions

Determination of Interest Codes for Institutional Employment Interventions (DHOC)

Institutional Intervention Type	Selected DHOC Title	Interest Code	*n*
Animal Care Worker	Animal Caretaker (any industry)	RCS	2
Arts & Crafts	Recreation Facility Attendant	ESC	5
Barber	Barber / Barber Apprentice	ESR	4
Canteen Operator	Canteen Operator (any industry)	ERS	5
Carpentry General Worker	Carpenter (Construction)	RCE	5
Cleaner	Cleaner (commercial/institutional)	REC	168
Clerk	Administrative Clerk	CSE	14
Computers for Schools	Repairer, Switchgear (comm./electrical. Equipment)	RES	1
Construction Worker	Construction Worker II (construction)	RES	8
Construction / Construction Safety Training	Training	RCS	2
Cook / Food Services / Kitchen	Cook / Kitchen Helper	RES	46
CORCAN – Assembly	Labourer (General)	RES	1
CORCAN – Cabinet Shop	Cabinetmaker (woodworking)	RIS	14
CORCAN – Carpentry / Coin Box Shop	Labourer, General (paint & varnish)	RIE	4

Table Continued

CORCAN – Dairy Herdsman	Farmworker, Dairy / Sheep Herder	RES	7
CORCAN – DND – Van Bodies	Auto Body Repairer / Helper	RES	1
CORCAN – Forestry	Forest Worker	RES	2
CORCAN – Inside Saw Mill	Sawmill Worker	RCS	4
CORCAN Institutional Employment	Auto Mechanic	RCI	6
CORCAN – Manufacturing	Labourer (General)	RES	3
CORCAN – Metal Shop	Metal Fabricating Shop Helper	RSE	6
CORCAN – Paint Shop	Labourer, General (paint & varnish)	RIE	11
CORCAN – Paint Shop	Painter (construction)	RSE	11
CORCAN – Piggery Herdsman	Farmworker, Dairy / Sheep Herder	RES	1
CORCAN – Tailor Shop	Sewing Machine Operator (textiles)	RCE	6
CORCAN – Textiles	Sewing Machine Operator (textiles)	RCE	19
CORCAN Tomato Hooks	Labourer (General)	RES	1
CORCAN – Tractors	Famrworker, Machine	RCE	2
CORCAN – Upholstery	Upholsterer Helper	REI	2
CORCAN – Warehouse	Assembler, Production (any industry)	RCE	2
CORCAN - Welding	Welder Helper	RES	4

Table Continued

CSC Institutional Employment	Baker Helper (bakery products)	REC	1
Dish / Pot / Tray Washer	Washer (any industry)	REC	9
Electrical General Worker	Electrician Helper (any industry)	RCE	4
Farmworker	Farmworker General II	RES	9
Graphic Arts	Graphic Designer	AER	2
Grounds / Greenhouse	Groundskeeper (any industry)	RCE	110
Inmate Cameraman / Photographer	Photographer (still)	ARS	3
Kitchen	Kitchen Helper	RES	45
Laundry	Laundry Labourer / Worker II	REC	13
Librarian	Librarian	SAI	1
Library Assistant / Clerk	Library Assistant / Administrative Clerk	CSE	7
Mattress Recycling	Labourer (General)	RES	1
Newspaper Editor / Photographer	Editor, Newspaper	AES	1
Peer Support / Caregiver / Disability Assistant	Peer Caregiver Program	SCR	7
Plumbing General Worker	Plumber (construction)	REI	5
Poultry	Farmworker, Poultry	RCS	3
Recreational Facility Workers	Recreation Facility Attendant	ESC	18

Table Continued

School Tutor	Tutor (education)	SEC	12
Small Engine Repair	Engine Repairer	RIE	1
Stores Clerk	Stock Clerk (retail)	RSE	5
Teacher's Assistant	Teacher Aide	SCE	5
Woodworking	Woodworking Shop Hand	RES	3

**This table represents 632 of 790 (80%) employment interventions*

Determination of Interest Codes for Institutional Employment Interventions (PCI)

Institutional Intervention Type	Number of PCIs Completed	Interest Code	*n*
Autocad – Intro, Level 1, Level 2	1	IAC	3
Basic First Aid	1	SRC	5
Basic Introduction to Computers	2	CAI	3
Building Service Worker Training	1	RCS	2
C.I.R.T. (Forestry & Industrial Skills Training)	1	RAI	6
Construction Safety Training System	1	RCS	6
CORCAN Employment Services Program	1	RCS	12
Culinary Arts Program	2	RIC	2

Table Continued

Custodial Course (Maintenance – Cleaning)	1	RSC	2
Entry Level Trades Training	1	RIC	4
Meat Processing (Vocational Education)	1	RES	1
Micro Applications	1	CSA	2
National Employability Skills Program	13	RAS	31
Peer Caregiver Program	1	SCR	1
Pre-Apprenticeship Skills Training	1	RSC	3
Safety and Health at Work	1	CRE	4
Vocational – Beauty Parlour	1	ASR	2
Vocational Education - Carpentry	1	RCI	2
Vocational Printing	1	RCA	2
Vocational Welding	1	RCS	1
WHMIS	2	CIR	15

**This table represents 109 of 790 (14%) of employment interventions.*
**49 / 790 (6%) interventions were excluded from analyses because it was not possible to complete a PCI. In turn, this precluded the calculation of Institutional CIs for n = 3 offenders. Types of exclusions included:*

- *Community Work Releases (n = 7), Committee Positions (n = 18), Aboriginal Specific Interventions (n = 3), Unemployed (n = 12), Food Safety Course (n = 5), Fork Lift Training (n = 4)*

**In total, 272 / 304 (89%) offenders were involved in employment interventions. 196 (72%) received no vocational training (i.e., CI based on only the DHOC) and 76 (28%) received both vocational training and employment opportunities (i.e., CI based on both the DHOC and PCI)*

Appendix 14 Coding for Community Job Titles

Determination of Interest Codes for Community Job Placements based on Holland's Dictionary of Occupational Codes (DHOC)
Atlantic Region

Job Title	Selected DHOC Title	Interest Code	*n*
Automotive mechanic	Automobile Mechanic (automobile ser)	RCI	1
Body-work detailer	Automobile Body Repairer (automobile ser)	RIE	1
Bookkeeper	Bookkeeper (clerical)	CSI	1
Cleaner	Cleaner, Commercial or Institutional (any industry)	REC	2
Construction worker	Construction Worker II (construction)	RES	4
Cook	Cook, Short-Order (hotel & rest)	RSE	1
Cook/server (fast food)	Cook, Fast Food (hotel & rest)	RCE	2
Labourer (dishwasher)	Washer (any industry)	REC	1
Labourer (fish plant)	Fish (cleaner, packer, bin-tender)*	REC	1
Labourer (production - food)	Production Helper (can & preserve, food prep, n.e.c.)	CRS	1
Labourer (warehouse work; moving)	Material Handler (any industry)	REI	2
Labourer/landscaping	Groundskeeper, Industrial-Commercial (any industry)	RCE	1

** This table represents 18 of 213 (8%) community job placements and is based on n = 10 offenders*

Ontario Region

Job Title	Selected DHOC Title	Interest Code	*n*
Assembler (factory; manufacturing)	Assembler (machinery, mfg.)	RCS	3
Binder/fishing machine operator	Binder (any industry)	RCE	1
Cashier	Cashier I (clerical)	CSE	2
Construction worker	Construction Worker II (construction)	RES	3
Courier	Deliverer, Outside (clerical)	CES	1
Electrician's helper	Electrician Helper (any industry)	RCE	1
Flag man (construction)	Flagger (construction)	RCE	1
Garbage man (recycle plant)	Waste Disposal Attendant (any industry)	RSE	1
Home improvements	House Repairer (construction)	REI	1
Janitor/Industrial Cleaner	Cleaner, Industrial (any industry)	RSE	1
Labourer	Labourer (fabrication, n.e.c.)	RSE	1
Labourer (bakery)	Baker Helper (bakery products)	REC	1
Labourer (concrete finishing)	Labourer, Concrete Plant (concrete prod.)	REC	1
Labourer (restoration services)	Maintenance-Repairer Helper, Industrial (any industry)	RES	1

Table Continued

Machine operator (printing machine; metal fabrication)	Machine Operator I (any industry)	RCE	2
Material handler Mover Warehousing Shelf-Stocker	Material Handler (any industry)	REI	5
Roofer	Roofer (construction)	REC	2
Retail & sales occupation	Sales Clerk (retail trade)	ESR	2
Shipper/receiver	Shipping & Receiving Clerk (clerical)	REI	2
Telephone sales person	Telephone Solicitor (any industry)	ESC	1

** This table represents 33 of 213 (15%) community job placements and is based on n = 24 offenders*

Prairie Region

Job Title	Selected DHOC Title	Interest Code	*n*
Administrative support	Administrative Assistant (any industry)	ESC	1
Asbestos Removal	Asbestos Removal Worker (construction)	RES	1
Assembler	Assembler, Small Products I (any industry)	CRS	1
Automobile detailer	Automobile Detailer (automotive ser.)	RCE	2
Automobile work/repair	Automobile Body Repairer (auto ser)	RIE	4
Car salesman	Salesperson, Automobiles (retail trade)	ESR	1
Cleaner (automobile)	Cleaner & Polisher (any industry)	RCE	1
Construction worker	Construction Worker II (construction)	RES	13
Cook	Cook, Short-Order (hotel & rest)	RSE	3
Courier driver	Deliverer, Outside (clerical)	CES	1
Detailing (manufacturing) Manufacturing – processing	Labourer (fabrication, n.e.c.)	RSE	3
Electrical apprentice	Electrician Helper (any industry)	RCE	1
Forklift Operation	Machine Operator I (any industry)	RCE	1
Framer Framer's helper	Framer (glass products, wood products, n.e.c.)	CRE	2

Table Continued

Ice Cutter	Ice Cutter (food prep, n.e.c.)	REI	1
Labourer (concrete)	Labourer, Concrete Plant (concrete prod.)	REC	3
Labourer (installers) – doors – utilities hook-up	Installer (mfd. Bldgs.; vehicles, n.e.c.)	RES	2
Labourer (lumber)	Lumber Sorter, Straightener*	RES	2
Labourer (moving; warehouse; loading/unloading)	Material Handler (any industry)	REI	2
Labourer (Tire company)	Laborer, general (rubber goods; rubber reclaim; rubber tire)	CRE	1
Mechanic	Automobile Mechanic (auto ser)	RCI	2
Oil changer	Oil pumper (petrol & gas)	RES	1
Painter	Painter (construction)	RSE	1
Receptionist	Receptionist (clerical)	CSE	1
Labourer (roofing)	Roofer	REC	1
Store clerk Salesman	Sales Clerk (retail trade)	ESR	3
Telephone solicitor	Telephone Solicitor (any industry)	ESC	1
Waitress	Waiter/Waitress, Informal (hotel & rest)	ESC	1

** This table represents 57 of 213 (27%) community job placements and is based on n = 42 offenders*

Pacific Region

Job Title	Selected DHOC Title	Interest Code	*n*
Aesthetician	Cosmetologist (personal ser)	SEA	1
Baker's assistant	Baker Helper (bakery products)	RSE	1
Car detailing/washing	Auto Detailer (automotive ser)	RCE	1
Car restorations	Automobile Body Repairer (automotive ser)	RIE	1
Cashier	Cashier I (clerical)	CSE	1
Cleaner	Cleaner, Industrial (any industry)	RSE	1
Construction worker	Construction Worker II (construction)	RES	32
Cook/server	Cook, Fast-Food (hotel & rest)	RCE	2
Customer service representative	Customer Service Representative (utilities)	RCE	2
Electrical apprentice	Electrician Helper (any industry)	RCE	1
Kitchen helper	Kitchen Helper (hotel & rest.)	RES	1
Paper deliverer	Deliverer, Outside (clerical)	CES	1
Labourer (concrete)	Labourer, Concrete Plant (concrete prod.)	REC	3
Labourer (industrial; manufacturing; production)	Labourer (fabrication, n.e.c.)	RSE	3
Labourer (salvage)	Laborer, Salvage (any industry)	RSE	2

Table Continued

Labourer (logging & operating machinery)	Logging-Tractor Operator (forestry; logging; saw. & plan.)	RES	1
Labourer (masonry)	Stonemason Apprentice (construction)	RSE	2
Labourer (siding)	Sider (construction; mfd. Bldgs.; retail trade)	RCE	4
Labourer (stucco)	Plasterer (construction)	RES	5
Landscaper	Groundkeeper, Industrial-Commercial (any industry)	RCE	8
Labourer - loading/unloading - mover - warehousing	Material Handler (any industry)	REI	11
Machine operator - heavy equipment - press	Machine Operator I (any industry)	RCE	1
Painter	Painter (construction)	RSE	4
Paving	Asphalt-Paving-Machine Operator (construction)	RES	1
Press operator	Machine Operator I (any industry)	RCE	1
Renovations Handyman	Maintenance-Repairer Helper, Industrial (any industry)	RES	3
Roofing	Roofer (construction)	REC	1

Table Continued

Labourer (installer) - windows	Installer (mfd. Bldgs.; vehicles, n.e.c.)	RES	2
Telephone solicitor	Telephone Solicitor (any industry)	ESC	1
Tree seedling worker Labourer (nursery)	Tree Planter (forestry)	REC	2
Production Clerk	Sales Clerk (retail trade)	ESR	1
Server	Waiter/Waitress, Informal (hotel & rest)	ESC	1
Security Worker	Security Officer (any industry)	ERS	1
Welder	Welder Helper (welding)	RES	1

** This table represents 104 of 213 (49%) community job placements and is based on n = 62 offenders*

Quebec Region

Job Title	Selected DHOC Title	Interest Code	*n*
Production Assembly Supervisor	Production Supervisor (Any Industry)	RES	1

** This table represents 1 of 213 (< 1%) community job placements and is based on n = 1 offender*

Appendix 15 *t* Test Comparisons of Levels of Congruence (C Index) - Offender and Non-offender Samples

	Aggregate Levels of Institutional Congruence			
	M	*SD*	*T*	*df*
Study II Offender Sample	10.06	3.38		
Upperman and Church (1995)				
Enlisted Military Personnel	11.00	3.82	2.4997*	369
Military Supervisors	11.06	3.27	2.0559*	276
Oleski & Subich (1996) (students)	10.09	3.52	.0523	257
Young, Tokar & Subich (1998) (adults)	11.09	4.04	3.2754**	698
Lent & Lopez (1996) (managers)	10.56	3.55	1.022	278
Kieffer, Schinka, Curtiss (2004) (adults)	10.30	3.50	.7039	406
Cruickshank (2005) (students)	10.01	3.66	.2003	20402
	Aggregate Levels of Community Congruence			
	M	*SD*	*T*	*df*
Study II Offender Sample	9.78	3.38		
Upperman and Church (1995)				
Enlisted Military Personnel	11.00	3.82	2.6422**	257
Military Supervisors	11.06	3.27	2.3804*	164
Oleski & Subich (1996) (students)	10.09	3.52	.4964	145
Young, Tokar & Subich (1998) (adults)	11.09	4.04	3.0949**	586
Lent & Lopez (1996) (managers)	10.56	3.55	1.421	166
Kieffer, Schinka, Curtiss (2004) (adults)	10.30	3.50	1.2378	294
Cruickshank (2005) (students)	10.01	3.66	.6425	20290
	Intervention Specific Levels of Institutional Congruence (Program 1)			
	M	*SD*	*T*	*df*
Study II Offender Sample	10.45	3.77		
Upperman and Church (1995)				
Enlisted Military Personnel	11.00	3.82	1.3702	364
Military Supervisors	11.06	3.27	1.1455	271
Oleski & Subich (1996) (students)	10.09	3.52	.5714	252
Young, Tokar & Subich (1998) (adults)	11.09	4.04	1.9618	693
Lent & Lopez (1996) (managers)	10.56	3.55	.2060	273
Kieffer, Schinka, Curtiss (2004) (adults)	10.30	3.50	.4126	401
Cruickshank (2005) (students)	10.01	3.66	1.7407	20397
	Job Specific Levels of Community Congruence (Job 1)			
	M	*SD*	*T*	*df*
Study II Offender Sample	9.81	3.51		
Upperman and Church (1995)				
Enlisted Military Personnel	11.00	3.82	2.5429*	257
Military Supervisors	11.06	3.27	2.2676*	164
Oleski & Subich (1996) (students)	10.09	3.52	.4366	145
Young, Tokar & Subich (1998) (adults)	11.09	4.04	3.0086**	586
Lent & Lopez (1996) (managers)	10.56	3.55	1.3351	166
Kieffer, Schinka, Curtiss (2004) (adults)	10.30	3.50	1.1512	294
Cruickshank (2005) (students)	10.01	3.66	.5586	20290

* $p < .05$, ** $p < .01$, *** $p < .001$

Appendix 16 *t* Test Comparisons of Levels of Congruence (KP Index) - Offender and Non-offender Samples

	Aggregate Levels of Institutional Congruence			
	M	*SD*	*T*	*df*
Study II Offender Sample	.54	.20		
Camp & Chartrand (1992) (students)	.37	.12	8.6459***	340
Upperman and Church (1995)				
Enlisted Military Personnel	.58	.25	1.7093	369
Military Supervisors	.60	.24	1.9777*	276
Oleski & Subich (1996) (students)	.41	.22	3.7928***	257
Young, Tokar & Subich (1998) (adults)	.50	.28	1.8978	698
Lent & Lopez (1996) (managers)	.52	.20	.6987	278
	Aggregate Levels of Community Congruence			
	M	*SD*	*T*	*df*
Study II Offender Sample	.52	.18		
Camp & Chartrand (1992) (students)	.37	.12	7.5357***	228
Upperman and Church (1995)				
Enlisted Military Personnel	.58	.25	2.1134*	257
Military Supervisors	.60	.24	2.4358*	164
Oleski & Subich (1996) (students)	.41	.22	3.1354**	145
Young, Tokar & Subich (1998) (adults)	.50	.28	.7009	586
Lent & Lopez (1996) (managers)	.52	.20	0	166
	Intervention Specific Levels of Institutional Congruence (Program 1)			
	M	*SD*	*T*	*df*
Study II Offender Sample	.55	.22		
Camp & Chartrand (1992) (students)	.37	.12	8.4343***	335
Upperman and Church (1995)				
Enlisted Military Personnel	.58	.25	1.2156	364
Military Supervisors	.60	.24	1.5323	271
Oleski & Subich (1996) (students)	.41	.22	3.7677***	252
Young, Tokar & Subich (1998) (adults)	.50	.28	2.306*	693
Lent & Lopez (1996) (managers)	.52	.20	.9696	273
	Job Specific Levels of Community Congruence (Job 1)			
	M	*SD*	*T*	*df*
Study II Offender Sample	.52	.19		
Camp & Chartrand (1992) (students)	.37	.12	7.2692***	228
Upperman and Church (1995)				
Enlisted Military Personnel	.58	.25	2.0827*	257
Military Supervisors	.60	.24	2.3699*	164
Oleski & Subich (1996) (students)	.41	.22	3.0285**	145
Young, Tokar & Subich (1998) (adults)	.50	.28	.6976	586
Lent & Lopez (1996) (managers)	.52	.20	0	166

* $p < .05$, ** $p < .01$, *** $p < .001$