

Personality, Competency and Communicative Suspiciousness Profile of Canadian Police

Interrogators of Criminal Suspects

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ABSTRACT

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A confession in a criminal investigation is a prosecution's most potent weapon and is sometimes the best available evidence. Identifying the profile of an effective interrogator may improve interview performance and personnel selection. Data concerning personality, interviewing competency, and communicative suspicion was collected from 29 police interrogators employed with large police forces across Canada. Interrogators reported on the outcome of their interrogations of suspects over a six-month period. It was expected that interrogators who obtain a positive outcome (full confession, partial admission, cleared innocent) would likely score high on four of the five factors of the NEO-PI, but low on N; would tend to score high on all dimensions of the competency scale (C-T, CNR, DI and Co), except for the Be scale; and would score moderately on the communicative suspiciousness measure. Results indicated a significant but inverse relationship between interrogation outcome and two pairs of variables: Conscientiousness and Careful-Tenacious, and Extroversion and Careful-Tenacious, each accounting for nearly 25% of the variance. A suppression effect is present. The knowledge gained from this experiment will assist police forces in Canada with the identification and selection process of two main groups of police officers, investigators who are called upon to interrogate persons suspected of having committed serious criminal activities and polygraph operators.

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Dedication

To my parents

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Introduction

A confession constitutes the most powerful tool in the arsenal of law enforcement for prosecutors (Kassin and Gudjonsson, 2004). However, the interrogation of a person suspected of criminal wrongdoing is a complex process (Frantzen, 2006). Such an inquiry involves the interplay of many complicated sets of interpersonal and environmental factors emanating from three sources. The suspect under interrogation brings into the equation his or her own background of personality traits and external characteristics (age, criminal history, drug or alcohol impairment or dependency, legal assistance, etc.). The offence under investigation has its own set of unique criminological variables (type and severity of crime, available forensic evidence, victims and witnesses, co-accused, etc.). Finally the police interrogator, as the other human being in this three-sided formula, contributes his or her own disposition and professional skill set (age, experience, training, etc.). The complexity of the inter-relations of two unique individuals and an ensemble of environmental evidentiary characteristics is compounded by the legal framework the police interrogator must abide by, and the divergent interest of both actors; the detective's mission to extract from the suspect the truth and any incriminating evidence, and the suspect's personal interest to minimise or avoid altogether any consequence or penal sanction.

Assuming no legal impropriety on the part of the interrogator and the absence of false confession issues from the suspect, this interaction can lead to five possible outcomes. The suspect denies any allegation, admits to some incriminating facts, confesses to his guilt, the police interrogator clears him as a suspect, or the suspect

remains silent during the entire interrogation. The first four were retained for the purpose of this study.

The literature has thus far clarified several issues with respect to the role played by a suspect's disposition (see Gudjonsson, 2003 for a complete discussion), and the function of a variety of criminological factors (see Deslauriers-Varin, 2006 for a review) in bringing about one of the outcomes mentioned above. However, the same cannot be said about the role played by personality variables, and the level of proficiency and communicative suspiciousness of the police detective conducting the interrogation. It would be useful, for the sake of selecting suitable personnel in investigative components of police services and improving their general performance of interrogations, to identify the profile of an effective and successful interrogator. The administration of justice and the general public can only gain by being served with better-suited police interrogators. This experiment was conducted exactly for that purpose, with the goal to fill a small portion of a large scientific void.

Forensic Personality in General

Several theorists have attempted to provide an approach for understanding human behaviour in a forensic setting. Amongst others, Sigmund Freud gave us a psychoanalytic model, Carl Jung provided us with a typological theory, Raymond Cattell developed a trait approach, Robert Cloninger identified a psychobiological model, Theodore Millon came up with a bioevolutionary model, and Paul Costa and Robert McCrae finally operationalized the Five-Factor model into the Revised NEO Personality Inventory (NEO-PI-R) (Costa and McCrae, 1992; Craig 2005; Pervin et al. 2005).

Some approaches fare better than others in explaining behaviour from a forensic point of view. Freud theorized that personality develops through successive stages of psychosexual activity out of the interaction of an individual's biological needs (Craig, 2005; Pervin et al. 2005). While useful to appreciate the motivation of offenders through concepts such as oral deprivation, anal fixation, and the phallic character, Freud's psychodynamic orientation poses a problem when it comes to formulating a forensic diagnosis. His constructs are difficult for a jury to grasp, and they do not coincide with current nosology such as that found in the DSM-IV (Craig, 2005).

Jung's contribution also falls short. His typology revolves around the preference of people "to use their minds" (Craig, 2005) according to the dominant function of two fundamental concepts, Extroversion and Introversion, and how each of these two constructs interact with four psychic functions, Thought, Feelings, Sensation, and Intuition, to account for an individual's behaviour. Jung's personality typology is operationalized in the Myers-Briggs Type Indicator (MBTI) (McCaulley and Martin, 1995). Although popular in business, education, family counselling and in the religious community, the MBTI is not used to identify psychopathologies (McCaulley and Martin, 1995).

With the use of factor analysis, Cattell established a classification system of personality beginning with approximately 4,500 meaningful adjectives, drawn from a list of about 18,000 terms catalogued by Gordon Allport and H. S. Odbert, into 16 primary factors (Goldberg, 1990; Schneider, 2002; Craig, 2005; McAdams, 2006). He believed these primary factors, also called source traits, best described all possible types of personalities (Craig, 2005; McAdams, 2006). Operationalized as the Sixteen Personality

Factor Questionnaire (16PF), Cattell's test is useful in forensic assessments, particularly with police force applicants and some fitness-for-duty tests (Craig, 2005).

Cloninger proposed a seven-factor personality model that amalgamated both genetic and environmental influences on personality (Snowden and Gray, 2010). His theory brings together four aspects of temperament (Novelty Seeking, Harm Avoidance, Reward Dependence, and Persistence) thought to be heritable and related to automatic emotional responses, and three aspects of character (Self-Directedness, Cooperativeness, and Self-Transcendence) believed to be determined by the environment and social learning (Snowden and Gray, 2010). He argued that three neurotransmitters (dopamine, serotonin, and norepinephrine) influenced how individuals learn to respond to novelty, danger/punishment, reward, and frustration (non-reward). He also contended that three character factors reflected differences in a person's view of himself as an autonomous member of a larger society (Snowden and Gray, 2010). While Cloninger's theory is applicable to understanding personality disorders such as Type I alcoholism (Craig, 2005) and psychopathy (Snowden and Gray, 2010), it had little influence in the forensic domain (Craig, 2005). However, some argue in favour of its utility in assessing impulsivity and empathy of violent and nonviolent offenders and sexual delinquents (Nussbaum et al, 2002).

Millon developed a personality model based on the ontogenetic development of an organism's adaptive strategies (Laher, 2007). Just as an organism learns to adapt throughout its existence to its ever-changing ecological habitat, an individual goes through a similar process of adaptation according to his altering surroundings (Davis, 1999). In a parallel process to non-human organisms, where phylogenesis secures a

genetic ‘best fit’ from one generation to another, and ontogenesis ensures adaptive learning, the personality of individuals emerges out of latent trait potentials and manifests itself through styles of perceiving, feeling, thinking, and acting (Davis, 1999). In terms of forensic applicability, Millon advanced the notion that personality disorders stemmed from an individual’s failure to employ adaptive strategies. Moreover, Millon’s typology is operationalized through the Millon Clinical Multiaxial Inventory (MCMI). “Among self-report measures, it has become the instrument of choice when evaluating for personality disorders.” (Craig, 2005, p. 53).

The Five-Factor model is often described as the most influential personality classification model (Digman, 1990; Goldberg, 1993, Jang et al., 1996, Craig, 2005). According to this theory, all personality traits can be subsumed under five basic dimensions: Openness to Experience, Conscientiousness, Extroversion, Agreeableness, and Neuroticism, also known by the acronym OCEAN (Craig, 2005). Proponents claim that this model is verifiable across instruments, populations, and cultures (Goldberg, 1981). But opponents maintain that the model is incomplete (Digman, 1997), superficial (Mischel & Shoda, 1994), and that it places more emphasis on normal personalities than disordered ones (McCrae and John, 1992; Craig, 2005). In relation to its forensic application, this model has been used in assessments of law enforcement applicants and in child custody evaluations (Craig, 2005).

The Big Five and Police Performance

The road to the Big Five began with Cattell’s theory of second order traits proposed in the 1940s and 50s (Cattell, 1996). In the mid-1950s, Ernest Tupes and Raymond Christal, two psychologists working for the US Air Force in Texas, borrowed

Cattell's scales to evaluate Air Force Academy cadets (McAdams, 2006).¹ They found that differences in human individuality could be narrowed down to five recurrent factors, which they named (1) 'Surgency', (2) 'Agreeableness', (3) 'Dependability', (4) 'Emotional Stability', and (5) 'Culture' (Tupes & Christal, 1992). They communicated their findings in a little-known technical report that the Air Force published, but very few people read (McAdams, 2006). Warren Norman, who purportedly read the report, conducted his own factor analytic study, and arrived at a similar five-factor result (McAdams, 2006). He concluded that the five dimensions might represent "an adequate taxonomy of personality attributes" (McAdams, 2006, p.154). But Norman then changed his mind and thought that five basic factors could not describe the richness of human individuality (McAdams, 2006). Despite his reassessment, his initial conclusion would survive.

The idea that one could describe human differences using only five dimensions remained dormant for several years, until Lewis Goldberg borrowed an old idea from Sir Francis Galton, known today as the lexical hypothesis (McAdams, 2006). It holds that personality descriptors are found in the lexicon (McAdams, 2006). Throughout the evolution of a language, lay speakers will have noted important individual differences over hundreds of years and encoded them in trait terms in their daily conversations (McCrae and John, 1992). The belief is that we can discover dimensions of personality by decoding these terms (McCrae and John, 1992).

Also dubbed the five-factor scheme, the Big Five model has been tested with positive results in factor analytical studies in Japanese, Chinese, German, Dutch, Tagalog

¹ Raymond Cattell had constructed 171 bipolar scales (Goldberg, 1990).

(Filipino), Modern Hebrew, Estonian, Hungarian, Polish, Russian, languages in India (Saucier and Ostendorf, 1999; McAdams, 2006), Italian (Perugini and Ercolani, 1998), Spanish (Benet-Martinez and John, 1998), and French (Plaisant et al., 2010).

The Five-Factor model (FFM) is both general and sound. Goldberg (1990) illustrated the generality of the Big Five representation within three sets of trait terms drawn from the English lexicon. In a three-study series, he first selected a sub-set of 1,431 trait descriptive adjectives grouped into 75 clusters. He then compiled a list of 479 commonly used English adjectives grouped into 133 synonym clusters with two samples of self-ratings and two samples of peer ratings, and finally refined another list of 100 synonym clusters drawn from 339 trait terms (Goldberg, 1990). He found that “trait adjectives can be viewed as blends of five major features” (Goldberg, 1990, p. 1223).

Costa and McCrae (1992) finally operationalized the FFM with the development of the NEO-PI-R. This robust instrument assesses 30 separate traits organized into five domains: Openness to experience (O), Conscientiousness (C), Extraversion (E), Agreeableness (A), and Neuroticism (N), or OCEAN. They argue that their five factors are real, omnipresent, universal, and biologically based (Costa and McCrae, 1992). First, all five factors have been validated across observers with peer/peer, peer/self, and spouse/self samples; they correspond to the trait definition of being enduring dispositions from which we can infer behaviour patterns, they are stable over long periods of time, and similarly assessed across different observers; and they have a practical use in clinical psychology (for example, O is an important predictor of vocational interests, and C is the overall predictor of job performance and academic achievement) (Costa and McCrae, 1988; Costa and McCrae, 1992). Second, all five dimensions are ever-present in many

spheres of personality research throughout the history of personality psychology, some (like E and N) more than others (like O, A, and C) (Costa and McCrae, 1992). Third, each factor has evidence of universality across gender, race, age, and culture (Costa and McCrae, 1992). Fourth, all five dimensions have shown evidence of heritability. More specifically, Plomin and McClearn reported that 41% of the variance in the O scale of a Swedish sample was attributable to additive genetic influences, Eysenck's data suggest heritability for A and C, while a large body of research indicates genetic influences on N and E (Costa and McCrae, 1992). The genetics of personality is discussed in greater detail below.

Despite achieving a level of prominence, the FFM does not offer a comprehensive explanation in all spheres of psychology. Leeson and Heaven (1999) investigated the Big Five personality correlates of social and economic attitudes. Contrary to expectations, attitudes did not significantly correlate with E, N, and O. Only A and age were found to be consistent predictors of attitudes, while conscientious individuals were less likely to endorse left-wing economic attitudes. As such, these results appear to indicate that personality factors play a limited role in predicting social attitudes (Leeson and Heaven, 1999). Roccas et al. (2002) examined the relations between traits and personal values. Whereas traits refer to individual differences between persons in characteristic thoughts, feelings and behaviours (McAdams, 2006), values are what people consider important, they are guiding principles, and they serve as norms from which to judge the behaviour of oneself and others (Roccas et al., 2002). Researchers found significant but moderate levels of positive correlations between E and achievement (.31), stimulation (.26), and hedonism values (.18), and negatively with tradition values (-.29); positive associations

between O and universalism (.47), self-direction (.48), and stimulation values (.33), and negative ones with conformity (-.34), security (-.29), and tradition (-.29) values, and with the added C (-.26) values; positive links between A and benevolence (.45), tradition (.36), and conformity (.20) values, and negatively with power (-.45) and achievement (-.41); and positive relations between C and achievement (.22) and conformity (.16) values; N hardly associated with values (Roccas et al., 2002). They conclude then that traits and values are conceptually and empirically distinct, yet psychologically related constructs; that values may exercise greater influence over attitudes and behaviours under volitional control, whereas traits may have a greater effect on tendencies and behaviours subject to little cognitive control (Roccas et al., 2002). However, since this study was limited to an Israeli student population, generalizability should be viewed with caution (Roccas et al., 2002).

The O trait of the Big Five generates the most controversy (McCrae and John, 1992). First, the problem stems from a lexical deficit in accurately describing certain traits in questionnaires – for example, no single English word means “sensitive to art and beauty”. Studies in trait adjectives in English and German have typically defined O with such items as intelligent, imaginative, and perceptive (Costa and McCrae, 1992). But researchers have found a much broader dimension to include abstract concepts such as differentiated emotions, aesthetic sensitivity, need for variety, and unconventional values. Second, this factor is often mistaken for a measure of intelligence or intellectual ability, while they are two distinct constructs (McCrae and Costa, 1985). McCrae and Costa performed a discriminant validity analysis between vocabulary scores on a standard adult intelligence (IQ) test and openness to experience. They obtained a significant, yet modest,

correlation of 0.32. This result implies that two slightly different constructs are present in human functioning of this dimension. McCrae and Costa (1997) argue that Openness is not to be understood as the cultural development that is acquired through sound education, good breeding, intellectual or any other cognitive ability. Instead, Openness “is seen structurally in the depth, scope, and permeability of consciousness, and motivationally in the need for variety and experience” (McCrae and John, 1992, p. 198).

High scorers on this factor are typically “original, imaginative, creative, complex, curious, daring, independent, analytical, untraditional, artistic, liberal, and having broad interests” (McAdams, 2006, p.178). Low scorers in O are described as “conventional, down-to-earth, uncreative, simple, incurious, non-adventurous, conforming, non-analytical, un-artistic, traditional, conservative, and having narrow interests” (McAdams, 2006, p.178). The NEO-PI-R measures six facets of O: fantasy, aesthetics, feelings, actions, ideas, and values.

The C domain of the FFM encompasses trait terms associated with hard work, self-discipline, responsibility, reliability, dutifulness, organization, and perseverance (McAdams, 2006). While C may represent a priori a classic dimension of personality, in the moral sense of pitting strong-willed individuals at one end of the spectrum and the weak-willed at the other, a few authors have offered a number of different views. Tellegen (1982) and Hogan (1986) (in McCrae and John, 1992) understand C to be inhibitory to impulsive behaviour, and Digman and Takemoto-Chock (1981) propose that their concept of Will to Achieve serves as a kind of monitoring system akin to C. McCrae and John (1992) believe the term Conscientiousness unites both aspects “because it can mean either governed by conscience or diligent and thorough” (p. 197).

Persons high in C are well organized, efficient, dependable, systematic, orderly, analytical, self-disciplined, duty-bound, responsible, punctual, persistent, steady, predictable, conventional, and thrifty (McAdams, 2006). At the other end of the spectrum, people low in C tend to be disorganized, haphazard, inefficient, careless, negligent, erratic, unpredictable, lazy, slothful, indecisive, inconsistent, undependable, extravagant, impractical, and their lives lack plans and purpose (McAdams, 2006). The NEO-PI-R rates six facets of C: competence, order, dutifulness, achievement striving, self-discipline, and deliberation.

The E – I axis is perhaps the best-known continuum of the Big Five, but it is no less straightforward. Much of the controversy surrounds the alignment of E in the Interpersonal Circumplex (IP) (McCrae and John, 1992). When combined with A, both factors define the IP's Dominance/Submissive and Cold-Hearted/Warm-Agreeable axes (McCrae and John, 1992). While Goldberg (1990) identified E with the Dominance axis, McCrae and Costa (1989) argued that a better location for E was midway between Dominance and Warmth (top right quadrant), but a bit closer to Dominance. This position, as described by McCrae and John (1992), aligns E closer to its non-interpersonal aspects, particularly positive emotionality. The “tendencies to experience positive and negative emotions are not opposites, but orthogonal dimensions that define an affective plane” (McCrae and John, 1992, p. 196). They explain that, while unorthodox, this reasoning ought to place positive emotionality at the core of E, rather than allow E to be defined narrowly in interpersonal terms such as sociability.

The E – I dimension is very broad in content. The extravert is outgoing, sociable, enthusiastic, and somewhat impulsive and heedless (McAdams, 2006). The introvert is

quiet, reserved, retiring, shy, silent, and withdrawn (McCrae and John, 1992). The NEO-PI-R captures six facets on the E – I dimension: warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotions.

The A label in the Big Five is probably unassuming considering the profound humanity it represents in human personality. It incorporates concepts of love, empathy, friendliness, cooperation, and care, but the extremes in the continuum inherit the best and the worst of lexical prose. Individuals at the high end are described as interpersonally warm, cooperative, accommodating, helpful, patient, cordial, empathic, kind, understanding, courteous, honest, ethical, selfless, and sincere (McAdams, 2006). At the other end we find persons who tend to be antagonistic, belligerent, harsh, unsympathetic, manipulative, disingenuous, scornful, crude, cruel, untrustworthy, malicious, spiteful, hostile, and hurtful (McAdams, 2006). The NEO-PI-R evaluates six facets for this domain: trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness.

The definition of the N factor in the FFM is probably the least controversial (McCrae and John, 1992). McCrae and John (1992) define it as “individual differences in the tendency to experience distress” (p.195) whereas McAdams (2006) views N as a continuum of emotional lability from stable to unstable. Regardless of the slight difference in definition, they view high scorers as persons who have a general tendency to be distressed and upset in many aspects of their lives. They are chronically worried, nervous, insecure, and have a low self-esteem. On the other hand, low scorers are calm, relaxed, even-tempered, and unflappable. The N dimension contains six facets as

measured on the NEO-PI-R: anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability.

In 1961, Tupes and Christal noted that Cattell's trait adjectives could accurately assess Air Force cadets. More recently the Big Five have been shown to be a useful predictor of police officer performance (Schneider, 2002). Cortina et al. (1992) initially examined the Big Five in the Inwald Personality Inventory (IPI), specifically designed for use in the selection of correctional officers, and in the Minnesota Multiphasic Personality Inventory (MMPI), intended to diagnose a variety of personality disorders, as predictors of police performance. Their sample consisted of state police recruits and their criterion measures were final training ratings, peer ratings, individual Grade Point Average, probationary ratings, counselling card information, and turnover. They found that neither inventory added much incremental validity over the predictive strength of Civil Service exam scores (a measure of cognitive ability), GPA, and turnover. Schneider's investigation (2002) painted a different picture, however. Using the Big Five factors in the IPI, MMPI and the California Personality Inventory (CPI) with a sample of serving police officers, he measured their GPA scores while at Academy, the State exam scores at graduation, annual supervisory ratings of performance while in service, and termination when applicable. He found that officers who were higher on C, A, and O factors, but lower in the N factor, outperformed their peers. Surprisingly, the E factor did not materialize as a significant measure of police officer performance.

In another study, Detrick et al. (2004) examined 74 members of three consecutive classes enrolled in a police academy. They measured overall performance in academics, physical tests, firearms proficiency, disciplinary actions (reprimands issued, probations

imposed, and absenteeism in hours missed), over the course of six months of training at the academy, as well as graduation. Recruits with higher scores in Values (O) and lower in Excitement-Seeking (E) performed better academically, than those who scored lower in Anxiety (N) did better in firearms, and low scorers in Deliberation (C) and Fantasy (O), but higher in Activity (E) outperformed their peers in physical training. Detrick and Chibnall (2006) pursued the research a little further with 133 newly hired police officers who completed the NEO-PI-R Form S (self-report, 240 items) as part of the pre-employment evaluation process. They then asked 100 field training officers (FTOs) to use the NEO-PI-R Form R (observer form, 240 items) to describe the “best entry-level police officer you have supervised during field training at any time in the past,” consistent with a “very good” entry level officer. The NEO-PI-R profiles of very high and very low performing entry-level officers were then compared. Their findings were generally consistent with Schneider’s. FTOs identified a profile for high performing officers comprised of low scores in N (particularly in the Angry-hostility, Depression and Vulnerability facets), high scores in C (particularly in the Achievement Striving and Discipline facets), high scores in E (particularly in the Assertiveness and Excitement-Seeking facets), and average levels of O and A. The NEO-PI-R profile comparison showed low performers to be higher in N and lower in C than high performers, who were characterized by low N scores and high C scores. Although important for overall police performance at the Academy or novice officers, neither study assessed interrogation of criminal suspects, a central function of police investigative ability.

Is a police detective's performance at interrogating criminal suspects the product of his genetic make-up or his environment (e.g. competency through field experience and training)?

There is no known heritability study comprised solely of samples of twin police interrogators, but twin research shows that all five factors are heritable (Jang et al., 1996; Loehlin et al., 1998). Using a Canadian sample of 123 monozygotic twin pairs and 127 dizygotic twin pairs, Jang et al. (1996) found heritability factors of 61% for O, 53% for E, 44% for C, and 41% for A and N. Their findings also illustrated that non-shared environmental influence made up the largest proportion of environmental variance, which ranged from 39% to 59%. Despite being consistent with results reported by Loehlin (1992), Jang et al. were intrigued by the substantial discrepancies with the results of Bergeman et al. (1993). The twin samples used by the latter had a mean age of 59 years whereas the mean age in the study by Jang et al. (1996) was 31 years. Once heritability had been re-estimated with data uncorrected for age, Jang et al. (1996) obtained results which suggested that the influence of the environment on O, A, and C increases with age. Finally, their findings also led them to believe that genetic and environmental influences were not even across all facets of a dimension, particularly for C, where individual differences in Order, Self-Discipline, and Deliberation, seemed to be mainly determined by environmental effects (Jang et al., 1996).

If the genetic contribution to individual differences falls somewhere between 28% and 59% (Loehlin, 1992; Loehlin et al., 1998), the remaining variance is split between shared and nonshared environment. The first generally refers to factors common to all members of the same family (e.g. socio-economic status, parent education, rearing

patterns), and the second alludes to all other experiences that individual children from the same family encounter independently of each other (e.g. post-natal trauma, peer groups, accidents). Loehlin et al. (1998) investigated the Big Five components' heritability factors. Their findings point to a much narrower range of genetic contribution than was previously believed, where values were: O (.56), C (.52), E (.57), A (.51), N (.58) (mean = .55), and a lopsided involvement of environmental influence in favour of nonshared environment that was assessed at .45. According to Loehlin et al. (1998), this means that individual personality differences are not shaped whatsoever by experiences common to family members.

Perhaps the personality of police officers, just like any other member of society, changes over time. Although there is evidence that personality is stable over time (McAdams, 2006), the longer the intervening period the more traits are susceptible to change (see Costa and McCrae, 1994 for a review). In fact, stability coefficients for O ranged from .83 for 6 years to .62 for 30 years; C ranged from .79 for 3 years to .46 for 18 years; E ranged from .82 for 6 years to .56 for 30 years; A ranged from .63 for 3 years to .65 for 30 years; and N ranged from .83 over a 6 year span to .56 over a 30 year period (Costa and McCrae, 1994). Given those findings about the relative instability of personality correlates over time, the source of police effectiveness at interrogating suspects of criminal activity might be found elsewhere. In addition to the genetic make-up of police interrogators, via their personality characteristics, it would thus make sense to investigate their professional competencies either through the training they receive or as a result of accumulated field experience.

DeFruyt et al. (2006) developed the Police Interview Competency Inventory (PICI) to fill a gap in the assessment of police interrogator performance. Generally speaking, Hoekstra and Van Sluijs (2003) define competencies “as constructs reflecting the interaction between an individual’s expertise and his/her behavioural repertoire that are useful to perform and excel in a job. An individual’s expertise is defined as a disposal of required or profitable knowledge, experience and insight to solve specific problems. Activation and application of this expertise are further shaped by the person’s behavioural repertoire.” (quoted in DeFruyt et al., 2006). Specifically, a competency is “the ability to perform a particular type of task effectively or respond appropriately to a particular type of problem.” (Hoekstra and Van Sluijs, 2003, p.29).

The PICI contains 66 sub-competencies divided into five higher order competencies believed to be essential to conduct police interviews. DeFruyt et al. (2006) retained five components, explaining 44.43% of the variance, which held the highest loading competencies per factor. They labelled the five dimensions as: Careful-Tenacious (C-T), Controlled-Non-Reactive (CNR), Dominant-Insisting (DI), Communication (Co), and Benevolent (Be). The respective Cronbach’s Alpha coefficients of these dimensions were: .88, .82, .83, .82, and .82.

The first component relates to characteristics such as ‘thorough’, ‘zealous’, ‘concentrated’, ‘careful’, ‘persistent’, ‘driven’, ‘determined’, and ‘industrious’. High scorers are meticulous, and approach interviews in a systematic fashion and with sustained effort. Low scorers are easily distracted and devote less time to planning. This dimension is considered equally important across interview type (suspect, victim, and witness) (DeFruyt et al., 2006).

The second component reflects characteristics like 'quiet', 'calm', 'being able to handle pressure', 'being thick-skinned', 'being able to keep one's head cool', and 'self-controlled'. Individuals with high scores are able to control their emotions, and they are not easily shaken by verbal outbursts from the suspect. Individuals with low scores are easily upset, provoked, and intimidated by interviewees. This competency is viewed very important in interviews with suspects, less so for interviewing witnesses and least important for victims' interviews (DeFruyt et al., 2006).

The third feature concerns characteristics such as 'being offensive', 'having a tongue of one's own', 'not being tongue-tied', 'being rigid', 'being talkative', 'being authoritative', 'taking action', and being 'assertive'. This style of interviewing is harsh and interrogators place a lot of pressure on the interviewee. High scorers are in command of the interview and they leave no space for the interviewee to seek refuge either cognitively or verbally. They dominate physically and verbally, intimidate, confront, and interrupt the interviewee when the latter is uncooperative. Low scorers allow the interviewee to take charge of the interview. This dimension is best suited for the interrogation of suspects where clear evidence exists or with suspects involved in organised crime (DeFruyt et al., 2006).

The fourth element deals with qualities like 'able to have feelings', 'being communicative', 'being quick to understand', 'being fluent in social contacts', 'being able to respond quickly and appropriately', 'having good intuition', 'being able to observe oneself', and 'being persuasive'. The common theme of this dimension is the ability to have interpersonal and communication skills including self-awareness and being reflective of one's own behaviour during the interview. Interviewers with high scores

easily make contact with the interviewee, approach others from their perspective, and are empathic. Those with low scores tend to have difficulty in viewing others' perspective, and are more rigid and official in their interaction. This dimension would be best suited for all interview types (DeFruyt et al., 2006).

The fifth dimension involves attributes such as 'being complaisant', 'being good-hearted', 'being tender', 'being able to act gently', 'having sympathy', 'being empathic', and 'having the ability to calm other people'. Individuals with high scores are obliging, fair, charitable, and considerate. These interrogators get confessions from suspects through a humanitarian, appealing and cooperative approach. "Sometimes colleagues and suspects perceive them as somewhat naïve" (DeFruyt et al., 2006). Low scorers are not as kind and warm-hearted, and they often have preconceived ideas about persons and facts. This competency is more important for interviews of victims, followed by witnesses, and the least important with suspect interrogations (DeFruyt et al., 2006). Additionally, a benevolent approach is seen to be a greater requisite in cases of passionate murder, but least necessary when interrogating suspects of organised crime (DeFruyt et al., 2006).

More specifically, self-estimated success with respect to the interrogation of suspects varies according to suspect type and by function of competency. Successful interrogations of suspects familiar with the law and jurisprudence are associated with a less benevolent approach; suspects in cases where clear evidence exists necessitate a more 'Careful-Tenacious', 'Controlled-Non-Reactive', and less 'Benevolent' interrogator; suspects in organised crime call for a 'Careful-Tenacious' and 'Dominant-Insisting' interviewer; and a 'Careful-Tenacious' interrogator is associated with murder suspects (DeFruyt et al., 2006).

Authors of the PICI originally developed this test based on the self-assessment of 230 experienced police investigators of their perceived success in interviews portrayed in vignettes. Some of the limitations in the investigation by DeFruyt et al. (2006) included the possibility that the PICI's 66 competencies, which were selected somewhat arbitrarily as a starting point, might not be comprehensive, and that the instrument might not generalize to other police populations. Smets (2009) further investigated the reliability and validity of the PICI by adding more items and using a larger, more varied sample. Participants included a subsample of 251 police officers with interviewing experience and another made up of 271 police recruits undergoing training at five Flemish-speaking academies in Belgium. Her findings that the nine items (from 66 to 75) did not add a substantial contribution suggest that the PICI is a stable and exhaustive instrument. She retested the internal consistency of the subscales and found Cronbach's Alpha coefficients nearly identical to the original study: 'Careful-Tenacious' (.83), 'Controlled-Non-Reactive' (.82), 'Dominant-Insisting' (.76), 'Communicative' (.77), and 'Benevolent' (.83). Based on the assumption that experience might not explain individual differences in interview competencies, Smets also found no significant mean level differences between sub-groups for 'Careful-Tenacious', 'Controlled-Non-Reactive', 'Dominant-Insisting', and 'Communicative'. Interestingly, she found a significant effect for the 'Benevolent' dimension. Experienced interviewers were less accommodating and humanitarian than non-experienced police officers.

The competencies measured by the PICI correlate well with the FFM traits as assessed by the NEO-PI-R. Positive associations are found between E (0.28) and C (0.61) and the 'Careful-Tenacious' trait; E (0.15), C (0.23) and 'Dominant-Insisting'; E (0.36),

O (0.18), and C (0.30) and ‘Communicative’; and A (0.49) with ‘Benevolent’. Negative correlations were found between N and ‘Careful-Tenacious’ (-0.27), ‘Controlled-Non-Reactive’ (-0.36), ‘Dominant-Insisting’ (-0.18), and ‘Communicative’ (-0.24); and E (-0.30) and A (-0.39) with ‘Dominant-Insisting’ (DeFruyt et al., 2006; Smets, 2009). Smets’ (2009) findings were slightly different with O and E. While the original study did not achieve a significant correlation between E and O, and ‘Benevolent’, Smets’ (2009) research did show significant associations, 0.26 & 0.23 respectively. In the case of O and ‘Controlled-Non-Reactive’, DeFruyt et al. (2006) had found a significant relationship, but Smets (2009) did not.

A common limitation to both investigations was the generalizability beyond the laboratory and into the field of real life interrogations. The present study attempted to shed some light on this aspect by asking experienced police investigators to record the outcome of real life interrogations of suspects, and to rate themselves on three measures (personality, interview competence, and communicative suspiciousness).

Communicative Suspicion

An overly suspicious police detective might misinterpret a suspect’s inoffensive statement for an attempt at deception, which would lead him to pursue aggressively a line of questioning down a path to nowhere. On the other hand, a dupable interrogator could easily accept a suspect’s alibi or version of events and discontinue a meticulous examination of all the facts at the risk of overlooking crucial evidence. In most Western democracies custodial interrogations are not permitted to last beyond 24 hours. Given this legal time constraint and corresponding pressure on police to arrive at some results before

triggering a motion of habeas corpus, it is important to assess suspiciousness levels of police interrogators.

Police interrogators are called upon to make a truth/lie judgement during each interaction with a suspect. Despite the close theoretical relationship between suspicion and detection of deception, it is beyond the scope of this paper to examine the latter subject in depth. However, it is important to distinguish three conceptual differences in human perceptions of deceptive communication. First, Levine and McCornack (1991), propose that individuals who have a “predisposition toward believing that the messages produced by others are deceptive” (p. 328) develop a generalized communicative suspicion (GCS). They further opine that GCS is an enduring and cross-situational cognitive construct (Levine and McCornack, 1991). Second, they define state suspicion as “a belief that communication within a specific setting and a particular time may be deceptive” (p. 328). Third, they conceptualize the lie-bias as “a cognitive-processing bias toward decoding all incoming messages as deceptive” (p. 328). The first two are distinct from the last one in that GCS and state suspicion involve the belief that a possibility of deception may occur, while lie-bias is a systematic bias toward decoding and storing all messages as deceptive.

Very few studies exist about the communicative suspiciousness of police officers. Masip et al. (2005) found that experienced police officers have a higher GCS than non-police (undergraduate normative sample) or novice officers. The latter two groups did not significantly differ between them in terms of gender. They surmise that experience as a police officer causes the GCS to increase over the years. On the other hand, Bond & Lee (2005), attempted to validate the GCS with two different prison populations. In the first

experiment, five of the original fourteen items were removed because the factor loading was below a cut off level of .40. The nine remaining items achieved a reliability coefficient of 0.70 that was deemed acceptable. In the second experiment, only one item was eliminated for the same reason, and the reliability of the remaining items was 0.77. Bond and Lee (2005) conclude that the GCS scale is a reliable and valid scale overall, but its predictive value with lie-bias is questionable when used with a prison population. “Perhaps the prison context, representing state suspicion, has such a strong effect on an individuals bias to perceive most communication as deceptive that dispositional suspicion and lie-bias are strongly moderated by state suspicion” (Bond and Lee, 2005, p. 1436).

But what level of GCS is deemed appropriate for detecting deception? To find the answer to this question, one must go outside the forensic population and into the intimacy of couples. McCornack & Levine (1990) researched the relational deception of couples and found that a moderate degree of suspicion increased the accuracy in detecting deception. Researchers manipulated the level of state-suspicion so that it was low, moderate, and high, and found that participants who were moderately state-suspicious accurately judged the veracity of their partners’ messages 65% of the time. This accuracy increased to 70% with high GCS individuals who were moderately suspicious as well. But the number of lie-judgements increased as the level of state-suspicion increased. In other words, individuals who are predisposed toward being suspicious (i.e. GCS) have a greater degree of accuracy at detecting deception while remaining moderately state-suspicious, but their lie-judgement also increases somewhat. At high levels of state-suspicion, high GCS persons make more lie-judgements. In addition, McCornack and

Parks (1990) found that women were consistently more accurate than men at detecting lies regardless of the level of relationship involvement.

While no study exists of the connection with GCS and truth/lie judgements of police interrogators, research on confirmation bias might provide some useful insights. Kassin et al. (2003) manipulated the level of guilt presumption with a student population acting as police interrogators, suspects, and jurors in a mock theft. When interrogators were led to believe the suspect was guilty, interviewers used more guilt-presumptive questions, selected more interrogation techniques, judged the suspect to be guilty more often, and brought more pressure to bear on the suspect, particularly in the case of innocent suspects. Neutral participants, representing a pool of potential jurors, perceived suspects as more defensive and somewhat guiltier in the guilty expectation condition. Hill et al. (2008) arrived at similar results with another student population who was asked to formulate questions to a person suspected of having cheated on a task. Even if participants were free to frame their own questions, those who had been led to believe in the guilt of the suspect opted for guilt-presumptive questions. In light of the existing research, participants in this current study were asked the following question: To what degree do you believe the outcome of your interrogation represents the ground truth?² Intuitively, interrogators who score high on the GCS scale might be prone to behave in accordance with the self-fulfilling prophecy effect.

Police Interviewing

² 'Ground truth' here means what actually happened as if the events were recorded.

The vast majority of researchers agree that interviewing victims, witnesses and suspects is a major component of criminal investigations (Baldwin, 1993; Masip et al., 2005; DeFruyt et al., 2006; Frantzen, 2006; Hill et al., 2008; Smets, 2009; Davies and Shen, 2010; Snook et al., 2010). Consequently, one would expect a great deal of scientific research in this area. Unfortunately this is not the case, as there are few published studies on police interrogators (Bull & Cherryman, 1996; DeFruyt et al., 2006; Poulin, 2010; Snook et al., 2010). The vast majority of research on interviewer-interviewee interactions has focused on the interviewee (eg. Gudjonsson's (2003) in depth investigations of suspects' characteristics such as suggestibility and compliance), while studies of the interrogator has largely been limited to descriptions of incompetence and identifying weaknesses (Baldwin, 1993; Snook et al., 2010).

However, there are exceptions. Sear & Stephenson (1997) examined the relationship between five personality characteristics of 19 male police detectives from the London Metropolitan Police – Criminal Investigation Division, and their interviewing performance. Detectives completed the Interpersonal Adjective Scales Revised (IASR-B5) adjusted to measure the Big Five, and copies of audiotape-recorded interviews they had conducted were rated by a group of peers from a local police training school. Unexpectedly, researchers found that O was negatively associated with interview skill, and the remaining four variables were not significant. Instead, all 19 detectives appeared to constitute a homogenous group high in dominance, arrogant-calculating, with a tendency to be cold-hearted.

Holmberg & Christianson (2002) investigated the personality traits of police interrogators from the point of view of convicted murderers (n = 43) and sex offenders (n

= 40) in Sweden who confessed their crimes to police. The offenders were asked to assess their experience with the police interrogator with respect to their inclination to confess or deny their crimes. When police officers interviewed these offenders with a humanitarian and respectful approach instead of one characterized by dominance, the outcome was associated with more admissions than denials.

More recently, Poulin (2010) examined the personality variables and cognitive abilities of 93 Canadian police officers attending a course on investigative interviewing. Participants completed Cattell's 16PF (5th edition) and Watson-Glaser's Critical Thinking Appraisal, and their interviewing performance was assessed through a mock interview of a confederate. The script of the case under investigation was the same for all interviews. A person considered as an expert in the field of interrogation then appraised their work based on nine criteria. Participants also completed a self-evaluation instrument designed to identify two types of interviewing approaches, either technical, characterized by the ability to execute a method of interrogation, or relational, typified by an emphasis on maintaining a human contact with the suspect.

Poulin (2010) found two orthogonal factors that contribute to interrogation techniques, a technical approach aimed at conducting an interview following a textbook set of steps, and another whose focus is about building a rapport with the suspect. Her correlational results on self-appraisal showed that the more experienced investigators are at interviewing, the more they think they can rely on technical aspects of an interrogation to be successful (0.31); and the more they perceive themselves as conscientious and respectful of rules, the more they consider themselves able to afford importance to relational aspects (0.24). When evaluated by an expert, the more investigators believe

they are conscientious, respectful of rules and creative, the less effective they appear (-0.29); but the more they are able to detect weak and strong arguments in a statement, the better they seem to be (0.24). When the data was regressed, Poulin (2010) found that when interrogators perceive themselves as more conscientious and respectful of rules, their performance was seen to be less effective by the expert ($\beta = -0.34, p < 0,01$). She explains this discordance with a possible difference of interpretation, between course candidates and the expert, on the significance of the rules to be followed during an interrogation.

St-Yves (2009) suggests that building rapport is at the heart of a good interrogation, and that methods are complementary. “Rapport can do without these techniques, and techniques without rapport are unlikely to be effective” (St-Yves, 2006, p. 92). It is possible that the expert placed more importance in rapport building as opposed to the course candidates who were attempting to put in practice a certain methodology they had been taught. Finally, interrogators’ self-assessment illustrates that the more experience they have at conducting interviews, the more cordial they perceive themselves to be, and the better they can concentrate on technical aspects of the interrogation ($\beta = 0.23, p < 0,05$), whereas the more conscientious and respectful of rules they believe they are, the more they consider themselves able to focus their attention on their relation with the suspect ($\beta = 0.28, p < 0,01$) (Poulin, 2010).

Interrogating suspects is often considered controversial no matter where it occurs in the world. Davies and Shen (2010) report the 2007 death of Liang Jiping in China that occurred after nearly 70 hours of questioning by nine investigators. Leo (1994) is a harsh critic of the methods employed by American police officers since the 1930's, and argued that in addition to being a major source of false confessions, "psychological manipulation has replaced physical coercion as the most salient, defining feature of modern police interrogation" (p.1). Clément et al. (2009) list the failure of French investigators to conduct proper interviews, resulting in the acquittal of some suspects, and the false conviction of others in the pedophilic Outreau affair in 2000. They describe how, in Belgium, interviews of witnesses under hypnosis related to convicted kidnapper and sexual abuser Marc Dutroux derailed the course of the 1996 investigation. They also outline a couple of cases of innocent individuals wrongfully convicted of murder in the Netherlands (the Putten murder case in 2002 and the Schiedam Park murder in 2003). Gudjonsson (2003) provides a detailed account of a number of cases where an improper, and at times illegal, interrogation led to a miscarriage of justice: United Kingdom (the Guilford Four, the Birmingham Six), USA (Waneta Hoyt, Joe Giarratano, Henry Lee Lucas, and John Wille), Israel (Mr. A, a 27-year-old Palestinian wrongfully accused of terrorist activities in 1992), Norway (a 17-year-old male suspected of killing Miss T, his 17-year-old cousin in 1995), and Canada, where Andrew Rose was falsely convicted both in 1991 and 1994 for the 1983 homicide of two German tourists.

Canadian police interrogators are certainly not immune to criticism. Wright and Alison (2004) found that some aspects of interviews with adult witnesses were less than ideal. Interviewers in their small sample tended to interrupt the witness more often, they

rarely employed cognitive techniques to improve memory recall, they asked many more closed than open-ended questions, and they used “yes/no” questions to seek confirmation of the account. But psychological studies of custodial interrogations that focus on the interrogator are rare in this country. Perhaps this is due to the infrequent occurrence of judicial scandals in Canada where “the problem of wrongful convictions due to false confession is rare” (St-Yves, 2009). This author knows of only two such cases. In Quebec, Simon Marshall, a mentally handicapped individual who falsely confessed to 13 counts of sexual offences he had not committed, pleaded guilty in 1997 (R. v. Marshall, Qc CA, 2005). DNA evidence eventually cleared him. Romeo Phillion falsely confessed to the 1967 murder of an off-duty fireman in Ottawa, Ontario. He was found guilty, imprisoned, and exonerated in 2009 as a result of an overlooked and undisclosed alibi (R. v. Phillion, Ont CA, 2009).³ Other individuals have been wrongly convicted in Canada, but the causes were imputed to factors unrelated to the interrogation, such as mistaken eyewitness identifications, crime laboratory errors, and police wrongdoing (St-Yves, 2009).

Reforms in investigative questioning in other countries were largely the result of numerous incidents of miscarriages of justice. The focus in this country is more on the technique employed by police interrogators. The Reid model of interrogation is by far the most widely taught and used technique in North America (King and Snook, 2009; Snook et al., 2010). Space constraints prevent a full description of this nine-step technique, but

³ Romeo Phillion is suing the Ontario Attorney General, the Ottawa Police Services Board and two former police officers for \$14M for his wrongful conviction. Retrieved from the Winnipeg Free Press, 2012-05-03 at <http://www.winnipegfreepress.com/canada/romeo-phillion-sues-for-14-million-for-wrongful-murder-conviction-in-1972-150077945.html?viewAllComments=y>

suffice it to say that this accusatory style of questioning is very controversial (see Gudjonsson, 2003 for a full review). Several researchers view this guilt presumptive technique as coercive and the potential main source of false confessions (Williamson, 1993; Kassin, 1997; Pearse and Gudjonsson, 1999; Gudjonsson, 2003; Kassin and Gudjonsson, 2004). Moreover, the effectiveness of the Reid model of questioning has never been tested empirically (King and Snook, 2009). King and Snook (2009) undertook to verify some of Leo's (1996) findings in the USA, but with a Canadian sample. Their results showed that Canadian police interrogators used 34% of the components composing the Reid technique, and about 27% of the interrogations were judged to be coercive according to Leo's definition of coerciveness (Leo, 1996). In general, the sample in King and Snook's study did not adhere strictly to this practice of questioning, but still managed to obtain full or partial confessions with more Reid-type influence tactics than those interrogations ending in no comment or denial.

Another model, implemented in the United Kingdom following the enactment in 1984 of the Police and Criminal Evidence Act (PACE), proposes an information gathering style known as PEACE. The mnemonic stands for Preparation and Planning, Engage and Explain, Account, Closure, and Evaluation (Shawyer et al., 2009). "This framework encourages an open-minded and ethical approach to interviewing suspects, and the aim at each stage is to increase the quality and the quantity of information gathered from the interviewee" (Shawyer et al., 2009). In light of the much maligned Reid model's usage in Canada and PEACE's relative benign influence on false confessions, Snook et al. (2010) argue that the latter model does not make use of oppressive or manipulative strategies, and is just as effective in obtaining confessions. In addition,

PEACE incorporates principles of cognitive interview designed to enhance the memory of cooperative interviewees. Opponents to PEACE contend that this approach is not persuasive when dealing with non-compliant suspect. But, this objection is exactly the philosophy that PEACE stands against. The goal of this model is to move away from an accusatory style of questioning geared towards obtaining a confession, to an information gathering method focused on an accurate and complete reporting of an event.

Pre and Post PACE research indicates that the confession rate remains relatively constant at about 50% (Milne and Bull, 1999). If two interrogation techniques (Reid v PEACE) produce roughly the same results, it then begs the question that other variables may be worthwhile looking at. This research attempts to accomplish just that, by examining whether personality traits of interrogators, their competencies at interrogating suspects, or the communicative suspiciousness of interviewers can shed some additional light onto a core function of law enforcement.

**Personality Profile, Level of Competency and Communicative Suspiciousness
of Canadian Police Interrogators of Criminal Suspects**

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Key words: personality, interrogation, police performance, communicative suspiciousness, PICI, IPIP, GCSS, Reid interview model, PEACE

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Introduction

The interrogation of a suspect of a criminal offence is as crucial to a prosecution's case as it is convoluted for psychologists to dissect, analyse, and explain. A confession is invaluable for police and the prosecution (Stephenson & Moston, 1994; Pearse & Gudjonsson, 1999; Gudjonsson, 2003). Sometimes it is the only investigative avenue left available to law enforcement personnel faced with solving *cold cases* where witnesses may have died, disappeared or forgotten crucial details, and forensic evidence no longer exist or has been destroyed. Mr. Justice Edson Haines of the Ontario Supreme Court said in 1972:

One completely false assumption accounts for a great deal of public misunderstanding as to the need for police interrogation. It is a fallacy created and perpetuated to a very considerable extent by mystery writers, television, and the movies. Proceeding on the false premise that whenever a crime is committed if the police would only look carefully at the crime scene they would almost always find some clue that would lead them to the offender and at the same time establish his guilt. This is pure fiction. In real life the situation is quite different. In many circumstances physical clues are entirely absent. The only approach to a possible solution is the interrogation of the suspect and others who may possess useful information. (Woods, 1990, p. 219)

Field research corroborates Justice Haines' statement. Baldwin & McConville (1980) found that forensic evidence was either unavailable or not important in 95% of cases in England, and Horvath & Meesig (1996) concluded that forensic clues were gathered in only 10% of offences investigated by police in the United States. Moreover, in criminal law, confession evidence is a prosecutor's most potent weapon so much so, that, as a legal scholar puts it, "the introduction of a confession makes the other aspects of a trial in court superfluous, and the real trial, for all practical purposes, occurs when the confession is obtained." (Cleary, 1972, p. 316). Several studies conducted in Britain in the 1980s

examined the relationship between confession evidence and the final disposition of criminal cases. Their conclusion consistently found the average strength of this relationship to be significant at about .41 ($p < .001$) (Woods, 1990).

Different interpersonal dynamics and other variables interact during an interrogation making this type of communication difficult to understand perfectly. First, an interrogator must capture within a few hours the suspect's own personality and complete bio-socioeconomic background. Although sometimes a suspect is well-known to a police officer, at others the latter may be confronted with a situation where a culprit is a complete stranger to law enforcement. Second, the criminological data of the infraction represents a whole set of features that an investigator must deal with and completely appreciate prior to and during an interrogation. In certain cases the type of forensic evidence (i.e. mitochondrial RNA) or infraction (i.e. stock market manipulation, cybercriminality, money laundering) may be difficult to appreciate or understand. Third, the interrogator's personal disposition and professional experience make up a vital component in terms of the strategy and approach employed for the interrogation. Finally, the legal circumstances encompassing the crime in question may determine the legal limits placed on an interrogator in the pursuit of obtaining admissible evidence. For example, a suspect under interrogation for a crime may have proof concerning another offence, a co-conspirator may decide to provide evidence for the prosecution or become an informant, a suspect with a mental handicap or learning disability may require special attention. These situations need to be addressed carefully, in legal terms, otherwise the admissibility of an incriminating statement may be jeopardized by a negligent interviewer.

Five possible results can derive out of a proper interrogation where false confession is not an issue. The suspect denies any allegation, admits to some incriminating facts, confesses to his guilt, the police interrogator clears him as a suspect, or the suspect remains silent during the entire interrogation. However, the first four were retained for the purpose of this study.

In light of the importance placed on the potential evidence arising out of an interrogation, it stands to reason that identifying the profiles of competent and suitable interrogators can only benefit the general interview performance of investigative units, the crime solving rates of police services, the public's trust, and the administration of justice's reputation. This research attempts to shed some light in what constitute a successful profile of a police interrogator by focusing on personality traits, competency skills, and a particular aspect of communication.

Big Five and Police Performance

The Five-Factor model (FFM), also dubbed the Big Five, is one of the most prominent personality classification models (Digman, 1990; Goldberg, 1993, Jang et al., 1996, Craig, 2005). This system holds that all personality traits can be incorporated under five basic dimensions: Openness to experience (O), Conscientiousness (C), Extroversion (E), Agreeableness (A), and Neuroticism (N), or OCEAN (Craig, 2005). The O trait refers to the creativity and artistic sensitivity aspects of an individual. High scorers tend to be original and unconventional, while low scorers are plain and uncomplicated. The C characteristic points to industriousness and devotion. Persons with high scores are effective and stable, and those with low scores are neglectful and indolent. The E variable depicts characteristics along an external reality versus inner feelings axis, and

corresponds to those who are expansive and exuberant at one end of the spectrum, and those who are taciturn and timid at the other end. The FFM's A element features concepts of humanity and compassion. Persons at the high end are inclined to be obliging and genuine, and others at the low end are contentious and evil-minded. Finally, the N factor represents the emotional lability of an individual. High scorers are distraught and tormented, and low scorers are imperturbable and tranquil.

Despite Schneider's (2002) appreciation that the Big Five is a valuable predictor of police output, the difficulty in defining and quantifying the performance of police officers prevents a further generalization. The findings from Cortina et al. (1992) indicate that the Big Five, embedded into the Inwald Personality Inventory (IPI) and in the Minnesota Multiphasic Personality Inventory (MMPI)⁴, does not add much over the predictive strength of scores in the Civil service exam, grade point average, and turnover. The IPI was found to be superior in predicting certain job-related criteria such as absences, lateness and minor derelictions (Cortina et al., 1992). Since the IPI was validated only for termination, it offers little to advance our knowledge of police personality construct in relation to more job-specific functions. Enright (2004) performed a similar enquiry with the prosocial scales of the MMPI (4 and 9) and the California Personality Inventory (CPI)⁵ (Ac, Sc, Gi, Wb, and Re), and the scales corresponding to the level of psychological distress from the MMPI (F, K, 6, 7, and 8). Data from 20

⁴ The Inwald Personality Inventory (IPI) was specifically developed for law enforcement agencies in selection of their new officers. The Minnesota Multiphasic Personality Inventory (MMPI) was designed to diagnose a variety of psychological disorders. Some items may not be entirely suitable in a selection situation (Cortina et al., 1992)

⁵ The California Personality Inventory (CPI) was developed to identify personality characteristics in normal populations, with a focus on interpersonal relations (Schneider, 2002).

female and 198 male police officers from two police departments were analysed to demonstrate the connection between pre-hire personality test scores and subsequent on the job performance. His criterion measures were motor vehicle accidents, written reprimands, suspensions from duty, termination or firings, written commendations, major commendations, and promotions. The outcome measures were used to identify two latent constructs representing negative and positive police officer performance. Although the MMPI scales and the CPI scales reliably loaded on those constructs, the prosocial latent variable showed an unexpected strong negative relationship with the positive outcome variable, and the psychological distress factor failed to show a strong relationship with either the positive or negative outcome variables.

Schneider (2002) expanded on the work of Cortina et al. (1992) by combining the Big Five components of the MMPI, IPI and CPI to a sample of 270 officers from a large police department in the Southeastern United States. His criterion measures were GPA scores while at the academy, State Examination, supervisory ratings during an eighteen-month probationary period, and termination. He found partial support for an association between police job performance with scores on O, C, A, and N. The relationship with N was inverse. Surprisingly and inconsistent with previous results, E did not predict police performance for any criteria (Schneider, 2002). Thus Schneider suggests that the E component might be too broad, and explains that examining this trait at the facet level might improve predictive validity.

The NEO-PI-R was used in two studies with favourable predictive validity. Detrick et al. (2004) investigated 62 recruits, from an initial sample size of 74, from three consecutive classes enrolled at a police academy in the St-Louis, MO, area. Their

performance criterion consisted only of training functions normally performed at a police academy (i.e. academic scores, physical tests, and firearms skills, etc.). They found partial support for academic performance (Values – O, Excitement-Seeking - E), firearms skills (Anxiety – N), and physical training (Deliberation – C, Fantasy – O, and Activity – E). Detrick and Chibnall (2006) probed 100 field training officers (FTO) and 133 recruits from six consecutive police academy classes who had graduated. FTO's were asked to complete the NEO-PI Form R designed for observers of others, and recruits completed Form S, designed for self-report, as part of their standard pre-employment evaluation process. FTO's were instructed to describe the "best entry-level police officer you have supervised during field training at any time in the past". The FTO profile was then compared to the recruit profile. In essence, low performers scored higher in N and lower in C. The relationship was reversed for high performers.

Despite favourable results in relation to general police performance while at the academy or on probation, these investigations offer little in terms of investigative ability and even less concerning the interrogation of suspects, a function seen by many researchers as vital to solving crime.

Police Interrogation and Personality

Few researchers have paid attention to the subject of personality in relation to the interrogation of suspects. The initial findings by Sear and Stephenson (1997) indicate that personality is not directly related to interviewing performance. While their sample group of 19 male detectives from the London Metropolitan Police – Criminal Investigation Division appeared to be highly homogenous, tending to have a cold, calculating and dominating approach towards others in their interviews, they found that intellectual

openness was inversely related to interviewing skills.⁶ They suggest that socialization and environmental influence may affect personality patterns of police officers. Sear and Stephenson (1997) also purport that some police officers may find interviewing sufficiently stressful to the point of acting unnaturally. Finally, the negative relationship with O might be explained with the relative low level of validity of the Interpersonal Adjective Scale-Revised compared to the Big Five as measured by the more robust NEO-PI-R. Work by Baldwin (1992) with 600 videotaped interviews confirms that officers who make the best interviewers are more open, perceptive and attentive to a suspect's account.

Holmberg and Christianson (2002) presented evidence on the personality traits of police interrogators but from the perspective of convicted Swedish murderers and sex offenders. When asked to describe their experience as they confessed their crimes to police, the offenders characterized the interviewer's approach as respectful and humane.

More recently, Poulin (2010) examined the personality variables and cognitive abilities of 93 Canadian police officers attending interview training. Her data supports the notion of two orthogonal factors at play during an interrogation; a technical approach characterized by the intent of an interviewer to conduct an interview following a textbook procedure, and the other distinguished by the willingness of the police officer to establish a rapport with the suspect. She found that being cordial, conscientious and respectful of rules towards a suspect predicts a positive outcome of interrogative performance in police officers. It should be noted, however, that this experiment was conducted with a mock interview with course candidates alternating as interviewer and interviewee.

⁶ Sear and Stephenson selected a total of 76 interviews for analyses.

Genetics and Personality

The Nature versus Nurture debate is widely known in psychological research. It seems fitting then to highlight the genetic contribution to personality development, and to raise the question whether a police interrogator's performance is more or less tied to his genetic make-up rather than his environment (acquired competency through field experience and training). Genetic research in personality may be in its infancy when compared to other methods of investigation (i.e. Galton's lexical hypothesis), but recent scientific strides cannot be overlooked.

Twin research is the bread and butter of heritability studies. But there are no known investigations involving twin police interrogators to help identify the variance explained by genetics in interviewing performance. However, a few noteworthy studies found heritability factors for all Big Five components (Loehlin, 1992; Bergerman et al., 1993; Jang et al., 1996; and Loehlin et al., 1998) ranging from 41% (for N and A) to 61% (for O) (Jang et al., 1996). The relative instability of personality traits over time may cast doubt as to their absolute certainty, but stability coefficients appear to be high enough to remark that personality traits are a valid source to explain human behaviour.⁷ On the other hand, they are not the only contributors since 45% of the variance is explained by non-shared environmental variables (Loehlin et al., 1998).⁸ Hence, it would be intuitive to

⁷ Stability coefficients for O ranged from .83 for 6 years to .62 for 30 years; C ranged from .79 for 3 years to .46 for 18 years; E ranged from .82 for 6 years to .56 for 30 years; A ranged from .63 for 3 years to .65 for 30 years; and N ranged from .83 over a 6 year span to .56 over a 30 year period (Costa and McCrae, 1994).

⁸ Shared environment generally refers to factors common to all members of the same family (e.g. socio-economic status, parent education, rearing patterns), and non-shared environment speaks of all other experiences that individual children from the same family encounter independently of each other (e.g. post-natal trauma, peer groups, accidents).

think that in addition to personality attributes, other environmental factors not accounted by shared variance complete the profile of an effective police interviewer.

Police Interview Competencies – PICI

The Police Interview Competency Inventory (PICI) was developed to assess police interrogator performance (DeFruyt et al., 2006). It contains five higher order competencies, each divided into eight sub-competencies, which explain altogether 44.43% of the variance (DeFruyt et al., 2006; Smets, 2009). The higher order competencies are identified as Careful-Tenacious (C-T), Controlled-Non-Reactive (CNR), Dominant-Insisting (DI), Communicative (Co), and Benevolent (Be).

The first dimension reflects characteristics of individuals who are methodical, attentive to detail, and are able to carry on a constant effort. The second one deals with the individual's ability to withstand pressure and the corresponding non-reactivity towards stressful situations. The third component refers to a coercive style of interview where the interviewer puts a lot of pressure on the interviewee. The fourth factor concerns the characteristics associated with good interpersonal and communication skills. The final dimension describes the kind-hearted attributes of an individual.

Some competencies have a stronger relationship with importance ratings than others depending on the type of case and suspect. Based on the ratings of 20 vignettes by 230 experienced Dutch police interrogators attending a course on interview skills, the C-T and Co dimensions were judged equally important for interviewing suspects, witnesses or victims, but researchers found the CNR, DI competencies to be significantly more important with suspects, and the Be competency to be significantly the least important for interrogating suspects (DeFruyt et al., 2006). In cases where the suspect was faced with

clear evidence or involved in organised crime, the DI competency was judged to be the most important. The Be competency was considered essential for interviewing suspects of murder committed out of passion (i.e. love triangle), but least important for the interrogation of suspects of organised crime. Interestingly, Smets (2009) found that experience did not matter in terms of competency, except for the Be factor, where senior interrogators were less accommodating and humane than junior interviewers.

The findings from DeFruyt et al. (2006) paint a different picture when interviewers rate themselves. More specifically, interviewers with high scores on the C-T, DI and Co factors considered themselves more competent in the interrogation of suspects. Higher scorers on the CNR, Co, and Be competencies perceived themselves more competent to interview victims; but those who scored high on the DI competency thought of themselves as less competent for this kind of interview. Finally, those who scored high on the C-T, Co, and Be scales perceived themselves as successful interviewers of victims. Dealing specifically with types of suspects, self-estimated success in interviewing suspects familiar with the law and jurisprudence was negatively associated with a Be approach; ‘suspects confronted with clear evidence’ was associated positively with both C-T and CNR competencies, and negatively with Be; ‘suspects involved in organised crime’ was positively associated with C-T and DI competencies; and ‘suspects of passionate murder’ was positively related to the C-T competency.

The associations between the PICI dimensions and FFM traits are substantial. DeFruyt et al. (2006) report that all FFM domains are associated with interview competencies, and all competence factors are correlated with one to four FFM characteristics (see Table 1 at Appendix A for PICI-FFM correlations). The strength of

associations varies from low to medium, and amply justifies the use of both scales for a study such as this one.

Research on police skills in the interrogation of suspects is scant and is limited to laboratory models. There is no known study beyond the Dutch samples mentioned above. This investigation attempts to expand the knowledge of interview competencies onto a Canadian law enforcement population in the context of a field experiment.

Communicative Suspicion

Despite their close theoretical relationship, generalized communicative suspicion (GCS) is not to be misconstrued with detection of deception. Police investigators often have to make true/false judgements while interacting with suspects, witnesses or even victims. Some individuals may have compelling reasons to withhold key elements of truth or to lie outright about certain events. For example, a victim may turn out to be the initial aggressor and face potential accusations, or a witness may end up being accused as a co-conspirator. Detection of deceit is more the ability to identify truthful just as well as deceitful communications than a cognitive construct. GCS, rather, concerns how the receiver of a communication processes and decodes incoming messages and other behavioural cues as suspicious (Levine and McCornack, 1991).

Levine and McCornack (1991) first advanced the notion of communicative suspicion by describing three conceptually distinct tendencies. Some individuals, they assert, have a predisposition towards the belief that others transmit deceptive messages develop a GCS, a long-lasting and cross-situational system of beliefs. The second distinction, defined as state suspicion, involves those who maintain that a communication

is deceptive in a given particular setting and time. The final notion relates to a lie-bias, a cognitive-processing inclination to decode all incoming messages as deceptive.

This construct is important for researchers of police interrogators. An exceedingly suspicious (high GCS) police detective may misread a suspect's cue as an attempt to be deceitful, and lead that investigator down a wrong investigative path. A misguided interrogator could end up wasting valuable time, energy, and develop 'tunnel vision', a leading cause of wrongful convictions in Canada and elsewhere (Report on the prevention of miscarriages of justice, 2005). Conversely, a gullible interviewer (low GCS) could concur with a suspect's version of events and, in the absence of tangible contradictory evidence, accept a false statement as a reasonably truthful one. A trusting detective would end up allowing the guilty to go free, an equally unacceptable situation.

Only a handful of researchers have scrutinized the communicative suspiciousness of police officers. Initially, findings from Masip et al. (2000) and Garrido et al. (2004) did not support the idea that police officers made their credibility judgments of a witness during an interview any sooner than the non-officer control group, leading Masip et al. (2005) to posit that officers might process information conveyed by the sender (i.e the interviewee) in a biased manner. In other words, officers overlooked truthfulness cues, searched only for deceptive indicators, and interpreted ambiguous signals as signs of deceit (Masip et al., 2005). Masip et al. (2005) explored whether on the job experience could account for a heightened GCS. Their findings supported their hypothesis. "Experience turns police officers into distrustful individuals, and this distrust eventually turns them into excellent lie detectors, but also very poor detectors of truthfulness." (Masip et al., 2005, p. 1061).

Results from Masip et al. (2005) could also be indicative of a confirmatory strategy by police officers based on their initial credibility assessment of persons they encounter. Evidence presented by Kassin et al. (2003) and Hill et al. (2008) supports the notion that individuals change their attitude when they embrace a guilt-presumptive approach to questioning. They tend to formulate beliefs, adopt strategies or develop attitudes consistent with their presumption that the person under questioning is guilty.

Interrogating Suspects in Canada

What happens during custodial interrogations is a subject of much controversy worldwide as well as in Canada. A number of miscarriages of justice have been reported from China (Davies and Shen, 2010), Europe (Clement et al., 2009, Gudjonsson, 2003), the USA (Leo, 1994), and Canada (Report on the prevention of miscarriages of justice, 2005). Advocacy groups for the defence of the wrongfully convicted have sprung up in the USA (i.e. Innocence Project) as well as in Canada (i.e. Osgoode Hall Law School Innocence Project). The lack of transparency from police has fuelled a common debate amongst those who purport that false confessions are far too common, and prompted a few countries (i.e. U.K., Australia, New Zealand, Ireland) and many American jurisdictions (Sullivan, 2004) to adopt reforms concerning recordings of interrogations of suspects.

The situation in Canada with regards to recordings of custodial interrogation is ambivalent. Three commissions of enquiry have been held with respect to wrongful conviction cases (e.g. Donald Marshall, 1989; Guy Paul Morin, 1996; and Thomas Sophonow, 2001). Each one proposed several recommendations in favour of audio-visual recording of interrogations of suspects as well as for significant witnesses (Report on the

prevention of miscarriages of justice, 2005). The inquiry looking into the Sophonow matter went so far as to recommend that non-recorded interviews “should as general rule, be inadmissible” (Report on the prevention of miscarriages of justice, 2005, p. 61). On the other hand, Supreme Court Justice Iacobucci, commenting for the majority in *R v. Oickle* (2000), acknowledged the dangers of false confessions, enumerated four reasons in favour of videotaping interviews, but stated that non-recorded interviews were not inherently suspect. This court decision remains a leading authority in matters of interrogation. But, police forces across Canada are voluntarily and slowly implementing internal videotaping policies of interrogations, perhaps to avoid having this exercise imposed by legislation or by case law (i.e. the introduction of PACE in the U.K.).

One possible explanation for the lack of scrutiny concerning custodial interrogations by parliamentarians and Supreme Court justices may be the infrequent occurrence of wrongful convictions as a direct consequence of a false confession.⁹ This author is aware of only two such scandals. In 1997, Simon Marshall pleaded guilty to 13 counts of sexual assaults and a trial judge sentenced him to five years in a penitentiary. Marshall was intellectually disabled when interrogated by Quebec City police. He was exonerated in 2005 by DNA tests performed in 2004 (*R. v. Marshall*, Qc CA, 2005). Romeo Phillion was arrested in 1972 for robbing a taxi driver. While in custody he falsely confessed to the 1967 murder of an off-duty Ottawa firefighter. Both appeals before the Ontario court of Appeal and the Supreme Court were dismissed. Phillion remained in

⁹ Other individuals have been wrongfully convicted in Canada, but the causes were attributed to mistaken eyewitness identifications, crime laboratory errors, and police misconduct (St-Yves, 2009).

prison for 31 years, refused to apply for parole, and was eventually vindicated in 2009 as a result of overlooked and undisclosed alibi evidence (*R. v. Phillion*, Ont CA, 2009).

Aside from efforts by Poulin (2010), other Canadian researchers of custodial interrogation have turned their attention instead to techniques employed by police officers. At issue here is the Reid Technique versus the PEACE model.¹⁰ Space constraint allows only for a brief description of both techniques. Reid is a nine-step interview procedure designed to break down a suspect's resistance, by minimising the seriousness of the infraction, at times maximising the nature of the evidence, and presenting alternative explanations that will eventually lead to a confession. It is currently the most influential technique in North America (St-Yves, 2009). The John E. Reid and Associates' website boasts about having trained law enforcement and security personnel from every state in the USA, each Canadian province and countries in Europe, Asia, and the Middle East.¹¹ The US Supreme Court considers this technique to be proper (Gallini, 2010). Yet, this method is hotly debated as a potential source of false confessions (Kassin and Gudjonsson, 2004; Gallini, 2010), it has never been tested empirically (King and Snook, 2009), and its use is prohibited in several European countries (Vrij, 1998). King and Snook (2009) explored the use of this method in a sample of 44 video-recorded interrogations obtained from a police organization in Atlantic Canada. In sum, 27 Reid-trained officers were involved in the interrogations. On average, interrogators used about 34% of core Reid components, coercive strategies were observed in 27% of the interrogations, and interrogations where a greater proportion of Reid components were

¹⁰ PEACE stands for Planning and Preparation, Engage and Explain, obtain an Account, Closure, and Evaluation (Bull and Soukara, 2010).

¹¹ http://www.reid.com/training_programs/interview_overview.html

observed ended significantly more often with a full confession or partial admission than with a denial or no comment, $t(42) = 3.08, p = .00$, and a large effect size, $d = 0.94$.

The British response to a series of wrongful conviction scandals was the introduction of the PEACE model of interviewing witnesses, victims and suspects. In brief, PEACE emphasizes proper preparation and planning prior to the interrogation, ensures that ground rules are explained to the suspect, allows a free narrative account for cooperative interviewees, includes cognitive strategies where necessary, promotes a courteous and professional manner of bringing the interview to an end, and encourages self and supervisory feedback and evaluations (Gudjonsson and Pearse, 2011). Snook et al., (2010) highlight three benefits of PEACE. First, this model endorses ethical interviewing and excludes coercive or manipulative strategies, thereby reducing the chance of a statement being ruled inadmissible, the possibility of disciplinary measures to the officer, and potential civil liability for conducting negligent investigations. Second, interviewers appear to be just as effective using this model as those using Reid (King and Snook, 2009; Pearse and Gudjonsson, 1996). The confession rate remained about the same, approximately 50%, in the U.K. both before and after the implementation of PEACE. Finally, this method employs principles of cognitive interviewing which improves memory recall in compliant subjects. While critics argue that PEACE is less effective in non-cooperative interviewees, the goal of this model is to obtain an account of the event rather than eliciting a confession.

St-Yves (2006) expresses the view that rapport building is one of the most important factors of effective interviewing, and stresses that the best techniques are useless without rapport. He introduces five basic rules of rapport. First, the interviewer

must keep an open mind and remain objective to promote a good first impression. Second, a trusting atmosphere needs to be established to foster rapport building. Third, an effective interrogator must not interrupt, but rather pay attention to what the interviewee says. Wright and Allison (2004) presented evidence that interviewers interrupted interviewees 0.218 times a minute (or once every 4 min 36 s). Fourth, interrogators must display humane qualities such as empathy, openness and respect, and a willingness to discover the truth more than seek a confession by every means possible, by adopting a domineering macho style. Fifth, knowing how to end an interview in a professional manner is crucial even in cases whether or not the interrogation ended in a confession or not. A good last impression may set the stage for another opportunity to confess later to the investigator or another detective.

Hypotheses

In light of the above literature, the purpose of this study is to advance understanding of the role played by personality variables, interview skill set, and communicative suspiciousness in the outcome of an interrogation with suspects. To achieve this goal, the following hypotheses are proposed:

Interrogators who obtain a positive outcome (full confession, partial admission, cleared innocent):

1. Will likely score high on four personality variables, O, C, E, and A scales, but low on N.

An interrogator must be at ease in speaking with strangers about difficult issues while maintaining his emotions under control, and to work as part of a team driven towards the pursuit of an objective. There is a growing body of American evidence that

supports the view that effective police officers in training or assigned to patrol duties are more conscientious, extrovert, open, agreeable, and tend to keep their emotions under control (Schneider, 2002; Detrick et al. 2004; Detrick and Chibnall, 2006). In Canada, Poulin (2010) found that capable interrogators (in training) were inclined to be cordial (a feature of Agreeableness), and respectful of rules (an aspect of Conscientiousness). Previous research findings also show that a sample of serving police interrogators from the Montreal area were, according to their score on the Eysenck Personality Inventory, more extrovert and a lot less labile than adult normative values (Funicelli, 2007).

2. Will tend to score high on four dimensions of the competency scale, C-T, CNR, DI and Co, but low on the Be scale.

It is only recently that researchers developed an instrument to measure the interview competencies of police officers. As a result, the literature on this subject-matter is rather limited. Nevertheless, successful interrogators of suspects are expected to be methodical and thorough, able to handle pressure and stress, demonstrate that they are clearly in charge of the interview, and socially fluent and understanding, but not so much empathic (DeFruyt et al., 2006; Smetts, 2009). More specifically, Smetts (2009) found that experienced officers tended to be less benevolent and accommodating. Generally speaking senior personnel in law enforcement often hold investigative functions. Given that a majority of participants in this research had at least a decade of policing experience, this is a likely outcome.

3. Will score moderately on the communicative suspiciousness measure.

Good interviewers need to have a balanced approach to suspiciousness to detect subtle involuntary discrepancies or cues of attempts at wilful deceit in a suspect's statement. Again, the literature on this matter is scarce. However, based on the work by McCornack and Levine (1990) on intimate relationship of partners, a moderate level of state suspicion brings about the best result in detecting deception. At extreme levels of suspicion, individuals begin to doubt their judgments.

Method

Ethics

This research was authorized by Concordia University's ethics committee (UH2009-0640). Participants who completed the experiment indicated their consent electronically on an online form. This document clearly explained the purpose of the research, the general procedure, the risks and benefits, and the conditions of participation, which included a confidentiality commitment from the experimenter. Most participants received a monetary reward of \$200.00 for completing the experiment. Participants, however, who completed the questionnaires while on duty did not receive any compensation since their respective departmental policy did not permit it.

Participants

A total of 60 serving police officers from across Canada initially volunteered for this study, but only 49 completed some or all three phases of the study. Slightly less than two thirds (63.3%, $n = 31$) were from a large national police force, and a little more than one third (36.7%, $n = 18$) came from various other large and medium size police departments. Forty-one (83.7%) were male and seven (14.3%) were female. Over sixty-one percent of participants ($n = 30$) were between 35 and 49 years of age, while about 18

percent (n = 9) were between 25 and 34, and a little more than 20 percent (n = 10) were 50 and older. In terms of years of service as a police officer, 38.8% (n = 19) had from 16 to 25 years, 36.7% (n = 18) had from 6 to 15 years, and 16.3% (n = 8) had between 26 and 35 years of service. Three (6.1%) participants had between 1 and 5 years, and another (2.0%) had over 36 years.

All participants had received some kind of training in interrogating suspects, and were assigned to units investigating serious crimes. Just over half (51%, n = 25) indicated they had followed a course in interviewing techniques lasting 1 week, 2 weeks, or more than 3 weeks in length, and less than half (49.0%, n = 24) reported having received training of less than one week. Thirty-eight (77.6%) belonged either to a sex-crime, major crime or general investigation section. These squads typically investigate homicides, sexual assaults, robberies, arsons, frauds, or large thefts. Eight (16.3%) investigated offences under federal statutes. Generally speaking, these may be related to drug importation, national security matters, immigrant smuggling, proceeds of crime, or stock market manipulation. Three (6.1%) participants were assigned to the investigation of serious traffic offences such as fatalities.

A large majority of participants had considerable experience interrogating suspects. Thirty-two (69.6%) reported having *a fair bit* or *a lot* of experience, while eleven (23.9%) described their level of experience as *a little* or *somewhat*. Five did not provide a response. Seven (15.2%) stated they had been interrogating suspects from 0 to 5 years, 16 (34.8%) 6 to 10 years, nine (19.6%) 11 to 15 years, eight (17.4%) 16 to 20 years, and five (10.9%) more than 20 years. One did not answer.

Materials

Three measuring instruments were used in this experiment. First, the Generalized Communicative Suspicion Scale (GCSS) from Levine and McCornack (1991) contains 14 Likert-type items that measure levels of suspicion. Each item consists of a short sentence, and respondents indicate their degree of agreement with each statement on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Examples of items are ‘Everyone lies, the person who says that they don’t is the biggest liar of all’, ‘People rarely tell you what they’re really thinking’, or ‘Most people are basically honest’.

The second instrument was the Police Interview Competence Inventory (PICI) (De Fruyt et al., 2006). It evaluates interviewing competencies broken down into five higher order scales named Careful-Tenacious (C-T), Controlled-Non-Reactive (CNR), Dominant-Insisting (DI), Communicative (Co), and Benevolent (Be). It is made up of 66 short statements where respondents are asked to indicate, on a scale from 1 (*hardly characteristic*) to 5 (*very characteristic*), whether these are representative of themselves. Examples are ‘Having good communication skills’, ‘Being authoritarian’, or ‘Remaining calm’.

The final questionnaire was the International Personality Item Pool (IPIP) from Goldberg et al., (2006) (See Appendix B). This free web-based tool measures personality traits, and is available in various forms that differ in the number of items (50, 100, 300). The experimenter used a 300-item version in which respondents indicate on a five-point scale, ranging from ‘*very untrue*’ to ‘*very true*’, whether each statement is typical of them. Examples of the statements are ‘I worry about things’, ‘I complete tasks successfully’, or ‘I think that all will be well’. The alpha reliability coefficients between the IPIP (100

items) and the NEO-PI are quite strong for each of the Big-Five domains: O (.90), C (.88), E (.91), A (.88), and N (.91) (<http://ipip.ori.org/newBigFive5broadTable.htm>).

This research targeted French and English speaking police officers from across Canada. Thus, the GCSS and IPIP were translated from their original English version into French. The PICI's original version was in Flemish. It had to be translated first into English and then into French. A reverse translation was conducted to ensure accuracy.

Procedure

A communication was sent electronically to chiefs of 22 major police departments in Canada, asking them to disseminate an invitation to groups of officers staffed in operational squads most likely to be in position of conducting interrogations of suspects involved in major crimes (i.e. homicide, sexual assault, robbery, fraud, arson, etc.). The message was clearly to target investigators of serious crimes. Interested officers then contacted the experimenter who provided them with a series of instructions. All subsequent communications between the experimenter and participants were through electronic messages, except when the experimenter called the participant to clarify a specific matter. The research supervisor assigned each participant with a unique ID code known only to the supervisor and the participant. Participants were instructed to visit an Internet website (surveymonkey.com), identify themselves only with their respective ID code, and complete a series of questionnaires. The study was conducted in three phases, and each participant had to complete the first one before moving to the next. The first phase consisted of a written set of instructions on the overall procedure, a consent form, a biographic data sheet, the GCSS, and the PICI. The second phase incorporated only the IPIP.

The final phase constituted the collection of data pertaining to the outcome of interrogation of suspects (dependent variable). Participants were instructed to record online, over a six-month period, the conclusion of their interrogations of suspects, and to qualify, on a five-point scale (*not at all, a little, somewhat, a lot, and absolutely*), the degree to which they believed the result of their interrogation represented the ground truth. Possible outcomes provided to participants were operationally defined as follows:

Full Confession (FC): A detailed written or oral statement in which a person admits to having committed some or all of the transgression, by acknowledging guilt for the crime which the person is being interrogated.

Partial Admission (PA): A written or oral statement in which a person admits to an incriminating fact or element concerning the transgression of the crime for which the person is being interrogated.

Denial (D): A written or oral statement in which a person denies any involvement concerning the transgression of the crime for which the person is being interrogated.

Cleared Innocent (CI): A written or oral statement in which a person satisfactorily convinces the interrogator of her non-involvement in the transgression of the crime for which the person is being interrogated.

Finally, and as per protocol, each participant was given a debriefing sheet to read.

Results

The raw data were transformed into z scores, and further examination did not reveal any outliers. Although Tabachnick and Fidell (2007) recommend a cut-off standardized z score in excess of 3.29, the limit used here was 3.00. The data from 31 participants had to be set aside for a number of reasons. The majority of them failed to

accomplish all three phases fully. More specifically, some failed to complete the biographic data sheet but completed one or two measuring instruments, while others partially finished one of the measuring instrument. One participant used a non-existent ID number, therefore casting doubt on the data he or she supplied. Another entered his or her data with the ID number of a fellow participant.

The overall participation rate was 48.3%. Of the remaining 29 participants who completed all three phases, data from 162 interrogations was obtained ($M = 5.59$, $S.D. = 3.77$). From those interrogations, 32.1% ($n = 52$) were full confessions (FC), 31.5% ($n = 51$) were partial admissions (PA), 29.6% ($n = 48$) were denials (D), and 6.8% ($n = 11$) were cleared innocent (CI). When subsumed into positive (full confessions, partial admissions, and cleared innocent) and negative outcome (denials), participants were successful in 70.4% of their interrogations ($n = 114$), and unsuccessful 29.6% ($n = 48$) of the time.

Participants were classified under one of three categories of outcome, Denial (D), Partial Admission (PA), and Full Confession (FC). The Cleared Innocent category was dropped from analysis since too few participants obtained this result the majority of the time, and therefore could not constitute a distinct group. Because participants obtained at least two different outcomes in terms of interrogation, and to ensure that participants would only be members of one group, they were classified according to the preponderance of outcome in their interrogations. If a participant had mostly full confessions, he or she was classified into the FC group, etc. (see Appendix C for more details). Participants were then coded into SPSS according to their respective groups, such that $FC = 0$, $PA = 1$, and $D = 2$.

The dependent variables FC, PA, D, and CI can be construed here as continuous variables. It is often the case that during the course of an interrogation a suspect categorically denies his involvement in a crime at the onset, only to admit to certain facts later, and finally to confess to his guilt. This gradual movement from one stage to another is also conceivable for persons who deny altogether their participation in a crime at first, and are judged by the interrogator to have had an innocent role in the matter.

Hypotheses 1, 2 and 3

It was initially proposed that successful interrogators would have a higher score in certain scales, namely O, C, E, A, but lower in N. A similar proposition was made in relation to competency measures. Participants who obtained a positive outcome in their interrogations were expected to score high in C-T, CNR, DI and Co, but low on the Be scale. Finally, it was predicted that those same interrogators would have moderate scores on the communicative suspicion scale. None of the hypotheses received support. As shown in Table 2, and in terms of personality domains, the FC group scored the highest in N, the PA group scored the highest for O, E and A, while the D group were the most conscientious. As for interview competency, the FC participants scored the highest in DI category, and those in the PA group obtained the highest scores in the other four competencies, C-T, CNR, Co, and Be. Finally, the interrogators in the FC group scored the highest in regards to communicative suspiciousness.

Table 2 Descriptive Scores for the FC, PA, and D Groups for all Variables

Variables	Full Confession		Partial Admission		Denial	
	Mean	SD	Mean	SD	Mean	SD
O	194.80	22.95	214.70	23.22	194.67	20.13
C	225.10	27.92	242.30	28.50	243.00	17.90
E	205.90	31.44	222.30	24.79	201.67	41.34
A	195.60	26.23	213.40	16.17	209.56	17.42
N	162.70	33.23	132.60	20.72	140.78	27.34
C-T	32.90	2.92	33.80	5.25	32.00	3.24
CNR	31.20	4.42	34.70	3.47	31.89	4.46
DI	30.70	3.71	29.90	5.30	30.22	5.78
Co	31.80	3.71	34.40	3.57	30.33	4.03
Be	31.60	5.54	33.00	4.00	30.11	2.98
GCS	63.40	12.54	57.30	11.53	55.67	13.24

As indicated in Table 3, none of the variables correlated significantly with the outcome groups. However, GCS was significantly associated with C and Co; C-T has a strong association with C and N; CNR is significantly related to C, A, and N; DI is similarly associated with C and E; Co relates strongly with O, C, E, and N; and finally Be correlates significantly with C and A.

Table 3 Correlations among all variables (DV and IV)

	GCS	C-T	CNR	DI	Co	Be	O	C	E	A	N
C-T	-.232										
CNR	-.120	.617**									
DI	-.224	.319*	.149								
Co	-.316*	.650**	.657**	.507**							
Be	-.136	.435**	.487**	.086	.597**						
O	-.247	.173	.270	.067	.494**	.287					
C	-.420**	.652**	.587**	.349*	.465**	.333*	.198				
E	-.340	.233	.309	.491**	.564**	.208	.548**	.507**			
A	-.265	.299	.410*	-.076	.323	.527**	.244	.401**	.132		
N	.197	-.331*	-.639**	-.199	-.373*	-.153	-.201	-.605**	-.485**	-.376*	
Groups	-.258	-.090	.077	-.043	-.138	-.133	.010	.288	-.044	.277	-.314

*p < .05

**p < .01

As a whole, the entire set of variables did not constitute a significant predictor of outcome. Table 4 displays the partial & part correlations between the variables, the means & SD, the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), the semi-partial correlations (sr^2), R^2 , and adjusted R^2 .

Table 4 Standard Multiple Regression - All Variables.

Variables	Outcome (DV)	Partial	Part	Means	SD	B	β	sr^2
C-T	-.090	-.353	-.285	32.93	3.89	-.117	-.551	.081
CNR	.077	.129	.098	32.62	4.28	.043	.224	.009
DI	-.043	.064	.049	30.28	4.81	.015	.086	.002
Co	-.138	-.064	-.048	32.24	4.00	-.025	-.121	.002
Be	-.133	-.188	-.144	31.62	4.35	-.050	-.263	.021
O	.010	.105	.080	201.62	23.49	.005	.149	.006
C	.288	.276	.216	236.59	25.99	.017	.543	.047
E	-.044	-.243	-.188	210.24	32.95	-.010	-.413	.035
A	.277	.203	.156	206.07	21.31	.011	.289	.024
N	-.314	.009	.007	145.52	29.64	.000	.018	.000
GCS	-.258	-.225	-.174	58.90	12.44	-.017	-.260	.030

Intercept = 1.022, $R^2 = .433$, Adjusted $R^2 = .066$, $R = .658$ (n.s.)

Two targeted multiple regressions were then performed in order to explore associations found in the literature. Previous findings support the notions that C and E traits in police officers are predictors of high performance, and that N is an indicator of low achievement (Schneider, 2002, Detrick et al., 2004, Detrick and Chibnall, 2006, and Poulin, 2010 in the case of C only). Furthermore, C-T correlates strongly with C and N, while GCS is intuitively important to consider. The first regression was between Conscientiousness, Extroversion, GCS, and Careful-Tenacious as independent variables, and Outcome as the dependent variable. The second was with the same variables but with the addition of N.

Table 5 displays the partial & part correlations between the variables C-T, C and E, and GCS, the means & SD, the unstandardized regression coefficients (B) and

intercept, the standardized regression coefficients (β), the semi-partial correlations (sr^2), R^2 , and adjusted R^2 . R for regression was significantly different from zero, $F(4, 24) = 3.17, p < .05$, with R^2 at .35 and 95% confidence limits from 0.11355 to 0.57845. The adjusted R^2 value indicates that 24% of the variance in the outcome of an interrogation is accounted by two of an interviewer's personality traits, conscientiousness and extroversion, his degree of suspiciousness, and how careful and tenacious an interviewer is as he interrogates a suspect, but only conscientiousness and careful-tenacious were significant predictors. It should be noted, however, that the C trait was positively inclined while the other three variables were all headed in a negative direction. Two regression coefficients differed significantly from zero, 95% confidence limits were calculated. The confidence limits for conscientiousness were 0.006 to 0.040, and those of Careful-Tenacious were -0.219 to -0.025.

Table 5 Standard Multiple Regression of Personality (Conscientiousness and Extroversion), Competency (Careful-Tenacious), and Suspiciousness Variables on Interrogation Outcome

Variables	Outcome (DV)	Partial	Part	Means	SD	B	β	sr^2
C-T	-.090	-.469	-.429	32.93	3.89	-.122*	-.577	.18
C	.288	.499	.465	236.59	25.99	.023**	.732	.22
E	-.044	-.368	-.321	210.24	32.95	-.010	-.386	.10
GCS	-.258	-.255	-.213	58.90	12.44	-.017	-.255	.05

Intercept =
2.517

$R^2 = .35$
Adjusted $R^2 = .24$
 $R = .59^*$

* $p < .05$

** $p < .01$

A careful analysis of the Beta weights (standardized coefficients) and the zero-order correlations reveals the presence of suppressor variables amongst the Extroversion, GCS, or Careful-Tenacious variables. Generally speaking, these types of variables improve the predictive validity of other variables when introduced in the regression equation (Tabachnick & Fidell, 2007). In this case Extroversion, GCS, or Careful-Tenacious tend to increase the predictive ability of Conscientiousness and the overall Adjusted R Square. The Beta weights for C improve from .288 ($p = .129$) to .427 ($p = .056$) once E is entered, to .819 ($p = .003$) when C-T is factored in the regression, and slightly decreases to .732 ($p = .010$) as GCS is introduced. The Adjusted R^2 augments gradually from .049 to .068 to .216 to .237 respectively as each variable is inserted into the regression.

The second standard regression concerns the insertion of Neuroticism along with Conscientiousness, Extroversion, GCS, and Careful-Tenacious as independent variables, and Outcome as the dependent variable. Table 6 illustrates the partial & part correlations, the means & SD, the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), the semi-partial correlations (sr^2), R^2 , and adjusted R^2 . R for regression was significantly different from zero, $F(5, 23) = 2.79$, $p < .05$, with R^2 at .38 and 95% confidence limits from 0.15604 to 0.59996. The adjusted R^2 value indicates that 24% of the variance in the outcome of an interrogation is explained by a different pair of an interviewer's personality traits, conscientiousness and neuroticism, his degree of suspiciousness, and how careful and tenacious an interviewer is during an interrogation of a suspect. While only Careful-Tenacious and Extroversion were significant predictors, all variables headed in a negative direction with the exception

of Conscientiousness. Two regression coefficients differed significantly from zero, 95% confidence limits were calculated. The confidence limits for Careful-Tenacious were -0.211 to -0.014, and those of Extroversion were -0.021 to 0.000.

A similar analysis was conducted to detect the presence of a suppressor effect from N, C, and GCS. The Beta values for Careful-Tenacious increase from -.090 ($p = .642$) to -.233 ($p = .239$) when Neuroticism is introduced, while those of Extroversion hoist from -.025 ($p = .904$) to -.272 ($p = .205$). In addition, the insertion of Conscientiousness inflates the Beta weights of Careful-Tenacious from -.233 ($p = .239$) to -.508 ($p = .037$), and those of Extroversion from -.272 ($p = .205$) to -.371 ($p = .082$). Finally, as GCS is introduced, the Beta weights for Extroversion increase from -.371 ($p = .082$) to -.438 ($p = .042$). The Adjusted R^2 increases from -.029 to -.068 to .108 to .201 to .242 as each variable in factored into the regression.

Table 6 Standard Multiple Regression of Personality (Conscientiousness, Extroversion, and Neuroticism), Competency (Careful-Tenacious), and Suspiciousness Variables on Interrogation Outcome

Variables	Outcome (DV)	Partial	Part	Means	SD	B	β	sr^2
C-T	-.090	-.443	-.390	32.93	3.89	-.113*	-.533	.15
C	.288	.273	.224	236.59	25.99	.015	.476	.05
E	-.044	-.409	-.354	210.24	32.95	-.011*	-.438	.13
GCS	-.258	-.303	-.251	58.90	12.44	-.020	-.308	.06
N	-.314	-.221	-.179	145.52	29.64	-.008	-.298	.03
Intercept =								
5.816								
						$R^2 = .38$		
						Adjusted $R^2 = .24$		
						$R = .62^*$		

* $p < .05$

Finally, three ANCOVAs were performed to test the difference of the conscientiousness variable amongst three outcome groups, FC, PA, and D. In the first ANCOVA the covariates were Extroversion and Careful-Tenacious. Conscientiousness levels differed significantly across outcome groups, $F(2, 24) = 5.17, p = .014$. Post-hoc tests were performed using the Bonferroni correction for multiple comparisons. Results indicated that interrogators who obtained denials were more conscientious ($M = 249.49, SEM = 5.25$) than those whose interviews concluded with a full confession ($M = 226.63, SEM = 4.91$), ($MD = -22.85, SEM = 7.14, p = .012$). The pairwise comparison between those whose interrogations ended in a partial admission and those who obtained a full confession was not significant. Two similar ANCOVAs were performed with the added covariate Neuroticism in one and Training in Interrogation in the other. Neither ANCOVAs reached a significant level, Neuroticism ($p = .086$) and Training in Interrogation ($p = .274$).

Communicative Suspiciousness and Degree of Truth

Successful participants were anticipated to end up with moderate scores on the GCS scale. As mentioned above this hypothesis was not supported. A more detailed examination of each group (except the CI group) was carried out, such that the Degree of Truth was coded on a continuum as follows: NAA = 0, Alit = 1, Some = 2, Alot = 3, and Absol = 4. The means of each participant was then calculated, and a standard regression was performed with GCS and that mean as predictors of outcome. Although the regression failed to reach a significant level ($p = .104$), and no difference between the FC, PA and D groups were noteworthy, it is pertinent to comment that communicative suspiciousness ($p = .105$) and the degree of belief ($p = .101$) that an interrogator develops

of his interview as a representation of the ground truth have somewhat of a predictive ability, albeit marginally insignificant in this case.

Table 7 illustrates the partial & part correlations, the means & SD, the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), the semi-partial correlations (sr^2), R^2 , and adjusted R^2 . R for regression was not significantly different from zero, $F(2, 26) = 2.48$, $p = .104$, with R^2 at .16 and 95% confidence limits from -0.05905 to 0.37905. The adjusted R^2 value indicates that 10% of the variance in the outcome of an interrogation is explained by an interrogator's degree of communicative suspiciousness and his level of belief that his interview is the ground truth. The regression coefficients failed to differ significantly from zero, 95% confidence limits were calculated. The confidence limits for Mean Ground Truth were -0.006 to 0.001, and those of GCS were -0.045 to 0.005.

Table 7 Standard Multiple Regression of Mean Ground Truth and Suspiciousness on Interrogation Outcome

Variables	Outcome (DV)	Partial	Part	Means	SD	B	β	sr^2
MeanGT	-.263	-.316	-.305	2.07	8.78	-.003	-.309	.09
GCS	-.258	-.313	-.302	58.90	12.44	-.020	-.305	.06

Intercept
= 2.754

Adjusted $R^2 = .16$
 $R^2 = .40$
 $R = .10$

$p = .104$

The overall distribution of interrogations by outcome and Degree of Truth is shown below in Table 8. The breakdown of the Degree of Truth of each participant appears at Table 11.

Table 8
Distribution of Interrogations – Degree of Truth by Outcome

	Not at all	A little	Somewhat	A lot	Absolutely	Total
Full Confession			3	27	22	52
Partial Admission		7	22	21	1	51
Denial	31	12	3	2		48
Cleared Innocent				4	7	11
Total	31	19	28	54	30	162

At a glance, the data indicates a few tendencies. Irrespective of their group membership, interrogators appear to believe the interviewee strongly when he provides a full confession or when he is discounted as a suspect, moderately when the suspect admits partially to certain facts, and hardly when the suspect denies any criminal involvement.

Discussion

The objective of this research was to determine the extent to which variables inherent to an interviewer predict the outcome of an interrogation with a suspect. Although none of the hypotheses were supported, the findings of this study partially support some elements. The first hypothesis anticipated that successful interrogators would be highly Open, Conscientious, Extroverted, and Agreeable, but would score low on the Neuroticism scale. The second hypothesis held that effective interviewers would have a skill set favouring high scores in areas of industriousness and attention to detail, self-control, assertiveness, and intuition, but low scores in being good-natured and having empathy. The final hypothesis expected participants to be moderately suspicious.

Three variables emerged significantly as having some predictive ability, the Conscientiousness and Extroversion personality traits, and the Careful-Tenacious

competency. On one hand, Conscientiousness and Careful-Tenacious formed a pair, and on the other, Extroversion and Careful-Tenacious constituted another doublet. Together, the first pair along with Extroversion and Communicative suspiciousness accounted for nearly a quarter (.24) of the variance in predicting group (i.e. FC, PA, or D) membership. The second pair accounted for the same amount of variance when combined with Conscientiousness, Neuroticism, and Communicative suspiciousness. These two combinations make up two different profiles.

In the first case, police officers who persevere, are well organised, and have an analytical approach, but who are less outgoing, suspicious, and approach their interrogations with less zeal and drive, are more likely to be good candidates as an interrogator. This finding is theoretically coherent with previous research with police performance in general (Schneider, 2002) and with interrogators (Poulin, 2010). However, this study also found that interrogators who obtained more denials were significantly more conscientious than their counterparts in the Full Confession group. This finding may appear counter-intuitive at first. After all, conscientious individuals are also characterized by being self-disciplined, conventional, predictable, and mindful of abiding by the rules. A possible explanation comes from Poulin (2010), in that interrogators who methodically follow an interview technique step-by-step may not be as efficient as those who adopt an approach focused on building a 'favourable' relationship with the suspect. An interrogator who assumes a style that is too rigid may interfere with the free flow necessary to build a rapport.

The Beta weights for the Extroversion trait were also headed in a negative direction. Effective interviewers need to be sociable and outgoing to engage with a

stranger who may not be willing to reciprocate. On the other hand, they need not be over enthusiastic, impulsive and heedless, as that might jeopardize the interrogation in two ways. First, it may impede the foundation of rapport building with a suspect, or, assuming that a relationship has already been established, thoughtless comments from an imprudent interrogator might 'turn-off' the suspect and destroy that good rapport. Second, admissible confessions in Canada need to be free and voluntary without fear of prejudice and promises. These legal notions are not black and white and conjecture is often crucial. The suspect, during the interview, might misconstrue a misplaced word, sentence or a misguided gesture by an impulsive interrogator eager to seek a confession, and suddenly decide to be uncooperative. At trial, the trier of fact might interpret differently an interrogator's utterance or certain behaviour and render the statement inadmissible as evidence.

That the Careful-Tenacious variable was statistically significant in this experiment is not surprising. Competencies consistent with 'thoroughness' and 'ability to concentrate', describe Careful-Tenacious interrogators. Correlations between this competency and Conscientiousness vary from .53 (Smetts, 2009) to .61 (DeFruyt et al., 2006). The negative direction is, however, more difficult to explain. Aside from being a possible suppressor, it could be that skills such as 'working zealously', and 'being driven' turn into an obsession or single-mindedness, and become more of a hindrance than a benefit in the context of human interactions. More importantly, an overenthusiastic interrogator may fail to pay attention to other aspects of the interrogation, or worse, might lose his objectivity.

The second profile features the same variables in addition to Neuroticism. Not surprisingly the Beta weights for this trait headed in a negative direction in this experiment. This is consistent with the existing literature. Despite not reaching significant status in the regression and its role as a suppressor, Neuroticism correlates strongly and negatively with the C-T competency as well as the C and E trait. Interrogators need to keep their cool and emotions in check while under stress.

GCS did not materialize as a salient feature in this study. Very little research exists with communicative suspiciousness in the context of custodial interrogation. The purpose of including this variable in this research was to provide some insights in the literature on false confession. A combination of this communicative characteristic and a skill for the desire to reach a goal with relentless zeal might have disastrous consequences for vulnerable suspects susceptible to falsely confess to crimes they did not commit. Highly suspicious interviewers who approach interrogations with too much ardour may not constitute the ideal asset for an investigative unit or police service. Further research is necessary to grasp the full understanding of this communicative component.

Finally, the Degree of Truth attributed to each interrogation warrants a remark. Critics of confession evidence often argue that police interrogators develop guilt presumptive behaviours (Kassin et al., 2003). The data in Table 8 is illustrative of the self-fulfilling prophecy of interrogators. Irrespective of group membership, interrogators who obtained a full confession believed in, 94% of the time, that the suspect's statement represented 'A lot' or 'Absolutely' the ground truth. Those who obtained a partial admission believed in, 84% of their interviews, that the suspect's statement depicted 'Somewhat' or 'A lot' the actual events. When the suspect denied any involvement, the

interrogators believed 90% of the time that their statement did not ('Not at all') or hardly ('A little') portrayed the real situation. In the few cases where interrogators discounted the interviewee as the suspect of the crime they were investigating the proportion of belief ('A lot' and 'Absolutely') is 100%. In other words, interrogators believed the suspect if the declaration fit their pre-established theory.

Notwithstanding, viewed as a whole, the C and E (or N) personality dimensions, C-T skill set, and GCS feature all combine to explain nearly a quarter (0.237 or 0.242) of the variance. This is a considerable amount given the number of extraneous factors that stand to have a bearing on the outcome of a typical interrogation. With respect to the interviewee, these include the age, sex, race, mental state, criminal history, and personality (St-Yves & Landry, 2004). The type of crime and its severity is also a source of influence (St-Yves & Landry, 2004; Deslauriers-Varin, 2006). Finally, environmental factors play an important role such as the exercise of constitutional rights (right to counsel and silence) (St-Yves & Landry, 2004; Deslauriers-Varin, 2006), and the legislation in place ('three strikes and you're out' in the USA; in Canada, organised crime sentences to be served consecutively under Bill C-24, mandatory minimum sentences contained in the omnibus crime Bill C-10).

A larger sample may have yielded better results. The number of participants in this study that completed all three phases was 29. This represents a power of .40 to detect a small significant correlation. With three times the sample size, the power to detect a medium correlation would have more than doubled at .84. Additionally, the effect size of a field experiment might have been improved by selecting a more homogenous group of successful participants and another just as unsuccessful. Alternatively, a laboratory design

where variables extrinsic to the interrogator (i.e. crime under investigation and the suspect) are held constant could have been an option.

This study does not come without its limitations. A total of 22 police agencies throughout Canada were solicited originally. Participants came from nine police organizations. Despite being broad in scope, the small number of participants from each agency prevents this research to generalize further. Canada is a large country known for both its cultural and linguistic diversity, neither of which was controlled in this experiment. Additionally, departmental policies related to training and human resources were not examined. Training varies from one province to another, and selection practices in staffing serious crime units probably differ as well from one police organization to another. This researcher's recruitment efforts were dependant on the accuracy of police organizations to assign their 'best' investigators to investigative units most likely to interrogate suspects involved in serious crimes. Perhaps there were well-suited interrogators who were performing a police function in a non-investigative capacity that were not captured in this experiment. Notwithstanding these methodological concerns, this study underscores the importance that personality variables of an interrogator, his skill level, and degree of communicative suspiciousness have some bearing on the outcome of an interrogation. More research is definitely necessary in this direction given the crucial weight of confession evidence.

Conclusion

The idea of using psychometric tests to select the best person for the position is not new. What researchers of police interrogations need to do though is to direct their attention to the idea of developing a personality matrix, a sort of instrument for police to

look for matching characteristics between a suspect and the most suited interrogator at hand. Much effort has already been deployed towards our understanding of personality traits of suspects susceptible to have an impact on the outcome of a custodial interrogation, namely compliance and suggestibility. More is welcomed, naturally. What is currently inadequate is the quantity of research concerning police interrogators. This requires willingness from the scientific community and full cooperation from police organizations. With more insights on what constitute an effective interrogator, a model could be developed with a view to match a suspect to an appropriate interviewer according to personality traits. Building rapport with a suspect is highly important (St-Yves, 2009), but often noted to be deficient amongst interrogators (Baldwin, 1993).

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<http://ipip.ori.org/newBigFive5broadTable.htm>

http://www.reid.com/training_programs/interview_overview.html

APPENDIX A

Table 1 PICI-FFM Correlates

Competency/trait	O	C	E	A	N
Careful-tenacious	0.02	0.61 ^{***}	0.28 ^{***}	0.01	-0.27 ^{***}
Controlled-non-reactive	0.24 ^{***}	0.22 ^{**}	0.15 [*]	0.32 ^{***}	-0.36 ^{***}
Dominant-insisting	0.05	0.23 ^{**}	-0.30 ^{***}	-0.39 ^{***}	-0.18 [*]
Communicative	0.18 [*]	0.30 ^{***}	0.36 ^{***}	-0.01	-0.24 ^{***}
Benevolent	0.10	0.07	0.04	0.49 ^{***}	0.07

Note: O, openness to experience; C, conscientiousness; E, extraversion; A, agreeableness; N, neuroticism

^{*}*p* < 0.05.

^{**}*p* < 0.01.

^{***}*p* < 0.001.

Source: DeFruyt et al. (2006)

The correlates between the PICI and FFM traits as assessed by the NEO-PI are general from low to medium strength. Positive significant associations are found between C (0.61) and E (0.28) and the ‘Careful-tenacious’ trait; O (0.24), C (0.22), E (0.15), A (0.32), and ‘Controlled-non-reactive’; C (0.23) and ‘Dominant-insisting’; O (0.18), C (0.30), E (0.36) and ‘Communicative’; and A (0.49) with ‘Benevolent’.

Three variables correlated significantly but in a negative direction: E (-0.30) and A (-0.39) and ‘Dominant-insisting’; N and ‘Careful-tenacious’ (-0.27), ‘Controlled-non-reactive’ (-0.36), ‘Dominant-insisting’ (-0.18), and ‘Communicative’ (-0.24) (DeFruyt et al., 2006; Smets, 2009). Smets’ (2009) findings were slightly different with O and E. While the original study did not achieve a significant correlation between E and O, and ‘Benevolent’, Smets’ (2009) research arrived at significant associations, 0.26 & 0.23

respectively. In the case of O and 'Controlled-non-reactive', DeFruyt et al. (2006) had found a significant relationship, but Smets (2009) did not.

APPENDIX B

NEO-PI-R v. I.P.I.P.

For budgetary reasons, the researcher in this experiment used the International Personality Item Pool (IPIP) instead of the NEO-PI-R to assess the Big Five. The IPIP is certainly not as well known as its famous counterpart. The impetus for the creation of another psychometric instrument similar to the NEO-PI-R was largely the “perception that the science of personality assessment [had] progressed at a dismally slow pace since the first personality inventories were developed over 75 years ago” (Goldberg 1999, p.7). Goldberg et al. (2006) mainly attributed the dawdling rate of progress to a lack of consensus for a scientifically reasonable taxonomic structure to describe human personality traits, caused in part by Mischel’s writings, and to pecuniary interests of commercial inventory publishers.

Goldberg teamed up with a group of Dutch scientists to break out of test publishers’ policy and practice straightjackets, to build a universally accessible personality instrument for the Big Five (Goldberg et al., 2006). The Dutch team of Hofstee, de Raad, and Hendriks initially developed a pool of more than 1,000 Dutch items, and Goldberg translated them into English (Lim and Ployhart, 2006). Some 750 items were selected from the first pool, to which Goldberg added 500 new English items for a second pool of 1,252 English items (Lim and Ployhart, 2006). Today that number has grown to 2,413 items (Socha et al., 2010). The IPIP has since been translated in whole or in part in Arabic, Bulgarian, Chinese, Croatian, Danish, Dutch, Estonian, Finnish, French, German, Hebrew, Hmong, Hungarian, Italian, Korean, Latvian, Norwegian,

Persian, Polish, Romanian, Russian, Serbian, Slovene, Spanish, Swedish, Turkish, Vietnamese, and Welsh (Goldberg et al., 2006).

The format of IPIP items is similar to that of its better-known cousin. Goldberg et al. (2006) opined that single trait adjectives without an explicit context were too abstract, and therefore could generate different interpretations among different respondents. IPIP items are short verbal phrases, instead of single trait adjectives (e.g. talkative, punctual) found in most modern personality inventories (e.g. 16PF; Gough and Heilbrun's Adjective Check List, 1981) (Lim and Ployhart, 2006). But, they are more compact than other items (e.g. NEO-FFI). For example, one item from the NEO-FFI to measure conscientiousness is "I have a clear set of goals and work toward them in an orderly fashion", while a comparable item from the IPIP would be "I know how to get things done".

The IPIP has distinct advantages and some drawbacks. First, it is free. Second, it is in the public domain on the Web. Its convenience is unquestionable for researchers and commercial enterprises. Third, its evolution is an international collaborative effort. The intention is to draw in as many personality scientists as possible towards many diverse criterion settings for faster progress in personality measurement. Fourth, the items are non-copyrighted, which affords great flexibility. Fifth, the website currently contains the complete repository of IPIP items, scoring keys, single and multiple construct scales, comparison tables, two sample questionnaires, and consideration of several other issues such as validity, administrative and scoring instructions and contact names for translated versions of IPIP.

On the other hand, Goldberg et al. (2006), denote several weaknesses in the IPIP. First, there are no norms available on the website. Goldberg's position is that norms are misleading since a researcher's sample is not necessarily a representative subset of those norms. It could be argued that normative data would be a useful reference provided that the population sample is well identified. Second, the IPIP website does not include validity indices. The creators of the site do not believe this kind of data is necessary, despite other research that suggests otherwise (Johnson, 2005). This is a contentious issue with the IPIP website and a warning to that effect is clearly indicated in the 'Validity Indices' page. Third, the instructions for assembling items into a scale are deficient and could be vastly improved.¹² Fourth, Goldberg et al., (2006) warn of a possible construct confound between IPIP scales and their parent scales. For example, the Dominance (Do) scale from the CPI and its IPIP proxy may represent two different, yet similar, psychological constructs. While the Do scale was designed to minimize any connection with the self-aggrandizing theme, with items like "Every citizen should take the time to find out about national affairs, even if it means giving up some personal pleasures", and to maximize a connection with pro-social motives and behaviour, the IPIP proxy for Do contains items such as "Impose my will on others" that appear to be more aligned with the self-aggrandizing variant of dominance.

Finally, on a more positive note, correlations between the IPIP and other major scales such as the NEO-PI-R, NEO-FFI, and 16PF are impressive. Lim and Ployhart, (2006) report alpha coefficients for IPIP scales of .80 versus .75 for the NEO, and an average correlation of .73 between corresponding scales of both sets, with corrected

¹² A web link is available for some educational assistance:
<http://www.personal.psu.edu/%7Ej5j/IPIP/>

correlations for unreliability of .94. They found similar results against the 16PF, (.80 vs. .74) in favour of the IPIP, and an average correlation of .66 between corresponding scales in the two sets, with corrected correlations for unreliability of .86. The IPIP also fared positively against Cloninger's Temperament and Character Inventory (TCI) and Gough's California Personality Inventory. The alpha coefficients between IPIP and the NEO facet scales as well as the IPIP short (50 items) and long (100 items) questionnaires are reproduced in Table 9.

Table 9

	Mean Alpha Coefficients Between IPIP and the NEO					
	Facet Scales		50 Items		100 Items	
	α	Corrected (2)	α	Corrected (2)	α	Corrected (2)
O1 - O6	0.74	0.93	0.84	0.80	0.90	0.77
C1 - C6	0.70	0.93	0.79	0.90	0.88	0.84
E1 - E6	0.75	0.96	0.87	0.84	0.91	0.84
A1 - A6	0.69	0.92	0.82	0.66	0.88	0.65
N1 - N6	0.75	0.94	0.86	0.84	0.91	0.81

Note 1. O = Openness to Experience; C = Conscientiousness; E = Extraversion;
A = Agreeableness; N = Neuroticism

Note 2. Correlations are corrected for unreliability; these may be underestimates, given that the reliabilities of the factor markers were assumed to be the same as those of their corresponding IPIP scales.

Source: <http://iPIP.ori.org/>

APPENDIX C

Group Classification

Three interviewers (135, 213, 224) who obtained an equal number of partial admissions and full confessions results were categorised in either group, two (213, 224) in the PA, and one (135) in the FC to even out the groups. In cases where participants obtained the same number of denials as admissions or confessions, the experimenter assigned them to a group so as to counter-balance all three groups. As a result, one participant (101) who had two confessions and two denials was assigned to the FC group because he also had one admission. Four interrogators (104, 113, 122, 202) had an equal number of denials and admissions. Three (104, 113, 202) were assigned to the PA group, and one (122) to the D group. More specifically, participant 104 was assigned to the PA group because he had also cleared innocent a suspect, participant 113 had a full confession, and participant 202 for counterbalancing reasons. One interviewer (222) had one denial and cleared innocent a suspect. He was assigned to the D group to counter-balance the number of participants with the PA group. In the end, the D group was made up of nine participants, and the PA and FC groups comprised of 10 each. Table 10 represents the occurrence and type of outcome for each interrogator by group.

Table 10
Outcome Results per Group/Participant

Participant	Denial Group (n = 9)				Total
	D	PA	FC	CI	
206	5	4	0	2	11
215	4	1	1	0	6
217	4	2	3	2	11
222	1	0	0	1	2
109	5	4	2	3	14
122	1	1	0	0	2
123	1	0	0	0	1
126	2	1	0	1	4
137	4	3	2	0	9
sub-total	27	16	8	9	60
Participant	Partial Admission Group (n = 10)				Total
	D	PA	FC	CI	
201	0	1	0	0	1
202	2	2	0	0	4
213	2	4	4	0	10
219	1	2	1	0	4
224	0	1	1	0	2
104	1	1	0	1	3
124	1	2	1	0	4
125	1	4	2	1	8
113	4	4	1	0	9
131	0	1	0	0	1
sub-total	12	22	10	2	46
Participant	Full Confession Group (n = 10)				Total
	D	PA	FC	CI	
203	2	1	4	0	7
209	1	2	3	0	6
210	3	4	6	0	13
211	0	3	7	0	10
221	0	0	3	0	3
101	2	1	2	0	5
115	0	0	1	0	1
116	0	0	2	0	2
135	0	2	2	0	4
139	1	0	4	0	5
sub-total	9	13	34	0	56
Total	48	51	52	11	162

Table 11
Degree of Truth Results per Group/Participant

Participant	Denial Group (n = 9)					Total
	Not at all	A little	Somewhat	A lot	Absolutely	
206	3	2	1	4	1	11
215	2	2	1	1	0	6
217	3	0	2	2	4	11
222	0	0	0	2	0	2
109	3	2	2	5	2	14
122	1	0	0	1	0	2
123	1	0	0	0	0	1
126	1	1	0	1	1	4
137	1	3	1	2	2	9
sub-total	15	10	7	18	10	60
Partial Admission Group (n = 10)						
201	0	0	1	0	0	1
202	1	1	0	2	0	4
213	1	0	5	1	3	10
219	1	0	0	2	1	4
224	0	0	1	0	1	2
104	1	1	0	1	0	3
124	1	0	2	1	0	4
125	0	1	1	3	3	8
113	3	3	2	1	0	9
131	0	1	0	0	0	1
sub-total	8	7	12	11	8	46
Full Confession Group (n = 10)						
203	2	0	1	3	1	7
209	1	0	2	3	0	6
210	3	1	2	4	3	13
211	0	0	3	3	4	10
221	0	0	0	3	0	3
101	1	1	0	2	1	5
115	0	0	1	0	0	1
116	0	0	0	0	2	2
135	0	0	0	4	0	4
139	1	0	0	3	1	5
sub-total	8	2	9	25	12	56
Total	31	19	28	54	30	162