

A Review of the Validity of Criminal Profiling

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ABSTRACT

The use of criminal profiling has increased steadily over the last 30 years despite a lack of compelling empirical evidence that it “works”. In this article, we review the extant evidence to gauge the validity of criminal profiling. First, we review “user-satisfaction” surveys that indicate that many police officers find profiling to be a useful investigative tool. Second, we review the literature examining the predictive validity of profiler predictions about the characteristics of unknown offenders and conclude that profilers are no more accurate than the average person. We contend that police officers should exercise caution if they decide to use a profiler’s predictions in an investigation.

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Criminal profiling (CP) involves predicting the personality, behavioural, and demographic characteristics of criminals based on crime scene information (Douglas, Ressler, Burgess, & Hartman, 1986). Although the scope of CP practice now goes beyond this original definition (Alison, 2005), predicting offender characteristics remains the primary goal of CP because additional profiler advice (e.g., interview strategies) is dependent on what type of person the profiler believes committed the crime (Muller, 2000). The frequency with which CP has been used in criminal investigations has grown steadily over the past 30 years (Egger, 1999; Woodworth & Porter, 1999; Witkin, 1996; Pinizotto, 1984) in the absence of a well-defined framework and compelling empirical support for CP. Given that CP is now commonplace within police investigations world-wide (Homant & Kennedy, 1998) and that the effect of CP on criminal investigations is unknown, it is imperative that police officers are informed about whether this particular investigative technique “works”. The goal of the current paper is to provide a brief overview of CP and then review the available evidence on its validity.

The 5 W’s of Profiling

What is profiling? When CP was originally popularized by the FBI (see Egger, 1999, for a review of the history of CP), a profile consisted primarily of a list of characteristics (e.g., age, gender, and previous convictions) that were likely to be possessed by the unknown offender. Profiles were apparently then used to narrow the list of potential suspects, focus investigations, and determine interview strategies (Douglas & Burgess, 1986; Douglas et al., 1986). In recent years, the potential forms that a profile can take and the ways in which it can be used within a criminal investigation have expanded. Profilers now make suggestions about prioritizing resources, managing cases and the media, geoprofiling, and statement analysis (Ainsworth, 2001). Regardless of these developments, the predictions about the unknown offender’s characteristics remains the central focus of CP because all other aspects of

CP advice are dependent on the type of person that the profiler believes committed the crime.

The exact process that profilers use to make their predictions is shaped by their training. The process generally involves three stages (Ault & Reese, 1980; Copson, 1995; Douglas et al., 1986). First, police officers collect crime scene data (e.g., photos and details of the offence) and forward it to a profiler. Second, the profiler examines this data. Third, the profiler provides predictions to the police about the type of individual that is likely to have committed the crime in question, along with interview and investigative strategies to be used during the course of the investigation. Two different approaches to making predictions from crime scene data have been defined: clinical and statistical. Clinically-oriented profilers appear to draw on their psychological training; knowledge and experience with criminal behaviour; and/or intuition to predict what type of person the offender is likely to be (Ault & Reese, 1980; Douglas & Munn, 1992; Hazelwood & Douglas, 1980). Statistically-oriented profilers base their predictions on statistical analysis (ranging from simple descriptive statistics to multivariate analysis) of data on offenders who have previously committed crimes that are similar to the crime being investigated (e.g., Canter, 2004; Canter, 1994; Jackson, van den Eshof, & de Kleuver, 1997). Other profilers use some combination of the two approaches (for example, see Leyton, 1983). Despite attempts to explain the approaches to profiling, precisely how the different types of profilers produce predictions remains ambiguous (Gudjonsson & Copson, 1997).

Who are profilers? There is no consensus about who is qualified to be a profiler. Some have maintained that a profiler is anyone who labels themselves a profiler and has engaged in the practice of constructing a profile for a criminal investigation (Kocsis, 2004), whereas others have argued that only individuals who have considerable investigative experience should be profilers (Hazelwood, Ressler, Depue, & Douglas, 1995). Further, although some attempts have been made to regulate and accredit profilers (e.g., International Criminal Investigative Analysis Fellowship, National Crime Faculty), there remains no regulatory body that provides a professional CP designation (see Kocsis, 2004). Thus, individuals with widely varying levels of experience and education can present themselves to police agencies as profilers. Bearing in mind the problems with defining profilers, there are two major sub-groups of people who currently provide profiles: a) the FBI-trained profilers and b) individuals with degrees in the mental health, forensic, and behavioural professions. Although the majority of CP is being conducted by these types of individuals, others, such as experienced police officers and academics, are also engaged in the practice of CP (Egger,

1999).

When is profiling used? The use of profilers has typically been limited to certain low-volume crimes such as stranger sexual assaults and homicides that appear to lack motive (Blau, 1994; Copson, 1995; Geberth, 1996). Profiles are seen to be most useful in these types of cases because offenders are more likely to exhibit evidence of psychopathology (Geberth, 1996), thus, allowing profilers to assume that offenders behave consistently. The profiler might be consulted at various stages of the investigation. Some profilers generally claim to be most useful if called upon from the beginning of an investigation (Annon, 1995; Douglas et al., 1986), because their predictions can help guide the direction of the investigation. There is some evidence that police forces heed that suggestion because the results from a survey by Copson (1995) showed that in 46% of the 184 cases where profilers were used in the United Kingdom, the profiler was called in at the outset or early stage of the investigation. Sometimes, however, profilers may be called in at a later stage when other investigative tools and initial leads have been exhausted. Indeed, Copson found that 34% of profilers were called in after the direction of inquiry was established and 17% were called in after initial leads were exhausted.

Where is profiling used? The majority of CP occurs in the United States through the FBI, with the most recent estimates indicating that CP is being applied in approximately 1000 cases per year (Witkin, 1996). CP is also being heavily used in the United Kingdom, with 242 instances of CP advice being reported between 1981 and 1994 (Copson, 1995). Although exact estimates of CP prevalence in other countries are not directly available, its use has been documented in Sweden, Finland, New Zealand, South Africa, Germany, Canada, Ireland, Malaysia, Russia, Zimbabwe, and The Netherlands (see Åsgard, 1998; Boon & Davies, 1993; Case Analysis Unit, 1998; Clark, 2002; Jackson, Herbrink, & van Koppen, 1997;).

Why is profiling used? Police officers probably use CP for various reasons. Survey results indicate that some officers believe profiles are operationally useful (Copson, 1995; Haines, 2006; Pinizzotto, 1984) because the predictions reinforce their own opinions, further their understanding of the offender, and focus the investigation (Copson, 1995; Haines, 2006). It appears that many officers believe that CP "works", but holding this belief is not a prerequisite for using CP. Some reasons to explain why people seem to believe that CP works have been provided previously (Snook, Cullen, Bennell, Taylor, & Gendreau, 2006). Snook et al. argued that some officers might use CP simply because they have "nothing to lose" by finding out what a profiler's advice can offer to an investigation. An analogous situation, in our opinion, is 'knocking on wood'

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to ward off bad fortune (see Vyse, 1997). Furthermore, when a case is unsolved, it is an officer's duty to use all available investigative techniques. Failure to fulfill their duty could bring criticism from colleagues, victims, and the general public. The exact reasons why CP is used, however, remain unclear.

In the next two sections, we will review the few studies that have attempted to measure the validity of CP. The two types of validity used to evaluate CP in this article are: face validity and predictive validity (see Cronbach, 1960). Face validity is achieved if those who use profiling believe that profiling is reliable, valid, and useful (i.e., whether police officers think profiling "works"). Predictive validity is established by direct empirical examinations of profilers' predictive abilities (i.e. whether profilers can accurately predict offender characteristics).

What do police officers believe about profiling?

A handful of surveys that have assessed the attitudes towards CP among various police agencies have reported mixed results. Results from FBI profiler John Douglas' survey (see Pinizzotto, 1984) indicated that solving the case was attributed to CP advice in 46% of 192 instances where FBI profiling was requested. When survey respondents were asked to indicate the specific type of assistance provided by CP, 77% responded that it 'focused the investigation properly', whereas only 17% of respondents felt that CP 'identified suspect(s)' and 20% responded that it 'helped locate possible suspect(s).'

A survey of six police officers in The Netherlands regarding the utility of the advice given by their FBI trained profiler revealed that one officer reported that the advice was 'not very useful', three reported that it was 'reasonably useful', and two officers reported that the advice was 'very useful' (Jackson, van Koppen, & Herbrink, 1993). Paradoxically, they all reported that profiles were not successful in helping solve their investigation. Some of the reasons given for the lack of success were that the profile fit the criminal on some characteristics but not on others, did not provide any new investigative information, was too general, or was not very practical.

Copson (1995) found that 83% of the 184 police officers claimed that criminal profiles were operationally useful and 92% reported that they would seek CP advice again, but only 3% stated that the profile helped them identify the criminal, 14% said it helped them solve the case, and 16% reported that the CP advice helped them open new lines of inquiry. Sixty-one percent of police officers reported that CP is operationally useful because it furthered an understanding of the case and 53% indicated that the expert opinion reassured their own previously held judgments.

A more recent survey was completed using 51 police officers from across Canada (Haines, 2006). Sixty-six per-

cent of the 29 officers who had previously used CP indicated that it made a significant contribution to their investigation, 74% indicated that the profiler made accurate predictions, and 69% indicated that the profile(s) they received was operationally useful. Approximately 94% of the 51 officers agreed that profilers help solve cases, 88% agreed that CP is a valuable investigative tool, 84% agreed that profilers further investigators' understanding of a case, and 52% indicated that the profiler's advice was important in opening new lines of inquiry. Sixty percent of the officers, however, indicated that the profiler's advice was not important in solving the case, 41% of officers disagreed with the statement that profilers use sound scientific techniques, and 67% reported that profiling should not be used in court as evidence. Overall, Haines' concluded that many officers appear to have generally accepted the utility and validity of CP.

In short, the results from these "user-satisfaction" surveys suggest that police officers believe that profiles can provide some investigative assistance; however, there appears to be some skepticism among police officers about whether profilers can identify offenders and solve cases and whether their predictions should be used as evidence in court.

Do profilers make accurate predictions?

It is our contention that credibility should only be given to profilers when they can demonstrate that their predictive accuracy rates significantly exceed chance levels and that their predictive abilities go beyond that of non-profiler groups. We acknowledge that profilers provide services in addition to predictions about offender characteristics. However, this is arguably the most frequently requested type of advice and the most important task that they perform because the profiler's belief about the type of person who committed the crime influences all subsequent types of profiling advice (e.g., interview strategies). Relative to the high level of usage of CP worldwide, there have been only five studies that have attempted to test profilers' predictive ability scientifically. The results of these studies, which compared profilers' predictive accuracy to various non-profiler groups, are presented below.

The Pinizzotto and Finkel (1990) study: Pinizzotto and Finkel (1990) asked a sample of six profilers, six police detectives, six clinical psychologists, and six undergraduate students to provide a profile for both a homicide and a sexual assault case. The profilers performed no better than all other groups on the homicide case, and they outperformed only the student group on the sexual assault case. Profilers achieved absolute accuracy scores of 5.3 out of 15 for the homicide case (i.e., 35%) and 10 out of 15 for the sexual assault case (67%), for a total score across both cases of 15.3 out of a possible 30 points (i.e., 51% accuracy rate).

Overall, the profilers achieved low levels of both relative and absolute accuracy.

The Kocsis, Irwin, Hayes, and Nunn (2000) study: Kocsis and his colleagues compared the ability of five professional profilers, 41 police officers, 30 psychologists, 31 students, and 20 psychics on their ability to correctly predict 30 criminal characteristics [six physical characteristics (e.g., gender, age, and height), seven cognitive processes (e.g., degree of planning and previous violent fantasies), seven offense behaviours (e.g., hiding identity from victim and modifying the crime scene after the offense), and 10 social histories and habits (e.g., employment history and marital status)] using crime scene data from a previously solved homicide (a 30-item multiple choice questionnaire was used in this study and in all of Kocsis' subsequent studies, with some minor modifications depending on the nature of the crime). The profilers got less than half of the 30 multiple choice questions correct (46% accuracy rate). There were no overall significant differences in accuracy found between the groups. For example, the profilers, on average, made only one and a quarter more correct responses than the psychologists (13.80 vs. 12.57). This study does not provide strong support for the predictive ability of criminal profilers.

The Kocsis, Hayes, & Irwin (2002) study: This study was designed to assess the impact of experience in police investigations on the accuracy of profiler predictions. Kocsis and his colleagues provided a sample of 31 senior detectives, 12 homicide detectives, 19 trainee detectives, 50 police recruits, and 31 undergraduate chemistry students with the details of a previously solved homicide case and asked them to complete a 30-item multiple-choice questionnaire. Fifty untrained police students served as a control group; they were provided with no case details and asked to predict who they thought a typical homicide would be. There were no differences in accuracy between any of the police groups on the overall measure or any of the four submeasures measures that Kocsis et al. (2002) used, with the exception that the police recruits were more accurate than the homicide detectives when predicting the offender's social history and habits. Interestingly, the chemistry students were also more accurate than the homicide detectives on that submeasure, as well as the overall measure. Kocsis concluded that level of investigative experience may not be associated with predictive accuracy.

The Kocsis (2004) study: In this study, Kocsis provided three professional profilers, 12 fire investigators, 13 detectives, and 21 chemistry students with the details of an arson case and asked them to complete a 33-item multiple-choice questionnaire. A control group comprised of 47 community college students also completed the questionnaire without receiving the case details. This group was in-

structed to predict the type of person they believed a typical arsonist would be. On the overall measure, profilers produced an absolute accuracy score of 23 out of 33 (70%), which was significantly higher than the police detectives and the controls. The profilers were also more accurate than the controls on the physical features submeasure and more accurate than the police detectives and controls on the social history and habits submeasure. Importantly, however, the profilers did no better than any of the comparison groups on the cognitive processes and offense behaviours submeasures. To summarize, only five of the twenty comparisons of profilers predictive ability to non-profilers predictive ability in this study favoured the profilers. This study, hence, did not provide compelling support for the predictive abilities of profilers.

The Kocsis, Middledorp, and Try (2005) study: This study compared the predictive accuracy of 5 profilers against 5 chemistry students. Two control groups that were tested in previous studies conducted by Kocsis and his colleagues were also used for comparison purposes in this study. The profilers and chemistry students were presented with previously solved homicide and arson cases and instructed to complete a 33-item multiple choice questionnaire. The profilers' absolute accuracy scores were 46% for the homicide case and 62% for the arson case. On the homicide case, the profilers were significantly more accurate than the chemistry students (28%) and the controls (31%). On the arson case, the profilers were not significantly more accurate than the chemistry students (51%) but were significantly more accurate than the controls (50%). This study provided meagre support for profilers' predictive abilities.

Meta-analysis of predictive validity: In an attempt to quantitatively summarize the previous findings, Snook, Eastwood, Gendreau, Goggin, and Cullen (2006) performed a meta-analysis of the results from the previous studies.¹ A meta-analysis is a method of statistically combining results from a research area to produce an overall measure of an effect or outcome (i.e. profilers' overall predictive ability). Snook et al. converted comparisons between profiler and non-profiler groups into Pearson's correlation coefficients (r) and averaged the r values. Positive r values suggest that profilers outperform non-profiler groups and negative r values indicate the reverse. Snook and his colleagues also calculated the respective 95% confidence intervals (CI) around the r values as a way to measure the precision of the estimate regarding the profilers'

¹ The Kocsis et al. (2002) study was not included in the meta-analysis because it did not include a profiler group, and the Kocsis et al. (2005) study was not included because it was published after the meta-analysis was completed.

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predictive ability. For example, obtaining a *CI* of $-.2$ to $.2$ means that there is a 95% chance that the obtained *r* value falls within this range. Wider *CI*s indicate greater uncertainty, and for the purposes of that study, *CI*s with a width greater than $.10$ were defined as imprecise. Also, a *CI* that spans 0 indicates an inconclusive effect, as the true result could favour either the profiler or non-profiler group. An *r* value between $.1$ and $.3$ signifies a small effect, an *r* value between $.3$ and $.5$ signifies a moderate effect, and an *r* value greater than $.5$ signifies a large effect (Cohen, 1988).

Snook et al.'s meta-analysis produced an average Pearson's *r* of $.24$ ($SD = .47$), with an associated *CI* = $-.03$ to $.51$ (width was $.54$; spanned 0). The *r* values also favoured the profiler group across four submeasures of predictive accuracy, however all *r* values were less than $.24$, all *CI*s were wider than $.10$, and one *CI* contained 0. Given the low *r* values and wide *CI*s produced by this meta-analysis, it was concluded that there is no compelling evidence for the idea that profilers possess a level of predictive ability beyond various non-profiler groups.

CAVEATS

Before drawing any conclusions regarding the validity of criminal profiling, a number of caveats and potential limitations of the CP research reviewed in this article need to be highlighted. Regarding face validity, results produced from surveys are dependent on how the questions are framed and the available response options. An obvious example where this is a concern is in the Jackson et al. (1993) study. Jackson et al. found that five of the six police officers they surveyed found CP advice to be useful, but two of the three available responses indicated that CP had some degree of 'usefulness', thereby increasing the likelihood that respondents would indicate that CP was useful. A detailed critique of the surveys reviewed above is beyond the scope of this article, but it should be noted that there are certain limitations to the conclusions drawn from self-report research such as surveys (Clark-Carter, 1997).

There are numerous methodological concerns with the studies that have assessed the predictive validity of criminal profilers. For brevity, some of the specific concerns with CP predictive validity studies are highlighted here. First, the number of profilers who have participated has been miniscule compared to the number of individuals currently providing CP services around the world. Indeed, there is some indication that profilers have been very reluctant to subject their abilities to experimental scrutiny (Kocsis et al., 2000). The results can thus not be generalized to all profilers world-wide because, as we know, there is significant variation in the education, experience, and approach of different profilers. Secondly, some of the questions contained in the questionnaire were ambiguous and subjective,

with answers dependent on the view of the respondent. A related problem is how the accuracy of the answers to some questions, such as an offender's fantasies or feelings of remorse, was measured, given the subjective nature of assessing and confirming these factors. In addition, Kocsis and his colleagues' studies also lacked realism because the experiments were set up so that no interaction could take place between participants or between participants and the researchers, although real-world CP is generally seen as an interactive process (Douglas & Burgess, 1986), and furthermore the participants' predictions were limited to the response options provided on the multiple-choice questionnaire. Using multiple choice measures is also a concern because a certain level of accuracy can be expected by chance, regardless of predictive ability. These and other methodological and conceptual limitations with the studies conducted by Kocsis and his colleagues have been discussed previously (see Bennell, Jones, Taylor, & Snook, 2006, for a comprehensive critique). Given these concerns, conclusions reached in the majority of the studies included in this review should be treated with caution until further replications using improved designs are performed.

CONCLUSION

We acknowledge that the current services offered by profilers to police agencies go beyond the original purpose of providing a list of characteristics about the unknown offender. We, however, were concerned with whether profilers possess a sufficient level of predictive accuracy. The limited evidence suggests that police officers think that CP is a useful investigative tool, but the empirical evidence does not support the scientific validity of profilers' predictive abilities. Given the fact that the impact of CP advice on criminal investigations is unknown, police officers should use caution if they choose to request the services of a profiler until properly conducted scientific research demonstrates that criminal characteristics can be predicted from crime scene evidence.

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