
FULL-LENGTH ARTICLES

Taking Stock of Accuracy in Criminal Profiling: The Theoretical Quandary for Investigative Psychology

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ABSTRACT. This article presents an overview of quasi-experimental research that has investigated the performance of individuals engaged in the forensic psychological technique commonly known as criminal profiling. Recent conflict in the literature is examined with the result that, consistent with earlier findings, empirical evidence is found to support the capabilities of expert profilers in decisively surpassing nonprofilers in accurately predicting the characteristics of an unknown offender. Observations are offered in conclusion on the broader ramifications of

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these findings for competing theoretical approaches to criminal profiling.

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Arguably one of the most fascinating forensic psychological techniques in the context of criminal investigation is the concept commonly referred to as *criminal profiling*. The fundamental concept of criminal profiling is the analysis of crime behaviors to yield some understanding of the probable offender(s). Media and popular culture depictions often portray profiling as a robust, virtually infallible, technique. The scientific realities underpinning profiling, however, are far from infallible (Kocsis, 2006a). As a consequence, a disparity has evolved between the scientifically grounded research that can confidently support the practice of criminal profiling and the expectations of users of the technique.

In this context, it is perhaps ironic that empirical evidence is only now beginning to emerge which offers an answer to what is possibly the most fundamental question concerning criminal profiling. Does criminal profiling actually work? That is, can suitable “*experts*” operating under the colloquially understood title of “*profiler*” accurately predict attributes of an unknown offender at a level superior to what others may accomplish? The purpose of this article is to evaluate research related to this issue and to offer a tentative but empirically grounded answer to this fundamental question.

THE PROBLEMS IN MEASURING “ACCURACY”

Before discussing various quasi-experimental studies that have been conducted for the purpose of assessing accuracy in criminal profiling, it is perhaps worthwhile considering why the research has developed along its present path. This is an important issue, as reliably measuring the construct of accuracy in terms of criminal profiles is not as simple a task as may initially appear. Given the basic premise of profiling as predicting the probable attributes of an unknown offender, the seemingly most logical method would be to simply collect a sample of profiles and then compare the accuracy of the predictions with the attributes of the offender when apprehended. Setting aside all logistical obstacles such as collecting

a random sample of profiles and/or attaining the cooperation of profilers for the purpose of having their work assessed (see Britton, 1997), significant methodological hurdles emerge that principally involve two core issues: problems in reliably measuring predictions and problems in ensuring some methodologically sound uniformity in the data.

Starting with the problem of measuring profile predictions, a number of studies have highlighted the potential for perceptual distortions to occur when individuals attempt to interpret the accuracy of criminal profiles (e.g. Alison, Smith, & Morgan, 2003; Kocsis, 2006a). Exacerbating this is the nature and potential ambiguity of the information typically contained in profiles. Despite earnest efforts in developing interrater reliability protocols, disputes (particularly from, for example, the author of a profile), are likely to arise concerning the intended meaning of a prediction, particularly if its coding reflects poorly on the profiler. This is a significant issue, as statements contained in any given profile may not be as amenable to valid examination as researchers may expect when seeking to measure their accuracy. Simply put, the content of a profile as a whole may convey a more representative depiction of an offender than the individual sum of its parts. A simple hypothetical illustration of this can be seen from the statement "*the offender is likely to be an older individual.*" Examiners are confronted with the subjective task of determining what age can be conceptualized as "older." This task, however, is further complicated by other information contained in the profile that may have some bearing on this earlier statement, for example, the offender also possessing an extensive work and/or marital history. These items of information may individually convey potentially different meanings in contrast to whether they were evaluated in conjunction with each other.

Beyond the problems in measuring predictions, even more difficulties arise when seeking to establish a satisfactory degree of uniformity in the evaluated data (i.e., the profiles). In simple terms, not all profiles are the same, and not all crimes that are profiled are the same. The terms *criminal profile* and *profiling* are colloquial expressions to describe the forensic behavioral assessment of a crime to assist in its investigation. While the basic notion is to offer some insight/prediction about the unknown offender, inherent to this aim are a host of potentially differing tasks (e.g. linking different crimes, predicting risk, identifying investigative tactics). As a consequence, careful examination is required to assess to what extent the potential measurements of profiles are merely artifacts of the particular case, the particular profile, and the particular issues inherent to the crime, on which profilers have attempted to formulate their views. When these

issues are critically examined in the context of measuring the accuracy of profiles, a quagmire of potentially confounding issues arise.

For example, it needs to be questioned what precisely constitutes a criminal profile. That is, in terms of measurement, at what juncture does a criminal profile begin or end? In many instances, initial information/predictions concerning a matter may involve verbal communication followed by some type of written report (Kocsis, 2006a). Thereafter, some type of addendum or further issue may be raised requiring a response. Alternatively, a reassessment of the original case may be undertaken based upon new information (DeNevi & Campbell, 2004). Taking these various factors into account for the purpose of quantifiably measuring profiles becomes methodologically hazardous. For example, does the profile begin at the written or at the verbal stage? Assuming a reassessment is made or some additional advice is generated, are these conceptualized as the same profile or separate? It also needs to be questioned how profiles generated by different authors about the same matter may be treated in any hypothetical study.

After examining such logistical parameters, what bearing the "type" of crime (e.g., murder versus arson) and even the "particular" crime (e.g., the circumstances of one murder case perhaps compared to another) may have on predictions requires consideration. The capricious nature of crimes suggests that some are more amenable to resolution than others. Consequently, the measurement of criminal profiles will be confronted with the challenge of whether some cases were harder or easier than others in terms of making accurate predictions about the offender and whether some types of crime are more amenable than others to profiling. For example, is the construction of a criminal profile in respect of a crime series harder than a single offense or vice-versa? Alternatively, are the perpetrators of homicides harder to profile than the perpetrators of rapes or arsons?

Similarly, the amount and types of information contained in profiles are also relevant. As previously mentioned, the information contained in profiles can vary significantly depending upon a host of factors, the most obvious of which is the information actually sought. As there is no accepted consensus concerning the information to be contained in a criminal profile, problems invariably emerge regarding disparate forms of information in a given profile. Assuming that some procedure is adopted to compensate for such disparities by establishing a set of common denominators, this too raises a problem of potentially disfavoring profiles that contain more information or favoring profiles that contain less information. Finally, consideration as to whether we accord any qualitative distinction to differing items of information contained in profiles is

relevant. For example, do some items bear a greater value than others? A profile of a crime involving a single offense may not contain any information in terms of assessing an offender's likely area of residence in comparison to a profile of a serial crime. How can the disparity between these two profiles be fairly reconciled? A geographic profile is a valuable component of information; however, the profile based on a single offense may not be able to yield such information.

THE QUASI-EXPERIMENTAL STUDIES OF PROFILING PERFORMANCE

It should be apparent that satisfactorily compensating for the problems that emerge in examining a hypothetical sample of criminal profiles when assessing the accuracy of their predictions is a problematic exercise. Despite these problems, over approximately the past two decades, a body of empirical research has developed comprised of quasi-experimental studies that have sought to test the predictive (i.e., profiling) capabilities of participants. These studies have typically followed a similar generic design. Firstly, case materials for an actual crime wherein the perpetrator was convicted were assembled. These materials and the particulars of the offender typically form the basis of such experiments. Next is the development of a multiple-choice questionnaire that itemizes various components of information subject to prediction (i.e., profiling) concerning the crime. Some examples range from the offender's gender or age, through to attributes such as the method by which the victim was approached (e.g., confidence trick, blitz style of attack). As the crime has been resolved, details of the perpetrator are known, thus allowing for model answers to be developed in response to the questionnaire. These case materials are then assembled to a given point in time and attached to the questionnaire. Thus, a test instrument is developed that simulates the task of profiling a crime at a certain point through the aid of case materials presented to participants. These participants are then invited to record their predictions concerning the crime and the perpetrator via the multiple-choice questionnaire. The accuracy of these responses (i.e., predictions) on the multiple-choice questionnaire can then be objectively scored by their concordance with the model answers.

The next step in these types of studies involves administering the instrument to participants to test their capabilities. As the central aim of many of these studies was to assess the capabilities of profilers, various

"professionals" who operate in this capacity were recruited. The experiments naturally necessitated comparison groups by which the relative performance of the profilers could be gauged. Examples of comparison groups assembled included participants such as police personnel with varying degrees of investigative experience, psychologists, and university students. As a control mechanism, another group of participants was recruited who did not possess any relevant skills or training in profiling. These participants were provided only with the multiple-choice questionnaire without access to any of the case information and were instructed to complete the questionnaire by simply guessing the attributes of the offender. This procedure allowed for a measure concerning what could be accomplished on the profiling test simply through guessing and/or relying on stereotypical knowledge of a typical offender.

From this quasi-experimental design, a method was developed which attempted to minimize the methodological problems previously outlined as being associated with the evaluation of criminal profiles. The problems surrounding the uniformity of the data were controlled in these respective quasi-experiments as the participants were required to profile the same cases and were asked to answer the same questions. Similarly, the various ambiguities and problems arising from measuring the accuracy of profile predictions were controlled via the use of a multiple-choice questionnaire. That is, identical questions (within the respective studies) were asked of all participants, and a correct or incorrect answer was established by determining whether the response corresponded with the model answer.

A succession of studies in the literature on profiling following this generic quasi-experimental design over approximately the past two decades have been generatedⁱ. The first such study appeared as a subcomponent of a larger study examining profiling conducted by Pinizzotto and Finkel (1990) wherein both a murder and a rape case were used in the study and the performance of trained profilers was compared against detectives, psychologists, and students.ⁱⁱ The outcomes of this study were somewhat mixed in that the profilers surpassed the other groups in profiling the offender in the rape but not the murder case. Subsequently, Kocsis, Irwin, Hayes, and Nunn, (2000) examined the abilities of profilers with psychologists, police officers, students, and psychics using a murder case. Some evidence emerged in terms of a tentative pattern of profilers surpassing the other sampled groups. Thereafter, Kocsis, Hayes, and Irwin (2002) used the previous murder case but focused on examining the value that experience in criminal investigation may have on the process of proficient profiling. This study failed to find evidence to support the need

for investigative experience in proficient profiling. A fourth study by Kocsis (2004) then examined the performance of profilers with such groups as detectives, fire investigators, and students. This study used an arson offense as the case material for the experiment and found statistically significant differences with the profilers surpassing the predictions of the other groups. Finally, a fifth study (Kocsis, Middledorp, & Try, 2005) contained a subcomponent wherein accuracy was tested between profilers versus a nonprofiler group on both the murder and the arson cases. This study found statistically significant results in terms of the profilers surpassing the nonprofilers in being capable of accurately predicting the characteristics of the offenders.

THE CONFLICT OF THE META-ANALYSIS STUDIES

Though tentative, the aforementioned studies have revealed a generally consistent pattern in establishing modicums of empirical evidence in support of the capabilities of profilers. What emerged as a major study into the evaluation of profiling accuracy was a study by Kocsis (2003). This study undertook an integrated analysis of the data collected in Kocsis et al. (2000), Kocsis et al. (2002) and Kocsis (2004), in addition to incorporating some additional original data. The findings of Kocsis (2003) revealed a pattern in the capabilities of profilers to surpass all other tested groups in the profiling experiments.

At this juncture (or, chronologically, after Kocsis et al., 2005), the consistency in the research literature appeared to end. First, a discussion by Bennell, Jones, Taylor, and Snook (2006) emerged that opined methodological criticisms and challenged the research of Kocsis and colleagues. A rebuttal appeared in Kocsis (2006b) which highlighted some factual errors, omissions, and misconceptions in the article by Bennell et al.

The second item of conflict emerged from a recent article by Snook, Eastwood, Gendreau, Goggin, and Cullen (2007) which undertook a two part meta-analysis of previously published studies. The first part combined statistical scores from Pinizzotto and Finkel (1990), Kocsis (2004), and Kocsis et al. (2002, 2005). This analysis involved a comparison of the performance of expert profilers combined with investigators versus all other participants. The second analyses combined the statistical scores derived from Pinizzotto and Finkel (1990), Kocsis (2004), and Kocsis et al. (2000, 2005). This second analysis involved a comparison between the performance of expert profilers (alone) versus nonprofilers. It is important

to note that, unlike the first part, the second meta-analysis did not combine investigators with the profilers but, instead, classified and then analyzed investigators as participants partly comprising the nonprofiler category.

In contrast to the preceding studies conducted over approximately two decades, the general conclusion from Snook et al. (2007, p. 448) was that "... profilers do not decisively outperform other groups when predicting characteristics of an unknown criminal." Consequently, the literature at this juncture appears to offer a stark contradiction between the findings of Pinizzotto and Finkel (1990) and Kocsis and colleagues, which generally supports the capabilities of profilers, and the manuscripts by Bennell et al. (2006) and Snook et al., which challenge these studies.

Complicating this circumstance is the fact that Kocsis (2003) is not a simple composite analysis of data from preceding studies (such as Snook et al., 2007) but includes original data specific to its analysis and findings. This circumstance has two consequences. First, the analysis of Snook et al. does not represent a comprehensive analysis of all existing data, as it omits key data such as the additional original data pertaining to profilers in Kocsis (2003). Second, the studies by Kocsis and Snook et al. are not directly comparable, as they analyze different data sets. This is important, as it seems that Snook et al. have endeavored to conduct an analysis that contains all the data in Kocsis (2003). This, however, does not appear to have been achieved owing to the differing data sets. Consequently, readers are now presented with two seemingly similar yet heterogeneous studies with conclusions that appear to be in direct opposition with one another.

MISCONCEPTIONS AND THEORETICAL CONTRADICTIONS

To appreciate the conflict that exists on face value in the research, it is necessary to identify a number of theoretical contradictions and misconceptions that appear related to the work of Bennell et al. (2006) and Snook et al. (2007).

The Validity of Combining Investigators with Profilers

It seems that Snook et al. are critical of the research conducted by Kocsis and colleagues in "aggregating data to favor the experimental group" (Snook et al., 2007, p. 447). Despite this criticism, Snook et al.

have, it appears, adopted a similar approach by comparing "the accuracy of self-labeled profiler/experienced-investigator groups vis-à-vis those of naïve groups, such as students and psychologists (i.e., people who did not have any profiling or investigative experience" (Snook et al., p.439). The authors justify this procedure by noting first that ". . . there is no consensus about who can be called a profiler . . ." (p. 439). They then assert that Hazelwood, Ressler, Depue, & Douglas (1995) suggest that only individuals with considerable investigative experience should be considered profilers, and on this basis proceed to combine participants with considerable investigative experience with profilers as a valid representation of skilled/expert profiling performance.

Unfortunately, however, the chapter by Hazelwood et al. (1995) to which Snook et al. (2007) refer does not assert that individuals possessing considerable investigative experience can be legitimately equated with, or substituted for, "profilers." Rather, the chapter by Hazelwood et al. discusses the profiling service provided by the FBI's Behavioral Science Unit (BSU) and the attributes these authors regard as being indicative of successful analysts (i.e., profilers) with whom they have previously worked. The authors in the Hazelwood et al. chapter are former agents of the FBI's BSU that provides a profiling service, training, and accreditation program for profilers. Individuals who are designated by this organization as profilers (a.k.a. criminal investigative analysts) are those who have undergone their training program in profiling and/or are affiliated with the Unit. Though experience in criminal investigation constitutes one of a number of selection criteria for candidates to undertake the FBI profiler training program, individuals possessing considerable investigative experience are not described as profilers (DeNevi and Campbell, 2004).

Indeed, this differentiation is made clear in the study by Pinizzotto and Finkel (1990), which was conducted under the imprimatur of the FBI's BSU. This study distinguished "profilers" who are "police detectives from those in different police agencies across the country who have been specifically trained in personality profiling" and "detectives" who "have no training in personality profiling . . . [but] . . . are experienced police investigators in both homicide and sex offenses." (Pinizzotto & Finkel, p. 218). The distinction between individuals who are designated as profilers and those who are designated as detectives, therefore, directly contradicts the contention by Snook et al. (2007) that members of the FBI's BSU (e.g., Hazelwood et al., 1995) suggest that investigators can be equated with profilers. Another factor weakening Snook et al. approach of combining profilers with experienced investigators lies in the simple existence

of the FBI's BSU. If the capabilities of experienced investigators from police agencies were to be considered analogous to those of profilers, this would effectively render the profiling services provided by the BSU redundant, as such services would be available from those experienced investigators in the respective policing agencies.

The combination of investigators with profilers by Snook et al. (2007) has some fateful consequences, especially when one takes into account that Kocsis et al. (2002) found that investigative experience had only marginal influence on the proficient construction of a criminal profile. The combination of profilers with investigators by Snook et al. effectively couples the performance of expert profilers with the performance of participants who have been previously observed to be one of the weakest groups in terms of the accurate construction of a criminal profile. Consequently, while Snook et al. appear on the one hand to criticize perceived aggregations of data to favor an experimental group, it seems that they have adopted a procedure wherein data have been combined in a misguided way to the disadvantage of the experimental group (i.e., expert profilers).

Analyzing Data from Methodologically Flawed Studies

As previously mentioned, the manuscript by Bennell et al. (2006) articulates a series of criticisms that the authors believe serve to diminish the research conducted by Kocsis and colleagues. As also indicated, Kocsis (2006b) provided a rebuttal to these criticisms. In short, Bennell et al. posit that the studies by Kocsis and colleagues are methodologically unsound, whereas Kocsis (2006b) argues the contrary.

Despite this apparent polarization, it seems rather incongruous that Snook et al. (2007) have undertaken a meta-analysis using the data produced from the studies by Kocsis and colleagues, as this appears to contradict the arguments by Bennell et al. (2006). This contradiction is rendered even more puzzling given that Snook is a coauthor of both manuscripts. It is reasonable to assume that Snook et al. consider their research valid. The inconsistency is that on the one hand both Bennell et al. and Snook et al. criticize the various studies by Kocsis and colleagues as methodologically unsound. On the other hand, the data that were produced from these methodologically flawed studies is relied upon as the basis of the Snook et al. meta-analysis, the outcomes of which are then asserted as validly demonstrative of the capabilities of profilers and all other tested participants. Put simply, if the original studies are methodologically

compromised, as Bennell et al., and Snook et al. (p. 447) appear to maintain, then any re-analysis of the same data produced from these studies is arguably similarly tainted. It seems untenable for Snook et al. to claim that their own research is a valid reflection of the capabilities of profilers and other tested groups in these circumstances. Indeed, to accept these studies (i.e., their data) as valid contradicts the criticisms by Bennell et al. Irrespective of the conclusions by Snook et al. concerning the validity of profiling, by using the data generated from these original studies, the authors are in effect accepting the methodological integrity of the original studies that produced the data.

DISENTANGLING THE RESEARCH

Debate is not counterproductive to scientific development, as through such discourse better theorems can emerge. Often too, apparently disparate research can, on closer examination, be reconciled. It is in this context that the seemingly contradictory assertions of Snook et al. (2007) and Bennell et al. (2006) are examined. The first step in evaluating the literature involves determining whether the original studies by Pinizzotto and Finkel (1990) and Kocsis and colleagues are methodologically sound. Given that the peer-review process has supported both, it would appear so. Similarly, the meta-analysis in Snook et al. is also indicative of the methodological validity of these studies for, as argued earlier, they have relied upon the data produced through these studies for their own analysis.

In accepting the studies of Kocsis and colleagues, a solution to the apparent contradiction between Snook et al. (2007) and Bennell et al. (2006) can be found. The meta-analysis by Snook et al. indicates that these authors accept the data produced in the studies by Kocsis and colleagues. Therefore, the Snook et al. study does not seem to concur with the earlier contentions of Bennell et al. This circumstance is also consistent with the arguments advanced in Kocsis (2006b), which argues against the criticisms of Bennell et al. and contends that the studies are methodologically sound.

With this contradiction between Bennell et al. (2006) and Snook et al. (2007) examined and explained, the conflict between the findings in Snook et al. and Kocsis (2003), however, still remains. The solution to reconciling this apparent divergence in the research lies in two important factors. Though the data analyzed in Snook et al. are maintained as valid, the results of their analysis do not appear to support their contentions. That is, contrary to their own conclusions, the Snook et al. analysis

reveals empirical evidence demonstrating that the predictions of the expert profilers do decisively surpass those of the other tested groups (i.e., nonprofilers).

Specifically, as previously outlined, the meta-analysis conducted in Snook et al. (2007) consisted of two parts. The first involved a comparison wherein profilers were combined with participants designated as investigators and compared against all other participants. The second comparison involved a mutually exclusive comparison between expert profilers (alone) versus all other participants. As previously explained, there appears to be no legitimate basis for Snook et al. to have combined profilers with investigator participants. Consequently, though the data analyzed by Snook et al. can be said to be sound, conclusions concerning the performance of expert profilers cannot legitimately be drawn from this component of their study. Instead, the only valid meta-analytic comparison undertaken by Snook et al. appears to relate to the second component (Part B) wherein expert profilers (alone) were compared against all nonprofiler participants.

The second issue is that the pivotal measure for assessing accuracy is that of overall accuracy. Though the research by Kocsis et al. (2000) created four subscales (e.g., physical attributes, offense behaviors, cognitive processes, social history, and habits) from the total set of items contained in the multiple-choice questionnaire, these subscales were designed to garner some qualitative understanding of proficiency with respect to differing types of information. It is, however, the overall accuracy score that is the basis for assessing accuracy in terms of *whether* participants are accurate. The subscales provide some understanding of *how* participants may be accurate.

Some confusion between these concepts appears evident in Snook et al. (2007) as performance on the subscales seems to be their focus. Concurrently, the consideration of the overall accuracy measure is viewed as adopting "the most optimistic stance in favor of profilers" (Snook et al., p. 447). Arguably, the various scales represent impartial measures, and their interpretation should, it is asserted, be a dispassionate exercise not characterized by optimism or pessimism. The consideration of the overall accuracy measure is not indicative of adopting an optimistic perspective but merely represents an accounting of the net accuracy measure. Similarly, the subscales do not represent a pessimistic viewpoint but are simply deconstructed facets of the overall accuracy measure.

With these issues in mind, the values from the meta-analysis reported in Snook et al. (2007) were, for the purpose of this article, converted into

percentages to better illustrate the patterns in the data accompanied by their statistical significance. These percentages were derived from the two tables presented by Snook et al. (Table 2, pg. 446; Table 3, pg. 447). Using the outcomes they listed, each of which consisted of varying numbers of effects, a combined measure of effect (r) was derived and tabulated. These effect measures compared the efficiency of profilers to nonprofilers for each outcome.

The percentages displayed in Table 1 (our new table) outline the accuracy rates of profilers versus nonprofilers (Part A featuring the combination of profilers with investigators versus all other participants, and Part B featuring a comparison of expert profilers alone versus all nonprofilers) carried out by Snook et al. (2007). The percentages in Table 1 are given in terms of the binomial effect size display (BESD), which shows the practical importance of an effect without relying solely on measures such as correlation coefficients, coefficients of determination,

TABLE 1. Comparative accuracy percentages

Meta-Analysis: Part (A)	Profilers+Investigators	vs. Nonprofilers	Accuracy Difference
Overall			
Accuracy	62%	38%	24%*
Subscales			
Cognitive processes	47%	53%	-6%
Physical attributes	55%	45%	10%
Offence behavior	50%	50%	0%
Social history & habits	45.5%	54.5%	-9%
Meta-analysis: Part (B)	Profilers ONLY	vs Nonprofilers	Accuracy Difference
Overall			
Accuracy	66%	34%	32%*
Subscales			
Cognitive Processes	60.5%	39.5%	21%*
Physical Attributes	60.5%	39.5%	21%*
Offence Behavior	52.5%	47.5%	5%
Social history & habits	64%	36%	28%*

*Denotes difference at statistically significant level of 0.05.

Meta-Analysis Part (A): Data derived from Pinizzotto and Finkel (1990); Kocsis (2004); Kocsis, Hayes, & Irwin (2002); and Kocsis, Middledorp, & Try (2005).

Meta-Analysis Part (B): Data derived from Pinizzotto and Finkel (1990); Kocsis (2004); Kocsis, Irwin, Hayes, & Nunn (2000); and Kocsis, Middledorp, & Try (2005).

or other even less intuitive effect size measures (Rosenthal & Rubin, 1982). Therefore, the BESD is used to compare the outcome rates between experimental and control groups. The experimental group here consists of the profilers, and the control group consists of the nonprofilers.

To calculate the success rate of the profilers, the formula $(0.5 + r/2)$ is used. The success rate of the nonprofilers uses the formula $(0.5 - r/2)$. This assumes a 50% base success rate for both profilers and nonprofilers, and the effect size, r , shows how the two groups compare. For example, Snook et al. (2007) reported the value (or r) for the Overall Offender combination of effects to be 0.24. The overall accuracy rate of profilers combined with investigators converts to $(0.5 + 0.24/2)$, that is, 62%, and the accuracy rate of nonprofilers in this comparison converts to $(0.5 - 0.24/2) = 38\%$.

Looking at Table 1, it should first be noted that the performance of the profilers was lowered when combined with "investigators" (66% reduced to 62% on overall accuracy and even more so on the various subscales). This reduction in performance is consistent with what may be anticipated from previous research such as Kocsis et al. (2002) wherein investigators were found to have fared poorly in the accurate construction of a criminal profile. Next, on a descriptive level it can be seen that the performance of the profilers (only) in Part (B) surpassed the performance of the nonprofilers on all measures. Moreover, these differences in performance were found to be statistically significant on all scales with the exception of the offense behavior subscale. As a consequence, and in direct contrast to the Snook et al. (2007) assertions, there is clear empirical evidence that the profilers decisively (i.e., at a statistically significant level) surpass the nonprofiler participants when predicting the attributes of an unknown offender. Furthermore, it appears that the basis for the profilers' superiority lies in their ability to predict attributes related to cognitive processes, physical attributes, and social history and habits of the offender. Consequently, the valid comparison between profilers and nonprofilers (Table 1, Part B) is consistent with previous research supporting the capabilities of expert profilers.

EXTERNALIZING THE RESEARCH ON PROFILING ACCURACY

Having examined the aforementioned conflict in the literature, some discussion is warranted on the latest findings. It is important to bear in mind the design parameters of the original studies as quasi-experiments of

comparative performance. In particular, the present research is only reflective of gauging relative performance in terms of whether differing participant groups are better or worse than one another. The overall conclusion that can be drawn is that the predictive capabilities of profilers do decisively surpass those of nonprofilers.

This conclusion can be viewed in the following terms. Where some form of criminal profiling is undertaken, a suitably qualified profiler is most likely capable of predicting a greater amount of accurate information about the probable offender than what other persons (i.e., nonprofilers) may achieve. The statistics contained in Table 1, Part B indicate that this margin of superiority in terms of the analyzed BESD is a positive difference of 32% in favor of the expert profilers. This difference in BESD was found to be statistically significant and thus can be interpreted as a decisively superior margin. However, this concept of "*superiority*" should be conceptualized only in terms of qualified profilers who are capable of achieving this higher standard in comparison to what untrained individuals (i.e., non-profilers) can typically achieve. Therefore, what the present research findings are not capable of lending support to is the notion of any type of aggregate accuracy ratio that may be claimed to be demonstrated by profilers such as, for example, that profilers may achieve a 60% or 70% or even 80% level of accuracy.

Beyond these conclusions, one final aspect requires clarification in understanding the context of the present findings in terms of the broader concept of criminal profiling. The present conclusions can be viewed as inchoate evidence of a growing technique in that the current research has simply examined the concept of profiling but has not differentiated between the various "types" or approaches to profiling utilized by the variously tested participants. Consequently, research in the future should explore the relative merits, in terms of accuracy, of the rivaling approaches to profiling crimes, much akin to how psychological/psychiatric research has examined the effectiveness of differing forms of psychotherapy in the treatment of patients with differing disorders.

CONCLUSIONS

This article has discussed the existing quasi-experimental research that to date has examined the issue of accuracy in criminal profiling. Moreover, it has served to highlight a number of problematic misconceptions and

contradictions inherent to the literature that form the basis of a perceived conflict. By identifying the source of this conflict, the article seeks to illustrate how the research, contrary to first impressions, demonstrates in comparative terms that suitably skilled profilers can predict the characteristics of an unknown offender more proficiently than other subjects thus far tested.

Given this conclusion, some regard should be paid to “how” and “why” the apparent conflict in the research originally emerged. As already discussed throughout, the issue of *how* is in summary, explained by an invalid combination by Snook et al. (2007) of profilers with investigators and an attenuation upon subscales as opposed to the primary measure of accuracy. Identifying a definitive answer to the issue of *why*, however, is more elusive. One possibility identified by Kocsis (2006b) may be that the conflict surrounding the issue of accuracy in criminal profiling is related to a deeper theoretical dilemma surrounding the rivaling ideological approaches to criminal profiling. Authors such as Snook and Bennell appear to be proponents of an approach to criminal profiling known as *investigative psychology*. The proponents of investigative psychology argue that their approach is the only scientifically valid means to profile crimes, as their methods, they suggest, are superior to others (e.g., Canter & Heritage, 1989). Consequently, research such as Kocsis (2003), which demonstrates that profilers employing a range of methods other than those of investigative psychology can be proficient in profiling crimes, detracts from claims concerning the superiority of investigative psychology. Simply put, the findings of Kocsis (2003) and this article do not support the contention that proficient profiling is the exclusive domain of investigative psychology (Kocsis, 2006b). Compounding this is the absence of independent research demonstrating that suitably skilled individuals employing investigative psychology techniques can, in fact, proficiently profile crimes and that their level of accuracy is significantly superior to individuals employing an alternative approach to criminal profiling.

Three caveats must, in conclusion, be articulated. First, it is important to distinguish the present research concerning criminal profiling from the similarly entitled concept of “actuarial profiling” (a.k.a. racial profiling) in developing aggregated templates of “typical” offenders (see Harcourt, 2007). The present findings should not, in any capacity, be construed as providing support for the latter concept. Second, simplified comparisons such as profilers versus nonprofilers are not ideal but have been followed here to make the present research directly comparable with that of

Snook et al. (2007). In so doing, it can be seen that the contentions advanced by Snook et al. concerning the accuracy of profilers have been demonstrated to be invalid. Nonetheless, a more incisive depiction of the capabilities of profilers in comparison to a range of other individual skill-based groups of participants can be found in Kocsis (2003). Third, and as foreshadowed in Kocsis (2003), the present research speaks only to the issue of accuracy and should not be construed as evidence supporting the extent to which criminal profiling can assist in the resolution of crimes. As Farrington (2007, p. 487) has poignantly observed, "the time is ripe to mount a major research agenda" into this issue and more in the future.

NOTES

1. For the purpose of brevity, the studies discussed are those composite to the meta-analysis study by Snook et al. (2007) and Kocsis (2003).

2. This initial study is the one exception that did not feature a stereotype control group in the experimental design.

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