Chapter 2

Smoke and Mirrors

The Illusions of Accuracy in Criminal Profiles*

Summary

The technique of criminal profiling has proliferated over recent decades, despite a remarkable lack of empirically rigorous evidence concerning its accuracy. Notwithstanding the absence of evidence, the very circumstance of the continued use of profiles by police investigators is often regarded as proof of their accuracy. This phenomenon is essentially informed by an “operational utilitarian argument.” Namely, anecdotal evaluations of criminal profiles sponsor their continued use. This chapter is concerned with a series of empirical studies that systematically test the reliability of such anecdotal evaluations concerning the perceived accuracy of criminal profiles. The results of these studies demonstrate the unreliability of anecdotal evaluations and highlight the weakness of such an argument.

Key Words: Criminal profiles; anecdotal evaluations; accuracy.

INTRODUCTION

Despite the renown and apparent popularity of criminal profiling, particularly in law enforcement circles, it comes as something of a surprise that empirically robust evidence to support the merits of the technique has, until
quite recently, been remarkably scarce (1). The studies discussed in Chapter 3 have endeavored to progress our scientific understanding of the comparative accuracy and requisite skills associated with the accurate construction of a criminal profile. Before considering the research findings canvassed in those chapters, however, it is important to question why, in the absence of scientifically rigorous material (the norm for virtually all other professional disciplines), the technique of criminal profiling has continued to prosper.

In one study by the author (2), it was suggested that any combination of three possible factors might be operating to create this circumstance. The first factor involves the predominantly favorable, albeit sometimes fanciful, media glamorization that the technique enjoys (3–5). On an intuitive level, fictional portrayals of criminal profiling may serve to fuel the impression of the merit and accuracy of the practice in assisting investigators. The second factor relates to the general environment in which criminal profiles are frequently used: criminal investigations, conducted by law enforcement agencies that typically feature comparatively insular authoritarian cultures (6–14). Within such an environment, the technique of criminal profiling may not be exposed to the same degree of independent critical scrutiny that is characteristic of other scientifically constituted disciplines that feature considerable transparency and evaluation of internally adopted practices (15,16). The third and arguably most pertinent factor in the context of this chapter relates to a circumstantial argument at times put forward by expert profilers when seeking to justify their practices (17,18). This argument is described by the author (2) as the operational utilitarian argument, and is somewhat circular in what it posits. That is, if criminal profiles were not regarded as being useful, investigators such as police would simply not continue to use them. Accordingly, because police officers continue to use the services of expert profilers this circumstance serves as evidence attesting to the presumed merit and accuracy of the criminal profiles. In essence, the tenet underpinning the operational utilitarian argument is simply a variation of the old English proverb “the proof is in the pudding.” That is, the accuracy of criminal profiles can be inferred by the circumstance of their continued use. Positive results, it seems, must be occurring because police officers continue to use criminal profiles to aid their investigations, and therefore the profiles must be accurate.

Despite the intuitive logic of such an argument, it has previously escaped empirical testing. Additionally, such an argument does not represent a direct and objective measure of the accuracy of a criminal profile. Instead, it is at best an indirect and inferred measure based on the perceived accuracy of the criminal profiles by users of them. That is, police officers perceive criminal profiles to be useful in the course of their investigations and consequently
continue to use them. This circumstance is then taken as equating with evidence of the accuracy of a criminal profile.

One central premise underpinning the operational utilitarian argument is that the perceptions of police officers regarding the accuracy of a criminal profile are reliable. However, should these anecdotal evaluations be found to be unreliable in some respect, such as, for example, being subject to some extraneous influence or even bias, then the validity of the operational utilitarian argument would be seriously undermined. This question surrounding the reliability of anecdotal evaluations of criminal profiles is extremely pertinent when one considers the extensive history of psychological research that has consistently highlighted the unreliability of human perceptions in a wide variety of contexts (19–21). Consequently, a series of studies were undertaken to investigate the reliability of such anecdotal evaluations. These studies sought to critically examine the validity of the operational utilitarian argument that has been relied on as evidence in support of the accuracy of criminal profiles for many decades.

**Evaluations of Criminal Profiles by Police Officers**

As previously explained, the underlying premise of the operational utilitarian argument is its reliance on anecdotal evaluations of criminal profiles. Accordingly, to test the validity of this argument one needs to examine the reliability of police officers’ perceptions of a criminal profile. Consequently, a study was devised whereby a sample of police officers were presented with a criminal profile and asked to evaluate it on a quantifiable scale that could then be subjected to critical analysis (22).

The first step in conducting this study involved obtaining 59 serving police officers who participated as the surveyed individuals for the study. The design of this study essentially involved providing the police officers with a survey that asked four questions concerning their evaluations of a criminal profile that accompanied the survey form. To explore the reliability of their evaluations and thus the possibility of some form of bias in their perceptions, some experimental variations (which are discussed next) were also incorporated into the study.

*The descriptions of the three studies canvassed throughout this chapter represent abridged summaries of the studies undertaken. Details inherent to each of these studies have been omitted to facilitate their easy comprehension in this book. Readers interested in this particular topic should consult the original manuscripts describing the studies in full (22,23,27).
All of the survey forms started with the same cover page describing in general terms what criminal profiling is and how it is used in criminal investigations. Following this cover page, the survey forms provided some details concerning an actual murder. The description of this murder only provided a moderate amount of information and its purpose was to simply provide some background information regarding the nature of the survey for the police officers. A criminal profile followed this description of the murder. The survey form indicated that this profile was written by an individual who had been consulted by police officers to assist with their investigation into the aforementioned murder.

At this juncture, however, two important features were incorporated into the survey forms. The first feature related to the label that was provided to describe the author of the criminal profile. Although the survey forms indicated that the profile had been provided to assist the investigation, the identity of the author was deliberately altered among the different versions of the survey form. In half of the survey forms the criminal profile was labeled as written by a “professional profiler,” whereas in the other half the identical profile was labeled as written by “someone the investigator consulted,” thus providing a less descriptive label concerning the author. All of the survey forms requested that the criminal profile be carefully examined and four questions answered relating to its perceived merit. Aside from this variation concerning the identity of the author of the criminal profile, all of the survey forms contained the identical introductory material and asked the same four questions.

All four questions on the survey forms were measured on a 7-point scale in which 1 represented a low value rating, 4 an average rating, and 7 a very high rating. The first three questions all related to aspects of the perceived usefulness of the criminal profile. The first question asked for an evaluation of the perceived coherence of the criminal profile with respect to how well the ideas appeared to be presented. The second question inquired about the degree of specificity of the criminal profile with respect to how specific or vague the supplied information appeared. The third question inquired about the individuation of a suspect from the profile by asking for some estimation of how likely participants believed that the information contained in the profile would potentially help in narrowing a list of suspects. Following these three questions, a final separate section of the survey form was presented to the police officers. This section asked participants to rate the accuracy of the criminal profile. However, in this particular section of the survey an actual description of the apprehended murderer was also provided in the survey form. Consequently, when the police officers were making their evaluation of the accuracy of the profile they were undertaking a side-by-side comparison be-
between the predictions constituting the criminal profile and the characteristics of the apprehended offender.

As previously mentioned, this study incorporated two special features. The first related to varying the listed identity of the author of the criminal profile. The second feature, however, was more aligned to strengthening the design of the study. One potential criticism of the study, as described thus far, might be that the obtained results could simply be an artifact of the particular criminal profile that was the subject of the experiment. That is, different results might be obtained by the use of a different criminal profile. To cater for this contingency, three different versions of the survey form that each contained one of three different criminal profiles was used. Each of the three versions of the survey consisted of one of two alternative conditions—one that listed the author of the criminal profile as the professional profiler and the other with the nondescript label of someone the investigator consulted. Consequently, this study featured six different versions of the survey form, one of which was randomly administered and completed by each of the 59 police officers. Their responses on the survey forms were scored together for each of the six respective versions and statistically analyzed for any differences in the mean scores for each different version of the survey.

As previously indicated, the purpose of this study was to test the reliability of police officers’ anecdotal evaluations of a criminal profile and in the context of the design of this study it aimed to investigate whether the perceived merits of a criminal profile were affected by the labeled identity of the author.

The results of the analysis summarized in Table 2.1 indicate that when a criminal profile was simply labeled as authored by a professional profiler, it was consistently perceived to be more accurate than when the identical material was presented under the nondescript (i.e., anonymous) author label. Although the author label was found to influence the police officers’ evaluation of the accuracy of a criminal profile, it did not, however, appear to affect their perceptions concerning its utility. Namely, the three measures related to coherence, specificity, or individuation.

Consequently, the findings of this study highlight the unreliability of anecdotal evaluations because some form of bias was found to be operating in the evaluation of the accuracy of a criminal profile by the sampled police officers.

**Believing Is Seeing?**

Although the previous study demonstrated that perceptions regarding the accuracy of a criminal profile appear to be influenced by the identity of its
author, the study did not explore in any substantive capacity why this occurred. Accordingly, a second study was undertaken in an effort to understand the factors that may account for the observed bias in the previously surveyed police officers (23).

Two theories were proposed by way of possible explanation. One theory related to the possibility of some intrinsic feature inherent to the police officers that may have accounted for their bias. For many decades, legal and criminological scholars have observed the strong collegiate sense of loyalty often present among members of policing organizations (6–14). With these cultural loyalties in mind, perhaps the surveyed police officers identified the author title of professional profiler as someone affiliated with their organizational culture and thus were reluctant to assign an unfavorable rating to the work of a perceived colleague. The police officers may have, for example, objectively assessed the features of a criminal profile associated with its coherence, specificity, or individuation. However, the accuracy of the criminal profile may have been considered something directly reflective of a colleague's abilities. Consequently, this feature may have been judged more favorably when labeled as authored by a perceived colleague; thus the bias in evaluating the accuracy of the criminal profile.

The other theory offered to account for the bias relates to the confidence or belief that the sampled police officers may have held about criminal profiling. A number of studies in the social sciences have explored a phenomenon referred to as the Barnum effect, which accounts for the proclivities people demonstrate when interpreting ambiguous statements (24). Researchers exploring the operation of the Barnum effect have observed that ambiguous material is often interpreted positively when there is some favorable link to the subject. For example, a study by Snyder and Newburg (25) found that people were more willing to accept ambiguous but positive descriptions about

<table>
<thead>
<tr>
<th>Author labels</th>
<th>Profile Anonymous ( (n = 33) )</th>
<th>Profile Profiler ( (n = 26) )</th>
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</thead>
<tbody>
<tr>
<td>Coherence</td>
<td>No significant difference</td>
<td>No significant difference</td>
</tr>
<tr>
<td>Specificity</td>
<td>No significant difference</td>
<td>No significant difference</td>
</tr>
<tr>
<td>Individuation</td>
<td>No significant difference</td>
<td>No significant difference</td>
</tr>
<tr>
<td>Accuracy</td>
<td>3.21</td>
<td>3.98</td>
</tr>
</tbody>
</table>

Significant difference \( F(1, 53) = 4.84, p < 0.05 \)
themselves than they were ambiguous but negative descriptions. Other research concerning the Barnum effect involved a study by Alison, Smith, and Morgan (26) that demonstrated that police officers had difficulty in discerning the amounts of valid information contained in a genuine, as opposed to fictitious, criminal profile. In view of such studies, perhaps the police officer’s belief in profiling was encouraged when it was observed that the profile was authored by a professional profiler and thus evaluated it more favorably.

The objective of the second study was to investigate the plausibility of these two theories in accounting for the bias demonstrated by police officers in the previous study. Assuming that the bias was related to some intrinsic feature, such as the organizational culture of police, this bias then would presumably not be present in people external to policing. An initial test of this theory would simply involve repeating the previous study but with a sample of individuals who were not associated with policing. The second theory, however, operates on the existence of some conceptual relationship between a person’s level of belief and their perceptions of a profile. If there were some basis to this theory, then variations in the levels of belief different people hold should be observable in their corresponding evaluation of a criminal profile.

Consequently, the design of this second study involved replicating the procedures used in the previous study with some additional measures. As previously stated, the theory concerning the cultural loyalty of police officers would involve a replication of the previous study but with individuals not subject to such cultural influences. Accordingly, the core components of the previous survey form were again administered, but this time to a sample of 353 university freshmen who were not associated with any police organization.

Testing the belief theory, however, required further adjustment to the previously administered survey. Namely, the inclusion of a measure that attempts to gauge a person’s reported degree of belief in criminal profiling, which could be concurrently compared with their evaluation of the accuracy of a criminal profile. Akin to the scales described in the previous study, another five questions were created that asked a respondent to rate their belief in whether a criminal profile could effectively predict certain characteristics. For example, one question asked, “Do you believe profiles can accurately predict the gender of an unknown offender? Please rate your confidence on a scale from 1 to 7, where 1 = No, probably incorrect and 7 = Yes, probably correct.” By tallying the ratings of these five questions, a quantitative score could be obtained that reflected a respondent’s degree of belief in criminal profiling.

As previously mentioned, the belief theory presupposes the existence of some conceptual relationship between the level of belief a person possesses and the perceptions of an individual regarding a criminal profile. If this con-
cept were valid, then variations in the level of a person’s belief would presumably be observable in the evaluations made by them concerning a criminal profile. To test this idea, three different cover pages were developed for each of the survey forms. One of the cover pages described criminal profiling in purely favorable, positive terms. The purpose of this cover page was to convey a sense of confidence in criminal profiling and thus encourage the person’s level of belief. A second version of the cover page described criminal profiling in highly unfavorable, negative terms. The purpose of this cover page was to promote disbelief and skepticism in criminal profiling. Finally, the third cover page was created to serve as a neutral or control condition. This version of the cover page simply sought to provide an equivalent reading exercise to the other two cover pages and contained information totally unrelated to criminal profiling. This acted as a conceptual benchmark between the two polarities of positive and negative beliefs in criminal profiling.

The survey forms for this study were thus compiled to have three separate belief conditions. One belief condition deliberately attempted to bolster belief in profiling (i.e., positive), another served as a control condition (i.e., neutral), and the third sought to undermine an individual’s level of belief in profiling (i.e., negative). Attached to each of these three cover pages were the five questions developed to measure an individual’s reported level of belief. The survey form instructed the reader to answer these five questions immediately after reading the cover page. Once an individual had finished responding to the five questions concerning their belief in profiling the remainder of the survey form was akin to the one used in the first study (22) with one exception.

In the previous study, the accuracy of the criminal profile was evaluated by a side-by-side comparison with the details of the offender revealed to the participants at the very end of the survey on a separate form. In the present study, an extra measure was incorporated in an effort to assess the perceived accuracy of the criminal profile without the benefit of the description of the offender. This was accomplished by simply adding another question that asked the participant to evaluate the accuracy of the criminal profile immediately after the three questions that asked about the utility of the profile (i.e., coherence, specificity, and individuation). Then, as described in the previous study (22), the question relating to accuracy was again asked, but in a totally separate section of the survey form where a description of the offender was also provided. Thus, the question that requested an evaluation without the benefit of a description of the offender simulated the circumstance of an on-going investigation in which the identity of the offender is unknown, whereas the side-by-side comparison simulated an evaluation subsequent to the apprehension of the offender.
Consequently, the survey instrument in this second study was modified to reflect three different versions based on the differing belief condition (i.e., positive, negative, and neutral). Each of these three belief conditions contained six separate subconditions (akin to the first study) reflective of the three different criminal profiles with alternating author titles. Accordingly, in this second study, 18 different versions of the survey form (i.e., $3 \times 6$) were created. One of these 18 possible versions of the survey form was then randomly given to each of the 353 university freshmen (i.e., students).

Once again, the responses to these surveys were tallied for each of the respective versions and subjected to statistical analysis to investigate whether any differences or patterns could be discerned from the derived data (Table 2.2). The results of this analysis were revealing in what they indicated about the proposed theories. First, the students did not demonstrate any significant differences in their evaluations based on the author label of the criminal profiles. This finding differs from the previous study (22) in which the police officers consistently perceived a criminal profile to be more accurate when labeled as having been written by a professional profiler. Consequently, this result lends some tentative support to the contention that the bias observed in the previous study may indeed be related to some intrinsic feature of the previously sampled police officers.

Equally revealing, however, were the results concerning the relationship between an individual’s reported level of belief in criminal profiling and their evaluations of a criminal profile. As summarized in Table 2.2, signifi-

<table>
<thead>
<tr>
<th>Profile measures</th>
<th>Correlation value</th>
<th>Significance ($p$)</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coherence</td>
<td>0.32</td>
<td>&lt;0.001</td>
<td>Significant incremental</td>
</tr>
<tr>
<td>Specificity</td>
<td>0.13</td>
<td>0.013</td>
<td>Significant incremental</td>
</tr>
<tr>
<td>Individuation</td>
<td>0.30</td>
<td>&lt;0.001</td>
<td>Significant incremental</td>
</tr>
<tr>
<td>Estimated accuracy</td>
<td>0.47</td>
<td>&lt;0.001</td>
<td>Significant incremental</td>
</tr>
<tr>
<td>Compared accuracy</td>
<td>0.16</td>
<td>0.002</td>
<td>Significant incremental</td>
</tr>
</tbody>
</table>

Sample size ($N = 353$). Significance level (i.e., $\alpha = 0.05$). Significant positive relationships found to exist between an individual’s level of belief and his or her rating on all of the profile evaluation measures.
cant incremental relationships (i.e., statistical correlations) were found to exist between the reported level of belief an individual held and their evaluations of a criminal profile on all of the measures incorporated in this study. Thus, the more an individual believed in criminal profiling, the more favorably they evaluated a criminal profile, be it in the coherence, individuation, specificity, or accuracy stakes. This finding suggests that the famous adage “seeing is believing” appears to operate in reverse with respect to criminal profiles. That is, simply believing in criminal profiling is quite likely to result in seeing a criminal profile more favorably. Perhaps the most alarming aspect of this phenomenon is that one of the strongest manifestations of this relationship occurs when evaluating the accuracy of a criminal profile (i.e., the estimated accuracy of a profile).

**BELIEFS AND THE CONTENT OF CRIMINAL PROFILES**

Although the second study provided some evidence for the existence of a relationship between an individual’s level of belief in criminal profiling and the perceived merits of a profile, the study offered little insight into what components of information contained in a criminal profile might contribute to this phenomenon. Consequently, a third study was undertaken to specifically investigate this issue as well as to test the reliability of the previous findings.

Once again, the overall design of this third study closely followed that of its predecessor (23). Virtually all components of the survey form previously described for the second study were reproduced. Eighteen different versions of the survey form were used, comprised of the three belief conditions (i.e., cover pages with information describing profiling in either a positive, negative, or neutral context followed by the questions to rate their belief in criminal profiling). Each of the three belief conditions contained six different subversions of the survey form using one of the three different criminal profiles with the author label being alternated (i.e., between either professional profiler or someone the investigator consulted) on each of the three profiles. Once again, another sample of 353 university freshmen were recruited to participate in this study.*

The only change in design to this third study was the replacement of the three questions that asked participants to evaluate the criminal profile in terms of its perceived individuation, specificity, and coherence. In place of these

*It should be noted that by pure coincidence the final number of people who completed the survey form in this third study was identical to that of the previous study (i.e., 353). Thus, a total of 706 people were surveyed in conducting these two separate studies.
questions were 39 very short questions that asked the respondent to indicate whether the profile provided some description of a nominated characteristic of the likely offender.* A few examples of these questions included, “Does the criminal profile describe the offender’s likely build?” (Y/N) or “Does the criminal profile describe any prior relationship between the victim and the offender?” (Y/N).

Consequently, these questions measured the type and amount of information perceived to be in a criminal profile. To maximize the interpretability of the data derived from these 39 questions, three categories were developed indicative of the type of information they broadly represented. Thus, 8 of the questions related to whether the criminal profile described some type of physical feature of the likely offender and dealt with physical descriptors of the offender, such as age and gender. Another 16 of the questions related to whether the profile described some aspect of the offender’s background history and other historical aspects, such as the offender’s level of education or vocational history. The remaining 15 questions asked whether the profile described any specific crime behaviors and referred to information pertaining to the likely actions and events surrounding the commission of the offense.

Akin to the procedures of the previous study, one of the 18 different versions of the survey form was randomly administered to the sampled university freshmen. The scores on each of the survey forms were tallied together in each of the respective conditions and then subjected to various forms of statistical analyses to discern whether any differences or patterns emerged from the data (Table 2.3).

Similar to the findings of the second study, no differences were found among the freshmen regarding the perceived merit of a criminal profile based on the labeled identity of the author. This result provides further evidence to suggest that the bias observed in the first study may indeed be related to some intrinsic feature of the previously sampled police officers.

As summarized in Table 2.3, an incremental relationship was again found between the level of belief in criminal profiling and the perceptions of the accuracy of a criminal profile. However, the results of this third study also indicated that an incremental relationship existed between an individual’s level of belief and the amount of information related to background history and crime behaviors perceived to be contained in a criminal profile. This relationship, however, was not found to exist with respect to perceptions of the physical

*These 39 questions were structured in a dichotomous format so that the answer to each question was either a “yes” or “no.” The 39 questions reflecting information typically contained in a criminal profile originated from another study that is discussed in Chapter 4 (28).
Table 2.3

Relationships Between Levels of Reported “Belief” and Perceptions of Content and Accuracy in Criminal Profiles

<table>
<thead>
<tr>
<th>Profile measures</th>
<th>Correlation value</th>
<th>Significance (p)</th>
</tr>
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<tbody>
<tr>
<td>Background history (16 questions)</td>
<td>0.13</td>
<td>0.014</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Significant incremental relationship</td>
</tr>
<tr>
<td>Crime behaviors (15 questions)</td>
<td>0.19</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Significant incremental relationship</td>
</tr>
<tr>
<td>Physical features (8 questions)</td>
<td>0.038</td>
<td>0.483</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No relationship</td>
</tr>
<tr>
<td>Estimated accuracy</td>
<td>0.48</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Significant incremental relationship</td>
</tr>
<tr>
<td>Compared accuracy</td>
<td>0.313</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Significant incremental relationship</td>
</tr>
</tbody>
</table>

Sample size (N = 353). Significance level (i.e., α = 0.05).

characteristics of the offender. Consequently, this third study demonstrates that in addition to the existence of an incremental relationship between belief and perceived accuracy, the higher the level of belief, the greater the amount of information that will be perceived to be present in a criminal profile pertaining to background history and crime behaviors.

CONCLUSION

The findings of the three studies discussed in this chapter highlight the unreliability of anecdotal evaluations of criminal profiles and thus clearly challenge the validity of the operational utilitarian argument. In contrast to the premise of the argument, these studies suggest that police officers may erroneously perceive greater accuracy in a criminal profile.

Perhaps even more intriguing are the indications of a relationship existing between the level of belief an individual possesses in criminal profiling and their corresponding evaluation of a criminal profile. As outlined at the start of this chapter, the practice of criminal profiling has enjoyed predominantly favorable popular culture depictions over the past decades (3–5). Therefore, it needs to be questioned to what extent, such depictions may have subconsciously influenced the levels of belief that police officers and others in the community may have about profiling and the extent to which such impressions influence their evaluations concerning the accuracy of a criminal profile. It could be that the operational utilitarian argument may, in fact, be little more than the manifestation of a vicious illusionary cycle. That is, popular culture representations and anecdotal testimonials may artificially elevate
people’s belief in the capabilities of profiling. These elevated beliefs may in turn lead to misconceptions concerning the accuracy and merit of criminal profiles. Such misconceptions may then in turn sponsor the continued use of profiling and perhaps lead to even more favorable media coverage and testimonials: thus the cycle continues.

No doubt the findings of these studies are likely to prove confronting to expert profilers who seek to justify their practices with any sort of operational utilitarian argument. Unfortunately, anecdotal examples and testimonials as justification for the validity of criminal profiles may amount to little more than smoke and mirrors. These studies illustrate how imperative it is that the merits of criminal profiles be assessed through independent scientifically controlled studies.

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