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Criminal Personality Profiling

An Outcome and Process Study*

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In this work we examine outcome and process differences in criminal personality profiling among groups of profilers, detectives, psychologists, and students, using closed police cases—one sex offense and one homicide. Two major questions guide this research: (1) Are professional profilers more accurate than nonprofilers in generating personality profiles and correctly identifying offender features from crime scene details? and (2) Is the process that the profilers use qualitatively different from that of the nonprofilers? In the written profile task, the task that is most representative of what profilers actually do, profilers write richer, more detailed, and more valid profiles than the nonprofilers for both the sex offense case and homicide case. An analysis of correct responses concerning the known offender for the sex offense case revealed that the profilers scored significantly better than the other three groups in a variety of measures; similar results were not revealed for the homicide case. Profilers, however, do not appear to process this material in a way qualitatively different from any other group.

Criminal personality profiling—formerly the stock-in-trade of whodunit writers, whose fictional detectives transformed crime scene facts into a portrait of the perpetrator—has itself been transformed in the last 20 years from fiction to fact. As the use of criminal personality profiling increases, empirical questions con-

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cerning its validity and reliability, and legal questions regarding its applicability, arise. Already one court has allowed partial reading of a personality profile to be introduced into testimony (*Kentucky v. Gowin,* 1986).

The actual origins of criminal profiling are obscure (Ault & Reese, 1980). During World War II, the Office of Strategic Services (OSS) employed William Langer, a psychiatrist, to profile the personality of Adolf Hitler; Langer described Hitler's personality, diagnosed his condition, and accurately predicted how Hitler would react to defeat (Langer, 1972). Psychological profiling was first used by the Federal Bureau of Investigation in 1971 (Ressler, Burgess, Hartman, Douglas, & McCormack, 1986). In relatively short order, the early and isolated efforts have given way to the current era, where "professional criminal personality profilers" are trained (typically at the Behavioral Science Unit of the F.B.I. in Quantico, Virginia) and are then called upon with increasing frequency to assist in ongoing criminal investigations.

Largely through the F.B.I.'s continued and increasing use of profiling, along with the training of profilers, the topic has become defined, its areas of applicability delimited, its procedural steps outlined, and its conceptual underpinnings articulated. A psychological profile (Geberth, 1983) focuses attention on individuals with personality traits that parallel traits of others who have committed similar offenses. Through close examination of the crime scene one is able to extrapolate certain relevant psychological material that leads to a profile; said another way, the forensic investigator will let the entire crime scene, including the victim, tell, in effect, what *kind* of person committed this act (Pinizzotto, 1984).

Once it is determined that a crime exhibits evidence of a mental or personality aberration and profiling is requested, a five-step procedure typically follows (Ault & Reese, 1980; Douglas & Burgess, 1986; Geberth, 1983; Vorpagel, 1972): (a) a comprehensive study of the nature of the criminal act and the types of persons who have committed this offense; (b) a thorough analysis of the specific crime scene involved in the case; (c) an in-depth examination of the background and activities of the victim(s) and any known suspect(s); (d) a formulation of the probable motivating factors of all parties involved; and (e) the development of a description of the perpetrator based upon the overt characteristics associated with the person's probable psychological make-up.

Once the material has been collected, referred to as the "WHAT" of the crime, the profiler attempts to determine the "WHY" of the crime: that is, the motivation for each crime scene detail and for the crime itself. A basic premise of profiling is that if the WHAT and the WHY of the crime can be determined, the WHO will follow (R. R. Hazelwood, personal communication, January 8, 1983). Thus, using behavioral, correlational, and psychodynamic principles of psychology, the profiler proceeds from the WHAT to the WHY to the WHO. Factors frequently assessed in a psychological profile of a perpetrator are: sex, age range, marital status, education level, general employment, reaction to police questioning, degree of sexual maturity, whether the individual might strike again, the possibility that this person has committed a similar offense in the past, and whether the perpetrator has a police record (Ault & Reese, 1980; Geberth, 1983).

The Conceptual Underpinnings of Profiling

The WHAT-to-WHY-to-WHO model, beyond providing a very general conceptual-sequential framework, lacks specificity on two counts: for one, it does not tell us precisely how (i.e., by what rules of thumb) the profiler gets from the WHAT to the WHY, or from the WHY to the WHO; and for another, it does not specify which behavioral, correlational, or psychodynamic principles are being invoked for making predictions from which type of crime facts, or how these various principles and predictions are interrelated.

Various conceptual models (Dietz, 1985; Douglas, Ressler, Burgess, & Hartman, 1986; Rossi, 1982) have attempted to describe the theoretical process profilers use, with the recent attempts focusing on psychological constructs and trait theory (Ellerby, 1986). To mainstream psychologists, the use of trait theory (Allport, 1967) may seem dated, if not questionable, given the situational emphasis (Mischel, 1979) and idiothetic thrust (Lamiell, 1987) of personality researchers and theorists today. However, trait theory has its defenders when it comes to criminal personality profiling, because the "person variable" repeatedly shows a greater consistency and weight when we move from normal to pathological populations (Alker, 1972; Ellerby, 1986; Endler, 1973; Endler & Okada, 1975; Moos, 1968, 1969). Regarding the realm of applied forensic psychology, criminal personality profiling appears to benefit from this trait theory approach particularly when examining scenes that exhibit significant degrees of psychopathology.

Rationale for this Study

Given the growing use of the personality profile and the fact that this growing use is largely supported by testimonials and accuracy figures that were not obtained through controlled studies, this research was undertaken to provide more precise answers to both *outcome* and *process* questions.

Regarding outcome, is the profiling of the experts accurate, and to what degree? Said another way, can the professional profilers' claim of expertise in criminal personality profiling be substantiated, when compared against control groups of experienced detectives, clinical psychologists, and college students? This outcome question will be tested using a homicide case (Burgess et al., 1986; Ellerby, 1986) and a sex offense case (Ressler et al., 1986; Scolatti, 1986).

The second major question concerns the *process* of criminal personality profiling. That is, how do profilers and nonprofilers organize and recall knowledge related to crime scene investigations? Like the master chess player (Chase & Simon, 1973), mathematician (Larkin, McDermott, Simon, & Simon, 1980; Schoenfeld, 1980; Simon & Simon, 1978, 1979), and physicist (Larkin, 1979, 1980), experienced profilers may be able to give meaning to what might appear to the nonprofiler as random, inconsequential, or illogical. It is assumed here that because of this imposed meaning, the expert will organize and recall the details of the crime differently from the novice. In short, both qualitative and quantitative process differences should emerge between profilers and nonprofilers.

The specific research hypotheses include the following:

1. Profilers will write more detailed, informative profiles than any other group.
2. Detectives, who are trained to look at and examine every detail on a crime scene, will recall a greater number of details than any other group.
3. Profilers, who are trained to discriminate relevant from extraneous details, will recall a greater number of details that are necessary and important to writing a profile.
4. Profilers will describe more accurately the suspect in the sex offense than in the homicide offense. In the sex offense case, the profilers are supplied with a victim statement that generally gives a narrative of the crime as it occurred, but in the homicide case, no such witness statement is typically available.
5. In the professional groups (profilers, detectives, and psychologists), (a) profilers will examine each detail of a crime scene, attempting to give reason for each detail—as well as the motivation for the overall act; (b) detectives will look more to the motivation of the act (crime) itself without looking at the individual reasons for each detail on the crime scene; and (c) psychologists will examine some individual details and attempt to determine motivation, but they will remain unclear as to which details are of significance.

METHOD

Subjects

Of the 28 subjects used in this study, four (Group A, Expert/Teacher) were profiling experts who train police detectives in profiling at the F.B.I. Academy in Quantico, Virginia. Each of these subjects is or was an agent with the Federal Bureau of Investigation. They share a combined total of 42 years of profiling, with a range of 4–17 years experience. The authors were unable to locate sufficient numbers of expert/teachers who were both actively engaged in profiling and willing to cooperate in this study. Two of the four designated expert/teachers used in the study are no longer involved in profiling.

Six subjects were police detectives from different police agencies across the country who have been specially trained in personality profiling (Group B, Profilers). The course of studies involved 1 year at the Behavioral Science Unit of the Federal Bureau of Investigation in Quantico. These six profilers have a combined total of 65 years as detectives in law enforcement (range = 7–15), and 14 years of combined experience in profiling (range = 1–6).

Six detectives (Group C, Detectives) from a large metropolitan city police department made up another subject group. Though these detectives have no training in personality profiling, they are experienced police investigators in both homicide and sex offenses. They share a combined total of 93 years in the police

department and a combined total of 57 years experience in criminal investigations (range = 6–15).

Six clinical psychologists (Group D, Psychologists), naive to both criminal profiling and criminal investigations, were used. The psychologists share a combined total of 85 years as practicing clinicians (range = 7–24). For all of the subjects in Groups A, B, C, and D, participation was voluntary and no remuneration was received.

Six undergraduate students (Group E, Students) from a large metropolitan university naive to both personality profiling and criminal investigations were used. These students were drawn from several general psychology classes. The average age of the students was 19. For the students, participation in this study was voluntary, and each was given $10 for participation in this study. All of the subjects were treated in accordance with APA's Ethical Standards.

Materials

Two crime scene investigations of "closed cases" were used: these cases involve actual crimes that have been solved (an individual has been arrested, charged, and convicted of the crime). One case involved a homicide and the other involved a sex offense.

The materials in the homicide case included:

1. Fourteen black-and-white crime scene photographs.
2. Information concerning the victim of the crime (victimology report). This material was compiled from statements given by relatives and friends as found in the police reports. The victim data included race, age, education, residence, physical disabilities, drug and alcohol use, and reputation, according to friends.
3. Autopsy and toxicology reports. These reports were provided by the medical examiner's office, and included the cause, manner, and mode of death. The toxicological examination of body fluids and organs is performed in order to determine if any chemical agents were present in the victim's system that would be related to his or her death.
4. Crime scene reports. These included the report of the first uniformed officer on the scene, the detectives' reports, and the follow-up investigative reports as provided by the police department. These reports included date and time the body was discovered, and by whom, the area where the body was found, and the condition and arrangement of the body.

The materials in the sex offense case included:

1. Detailed victim statement. The victim's statement of what happened and what the offender did and said, as she relayed it to the investigative detectives, was combined with the crime scene reports. The crime scene reports included the reports of the first uniformed officer on the scene, the detectives' reports, and the follow-up investigative reports as provided by the police department. Included in the report were the date and area of the

sexual offense, the race, age, and occupation of the victim, as well as the events that led up to the rape, the rape itself, and the events that followed the rape.

2. Victimology. This comprised information concerning the victim of the crime. This material was offered by the victim herself as found in the initial police report. This information included the race, age, and occupation of the victim. Her physical appearance and personality as described by her friends as well as by the detectives who interviewed her were also given. A history of the victim's alcohol and drug use was included.

For both cases, the materials were sanitized to protect the identities of both parties involved in the crime, as well as the police agencies. This unavoidable necessity meant that some material ordinarily available to profilers (e.g., maps of geographical area and neighborhood) was absent here. Prior to final selection of the cases, a search of newspaper and magazines from the areas in which the subjects resided was made. This search revealed no major news coverage of either case. As a check on "prior familiarity," all subjects were instructed (on the Information Sheet each completed) as follows: "During any part of this experiment, if you feel you are at all familiar with either of these cases, please inform the experimenter immediately."

Procedure

The study was administered in six stages.

1. All members of each group (A, B, C, D, E) were given either the homicide or the sex offense case to read. The cases were given in a balanced order. The subjects were told to read all the information concerning the particular case before them, and that after they completed the reading, they would be asked some questions concerning the materials.
2. Next, each subject was asked to cover all the material and to write down as many details of the case as the subject was able to recall.
3. At the completion of the recall of details task, the subjects were asked to follow a two-step procedure. Using the list of details that the subject recalled and wrote in Stage 2, the subject was asked to (a) write down all those details from the crime scene that you feel are *necessary and important* to be used in writing a profile concerning the characteristics and traits of the *kind or type* of person who would commit such an act as the one about which you just read, and (b) write down the *reason why you feel these details are important,* that is, what these details tell you about the person who committed this particular crime.
4. Each subject was then given the case jacket again and was asked to write a profile of the type of person who committed the crime they had just read and to give as much detail as possible. This step was recorded on audio tape.
5. Next, each subject was given a multiple choice question sheet which consisted of 20 questions about the suspect. These questions asked about the suspect's gender, age, race, and residence in relation to the occurrence of

the crime; employment data regarding type of occupation and work habits; suspect's use of alcohol and illicit drugs; vehicle; victim–offender relationship; likelihood that the offender committed similar crimes in the past as well as the likelihood that this particular offender will commit a similar act in the future. Five of these 20 questions were not scored because there were no correct answers to these questions (e.g., level of confidence in the subject's own prediction that the offender had a police record). For the remaining 15 questions that were scorable, the gender question had only two choices, whereas the other questions had 4–8 choices, with a total of 69 possible choices for the 15 questions.

6. The last step was a lineup task. Five written descriptions of possible suspects were given to each subject. From the five descriptions, the subjects were asked to order each of them, ranging from one to five, with number one being the suspect whom the subject thinks committed the crime, and number five being the person the subject thinks is least likely to have committed the crime. These descriptions of possible suspects varied in the number of correct and incorrect items.

Having completed Step 6 for the first case, each subject was asked to follow the same procedure—this time, analyzing the second crime.

The only procedural differences occurred with Group A, the expert/teacher profilers. Specifically, they were not asked to complete Sections 2 and 3 of the procedure, as the purpose of using these expert/teacher profilers was only to determine a base line for a comparison of the responses of the expert profilers with the other groups.

One section was performed by the expert/teacher profilers alone. At the completion of the Response Questionnaire Concerning Offender form for both the homicide and sex offense cases, the expert/teacher profilers were asked to complete the Probability Rating form in two different ways. First, these subjects were asked to rate their answers to the Response Questionnaire Concerning Offender form along an 11-point continuum. The weight given to each response was designated as: 0 = *impossible;* 5 = *uncertain;* 10 = *certain.* The subjects were informed that their responses could be placed at any point along the 11-point continuum. The expert/teacher profilers rated their answers to the questionnaire first, then they were asked to rate the remaining possible answers in that same question. In the second step, the expert/teacher profilers were supplied with the correct answer to each of the questions of the Response Questionnaire Concerning Offender form. The subjects were informed that the correct answer was to be regarded as a 10 on the same 0–10 scale, with 10 being regarded as certain. Knowing the correct answer to each of these 15 questions, the subjects were to score each of the other possible choices in its relative reasonableness as correct answers.

The Profile as an Investigative Aid

After all subjects in all groups had completed these procedures, five representative profiles, one from each of the five groups (expert/teachers, profilers,

detectives, psychologists, and students), were selected in the following manner: The longest and the shortest profiles were eliminated, and then one was randomly selected from the remaining profiles. The profiles contained no information that would link the author to a particular group (i.e., expert/teacher, profiler, detective, psychologist, student). Five detectives from a large, Eastern, metropolitan police department, who were not involved in any other part of this study, were given these representative profiles and the following instructions:

> Looking at the following five profiles, which profile might provide you with some assistance if you were investigating this homicide? Please rank order these profiles from one to five, with number one being the profile you feel might best assist you and number five being the profile which you feel would be of least assistance in your investigation.

RESULTS

Outcome Analysis

The Written Profile

If expertise differs between the profiler group and the nonprofiler groups of detectives, psychologists, and students, the written profiles, of all the outcome and process measures, should reflect such differences. It is, after all, the written profile task which is most representative of what profilers actually do in their work. It was hypothesized that the profilers would write richer (i.e., more detailed) and more accurate profiles than subjects in the nonprofiler groups. The profiles that were written by each subject in each of the four groups were analyzed for (a) the *time* spent doing the report, (b) the *length* of the report, (c) the *number of predictions* made concerning the offender, the number of those predictions that were (d) general or (e) specific in nature, the number of those predictions which were (f) confirmable and nonconfirmable (i.e., able to be determined by the police reports as a correct statement), and the number of (g) accurate predictions where the predictions were confirmable (see Table 1).

For both the homicide and the sex offense cases, the profiles written by the professional profilers were indeed richer than the nonprofiler groups of detectives, psychologists, and students. An analysis of the subjects' responses using both multivariate (MANOVA) and univariate (ANOVA) measures (a 4×2 design, 4 groups of subjects, 2 cases) showed a significant main effect difference for the groups variable across all seven dependent measures, $F(3,37)$ values ranged from 9.32 to 20.91, all at $p < .001$. In addition, Scheffe (Hays, 1963) post hoc analyses revealed significant differences between profiler versus nonprofiler groups, law enforcement versus non-law-enforcement groups, and between professional versus nonprofessional groups for all seven dependent measures.

For the cases variable, there were significant main effects for five of the dependent measures ($p < .05$), with only the "time spent writing the report" and the "length of the report" variables failing to reach significance. Subjects in all groups recalled more details and made more predictions concerning the sex of-

Table 1. Analyses of the Written Profiles of the Homicide and Sex Offense Cases for Profilers (P), Detectives (D), Psychologists (Psy), and Students (S)

Area of analyses	Homicide[a]				Sex offense			
	P[b]	D	Psy	S	P	D	Psy	S
1. Mean time spent writing report (in minutes)	28.0	7.5	10.3	4.2	24.8	16.6	9.0	8.33
2. Mean length of report (in pages)	10.2	3.8	3.3	1.7	12.0	2.7	3.8	2.3
3. Mean number of predictions	82.8	33.2	27.8	13.2	130.6	47.2	53.6	23.7
a. Mean number of predictions in seven special categories	9.0	1.3	.5	.2	17.2	2.8	1.2	.6
4. Mean number of general predictions[c]	16.0	10.7	10.3	5.6	34.4	17.4	21.2	10.2
5. Mean number of specific predictions	66.8	22.5	17.5	7.5	91.2	29.8	32.4	13.5
6. Mean number of confirmable predictions	38.1	19.0	14.3	7.5	53.2	24.0	25.6	11.2
7. Mean number of accurate predictions	29.1	15.8	10.8	6.3	43.8	19.4	21.0	10.2

[a] For variables 3–7, the F values were all significant at $p < .05$, showing a "case" main effect.
[b] For variables 1–7, the F values were all significant at $p < .001$, showing a "group" main effect.
[c] Only for variable 4 was there a significant ($p < .05$) Group × Case interaction effect.

fense case than they did in the homicide case, with the profilers and psychologists showing the largest increases.

Looking at the detectives' rankings of which profile might best assist in an investigation, 80% of these independent detectives ranked the expert/teacher profile as the one they felt would assist their investigation the most; 80% ranked the profile written by the professional profilers as their second choice. This was followed by 80% selecting the detective's profile as their third choice, and 80% selecting the psychologist's profile as their fourth choice. There was 100% agreement that the student profile ranked fifth of the five choices.

Correct Responses

Accuracy measures for the Response Questionnaire Concerning Offender were computed on the basis of 15 possible correct answers, and all groups were significantly above chance performance in terms of the number of correct responses. A chi-square test found significant difference among the groups for the sex offense case, χ^2 (3, N = 24) = 10.85, $p < .05$; such difference was not found for the homicide case. Further analyses for the sex offense case showed that profilers scored significantly better than the other three groups combined, χ^2 (1, N = 24) = 5.69, $p < .05$; that the law enforcement groups of profilers and detectives did better than nonlaw enforcement groups of psychologists and students, χ^2 (1, N = 24) = 8.2, $p < .05$; and that the professional groups of profilers, detectives, and psychologists did better than the nonprofessional group of students, χ^2 (1, N, = 24) = 4.90, $p < .05$.

An analysis of the specific questions for each case shows that profilers achieved higher group scores for the sex offense case in questions dealing with the age of the offender, the education of the offender, age, and condition of the

offender's automobile, and the victim–offender relationship. The profilers did not achieve higher scores than subjects in the other groups in these same categories for the homicide case, however. It was the detective group that scored higher in the homicide questions dealing with the offender's employment and the offender's residence in relation to the crime scene.

Table 2 shows the number of correct responses by group and case. While there was some variability within groups, there were no examples of any extreme ranges.

Accuracy Scores

The subjects' responses on the Response Questionnaire Concerning Offender form were analyzed in a different way by first deriving two sets of "accuracy" scores for each subject. The argument for this type of analysis is that all "incorrect" answers are not equally incorrect: Some incorrect answers are closer to the mark; others are far afield. Hence, the subjects' responses were converted into accuracy scores using weighted values for each of their 15 responses to the 15 scorable questions.

These weighted values were derived from scores obtained from expert/teachers (see Method section). A "judgment" score and a "reality" score were then computed for each subject, where the score for both judgment and reality could range from a minimum of 0 to a maximum of 150. An analysis of variance of judgment (4) Group × (2) Case and reality, (4) Group × (2) Case scores was computed, and a significant group effect resulted only for the reality scores, $F(3,40) = 3.28$, $p < .05$, for the sex offense case only. Only the profiler versus student group comparison was significant, $F(3,40) = 2.84$, $p < .05$.

Lineup Rankings

The question here was this: Would profilers be more apt to identify the correct offender from the lineup than would the other groups? In the sex offense case, the expert/teachers were accurate in picking out the offender 100% of the time, and the profilers were accurate 83% of the time. As for the other groups,

Table 2. Mean Number of Correct Responses to the Response Questionnaire Concerning Offender Form by Group and Case[a]

	Homicide[b]		Sex offense[b]		Total[c]	
Group	Mean	*SD*	Mean	*SD*	Mean	*SD*
Profiler	5.3	0.80	10.0	1.15	15.3	1.60
Detective	7.0	2.50	8.5	1.54	15.5	2.40
Psychologist	6.0	1.20	6.5	1.43	12.5	2.40
Student	6.5	1.50	5.5	0.80	12.0	2.50

[a] The 15 questions contained a total of 69 possible choices. If subjects were responding randomly, by chance they would get approximately 3.3 questions correct for each case.
[b] Maximum possible score = 15.
[c] Maximum possible score = 30.

accuracy is lower, and declines as we move from detectives (67%) to psychologists (50%) to students (16%).

Results varied between the sex offense and the homicide case in group ability to recognize the correct offender from the lineup. First, the percentages of correctly recognizing the homicide offender from a lineup were lower than the sex offense case for all the groups. And second, although the expert/teachers and profilers were more accurate than the other groups for the sex offense case lineup, these results were not reproduced for the homicide case lineup.

Process Analysis

Recall of Details

Given that the profilers scored better than the other three groups for the sex offense case, the question can be asked as to what accounts for these differences. Are the profilers processing the information given to them in ways that are different from the other three groups?

The first process area examined is the recall of details concerning the crime. From the lengthy list of details recalled by each subject, the number of correct details was tabulated for each case (see Table 3). In the sex offense case, there was no significant difference among the groups, although a significant difference did result for the homicide case, with profilers recalling more details than the nonprofiler groups of detectives, psychologists, and students. As to the hypothesis that detectives, of all the groups, would recall the greatest number of details, this was not confirmed. It is profilers who recall the most details.

Details as Necessary and Important

The questions that arise here are these: (a) Do profilers, as opposed to the nonprofiler groups (detectives, psychologists, students), cite more details as necessary and important, and (b) do they make different types of attributions, and

Table 3. Recall of Details by Group and Case

	Number of details recalled			
	Homicide		Sex offense	
Group[a]	Mean	*SD*	Mean	*SD*
Profiler	54	25.6	51	2.4
Detective	44	16.6	54	21.3
Psychologist	38	10.4	48	2.4
Student	35	5.2	47	2.4

[a] The n's for each group = 6. The profiler vs. nonprofiler (detective + psychologist + student) comparison, χ^2 (1, n = 24) = 24, $p < .01$. The law enforcement (profiler + detective) vs. nonlaw enforcement (psychologist + student) comparison, χ^2 (1, n = 24) = 22.8, $p < .01$. The professional (profiler + detective + psychologist) vs. nonprofessional comparison, χ^2 (1, n = 24) = 12.10, $p < .01$.

come up with different kinds of correlations or implications from these details? As it turns out, profilers do cite significantly more details as necessary and important than nonprofilers for the sex offense, χ^2 (1, N = 24) = 8.0, $p < .005$, and the homicide cases, χ^2 (1, N = 24) = 14.7, $p < .005$ (see Table 4).

To answer the second question, the subjects' answers to why they thought these details were necessary and important and what types of attributions they made from these details were evaluated and placed in one of three categories: (1) *specific psychological attributions given to a specific detail of the crime scene* (specific–specific); (2) *broad, global, and general attributions given to a specific detail of the crime scene* (specific–global); (3) *broad, global, and general psychological attributes given to the general crime scene, without regard to specific details of the crime* (global–global).

To check the reliability of assigning these responses to one of the three categories, a second rater conducted an independent evaluation of these responses. The rater's results were consistent with the first author's, as a Pearson product–moment correlation coefficient of r = .94 (Edwards, 1976, p. 35) was obtained.

Profilers, it can be argued, would attend to more specific details of the crime scene and make more specific attributions about the offender. The results do not support this hypothesis. For the sex offense case, profilers used the specific–specific category 42% of the time, whereas detectives used it 49% and psychologists 52% of the time; for the homicide case, the percentages were 61%, 57%, and 56% for the three groups, respectively. In both cases, the profilers, detectives, and psychologists most frequently used the specific–specific category (see Table 4). Although the profilers are not processing the data in qualitatively different ways from the nonprofilers, as the numbers show, they are doing more of it.

Table 4. Type of Detail–Type of Attribution for the Homicide and Sex Offense Cases by Group

	Type of detail–type of attribution									
	Specific–specific			Specific–global			Global–global			
Case/group	*n*	Percent	Rank	*n*	Percent	Rank	*n*	Percent	Rank	Total
Homicide[a–c]										
Profiler	56	61	1	32	35	2	4	4	3	92
Detective	36	57	1	20	32	2	7	11	3	63
Psychologist	42	56	1	32	43	2	6	8	3	75
Student	11	34	2	18	56	1	3	9	3	32
Sex offense[d–f]										
Profiler	35	42	1	29	35	2	19	23	3	83
Detective	35	49	1	25	35	2	12	16	3	72
Psychologist	28	52	1	18	33	2	8	15	3	54
Student	16	35	2	26	57	1	3	6	3	45

[a] For the type of detail-attribution by group, the overall χ^2 (6, n = 24) = 10.14, n.s.
[b] The Kendall W = .81.
[c] For the total number of detail-attribution by group, the χ^2 (3, n = 24) = 29.2, $p < .01$.
[d] For the type of detail-attribution by group, the overall χ^2 (6, n = 24) = 11.7, n.s.
[e] The Kendall W = .81.
[f] For the total number of detail-attribution by group, the χ^2 (3, n = 24) = 13.9, $p < .01$.

DISCUSSION

Concerning the outcome issue, professional profilers are more accurate (i.e., more correct answers, higher-accuracy scores, more correct lineup identifications) for the sex offense case than nonprofilers, but these accuracy differences dissipate when we look at the homicide case. There were, however, significant outcome differences between profiler and nonprofiler groups for the homicide case in all the analyses of the written profile.

While the overall outcome superiority of the profilers is most likely indicative of greater expertise, it must be kept in mind that an "investment" factor could also be invoked to explain these results. Psychologists and students may see this task as an interesting exercise, whereas profilers, and detectives, perhaps, see it as the "blood and guts" of their professions, and therefore generate lengthier profiles and spend more time on the task.

What accounts for the fact that profilers do better than nonprofilers for the sex offense case, and the fact that the outcome advantage is muted for the homicide case? One possibility that cannot be overlooked is the effect of sanitizing the crime reports. In compliance with the requests of the police agencies that offered these criminal cases, the cases had to be sanitized to the extent that no one reading them could identify the police agencies, the victims, or the offenders. Consequently, some of the very detailed information concerning the victims had to be deleted from the case file.

All of the profilers spontaneously mentioned that data were missing, whereas none of the other subjects mentioned it. Perhaps the absence of a very detailed and extensive report affected the profilers more, and particularly for the homicide case.

A second possibility is that there was more information, and more accurate information, for the profiler to work with in the sex offense case than in the homicide case. In sex offense crimes, the victim is available to offer details concerning the crime. The victim can relate what the offender did prior to the actual assault, during the assault, and following the assault. The very approach that the sex offender uses on his victim will tell the investigator a great deal about the offender (Groth, Burgess, & Holmstrom, 1977; Hazelwood, 1983; Macdonald & Michaud, 1987). As Hazelwood (1983) states: "Through an analysis of the offender's verbal, sexual, and physical behavior, it may be possible to determine what needs were being served and to project personality characteristics of the individual having such needs" (p. 25). This information is lost when the victim is not able to relate to the investigator just exactly what happened, as in a homicide case. For the homicide case, the profiler must reconstruct the crime with no verbal help from the victim, and this increases the probability of inaccuracies. One area of future research might examine the possible differences among profilers' offender profiles for homicide cases that have no witness to the crime and homicide cases where a witness to the homicide is available.

A third possibility as to why the profilers completed a more accurate profile on the sex offense case than they did on the homicide case relates to the pecu-

liarities of this particular homicide case: That is, in a few but significant ways, the offender did not fit the base-rates. Two common base-rates that are frequently used are the victim's age and the victim's race in order to suggest the age and race of the offender. It has been found that violent crimes are generally perpetrated upon members of one's own age group and are intraracial in nature (U.S. Department of Justice, 1987). Thus, where a white victim, approximately 25 years of age, is found murdered, the investigators might begin by narrowing the possible field of suspects to a Caucasian between the ages of 18 and 28. Because most violent crimes are committed by males, the profile might also suggest that—if there is no specific reason to think the crime was committed by a female—the offender will be a male. From these base-rates that suggest age, gender, and race, further assumptions and attributions are made. For example, if the offender is a white male between the ages of 18 and 22, some assumptions concerning his education, employment, marital status, and military record can be suggested.

What is problematic in this homicide case is that the offender did not fall within those age base-rates. Though he was a white male, his actual age was much higher than the victim's age. If the offender had been the same age as the victim, given the type of murder and defilement of the body, it would be most unlikely for this offender to have been married. Falling outside the base-rates again, this offender was, in fact, married. The errors of the expert/teacher profilers and the errors of the professional profilers were errors generally involving these base-rates. Their responses were within the distribution of the base-rates for such crimes. This same base-rate explanation might also be applied to the homicide lineup exercise. Most groups chose Profile D as their first choice (i.e., the profile that ranked fourth in correctness) because this profile fit the general and accepted base-rates in certain major categories for this kind of crime better than any of the other profiles.

It may seem surprising that the accuracy scores for the nonprofiler groups of detectives and psychologists came as close to the profilers as they did. Why were not greater differences observed between profilers and the nonprofiler groups? Two answers to this question are offered. The first is found in the very instruments used to test these differences. The use of a multiple choice questionnaire to determine measures of accuracy favors the nonprofiler groups because it gives the subjects cues as to what the possible answers are: It gives the subjects "categories" (i.e., the focal area of the question) that they might not ordinarily think about, and it gives a set number of possible choices. The correct responses of the nonprofiler groups may be artificially raised so that the true differences between profilers and the two nonprofilers groups of detectives and psychologists may be somewhat muted. This possibility seems to be borne out when a close examination of the written profile is made. It is in the written profile task—when a blank page was given to the subjects and they were required to write a profile without the assistance of cues—where significant outcome differences emerged. In the written profile, the more representative task of criminal personality profiling, the profiler group was clearly superior.

A final point on why the differences in outcome are not significantly higher for the profiler group than the nonprofiler groups: the small number of subjects.

With a larger sample, the differences are more easily and more accurately measured (Freedman, Pisani, & Purves, 1978).

Concerning the process issue, in general, profilers do not appear to process the material in qualitatively different ways from nonprofilers in their construction of profiles. There are, however, numerous quantitative process differences that favor the profiler over all nonprofiler groups for both cases.

It was hypothesized that the detectives would recall a greater number of details than any other group, given their training and orientation. A second hypothesis was that the profilers would recall more details that were necessary and important to profiling.

The first hypothesis was not confirmed: Detectives did not recall more details overall; rather, both law enforcement groups (profilers and detectives) recalled significantly more details than the non-law-enforcement groups of psychologists and students. Perhaps, as the expert/novice literature suggests, it is the law enforcement agents' familiarity with these kinds of cases and crime scenes that allows them to organize the information in ways that facilitate recall.

The second hypothesis was confirmed: As expected, the profilers did recall more details considered to be necessary and important to profiling for both cases. Combining these two findings suggests that recall per se is not the crucial factor in explaining why profilers generate more accurate predictions than detectives; rather, it is the profiler's greater ability to extract and designate more details as necessary and important than the detectives that makes the difference. Said another way, it is not a memory difference, but a higher-order extracting difference that is primarily associated with outcome accuracy.

It has been suggested that the process profilers use in deriving their profile follows a WHAT to WHY to WHO pattern. This is to say that once the details of the crime have been collected (WHAT) and the motivations for those particular details have been determined (WHY), the type of offender (WHO) can be suggested. Because we asked all the subjects to tell us their *reasons* for why a detail was important, the processes profilers and other groups used were clearly identifiable. Our analysis confirms that this motivational process is used for examining some details of the crime, but it is not the only process that is engaged. Two others have been identified in this work. Where the WHAT-WHY-WHO process is *motivational* (i.e., seeking the motivation for a crime scene detail) the second process can be described as *correlational,* a WHAT to WHO process. The third process is also correlational, but it involves a second-order correlation: It can be described as a WHAT to WHO followed by further assumptions (i.e., correlations) based on the first WHO prediction. In other words, this third process can be seen as a WHAT to WHO with a correlation/attribution loop.

The second of these processes, the WHAT to WHO, basically involves the profilers' use of correlations and crime base-rates. In knowing, for example, such a specific detail (WHAT) of a crime as the race of the victim, the profilers skip the motivational aspect (WHY) and suggest the same race for the offender (WHO). Psychological reasons or motivational causes (WHY) are not considered in this type of decision on the part of the profilers. Likewise, in the third of these processes, the WHAT to WHO loop, correlations and base-rates continue to be

used. For example, given that a first-level prediction has been made based on base-rates for an offender's age, then a second-level prediction based on base-rates for marital status is made. Again, these assumptions are based not on motivational causes (WHY), but move in an "if-then, if-then" correlational sequence from specific details of the crime (WHAT) toward a more specific portrait of the offender (WHO).

From the results obtained in this work, four suggestions are offered to improve accuracy. The first is to improve the base-rates by increasing the number of details available concerning offenders. The more offenders there are that contribute to the sample population of "homicide offenders" or "sex offenders," the more detailed and specific information is available about these individuals. Perhaps when larger samples are examined, the predictions that are made on these base-rates may increase in validity and in reliability.

The second suggestion is to develop a system of matrices of specific details for crime scenes in order to create convergent and discriminative lines for certain predictors. For example, on a particular kind of crime scene, do certain details (independent lines) tend to converge on a more youthful offender—even when the age of the victim generally might lead one to predict an older offender? And, third, while the offender's motivation to commit the crime might remain a mystery—even to the offender (Dietz, 1985), one area of research that would be of assistance to profiling would examine means by which offender motivation (WHY) can support or confirm the crime base-rates that are used in profiling—or, indeed, direct the profiler's line of thought about a particular offender.

A fourth suggestion derives from the observation that certain profilers were more accurate and more keenly perceptive with certain tasks than they were with others. For example, one profiler studied the medical examiner's report twice as long as any other profiler and incorporated more of this material into that particular written profile. Another profiler spent a greater amount of time studying and reviewing the crime scene photographs. Close examination with a magnifying glass revealed details others missed. A third profiler spent more time discussing the victimology report. Since individual profilers appear to enjoy certain areas of expertise within the general field of profiling, it seems plausible that more accurate and richer profiles would result from "group profiling" than from individual profiling. Empirical testing could determine whether too many cooks (profilers) spoil or enrich the broth.

From the results found here, a more elaborated conceptualization of the process of profiling needs to be developed. It has been shown in this work, as it has been theorized elsewhere (Dietz, 1985), that profiling is a complex process. It involves more than a simple, one-level analysis of crime scene details (i.e., the WHAT to WHY to WHO). The WHAT to WHO and the WHAT to WHO loop are two additional levels of analysis that are used. Thus, a criminal personality profile appears to be the result of a complex, multilevel series of attributions, correlations, and predictions. In conceptualizing this process, the theory of profiling—yet to be fully developed—ought to reflect these complexities. In this regard, conceptual and theoretical development, consistent with emerging empirical results, is needed.

The clinician, long familiar with the clinical versus actuarial controversy (Gough, 1962; Lindzey, 1965; Meehl, 1954, 1965; Phares, 1988; Sundberg, 1977), might well wonder whether this is the theoretical context for situating profiling, rather than the context of personality theory. And at the empirical level, when well-developed computer, actuarial-based profiling does come on-line in the near future, a new test of the seer versus sign controversy (i.e., Will profilers generate more accurate predictions than the actuarial-based computer program?) will be possible. Given that profilers use both motivational and correlational processes to generate predictions, perhaps such empirical tests in the future will reveal that profiling is an area where clinical predictions exceed actuarial. But at this stage in the development of profiling, the first evaluative step is to demonstrate that profilers do better than nonprofilers and to elucidate the processes they use.

In a field still in its nascent stage, the population of "experts" is limited. The sample size of experts was small (i.e., there were only 6 profilers and 4 expert profilers used in this study). The small sample may have limited the significance of the results (i.e., some results failing to reach significance, or reaching only moderate significance) where larger sample sizes might reveal even greater differences. The limited sample size also raises questions of the representativeness of the sample and the generalizability of the results; cautions are thus warranted. A replication of this study, using more subjects is another recommendation.

Though significant results were obtained for the sex offense case, not all results reached significance for the homicide case. Part of the explanation offered for this variance in results was the atypical nature of the homicide case. Specifically, many personal aspects of this particular offender in the homicide case were not consistent with existing crime base-rates. This explanation, though plausible, remains untested to date. Future research in criminal personality profiling should address this issue by using greater numbers of homicide and sex offense cases, as well as cases where profilers neither claim expertise nor typically profile. In the absence, yet, of such studies, generalizations to all sex offense or all homicide cases are not warranted.

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