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STEPS TOWARD TESTING A SCIENTIFIC MODEL OF PROFILING

The scientific model of profiling presented in chapter 11 demonstrates how aspects of motive, personality, and behavior can be integrated to generate predictions about offender behavior that will assist law enforcement investigators in identifying and apprehending unknown perpetrators. Research conducted by Canter and colleagues has also considered an integrated approach to the study of offender behavior. Consistent with the criticisms of the Canter model levied in chapter 5, however, there are limitations to that approach, and the findings of that research therefore require re-examination. Nonetheless, if the relationships asserted by Canter and colleagues (e.g., Santilla, Hakkanen, Canter, & Elfgren, 2003) between crime actions (first-level behaviors) and offender characteristics (second-level behaviors) are treated as hypotheses to be tested within the framework of the current scientific model of profiling, they do serve as indicators of potentially fruitful directions for profiling research. In addition, chapter 11 noted the importance of assessing situational factors to achieve a complete understanding of offenders and offenses. The current model of profiling accounts for the inclusion and description of situational factors through crime reconstruction, with further research being required to understand the relationships between situational factors and aspects of motive and personality.

The next phase in developing a science of profiling is to consider the steps necessary to test the scientific model of profiling proposed in

chapter 11. This chapter describes these steps by considering populations from which to collect data, the types of data that should be collected, the generation and testing of hypotheses important to profiling, and strategies for analysis.

DATA

The first steps in testing a scientific model of profiling are to identify the appropriate population from which to collect data and to carefully consider the types of data that should be collected. Although it may be ideal to collect as much information as possible from as many respondents as possible, the limits of empirical research necessitate that investigators use sampling procedures, which involve collecting information from a limited number of participants in an effort to understand the larger population of interest. Although a discussion of basic research methodology is beyond the scope of this book, there are several considerations regarding the composition of samples and selection of data specific to a study of profiling that are addressed here.

Population

Because the intent of profiling is to generate predictions about the motives, personalities, and behaviors of individuals who have committed criminal acts, the appropriate population with which to conduct profiling research is criminal offenders. There are several choices with regard to selecting a sample to represent this population, with each potential sample reflecting a different phase of the criminal justice system. There are suspects, individuals who have been arrested, individuals who have been selected for prosecution, and convicted offenders. Of these choices, the sample that best taps into the population of criminal offenders is composed of individuals who have been convicted of crimes. Samples of convicted offenders can be found in both state and federal prison systems, and offenders who have conviction records but who are not currently incarcerated may also be found in parole and probationary supervision settings. Other formerly incarcerated offenders may be found elsewhere in the populace; however, additional effort to locate and recruit these individuals for study participation will likely be required.

The selection of convicted offenders as the relevant group for testing the profiling model has one significant advantage and three potential drawbacks. First, the selection of convicted offenders has the advantage over the other proposed samples in that, unlike individuals who have been suspected, arrested, or acquitted, the guilt of convicted offenders has been

confirmed by the criminal justice system, and their cases can therefore be considered to be solved. The determinations of the justice system, although certainly not infallible, are currently the best indicators available with regard to the resolution of case facts and, particularly in cases in which offenders have pleaded guilty or admitted to their offenses, the case events and outcomes can be presumed to be accurate. This is not necessarily the case with samples of individuals who might be selected from cold case files, arrest records, or unsuccessfully prosecuted cases. The guilt of individuals in these samples has not been established, and one therefore cannot assume that they have committed any crimes.

There are three possible drawbacks, however, to limiting research to samples of convicted offenders. These drawbacks take the form of questions that currently have no clear answers. First, are convicted offenders representative of offenders in general? If there are biases in the way that individuals are arrested, prosecuted, convicted, and sentenced, it may be that some offenders go undetected or unpunished while specific types of offenders are disproportionately apprehended and subsequently convicted. These biases may be inherent to the criminal justice system (e.g., prejudice, availability of law enforcement in particular neighborhoods), or they may be offender specific (e.g., more intelligent offenders avoid detection). If such biases are indeed present, then researchers must give consideration to the possibility that their research findings will apply only to other convicted offenders, and not necessarily to the larger offender population.

Second, if convicted offenders are in fact different from offenders in general, can profiling research still generate predictions that will be of use in the field? As discussed in earlier chapters, profiling as an artful practice has typically been reserved for cases in which traditional law enforcement strategies have been unsuccessful. For study findings to be of use to profiling, convicted offenders would therefore need to be sufficiently similar to offenders who avoid detection. Whether this is the case has yet to be determined, and researchers should therefore use appropriate caution when making recommendations for practice based on data from convicted offenders.

Third, can offenders be relied on to be truthful or insightful about their criminal acts? On the one hand, researchers must consider that any self-report studies of offenders may be biased such that individuals may malingering psychopathology or attempt to present themselves in an unduly favorable light. On the other hand, even offenders who are truthful when providing self-reported information may not possess adequate insight to comment on the motives and personality characteristics that underlie their behavior. Researchers should consider this when reporting on findings gleaned from self-report methods, and they should consider supplementing self-reports with objective measures (see the following "Data" section) whenever possible.

Any studies of profiling should consider and attempt to address these questions, particularly when discussing the generalizability of study findings gleaned from offender data. In terms of choosing a sample to represent the population of offenders, however, these same questions would prove relevant to samples of suspects, arrestees, and unsuccessfully prosecuted individuals and thus do not prohibit one from choosing a sample and beginning the profiling research process.

Although no sample resembles perfectly the population it is intended to describe, to the extent that profiling researchers can compose a sample that approximates the true offender population, findings from research using appropriate samples will have greater application in practice. For example, the larger and more varied that samples of convicted offenders are, the more likely it is that research will be able to capture variations in offender characteristics that may relate to the larger offender population. Thus, to maximize representativeness, samples of convicted offenders used for profiling research should include a wide variety of demographic characteristics (e.g., age, ethnic background, gender, socioeconomic status), geographic locations and characteristics (e.g., East coast, Midwest, urban, rural), jurisdictions (e.g., federal, state, local), and offenses (e.g., violent, nonviolent, sexual).

Data

There are two basic types of data that can and should be collected for profiling research in samples of convicted offenders. First, there are self-reported data. As indicated in the preceding section, this type of data should be treated with caution, as offenders may manipulate their self-presentations or be unable to offer accurate information on their own internal psychological processes. When valid, however, self-report methods are also the most direct way to collect information about latent variables such as motive and personality, because they use the report of the offender himself rather than relying on the observations of a third party. Self-report assessment of offenders can take the form of paper-and-pencil tests or interviews. There are standardized paper-and-pencil instruments and interview protocols for various types of assessment, but self-report data can also be collected in unstructured interviews and questionnaires tailored for recording offender histories and case information.

Second, researchers can review collateral materials that can support, contradict, or supplement information provided by offenders. A wide variety of collateral materials should be considered from a variety of sources, to allow for the most comprehensive picture of the offender and his criminal acts. Examples of collateral materials include juvenile records; medical and

mental health records; school records; employment records; police reports; victim, witness, and offender statements; medical examiner reports; court transcripts; correctional institution records; and interviews with family members, spouses, clergy, friends, coworkers, neighbors, and any other individuals with whom the offender may have had important relationships. Both types of data to be collected—self-report and collateral material—should relate to aspects of motive, personality, and behavior, consistent with the scientific model of profiling described earlier in chapter 11.

Motive

Collecting data in preparation for studies of motive largely limits researchers to the use of self-report methods because, as discussed in chapter 8, motive is a latent variable that reflects states internal to the offender. There is certainly a role for collateral materials in the study of motive, in that certain types of records and interviews with individuals close to the offender may reveal information that supports or contradicts the offender's self-reported motive. For example, an offender might report that he murdered his wife because he discovered that she was having an affair. Financial records, however, might indicate that prior to the murder, the offender took out a life insurance policy on his wife, for which he was made the sole beneficiary. This information might indicate either that the offender's self-reported motive is false or that there was an additional, financial motive for having committed the murder. Thus, collateral information may be useful as a tool to guide interview questions and challenge offenders' statements about motive. It is unfortunate that even though this additional collateral material might allow the researcher to infer, for example, that financial gain was a motive for murder, and the offender might be questioned further as to whether this was indeed the case, the offender will ultimately either confirm or deny the motive, and any determination contrary to the offender's report will necessarily be speculative. When such a conflict arises, the study investigator can choose to rely on collateral materials rather than offender report; however, the choice to exclude one type of data in favor of another would need to be clearly explained and defended.

There are two kinds of self-reported data that should be collected with regard to motive in scientific studies of profiling. These follow from the analysis of motive and behavior conducted in chapter 9. First, offenders should be asked to report on their motives for committing crimes, across a wide variety of crime types. Offenders' responses should be as descriptive as possible, rather than being limited to choices between motives that have been preselected by the researchers. This is because, as evident in the arson studies described in chapter 9, the range of motives even within a single

type of crime can be quite variable. Valuable information may be lost if offenders are not permitted to elaborate on all of their perceived reasons for committing a particular crime. Self-reported data on motive should be sufficiently comprehensive as to allow researchers to assess the variation of motives within a single offender, the variation of motives within a single crime type, and the variation of motives across crime types. It should also be kept in mind that, per the discussions of chapters 8 and 9 and the structure of the profiling model described in chapter 11, data on motive will be collected with the purpose of relating it to offender behavior. Therefore, when presenting questions to the offender regarding the commission of crimes, these crimes should be described in behavioral terms. Thus, asking an offender "Why did the victim have to die during the robbery?" is likely to make it much more difficult to relate his response about motive to behavior compared with asking "Why did you kill the victim during the course of the robbery?"

Second, information should be collected that will facilitate a better understanding of the structure of motive. Recall the model of motive presented in chapter 9. This model proposes that there are various points during the commission of a crime at which motive may develop or change. Thus, in addition to collecting data on specific motives for various crimes, offenders should be asked to reconstruct the development and evolution of their motives throughout the planning (if applicable) and execution of their criminal acts. This reconstruction must also be descriptive but can be aided by questions such as "When did you first decide to commit your offense?", "What were you thinking and feeling when you decided to commit your offense?" "When did you actually commit your offense?" "What were you thinking and feeling at the time when you committed your offense?" and "Was there ever a time when your reasons for committing your offense changed?" These types of questions will allow researchers to collect information on the trajectory of an offender's motive as well as any changes in motive that may have occurred over the course of the crime.

Personality

Like motive, personality is a latent construct that is not directly observable but is instead internal to the offender. Thus, profiling research on personality will also rely heavily on self-reported information, with collateral material helping researchers to elicit and challenge self-reported information. As discussed in chapter 10, a number of personality assessment instruments are available. The recommendations at the end of chapter 10 suggest that although these assessment instruments may continue to be useful for offender research, it may be advantageous to use them in conjunction with a greater consideration of situational factors.

Given the discussion of situational factors in chapter 11, there are two types of modifications that can be made to current personality assessment approaches that may make them more suitable for profiling. Offenders can be asked to report on their personality characteristics separately for various situations. For example, an offender could be asked to complete a personality assessment inventory in a manner that reflects what he is like when he is at work. He could then complete the same instrument with instructions to report on what he is like with his parents. This could be repeated for a variety of contexts and situations, to identify characteristics that are consistent across situations and those that appear to fluctuate depending on context. Such an approach is not limited to paper-and-pencil inventories. For example, offenders could also be interviewed with regard to their personality characteristics in various contexts and situations, to construct the types of if-then contingencies suggested by Alison, Bennell, and Mokros (2002). Offenders could be presented with partial statements such as “When I am around my boss, I act like . . .” or “When I am with my children, I am . . .” and be asked to respond by completing the sentences. In this way, open-ended questioning could be used to allow offenders to generate their own personality descriptors, rather than simply endorsing the predetermined characteristics contained in personality inventories.

Offenders could also be questioned as to the significance of various types of situations to them, and attempts could be made to relate the significance of these situations to the personality characteristics that are elicited. An offender might indicate that when he is around his boss, he feels nervous. He might then indicate that when he feels nervous he becomes introverted, anxious, and quiet. Thus, data might be collected regarding potential relationships both between individual situations and personality characteristics and between the impact of situations and the personality characteristics that are elicited as a result.

As described in chapter 10, the study of personality has a long history, and much research has been invested in the construction and validation of various personality assessment inventories. The goal with regard to collecting data on personality is therefore not to reinvent personality assessment but to attempt to collect information that is more relevant to a criminal investigation. As previously described, one way to accomplish this is to assess personality with a greater consideration of situational factors. In addition, as with motive, researchers should keep in mind that the purpose of collecting data on personality is to use this information to make predictions about behavior. Thus, it would be advantageous to use instruments or measures that will allow the collection of data on separate personality characteristics, such as hostility, introversion, or impulsivity (e.g., Personality Assessment Inventory), rather than using measures that yield information on broader personality types

(e.g., the Minnesota Multiphasic Personality Inventory [Hathaway & McKinley, 1983], the California Psychological Inventory). Although it may be that groups of personality characteristics can be combined to make predictions about behavior, it would also be valuable to be able to identify the individual characteristics that relate to both first- and second-level behaviors.

Behavior

There are two main realms of offender behavior for which data must be collected in a scientific model of profiling: criminal behavior and noncriminal, life behavior. These two realms of behavior correspond to the first- and second-level behaviors of the profiling model described in chapter 11. Self-report measures may be used to collect data on offender behavior, in a manner similar to that suggested for motive and personality. Paper-and-pencil questionnaires can be administered to offenders, inquiring about their criminal and noncriminal activities; likewise, interviews with offenders can be conducted to elicit narratives of criminal acts and other life behaviors. Unlike the assessment of motive or personality, however, behavior is an observable construct, and researchers therefore need not rely solely on self-report that is supplemented by collateral information. Instead, objective accounts of offender behavior should be available from a variety of collateral sources, and in the absence of self-report, behavioral data can still be collected from these sources.

First-level offender behaviors are those involved in the commission of the offender's crimes. In addition to the offender's report of these behaviors, collateral sources likely to contain data relevant to first-level behaviors include police reports, victim and witness statements, and court transcripts. A wide range of crime-related behaviors should be considered to gain a comprehensive assessment of the acts involved in committing the offense of interest. For example, consider a case in which an offender kidnaps a child for ransom. Some obvious data to collect with regard to first-level behaviors might include the snatching of the child and the placement of a phone call demanding ransom. In addition to these behaviors, data should be collected on other first-level behaviors that relate to the planning and execution of the crime, such as the surveillance or stalking of the child, the acquisition of the parents' telephone number, and the preparation of a location to house the child while awaiting payment. Although chapter 7 discussed the need for further research into forensic analysis and crime reconstruction, to the extent that these sources of information are included in collateral case materials they may assist researchers in ascertaining these types of first-level offender behaviors, especially given that solved cases will be used. For example, forensic analyses might trace the origin of telephone

calls placed to the parents' home back to the telephone number of the offender's workplace. Crime reconstruction might then identify a temporal pattern, such that the calls occur only on the offender's shift, with no overlap with coworkers occurring across the total timeline. From this information, it could be inferred that the offender telephoned the parents of the kidnapped child.

Second-level offender behaviors are life behaviors, not necessarily crime related, that may assist in identifying or apprehending an offender. When dealing with offenders who have already been apprehended, there are two ways to approach the collection of these data. The first approach is to actually attempt to ascertain those behaviors that resulted in the offender's apprehension. For example, an offender who murders a victim might come to law enforcement attention because he attends her funeral. Likewise, an offender might be apprehended because he brags to a friend about his crime. In a more complicated situation, such as the husband's murder of his wife, described earlier, the second-level offender behaviors that result in an offender's arrest might include a combination of a history of violence toward the victim, the collection of insurance benefits, and the initiation of a relationship with another woman immediately following the wife's death. With the exception of the bragging behavior, these second-level behaviors do not necessarily implicate the offender conclusively, but they do represent the behaviors that could allow law enforcement to successfully narrow the subject pool down to the correct perpetrator.

The second approach to ascertaining second-level behaviors is to collect a broader range of data on life behaviors with the goal of ascertaining their relationship to aspects of motive, personality, first-level behaviors, and other second-level behaviors. Data to be collected in this category might include social and offense histories; substance use patterns; financial behavior; relationships with family, friends, and coworkers; and marital and sexual histories. These data can be collected from the offender, as well as from official records and interviews with individuals with whom the offender has had relationships. If the offender is incarcerated, data on current second-level behaviors can also be collected from institutional records and interviews with fellow inmates, correctional officers, and individuals who conduct prison programs.

Generating and Testing Hypotheses

Together, the data collected from self-report and collateral sources should reflect a comprehensive body of information that will prepare profiling researchers to test predictions about motive, personality, and behavior. The next step is to consider the types of hypotheses that will be tested with these data and how to test them.

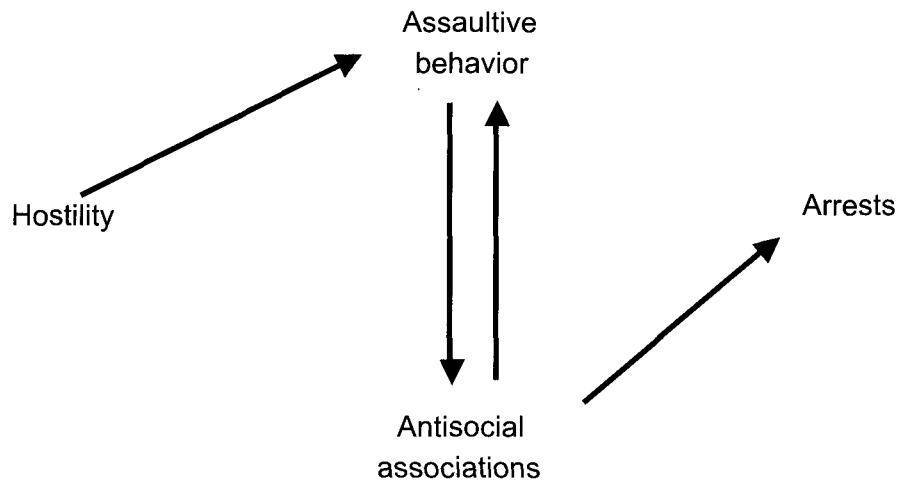


Figure 12.1. Path diagram of variables predicting arrest history.

Causal Modeling

It would be ideal, ultimately, to test a complete scientific model of profiling all at once or, at the very least, examine the relationships contained within large sections of the model. For example, recall Figures 11.3 and 11.4. In one section of this model, hostility predicts a previous history of assaultive behavior, which predicts, and is predicted by, having antisocial associations, which in turn predicts a prior arrest history. If this entire section of the model could be tested, it might be possible to determine the strength of each variable as an ultimate predictor of arrest history. Perhaps hostility is the main predictor of arrest history, with assaultive behavior and antisocial associations acting as intervening variables through which hostility exerts its influence. Or perhaps prior assaultive behavior is the primary predictor of arrest history, with hostility and antisocial associations acting as only minimal influences.

One way to approach a simultaneous analysis of the variables just described is to use causal modeling to posit and then test their relationships to each other. Causal modeling is a heuristic device that can be used to map out the causal relationships between variables and construct arrow diagrams, or path diagrams, similar to those presented in chapter 11, to reflect these processes. If the section of Figure 11.4 that deals with hostility and arrest history is separated from the rest of the robbery example, it can be represented as the path diagram seen in Figure 12.1. In this diagram, the arrows depict the proposed causal relationships among the variables of interest. Thus, hostility is proposed to cause assaultive behavior, assaultive behavior and antisocial associations cause each other, and antisocial associa-

tions cause arrests. In addition, the arrows indicate that hostility causes arrests, when assaultive behavior and antisocial associations are also taken into account.

These statements expressed by the path diagram may initially seem strange, because of the use of the term *cause*. In the common vernacular, *cause* typically indicates a one-to-one relationship between an action and its effect. For example, pouring water on something will cause it to get wet. In a similar way, blowing on a candle flame will (in most cases) cause it to extinguish. Thus, it may seem like an overstatement to suggest that having antisocial associations will cause someone to engage in assaultive behavior, or to be arrested. In causal modeling, however, the term *cause* is treated somewhat differently. When expressing relationships between two variables, Variable X is considered to be a cause of Variable Y in two basic situations (J. A. Davis, 1985). First, X is a cause of Y if changes in X produce changes in Y. This is the sense in which it is proposed that antisocial associations cause arrests. If, for example, an offender increases the number of fellow offenders with whom he associates, it may increase the attention paid to him by law enforcement and result in more frequent arrests. If he decreases his antisocial associations, he may be less noticed by law enforcement and be arrested less frequently, even though he might still engage in the same amount of illegal behavior. Thus, changes in the offender's antisocial associations may lead to changes in the frequency and number of his arrests. Second, because some Xs remain constant, X is also a cause of Y when Ys "tend to line up with fixed values of X" (J. A. Davis, 1985, p. 9). For example, if hostility is viewed from the trait perspective in personality, such that it is a relatively unchanging personality characteristic, a causal relationship between hostility and assaultive behavior could be proposed such that hostile people tend to assault others whereas nonhostile people do not. In this example, hostility does not change, but different levels of assaultive behavior are associated with the fixed presence or absence of hostility.

It should also be noted that the proposals contained in causal models reflect averages or tendencies (J. A. Davis, 1985). Individual exceptions to the predictions of the model are to be expected. So, for example, law enforcement investigators may encounter individual offenders in the field who have a lengthy arrest history but do not associate with other lawbreakers. Likewise, there are certain to be individuals in the population who associate with antisocial groups but have never been arrested themselves. In addition, proposing that antisocial associations, for example, are a cause of arrests does not imply that antisocial associations are *the* cause of arrests. Indeed, as is evident in Figure 12.1, there may be multiple causes of arrests. Causal modeling thus represents a set of hypotheses that propose how a set of variables might work together to cause a phenomenon of interest. Determining the actual magnitude of the relationship between variables in

the model may or may not be possible in any given situation, but modeling phenomena causally represents an improvement over “simply correlating independent and dependent variables in a relatively unthinking fashion” (Asher, 1983, p. 9).

Path Analysis

Once causal models have been constructed, it is possible to use empirical data, such as those described earlier in this chapter, to solve for a numerical value for each arrow in the causal model that will indicate the strength of that causal influence (Loehlin, 1998). *Path analysis* is the process of constructing and solving these path diagrams. If the variables in the model are all observable, path analysis is accomplished by calculating the intercorrelations of the variables in the model and using them to calculate the path coefficients. In Figure 12.1, the paths among antisocial associations, assaultive behavior, and arrests could be solved for in this manner, using data from convicted offenders that would include information about previous arrests, history of violent behavior, and the arrest histories of known associates of the offender.

Figure 12.1 also contains a latent variable: hostility. Recall from chapter 8 that the variables of motive and personality cannot be directly observed. Investigators instead must depend on the manifestations of aspects of motive and personality as observable behaviors to determine their presence and role in a given crime. As an aspect of personality, hostility cannot be directly observed. Instead, hostility may manifest itself as assaultive behavior, antisocial associations, and arrests—variables that can be observed and measured according to this model. Solving for the causal pathways in a model containing one or more latent variables is somewhat different from the process just described for observed variables. This is because latent variables and observed variables cannot be correlated with each other. It is possible, however, to solve for the causal paths that involve the latent variable if the model specifies the relationship between the latent and observed variables, and if the correlations between the observed variables are available. Thus, it may be possible to solve for the influence of hostility, given the appropriate data about the observed variables that are contained in the same causal path.

Path-Analyzing a Scientific Model of Profiling

In summary, then, path analysis provides a method for testing the causal pathways proposed by a scientific model of profiling. It accounts for both observed and latent variables and allows for the examination of relationships among variables in a causal context, rather than attempting to conceptualize a model ad hoc after calculating a piecemeal assortment

of correlations between variables of interest. This represents an advantage over the bivariate studies of motive and behavior, and personality and behavior, described in chapters 9 and 10, because it allows for the simultaneous study of multivariate relationships. Path analysis is also more informative than the multidimensional scaling methods used by Canter and colleagues (and Kocsis and colleagues; e.g., Kocsis & Cooksey, 2002; Salfati & Canter, 1991) because it describes the magnitude of causal relationships between variables rather than being limited to associations made by eyeballing data scatter plots with no determination of the strength of those associations or their causal relationships to each other.

Although some aspects of a scientific model of profiling appear ready to be tested by investigators using path analysis, other aspects of the model are not. This is because path analysis requires that the investigator have substantial confidence in the proposed linkages between the variables of interest (Asher, 1983). If there is little confidence in the links between variables, then causal modeling and the resulting path analyses become “fishing expeditions” in which the investigator is repeatedly constructing different combinations of variables without a clear purpose, in the hope of identifying a model that is plausible. In addition, causal modeling and path analysis techniques will not determine the direction of causality between variables (Asher, 1983). Instead, if there is a causal relationship, the investigator must specify this ahead of time, on the basis of sound theory and, ideally, findings from existing research.

The difficulty in applying path analysis to the scientific model of profiling is that, largely owing to the paucity of relevant offender research, many, if not most, of the proposed relationships between variables are not established by the literature. This is why the examples of the scientific profiling model depicted in Figures 11.2 and 11.4 are entirely hypothetical scenarios, and the position of the variables (and hence the direction of causality) in many of the proposed relationships could easily be changed. For example, Figure 11.4 suggests that hostility causes the presence of few prosocial relationships. However, it could just as easily be that having few prosocial relationships would cause an individual to become hostile. Although the structure of the overall model, representing the prediction of crime scene evidence from first-level offender behaviors and the subsequent prediction of second-level behaviors through aspects of motive, personality, and behavior, may remain intact, the details contained in the examples given in chapter 11 might turn out to be quite different if they were based on a body of sound empirical literature.

Research Plan for a Science of Profiling

Given the state of the offender literature related to investigation, and the basic requirements of causal modeling and path analysis just described,

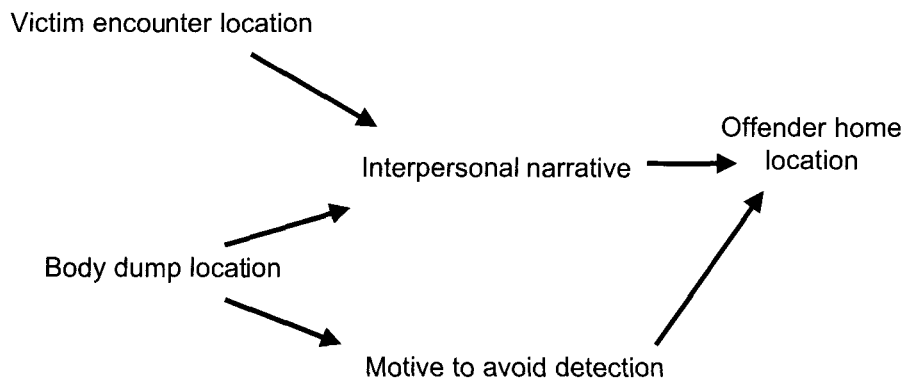


Figure 12.2. Proposed causal model for geographic profiling.

there are two research pathways one can take when embarking on a science of profiling. First, those relationships that have sound theoretical underpinnings and sufficient support in the literature to be causally modeled and path-analyzed should be identified and tested. Currently, there are two main areas in the profiling field for which this would appear to be an appropriate step. Both relate to research from the Canter model: geographic profiling and multidimensional scaling research. Second, in those areas of profiling for which there is not yet sufficient information for constructing and testing causal models, steps should be taken to improve and strengthen offender research in preparation for causal modeling.

Geographic Profiling. The first area in which causal modeling and path analysis could be applied is geographic profiling. As a heuristic technique, geographic profiling has already demonstrated utility in predicting offenders' home locations from certain crime locations, as described by the research of Canter and colleagues (Canter, Coffey, Huntley, & Missen, 2000; Canter & Larkin, 1993; Fritzon, 2001; Godwin & Canter, 1997; Lundrigan & Canter, 2001; Snook, Canter, & Bennell, 2002). In describing geographic profiling and proposing its mechanisms, Canter and colleagues have, in essence, posited a set of causal pathways, such that aspects of interpersonal-narratives theory predict the offender's selection of crime locations in a manner consistent with the locations (including the offender's home) that are part of the offender's daily life. In addition, for cases of serial murder, Canter proposes that the locations at which offenders dispose of their victims' bodies are predicted in part by a motivation to avoid detection but are also consistent with the parameters of an offender's daily life.

Figure 12.2 represents a possible causal model that could be constructed from the principles articulated by Canter and colleagues and the results already obtained in studies of geographic profiling. According to this model of serial killings, the two types of crime locations (point of victim encounter

and body dump location) predict the offender's home location. The victim encounter location predicts offender home location through the aspects of interpersonal narratives that relate to the offender's proclivity for operating within a familiar area. The body dump location predicts home location not only by means of this same variable but also by means of the motive to avoid detection. To test this model, one would need to collect data on offender crime and home locations, similar to Canter and colleagues' previous studies. Unlike previous studies, however, testing the causal model in Figure 12.2 would also involve examining the mechanisms through which crime locations are proposed to predict home locations. Because the variables representing these mechanisms—namely, the aspects of motive and personality contained in interpersonal-narratives theory—are latent variables, consideration would have to be given to how to measure them. As discussed earlier in this chapter, measuring motive will involve relying in great part on the offender's self-report. In addition, however, because the motive of interest is the motive to avoid detection, case materials could be reviewed to assess whether the offender demonstrated this motive in other ways, such as removing forensic evidence or taking precautions such as wearing gloves. Measuring the interpersonal-narratives variable may pose more difficulty. Although the concept of this variable is not entirely clear, it appears to represent the offender's comfort or habitual operation within an area of familiarity. One way to approach the measurement of this variable would therefore be to ask offenders questions related to their familiarity with the victim encounter and body dump locations. Questions such as "Why were you at Location X the day you encountered the victim?" or "Had you ever been to Location Y before that day?" as well as an assessment of the locations that are part of an offender's daily activities might help establish the repertoire of locations in which an offender is comfortable. These questions may only approximate the interpersonal-narratives variable, however, and additional consideration should therefore be given to clarifying the operational definition of the interpersonal-narratives variable and validating whatever measures are ultimately used to assess it.

Once the appropriate data have been collected, the magnitude of the pathways between variables in the causal model can be calculated. This procedure would advance the current state of knowledge about geographic profiling by reinforcing the relationship between crime and home locations already observed in previous research as well as by evaluating the strength of the mechanisms that are posited to explain this relationship.

Multidimensional Scaling Research. The second area of profiling in which it would be appropriate to begin causal modeling and path analysis is the body of multidimensional scaling research conducted by Canter and colleagues. One of the criticisms levied against Canter's model in chapter 5 was that the methods used to test the interpersonal narratives theory and,

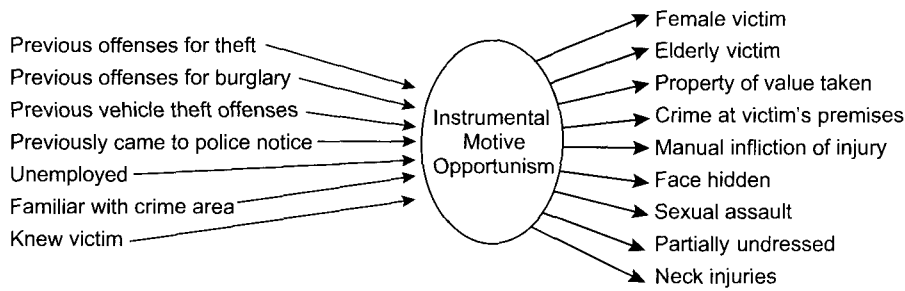


Figure 12.3. Proposed causal model for stranger homicide.

consequently, the aspects of motive and personality contained therein, did not allow the inference of causation or establish an empirical basis for the associations asserted to exist between various crime actions and offender characteristics (first- and second-level behaviors). Causal modeling would allow investigators to test these relationships between crime actions and offender characteristics along with the variables that are proposed to cause them.

For example, Figure 12.3 is a causal model that could be constructed from the portion of the smallest space analysis scatter plot posited by Salfati and Canter (1999) to represent the Instrumental Opportunistic theme within a set of stranger homicides. Recall that Salfati and Canter (1999) reported that this is “a distinct theme of opportunistic victims being targeted . . . where the offender used the victim as an object through which to attain an ulterior motive such as money or sex” (p. 401). The causal model in Figure 12.3 proposes that the offender characteristics identified by the authors predict the presence of this Instrumental Opportunistic theme, which in turn predicts the crime actions evidenced in the sample of homicides. To test this model, an investigator would need to collect two types of data. First, one would need to collect information on the first- and second-level behaviors of homicide offenders, to determine the crime actions and offender characteristics Salfati and Canter described. Second, similar to the previous example of geographic profiling, aspects of the Instrumental Opportunistic theme would need to be operationalized as aspects of motive and personality and measured. One approach to this might be to assess the level of opportunism involved in the commission of the crime, in an attempt to discern aspects of motive. Was the murder committed during the course of another crime? Is there evidence of the type of lack of planning that might accompany an opportunistic offense? Another approach, which could be used in conjunction with an assessment of opportunism, might be to assess instrumental aspects of the offense. Is there evidence of secondary gain? Do offenders report that they committed murder with the motive of acquiring money or

achieving some other benefit? Once the Instrumental Opportunistic theme has been adequately described in terms of motive and personality and has been measured, the model could be tested to determine the relationship between offender characteristics and crime actions, as well as the strength of the Instrumental Opportunistic theme as a mechanism for relating offender characteristics to crime actions. Other offender themes from interpersonal-narratives theory could also be examined in this manner, across the various types of offenses that have been examined with regard to the Canter approach thus far.

Together, the geographic profiling and multidimensional scaling research appear to represent the only current body of profiling principles for which it would be appropriate to begin constructing causal models and conducting path analyses. Although the associations between crime actions and offender characteristics reported by Canter and colleagues have been previously questioned because of the methods used to determine these associations, constructing causal models and solving for the relationships between variables in the models will constitute significant progress toward addressing some of the criticisms levied against findings gained by using the Canter model. The main challenge will be finding ways to measure the offender themes proposed by Canter's interpersonal-narratives theory. Some aspects of these themes are not clearly defined, as discussed previously, and because the elements of motive and personality inherent to these themes are latent, the construct validity of any measures used to assess offender themes must be carefully examined and addressed.

Strengthening Offender Research. There are many areas of profiling for which it is not yet appropriate to construct and test causal models. For example, the literature on personality and sex offending, described in chapter 10, appears to be so equivocal that one would have significant difficulty in asserting confidence in any personality type or characteristic as being a cause of a given sex offending behavior. This is not to say that no relationship between personality and sex offending exists—in fact, the scientific model of profiling described in chapter 11 views aspects of personality (as well as motive) as being essential to every type of criminal behavior. However, because of many of the limitations described in chapter 10, the links between personality and sex offending have not yet been established to the degree that it would be appropriate to include them in a causal model.

For areas of the literature such as this, steps should be taken to strengthen offender research in preparation for future causal modeling. With this in mind, a second research pathway for a science of profiling would be to use data from convicted offenders to attempt to build on the kinds of offender studies of motive, personality, and behavior described in chapters 9 and 10 in an attempt to identify and propose causal relationships between variables in which substantial confidence can be asserted. So, for example,

incorporating the criticisms and recommendations from chapter 10 and the data collection segment of this chapter, personality characteristics could be assessed in a manner that considers situational factors. The personality data could then be compared with data on the first-level, crime-related behaviors of convicted sexual offenders to yield relationships between specific aspects of personality and specific crime-related sexual offense behaviors. Whereas previous research attempted to relate global personality types or clusters (e.g., antisocial/aggressive) to broad categories of offenses (rapists), the type of analysis proposed in this chapter would allow a more precise determination of individual personality characteristics (e.g., impulsivity) and their relationship to types of offense behavior (e.g., father–daughter incest behaviors) and particular settings or situations (e.g., in a stepparent relationship). Findings from this type of research on personality and behavior, along with findings from similar studies of motive and behavior, will assist in building the appropriate research base for the development and testing of new causal models for profiling.