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An Empirical Approach to Offender Profiling

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What is Offender Profiling?

Over the last few years there has been an upsurge in public and media interest as well as scientific research in the area of crime analysis known as offender profiling. The basic motivation underlying the development of this type of analysis is the desire to apply scientific methods to police investigations and thereby increase the likelihood of successful detection of criminals. Whilst the actual methods being explored by various research groups vary considerably, they share a common goal in that all attempt to facilitate detection by objectively predicting characteristics of offenders such as age, personality and life style.

Several methods are available which tackle offender profiling from an analytic bottom-up approach. This profiling has mainly involved using statistical analysis - such as cluster techniques or multivariate analysis - on large data bases to see whether it is possible to classify offenders with respect to aspects of the crime and personal characteristics. As is the case in several other countries, such data bases exist or are in the process of being assembled in the Netherlands. Another method which is currently being used in our institute to develop an offender profiling system for domestic burglaries is based on AI techniques. Using data collected from analyses of police files, transcripts of observations made by the police at the scene of the crime, structured interviews with detectives and interviews with convicted burglars, a computer-based "profiler" is being developed which should be able to assist the police in their investigations.

A further approach to profiling, and the one which we will consider in more depth in this chapter, is that adopted by the American FBI. It is a more top-down oriented approach which is based on in-depth interviews with a restricted number of convicted murderers plus the extensive experience of detectives in the homicide field. It is an investigative technique which seeks to objectively identify the major personality and behavioural characteristics of serious offenders based on an analysis of the crimes he/she has committed. This emphasis means that not all types of crime are suitable for this particular type of profiling. For example, cases involving destruction of property, assault or murder during the commission of a robbery are generally unsuitable since the personality of the criminal is frequently not revealed in such crime scenes. Contact crimes, on the other hand, particularly those where the

criminal has demonstrated some form of psychopathy, seem to offer the best chance of useful information relating to personality characteristics being disclosed. Although obviously an oversimplification, the basic blueprint for the FBI approach involves considering the available aspects of the crime scenes; the nature of attacks; forensic evidence: information related to the victim; then classifying the offender and finally referring to the appropriate predicted characteristics. Results from such investigations are incorporated in a framework which basically classifies serious offenders according to whether they are "organised" (which implies that murderers plan their crimes, display control at scene of crime, leave few or no clues and the victim is a targeted stranger) or "disorganised" (which implies that murders are not planned and crime scenes show evidence of haphazard behaviour), or a mixture of the two. This approach represents an educated attempt to provide law enforcement agencies with detailed information about the personal characteristics of an unknown individual who has committed a violent crime (Geberth, 1981). The information is obviously not summarised and given to the police in the form of the name, address and phone number of the guilty person but is a psychological profile describing the personality of the killer. This profile should then be used by detectives working on the case to reduce the potential search area and to direct their further investigations.

Effectiveness of FBI Profiling Techniques

As readers of *"The Silence of the Lambs"* as well as viewers of numerous television programmes will no doubt be aware, profiles based on the FBI methodology are portrayed as producing a high success rate. Although this may indeed be the case, the claim is not easy to verify independently since, in the main, there is not much published data about FBI cases available. Although the basic blueprint of the approach is clearly described in the training manuals, more detailed descriptions of how specific profiles actually develop from the information available does not appear in the FBI research literature (e.g. Sexual Homicide of 1988). For the reader many explanations no doubt underlying the deductions remain vague and unclear and the processes involved in reaching a personality profile are not revealed. This paucity of information has given rise to the view that profiling may have more elements of an art form than a science: that success is based on educated intuitions resulting from experience rather than on applying scientific measures. Moreover, the lack of a corpus of published studies makes it very difficult to establish how effective profiling techniques actually are. Some members of the Behavioral Science Unit of the FBI are aware of this problem as is indicated by McCann (1992, pp. 479). He wrote, "Another area of potential value is the design of so-called 'consumer satisfaction' studies (...). Under this research paradigm, resulting profiles can be assessed for their accuracy and validity by those who make use of the profiles, namely criminal investigators and police agencies." He did not, however, refer to any studies that had actually explored consumer satisfaction.

Experimental Questions

In 1988-89, crime analysis became an important issue in the Netherlands and this interest led to a Dutch detective, experienced in homicide cases, taking part in a one-year training course in profiling techniques at the FBI Academy in Quantico, Virginia. On his return to the Netherlands, he was seconded to the National Criminal Intelligence Division (CRI) of the National Police Agency where, together with a forensic psychologist, he began offering profiling and investigative assistance to police colleagues who requested help. From the beginning of the contact with the FBI, members of the CRI have been aware of the necessity of objectively evaluating the efficacy of such a project for the Netherlands and of understanding the processes involved in the technique. This has led to collaborative research which is initially exploring three basic questions:

- How do police investigative teams view the advice given by a professional profiler?
- What are the processes involved in criminal personality profiling?
- Are there substantial differences (quantitative and/or qualitative) between the processes used by a professional profiler, an intelligent novice and an experienced detective?

A Consumer Report

The first experimental question focuses on an issue that has a direct bearing on the professed goal of profiling: If the aim of profiling is to objectively predict characteristics of offenders in order to assist the police in their investigations, then surely how the police evaluate the effectiveness of the profiles they are given should be of prime importance. Only by asking the consumers themselves can researchers ever ascertain what, if any, specific profiling information and which particular details are of most assistance in guiding their investigations.

From the very beginnings of the Dutch venture with profiling, the stated desire to objectively evaluate the efficacy of the service as it developed included approaching the consumers. A consumer evaluation study was therefore carried out early in 1993 to gauge police satisfaction with the service (for a full report of the study, see Jackson, van Koppen & Herbrink, 1993). Although almost forty cases had been presented to the CRI team by this time, they were in various stages of completion. In order to achieve some level of conformity, the cases selected for evaluation had to meet several selection criteria. These included the following: the complete set of case papers (i.e., the police files, forensic reports, crime scene photographs, etc.) had to be available to the CRI team; a final report (or profile, if made) had been completed and delivered to the police force; and sufficient time had elapsed for the investigating team to act on the advice given. Twenty cases met these criteria. They

varied from sexual homicide to threat and were not only spread geographically over different regional police forces in the Netherlands but also included two cases in Belgium. The actual breakdown of the cases was as follows: 8 sexual homicides; 4 murders; 4 rapes; 1 disappearance; 2 threat cases and 1 child sexual abuse series. One prominent member (e.g. head of the investigating team) from each case was contacted and an interview was arranged. The questions guiding the interview included the following:

- How did the team know about the services offered by the profiling group?
- Why did the team decide to get in contact with the profiling group?
- What were the team's expectations in contacting the profiling group and what sort of help/advice were they hoping to get?
- How did the team experience the contact at a personal level?
- How did they rate the usefulness of the advice/help they were given - did it meet their expectations or were they disappointed or surprised that the help was in a different direction than they had anticipated?
- Would they ask for similar help in the future or did they have ideas about other sorts of support/advice systems that would be either equally or more beneficial to officers in the field?

The approach adopted to collect answers to these types of question was as unstructured and non-directive as possible although a back-up procedure in the form of a checklist was used in the final stages of the interview to ensure that all of the relevant questions had actually been discussed.

Advice Offered

While it may be assumed that a profiling team's basic task is to produce a profile, such a job description would hide both the depth and breadth of support that such an independent team can actually offer. Trained profilers have high demands in relation to the amount of information they require to produce a profile and when this is not available, no profile is forthcoming. This was also the case in our study: of the 20 cases examined, only six were found by the CRI team to be suitable for profiling. As far as the other 14 were concerned, in some, there was already a suspect in custody; in others, there were simply not enough data available; and in yet another, a disappearance case, there was no crime scene. This lack of suitable information for profiling did not mean, however, that no assistance could be offered. On the contrary, our interviews showed that a whole package of help was available - help of the sort subsumed under the broader label of "criminal investigative analysis" as used by the FBI. This includes advice such as investigative suggestions, personality assessment and interview techniques which may often be as useful to the investigating team as an actual profile. Moreover, the assistance given was seldom simply of one type. Apart from one instance of threat assessment, all the cases we

examined resulted in a combination of assistance being offered (e.g. profile + investigative suggestions + advice on interviewing techniques).

Evaluation of Advice Received

The evaluations of the interviewees were divided into three categories: very useful, reasonably useful and not very useful. The broad conclusion to be drawn from the ratings was that the majority of detectives interviewed could be viewed as satisfied customers: of the 42 evaluations made, only two were viewed in a completely negative light. Of the 7 respondents who had received help on interviewing techniques, all judged the advice to be very useful; of the 8 personality assessments given, 6 were rated as being very useful and 2 as reasonably useful; 12 of the 17 investigative suggestions given were rated as being very useful, 4 as reasonably useful and only 1 as not very useful. In summary, therefore, the great majority of advice falling under the broader label of criminal investigative analysis was rated very highly indeed. Moreover, transcripts of the interviews revealed another important function of the expert team: that of teaching. Irrespective of the crime they had been investigating, the majority of those interviewed remarked spontaneously that the contact with the crime analysis group had been something of a *general learning experience*. They described how much they had learned from the experience of simply discussing the case with experts who were not directly involved in the case, how many new ideas and work strategies they had acquired and how useful these would be in future investigations. While hard to quantify, this teaching role is an important measure of consumer satisfaction and this type of help should be available to police forces who request it.

But what of profiles? Did the positive satisfaction with other types of advice extend to profiles? How successful were they? We have already mentioned that only 6 of the 20 cases studied actually resulted in a profile being produced. Four of these six related to sexual homicides, one to a rape case and the other to a child sexual abuse series. Judgements in relation to the six profiles were mixed with two being judged as positive, three as intermediate and one as negative. Drawing conclusions from such judgements is therefore difficult. Another means of evaluating profiles of course would be to look at success rate. Did the profiles that were made actually help the police to the extent that the perpetrator was found? In the first instance, the answer to the question seems to be negative with no criminal yet being caught as a direct result of the profiles made. We must not be too quick to censure profiles, however. A further investigation of the possible reasons for lack of success given by the interviewees themselves revealed that in 4 of the cases the profile as such was not actually used. In two cases, the reasons appear to be of a financial or organisational kind. Another reason for the lack of acceptance in a couple of cases related to differences of opinion between the police investigation team and the CRI team that resulted in little use being made of the profiles. Given that this evaluation

study was carried out retrospectively and the subjective views of all those interviewed may therefore be confounded with both memory and hindsight bias problems. It is difficult to do more than simply state these differing views. At present, we have no way of evaluating whether the profile was indeed inadequate or wrong or whether we are dealing with a case of inflexibility in the teams involved.

Another type of criticism that was expressed by the persons involved in a number of the cases was more fundamental and therefore also more worrying. The criticisms related to the generality of the profile and thus to the lack of specific detail. Perhaps the teams who made such criticisms were dissatisfied because their high expectations were not met. A number of those interviewed did certainly indicate that they had expected far more detailed information, perhaps not at the level of a name, address and telephone number, but certainly more than the generalities they thought they were given. Such criticisms bring us round to the other basic question we are interested in, namely the processes involved in producing a profile.

The FBI approach has developed over the years into a systematic process that follows a sequence of widely accepted stages. These are data assimilation; crime classification; crime reconstruction and finally, profile generation. This latter stage includes hypotheses about demographic and physical characteristics, behavioural habits and personality dynamics of the perpetrator. Moreover, as can be seen in the left-hand column of Table 1, the profiles generated in this way tend to follow a standard format. Though one may attempt to defend the choice of uniformity in terms of cognitive economy, at the same time this uniformity tends to detract from the dynamism and impulse of the final product and may account for the dissatisfaction expressed by a number of the detectives we interviewed. It is at present difficult to make many quantitative judgements on this issue. Apart from the small number of successes explicitly described by Canter (1994), it is difficult to find published literature (other than autobiographical accounts) that independently compare a profile with the characteristics of a perpetrator once he is caught.

Another way to try to understand why the profiles that were made were so general would be to explore in more depths the processes involved in the production of a profile. This leads us to a consideration of the second and third basic questions we formulated earlier in the chapter.

Detection as Problem Solving

In our daily lives, both at home and in the workplace, we are continuously being faced with problems that require to be solved: these may vary from trying to determine why the vacuum cleaner will not function properly, to scheduling our teaching, research and appointments in such a way that sufficient time is still available for reading. Problem solving is therefore a major human activity and the work of crime investigators is no exception but can easily be fitted into the same framework: detectives are presented with a problem, for example a murder, and

their task is to solve the problem, namely to find the murderer. As with most other types of problem, the correct solution will frequently only be reached as a result of exploring different paths - many of which may turn out to be dead-ends. While trained profilers may be presented with a similar murder case, their task appears to be somewhat different: their aim is not to find the murderer per se, but instead, based on behavioural knowledge, to produce a description of the type of person the murderer may probably be and to offer this to the police to assist them in their hunt for the murderer. In other words, profilers aim to offer detectives an extra set of search heuristics that will suggest more targeted, and hopefully more fruitful, paths to follow.

Table 1: The Standard Format of an FBI Profile is Shown in the Left-Hand Column: The Summary of the Profiler, Translated into the Same Format is Presented in the Middle Column: The Right-Hand Column Shows the Same Format for the Detective's Profile.

Standard Format	Profiler	Detective
1. Demographic information: age, race, occupation, marital & socio-economic status	1. White male, 30 years or older. Functions reasonably well in society. Possibly has partner - woman may look like a child	1. Male, 18 years or older. Not physically strong. Hair not blond
2. Educational level, intellectual functioning	2. Average intelligence	2. ---
3. Legal & arrest history	3. Has prior record	3. Probably first offence and possibly the last
4. Military background	4. ---	4. ---
5. Family characteristics	5. ---	5. ---
6. Habits & social interests	6. Occupation possibly related to children, enjoys driving	6. ---
7. Evidence in relation to crime scene	7. Knowledge of geographical area	7. Knowledge of geographical area
8. Age and type of vehicle	8. Car in the middle range. Car in good condition	8. Type of car not clear
9. Personality characteristics, possible forms of psychopathology	9. Normal functioning, not mentally disturbed. Socially adept. Sexually competent. Not sadistic	9. Friendly, normal behaviour. Has sexual problems
10. Suggested interview techniques	10. ---	10. ---

If we accept the assumption that crime detection is simply another example of human problem solving then it should be possible to use some traditional methods

of cognitive psychology to explore the processes used by experienced profilers as well as experienced detectives and try to understand how these differ - if they indeed do differ. We can then seek answers to empirical questions such as: What do trained profilers actually do? How do they infer offender characteristics from offence characteristics? How do experienced detectives go about solving a complex sexual crime? Do their methods differ significantly from a professional profiler or do they intuitively use a sequence of steps that is in fact similar to those listed in FBI manuals?

Human Expertise

One method used by cognitive psychologists to explore expertise in specific domains has been to utilise verbal protocols to compare expert and novice (or learner) behaviour. Before examining the specific domain of crime investigation in some detail, let us first consider one stable finding which has emerged from various studies comparing the performance of experts and novices (e.g. VanLehn, 1989).

- In general, strategy differences are found with experts adopting a top-down and novices a bottom-up strategy
- In general, experts perform faster than novices

Since it is particularly relevant for our further discussions let us consider the first finding in some more detail. A top-down approach implies that the processing of information is guided by information already stored in memory: i.e. by the prior knowledge, expectations determined by context, and concepts acquired from past experience. This is in contrast to novice behaviour which is predominantly bottom-up in nature, in other words, since the knowledge base relating to the particular domain under consideration is still so limited, processing is directly and almost solely affected by the information input.

Since expert detective skills have seldom been considered within an expert novice paradigm, let us speculate on how these strategy differences might apply in the criminal investigation domain. As an expert in crime, we would expect the experienced police detective to adopt a top-down approach. In other words, when he comes to examine a crime scene, his knowledge of previous crimes as well as of the ways and workings of criminals allows him not only to organise his thinking and actions within a particular framework or scenario but also to fill in gaps in his information. As an expert, the detective has at his command a large portfolio of scripts and episodes from which to construct a scenario that fits the critical events of the crime; he will then use this scenario as a basis for actively searching for further evidence which, by inference, should exist if the chosen scenario is to have validity. In short, a detective's skill may rely less on the processes he uses but more on the depth and breadth of his specific knowledge base.

Somewhat earlier in the paper we described the FBI approach as being top-down oriented. If expert detectives also use top-down strategies, where, if anywhere, does the strength of the FBI approach lie? Do differences lie in quantitative measures of domain specific knowledge and/or are there genuine qualitative differences in approach? These are obviously empirical questions which can only be answered satisfactorily by experimental investigation.

An Empirical Study

The way we have attempted to explore the processing of profilers and detectives is to carry out an exploratory, in-depth study using three subjects: a professional FBI trained profiler; an experienced detective from the Rotterdam police force; and a colleague who is a psychologist used to reading police files but mainly for civil offences. We have been fortunate in being allowed to use all the documentation relating to the sexual murder of a young boy (H) which took place seven years ago but still remains unsolved. The three subjects were given access to all the available information and were asked to "think aloud" as they worked through the files and attempted to develop a profile of the perpetrator. In cases where they remained silent too long they were prompted. They were filmed as they worked through the files (which took each of them almost a full working week).

Results

These will only be described briefly and will be based solely on the analyses of the profiler and detective (a more comprehensive article including the data of the psychologist is in preparation).

Data assimilation

The first stage for both participants was the gathering of information relating to the case. The time that each participant spent on collecting information of different types is shown in Table 2. Whilst accepting that any conclusions based on these data must be tentative in the extreme, let us nevertheless attempt to fit them within the general findings of the novice/expert paradigm.

From the table, it is clear that there are two types of police files: the main files including all written statements; and a more extensive set of files which are more in the nature of a log book and include all the tips and information that is gathered on a daily basis from all possible sources. There was a large difference in the amount of time the profiler (17h 23m) and the detective (9h 01m) spent reading these reports. If, as we had predicted, the profiler adopts a top-down strategy this was certainly

Table 2: *The Amount of Time Spent by Both Profiler and Detective in Data Assimilation*

	Profiler	Detective
Police reports (main)	4h 54m	6h 28m
Police reports (tips)	12h 29m	2h 33m
Forensic report	14m	16m
Photos of crime scene	26m	1h 9m

coupled with an extremely precise reading of all available information and this took a long time. The reading strategy adopted by the detective, on the other hand, was based on his own high standards of police practice. In his view, in any well conducted investigation, the main files should always contain all the important information relating to the case and therefore, he need not spend too much time reading the various “tips” that had been received. In this respect, he differed fundamentally from the profiler who expressed a somewhat more cynical view of general standards of police reporting. In his opinion, investigative “bookkeeping” was frequently inadequate¹ and log books frequently contained important information that did not reappear in the official files. For this reason, it was important that everything was read.

Differences were also found in the time spent by both in studying the photos of the crime scene. These time differences may be explained by the particular task situation: the profiler has been explicitly trained to study photos in order to pick out relevant features and can therefore be viewed as an expert at this particular task. He therefore performs it relatively quickly. The normal work pattern of the detective on the other hand, is to either visit the scene of the crime personally or, at least, to have some local knowledge of the location of a crime he is investigating. He had therefore much less experience of the task he was asked to perform and, as a result, took longer. He returned to studying the photos on several occasions and spontaneously reported that he picked up new information and ideas on each occasion.

Reconstruction of the crime

Both the profiler and the detective used the data they had assimilated to reconstruct the crime. The main points of each reconstruction is summarised in Table 3. An inspection of this table shows that, while certain similarities exist, differences are also apparent (e.g. location of crime scene 1). Until the perpetrator is found, it is impossible to judge which of these reconstructions is the correct one. They are,

¹ A view that was subsequently endorsed by the detective at the debriefing session.

however, closely related to the profiles that are made. For example, an examination of item 3 in Table 1 (legal and arrest history) shows that the profiler who stated in his reconstruction that the offender is cruising around looking for victims, described the perpetrator as having a prior record. For the detective, on the other hand, the meeting with the victim was more of a chance encounter and he assumed that the crime was probably the first and possibly the last the offender would carry out.

Table 3: A Summary of the Most Important Elements of the Reconstruction for Both the Profiler and Detective

Profiler	
*	Offender is cruising, looking for victims
*	Unexpected encounter with H. - uses ruse - H. goes willingly
*	Crime scene 1 - somewhere outdoors
*	Partially undressed (top half)
*	Oral sex - sperm in mouth
*	During or shortly after sexual encounter strangled - with hands
*	Redressed
*	Transportation to crime scene 2 (known to offender) - to prevent discovery of body
*	Offender leaves scene quickly
*	Discard garment
Detective	
*	Offender uses ruse (e.g. ask directions) to get H. into car. H. goes willingly
*	Crime scene 1 = car
*	Garment off
*	Forced to have oral sex - sperm found in mouth
*	H. escapes
*	Offender catches him - face down in the dirt - kills him probably with rope
*	Transportation to crime scene 2 (known to offender) - to prevent discovery of identity
*	Interrupted - escapes in panic
*	Throws garment away

Problem solving strategies

Having described several differences in outcomes, let us now consider briefly how the differences came about. In what ways did the problem solving strategies of the profiler differ from that of the detective. For both, the starting point was the data itself (the WHAT). The processes they used to analyse these data, however, were rather different. From the transcript of the profiler's protocol, it was clear that, as he

read the information, he was trying to build up a picture of the type of person the perpetrator was. While he read everything very carefully, his analyses were guided in a top-down fashion by a mental checklist which included domain-specific knowledge based on probability judgements. This related to factors such as knowledge of different offender types, generating selection rules, matching current crime with previous crimes and predicting post-crime behaviour. He used this knowledge to interpret and structure the data he was assimilating. A working hypothesis was then made and an initial reconstruction of the crime was developed. Further reading of the file resulted in refinements being made to his working hypothesis and an elaboration of the reconstruction. Based on these, he developed an initial summary of the case listing some of the characteristics of the probable offender (the WHO). A brief overview of a few of the statements taken from the summary are shown in the middle column of Table 1 written in a format similar to the FBI standard. The profiler then took this summary to Quantico. This is in line with the normal methods employed at the FBI Academy. The actual preparation of a profile is seen as being essentially a group process: the trainees are first taught to work through a number of well defined stages such as we have discussed earlier and must then present their case to their colleagues in what is called a brainstorming session. (The brainstorming session around this case was tape recorded and analysed. The final profile will be discussed elsewhere, Jackson et al, in preparation).

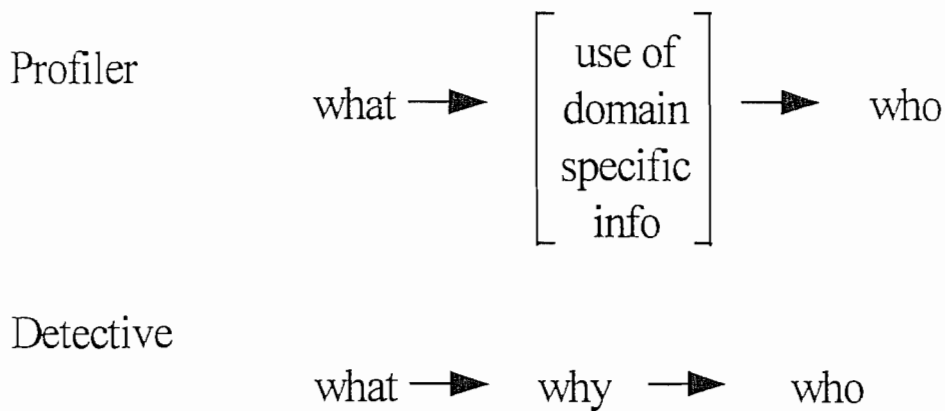


Figure 1: General Processing Strategies Used by Profiler and Detective in Solving the Problem

The starting point for the detective was the crime itself. This was the problem that had to be solved and as he studied the files, he focused on details (the WHAT) that could be used as evidence to convict the perpetrator (the WHO). Unlike the profiler, he constructed a picture of the crime very quickly and only then did he formulate working hypotheses which he then sought to confirm. From his transcripts, it was clear that his reading of the autopsy reports and study of the crime scene pictures

was guided by a search for the motive for the crime (the WHY) and that this variable was important in arriving at a possible WHO. While he did produce a description of the possible suspect (the profile which we have summarised in an FBI fashion in the right hand column of Table 1), his main concern was with matching the evidence he had acquired to possible suspects. His goal was clearly to find the offender and to produce enough corroborating evidence to convict him.

Conclusion

The expert/novice paradigm we have used to examine differences between a detective, a profiler and a psychologist has proved to be very time consuming. Progress has been made, however, and process models for all three are reaching the final stages of completion. What the short description of the results has hopefully shown, however, is that the approach is indeed a viable one and that we can learn a lot about the processes underlying specific profiling techniques from its use.

The profiler and detective whom we researched tackled the case very differently: they had different goals and used different strategies to reach them. While the detective worked in a more bottom-up fashion assimilating more and more details and attempting to corroborate and weigh up their value as evidence at each step, the profiler brought with him a wide range of experience of similar cases and used this knowledge in a top-down fashion to analyse and interpret the case information. While our detective had many years of general experience and came to us with high recommendations, his experience with this specific type of case was quite limited and this lack of probabilistic knowledge resulted in more novice-like bottom-up strategies being applied.

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