

Importance of geographic profiling



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This paper shall give a comprehensive discussion about the importance of geographic profiling to aid in investigative methods employed by government agents and police officers in pinpointing predatory criminals. The sophistication of the techniques in crime scene investigation have kept pace with the rapid development in the tools and technologies used in the field, and this has enabled police authorities to employ a variety of methods to help them pinpoint perpetrators in the most accurate, efficient and timely way.

The renewed public interest in the formerly esoteric field of forensic science has been sparked by a series of television shows that are focused mainly on the techniques and tools used by crime scene investigators in the course of their daily work. For example, Coetzee (2008) noted the popular TV series Crime Scene Investigation (CSI) in all its different seasons have helped to throw some light into the work performed by crime scene investigators.

As has already been mentioned, new and more sophisticated ways of doing crime scene investigation is being designed every day. On the one hand, this is meant to keep up with the developments in the field of forensic science. On a more practical note, however, developing new techniques and tools will help police authorities to clear their cases faster and more efficiently and allow them to stay on top of all their assignments.

Likewise, the reality is that more and more perpetrators are employing more covert methods to keep themselves out of the reach of the law, and so police investigators must be able to devise ways to speed up the proceedings of their cases in such a way as to effect speedy justice.

There are various ways by which crimes are solved, and it is by no means only the police investigator who is responsible for the successful closure of a criminal case. The investigation of a crime involves a wide array of activities and areas of expertise, such as DNA profiling to examine shoe prints, toxicology and handwriting analysis (Sjerps, 2008). Other scientific experts are also routinely called upon to testify in court depending on the nature and circumstances involved in the crime at bar.

The solution to a crime starts with the crucial information that a dutiful crime scene investigator can offer (Coetzee, 2008). He or she identifies, interprets, and provides the necessary clues and leads for the investigator in charge to follow. The ever-increasing importance of the detection and identification of physical evidence left in a crime scene in order to bring about a successful prosecution also underscores the critical nature of a crime scene investigator's work.

The Locard principle-that every contact leaves a trace-is the primary assumption on which crime scene investigation rests. Thus, when two objects come together, there will inevitably be mutual contamination and it is through the proper tracing and identification of these contamination points that crimes can be possibly solved. Trace evidence is any object that can be brought back to police laboratories that may help investigators determine who committed a crime and why (Thompson, 2006).

Because of the critical nature of the evidence, they must be preserved properly and analyzed accurately in order to withstand the rigors of court examination. An investigator may probably be able to work with very small

amounts of trace evidence, but the persistence and purity of such evidence is important for him or her to cull crucial information from the same.

Whether or not they criminals are aware of it, they actually leave something in the surroundings, while at the same time taking something with them from their contact with the victim or the objects at the crime scene. Traces of contact evidence are also very different to detect with the naked eye, and that is why criminals cannot always erase all the evidence that they leave behind. These traces are important for the crime scene investigator to find, tag and identify. They are sometimes referred to as 'silent evidence' as they point out crucial leads that the investigators can follow by giving material bases for the leads that they follow throughout the investigation (Kaza, n. d.).

Some of the most common types of trace evidence found at the crime scene include bloodstains, paint, hair, textile fibers, and glass fragments.

Microscopic particles are also important because they may give clues as to what is inherently a part of the surroundings in which the crime took place and what is linked to the crime committed.

There are times, however, when the perpetrator leaves traces that are hard to analyze in order to gain a probable physical description of him. For this reason, criminal investigators employ a variety of other methods that are not dependent on tangible evidence left behind by the perpetrator, relying instead on the behavioural patterns and the modus operandi of the suspect to gain a clue as to his possible whereabouts, his state of mind, and hopefully his next supposed victim.

The idea is therefore to ‘read’ such intangible clues and get into the mind of the perpetrator to prevent him from committing another crime and hurting another person. While these information may not be helpful in the actual prosecution of the case, they would oftentimes lead the police officers into valuable leads that can help them track down the suspect. Among the non-physical evidence based methods used by criminal investigators are criminal profiling and, more recently, geographical profiling.

These methods are used to predict the subsequent actions of the perpetrator based not only on the physical evidence that he left behind but also on the conscious or unconscious choices that made before, during, and after the commission of the crime. These methods are not as accurate or exact as forensic science itself, but they do provide valuable clues as to the next steps that the police should take in order to catch the criminal faster.

Criminal profiling through geography

In general, criminal profiling is the ‘art’ of weaving together traces left in the crime scene to develop a likely story about the criminal’s plan, his method of operation, his thoughts, and his next target. The aim is to provide a map of sorts that will help police investigators and forensic psychologists to nail down the perpetrator.

Criminal profiling methods are becoming more and more sophisticated as well, with the help of not only advanced technological tools but also developments in behavioural sciences, particularly psychology and psychiatry. Winerman (2004) noted that informal criminal profiling had its beginnings in the 1880s, when two physicians named George Philips and

Thomas Bond utilized crime scene clues to discover the personality of the British serial murderer Jack the Ripper.

In the decades to come, criminal profiling methods remained largely informal and the police investigators were often left to use intuition in tracking down their quarry. It is only in the 1970s when the US Federal Bureau Investigation opened its Behavioral Science Unit that criminal profiling became an actual scientific process. From then on, it became widely accepted in law enforcement circles as a reliable technique for predicting criminal behaviour.

From the nature of these techniques, it can be deduced that profiling works best only when the police investigators already have a string of clues from different crime scenes at hand. Moreover, they are also likely to have an idea of who the suspect is, or at least they have a shortlist of suspected offenders. The trick is therefore pinpointing exactly who among these individuals actually perpetrated the crime, and to catch him before he does it again.

Some of the most common things that criminal profilers look at when deciphering cases where the criminal has committed a series of offenses are the following:

- Antecedent: what is the criminal plan or fantasy behind the action?
- Method of operations: victim's identity, weapon(s) used on the victim, degree of hostility or cruelty exhibited by the act, the existence or lack of sexual overtures to the crime, method of body disposal

- Post-offense behaviour: is the suspect trying to give false leads to the media or to the police authorities?

While methods are beginning to resemble an exact science, it cannot be denied that most of the data that investigators follow up on are mere guesswork and speculations backed up by circumstantial evidence. Thus, there was a need to develop a more foolproof method that will police authorities to limit their investigation to a particular area or community, and thus crack down on the perpetrator in a shorter amount of time.

It is at this juncture that criminal geographical tracking (CGT) or more commonly known as geographical profiling came to be. Knowledge of criminal mobility and the geographical characteristics of crime scenes concurrently prompted investigators to look for a way that will allow them to manage their time and resources more effectively by confining the investigation to the most probable location of the perpetrator's residence or his hub of criminal activity (Holmes and Holmes 2002).

The most popular name that is associated with geographical profiling is Kim Rossmo, who started to make this method of investigative profiling more exact and accurate through his doctoral dissertation at Simon Fraser University in 1995 (Ramsland 2010). He developed a computer software called the criminal geographical tracking or (CGT) that is meant to assist in cases involving violent serial crimes. It feeds a number of important geographical characteristics into the software, which in turn tries to zero in on the most probable area of residence of the offender.

CGT was meant to be an information management system that can help law enforcement agents cut down on their investigation time and resources by locating an exact area where the perpetrator is most likely to reside or to operate. This pioneering technology was first adapted by the Vancouver Police Department and was later on utilized by a number of other police districts across Canada.

As a method of investigation, geographic profiling works by utilizing the locations of connected series of crimes to come up with the most probable area of residence of the offender. Oftentimes, it is used in cases where serial murder, rape, arson or robbery is involved, but it can also be applied in instances of single crimes like carjacking, burglary, bombing, and others. The most important element of this kind of investigative technique is the presence of distinguishing geographical features that can point the police officers to a specific place to conduct their investigation.

Rossmo likened geographical profiling to looking at the traces left by a garden sprinkler on a lawn—there is no exact way to predict where the water droplets will fall, but it will leave a pattern that will show whoever is looking at it to guess where the sprinkler was most likely located amidst the marks on the wet ground (Grierson 2003).

Grierson (2003) noted that Rossmo noted four important principles underpin geographical profiling. Rossmo borrowed two concepts from the original crime-pattern theory proposed by his teachers. The first idea is that offenders often leave a “buffer zone” around their area of residence in order to maintain their anonymity, while the second posits that there is a “

distance decay” that can be interpreted from the actions of offenders. That is, an offender will be more willing to travel farther from home if he thinks that the payoff for the crime will be that much greater, meaning the violence involved in the commission of the crime will also be greater.

Rossmo also added his own ideas to these theoretical concepts. He incorporated what he called the “least effort analysis” wherein he postulated that an individual will not act without performing some kind of cost-benefit analysis for his proposed course of action. The last concept in the puzzle is that of “routine-activity theory”, which states that crimes can happen at the junction of opportunity and familiarity. In other words, the decision to commit the crime in a particular manner is influenced by where the criminal finds himself at the time he decided on pushing through with his criminal design.

This method is highly dependent upon two basic assumptions:

1. That the set of crimes being analyzed belong to one and the same series only. This can be validated only by exhausting other police methods that will confirm that a particular set of discrete offenses can be actually be attributed to the same person.
2. Accurate and valid geographical modelling that can show travel distance to the crime sites relative to the type of crime committed, type of offender, and the area or location being studied.

Geographical profiling links the geographical characteristics of the crime scene and the known propensities of serial criminals in terms of choosing

their victim and the location for deed. The result of the corresponding analyses will be a map that shows the offender's area of criminal activity. The locations of the occurrence of the crime would often belie a certain rational choice on the part of the offender, which would then help the investigators to trace him to his place of residence.

Geographical information systems can be adapted to fit different scales, from global to small-scale investigation. Most geographical profiling occurs at the medium scale level, applying to particular cities or neighbourhoods. Smaller areas such as individual buildings can also be subjected to geographical profiling to determine more and more specific locations for the crime, such as an elevator shaft or a fire exit.

According to Harries (1999), mapping crime is an important step in criminal investigation because it helps to provide a visual representation of the course of the investigation and what the authorities have found so far based on the existing evidence. Rossmo's CGT would come up with either 2D or 3D map that can show the criminal's most probable locations of activity based on the past crime scenes and corresponding accuracy rates. This map represents the offender's mental map of the city based on his past experience and activities within the area, his travel routes, and reference points.

Some offenders stay within a particular geographical region, while others are willing to travel great distances in order to perpetuate their criminal design. The chances of the offender being a stable or a mobile one depends on a number of factors, such as his past travel experiences, means for

transportation, predatory motivations, sense of personal security and even his preferred mode of attack. Rossmo also makes the assumption that the more crimes the offender is able to commit successfully, the more confident he feels about his particular mode of operation and the more willing he is to expand his area of activity.

Geographic profiling can help the investigation in a variety of ways, such as choosing the most appropriate and efficient investigative strategy, prioritizing tips and evidence, running searches on existing DNA and fingerprint databases, neighbourhood canvasses and questioning of key people associated with the suspect, and address-based searches of police records. It is not meant to be a standalone technique to solve a crime, but rather to point the investigators to a particular locality where they can more extensively concentrate their investigation efforts. Ramsland (2010) noted that some law enforcement experts are actually more confident in the turnouts that geographical profiling can give rather than the traditional investigative methods that have been used in the past.

Conclusion

At present, the future of geographical profiling methods seems promising because of the increasing sophistication of crime mapping techniques and technology. Geographic information systems like Rossmo's CGT was the first important step in the evolution of this branch of criminal investigation in the past decade, but it seems likely that we will be seeing more and more non-conventional and innovative methods in present-day investigations. Harries (1999) predicted that technologies like global positioning system or GPS,

digital photography, local police databases and even the Internet as invaluable aids to police investigations.

Spatial analysis giving police investigators a definite edge over their criminal counterparts, therefore shortening the criminal investigation considerably and allowing the prosecution stage to happen earlier. One of the most important advantages that technologies like geographical profiling can offer the law enforcement circle is its ability to reduce wastage of time, effort and resources by pointing the investigators to the most probable area of activity that the offender inhabits. Instead of spreading the manpower of the authorities over a large area and spending too much time chasing down false leads, the police can now focus on a specific location and conduct a more narrowly-tailored search.

Rossmo's CGT has spawned a series of new technologies that are now aimed at making police work more scientific and accurate. Even if the earliest beginnings of criminal profiling were largely dependent upon luck and guesswork, advances in science and technology have made it possible for criminal investigations to proceed with more certainty. Thus, it is important for investigators to also continue using it to improve upon the technology and make it more prevalent in law enforcement.