

A Study on Forensic Identification of Associative Trace Evidence in Expressive Homicides

INTRODUCTION

Forensic investigation is largely centered on the notion of establishing associations or links between the perpetrator, victim and crime scene. The core idea which defines forensic investigation is the Principle of Exchange, proposed by Edmund Locard, which says that 'Every contact leaves a trace'. During the commission of a crime, there will be a transfer of material between the perpetrator, the potential targets and with the environment (Edmund Locard, 1920). The identification and analysis of those material can therefore provide valuable insights about the crime event. Forensic analysis of evidence includes blood spatter analysis, identification of biological fluids, trace evidence, fingerprints, impressions, firearm and tool marks, analysis of controlled substances and documents. Properly collected and analyzed forensic evidence has the potential to aid in investigations.

At a crime scene, there may be tiny fragments of physical evidence such as hairs, fibers from clothing or carpeting, or pieces of glass, fluids, paints and these are referred to as trace evidence and can be transferred when two objects' contacts with each other or when small particles are disbursed by an action or movement. Crime Scene evidences deteriorate with passage of time if not collected & sent for analysis in time. Associative evidence links people to the place of the crime and it requires proper forensic training and patience to identify the specific trace evidence from the scene of crime which may help to aid the ongoing investigation.

Expressive aggression, on the other hand, takes place in response to some sort of threat that is perceived by the aggressor, which may or may not be real. It is related to an intense emotional in nature, anger and hostility, and the intent is to cause physical harm (or even death) to the victim. When expressive aggression results in homicide, they tend to take place between individuals who know one another, often resulting from an escalation of violence, in which aggressive behavior is of an emotional nature, suggesting very impulsive and violent actions.

STATEMENT OF THE PROBLEM

Interpreting trace evidence is an intellectual process that encompasses the evaluation of the significance and the uncertainties of many pieces of information recovered from the scene of crime. In this research study the interpretation and identification of trace evidence should be the first preference for the identification of suspects. So as to develop a new technical method for analyzing the crime scene location is important to assume why this crime happened in this location? How the perpetrator used this geographical location to commit the crime will give a hint about the potential target and it will help the investigation officer to plan the search for evidence. Traces recovered from a given case require comparative laboratory examinations. Its

inevitable to give importance for the search of trace evidence to segregate the suspect list and reduce the delay of investigation.

REVIEW OF LITERATURE

One of the main focuses of testing in forensic science is the analysis of evidence traces. As previously mentioned, there is transfer of material traces occurring at all times. Because of this, the forensic scientist can analyze evidence and compare it to known sources.

Locard's principle is the basis for this connection and can be used to show the time and place of an occurrence (Saferstein, 2017; Palenik & Palenik, 2005).

Traces provide possible links and associations between objects and people, in addition to giving clues about the environment, circumstances and surroundings of that person or object (Siegel, 1997).

Dust samples can be used as evidence to represent the environment of which it came from.

This can be beneficial and explanatory of a crime scene to the investigator (Petraco & Kubic, 2004).

Dust can be defined as "a collection of particles that settle out of the air and accumulate on a variety of surfaces over a period of time," (DeForest, et al., 1983).

The components of a dust sample can be a repository with widely variable substances (Alonso, et al., 2022).

"Particles of dust picked up at the crime scene or on a suspect's clothing can also reveal important evidence," The components can be significant is determining specific locations or occupations (Owen, 2000).

These components should initially be separated by class (e.g., hair, fibers, etc.) or physical properties (e.g., color, material, morphology, etc.) (Palenik & Palenik, 2005).

Hair is the threadlike outgrowth from mammalian skin that grows from a hair follicle (Fisher, et al., 2009; Brenner, 2000; Bisbing, 1982). Hair consists of four parts including the root, cuticle, cortex, and medulla. The cuticle is the outermost layer which gives the shaft of the hair protection. The cortex is the middle layer and contains melanin which provides color to the hair. The medulla is in the center of the hair shaft and can be either continuous, fragmented, or completely absent root (Kintz, et al., (Eds.), 2015; Deedrick & Koch, 2004).

RESEARCH QUESTIONS

The Research Questions asked to find out in this research are:

- 1) Is there any importance in finding the trace evidence from the crime scene that will reduce the delay of Expressive Homicide investigation.
- 2) What kind of techniques has been used by the forensic crime scene investigator to identify the associative trace evidence from the crime scene.

OBJECTIVES

The objectives of this research study are

1. To analyze the importance of identifying the trace evidence from the scene of crime in expressive homicides.
2. To examine the specific approaches that a forensic crime scene investigator should follow to identify the associative trace evidence from crime scenes
3. To formulate new techniques that should help the Investigating Officer to identify the associative trace evidence from the scene of crime.

SIGNIFICANCE OF THE STUDY

1. The findings from this study will contribute to a better understanding of the importance of trace evidence analysis to segregate the suspect list.
2. This information can be used to develop more effective strategies to identify the associative trace evidence.

RESEARCH METHODOLOGY

In this qualitative research study, both primary and secondary data were selected. Solved Police Case file in Expressive Homicides are selected to find out the importance of trace evidence. The samples size would be according to the availability of solved cases in Kerala and Tamil Nadu. Interviewing the Forensic investigator who assisted the cases and also collecting expert opinion of ongoing cases will be preferentially selected and Purposive sampling technique will be use for the selection of samples.

OUTCOME OF THE STUDY

This research study will analyze the importance of associative trace evidence for aiding a criminal investigation and the factors that contributes to it. Most importantly to develop more effective strategies or techniques to identify the associative trace evidence from the crime scenes.