

Forensic Science in The Nigerian Criminal Justice System

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“Every contact leaves a trace” – Edmond Locard (1934)

Abstract

This research aimed at assessing the application and impact of forensic science in the Nigerian criminal justice system by making reference to certain components of forensics that are relevant to the criminal justice system. Such components include, Deoxyribonucleic Acid (DNA) analysis, Fingerprint analysis, Polygraph test, Ballistics, Forensic anthropology, Forensic pathology and Computer forensics. In the course of this research, it was found that establishing certain types of evidence such as fingerprint impressions and DNA, against accused persons was difficult due to the absence of sophisticated forensic laboratories and this hindered conviction of such persons. In view of this problem, this research recommends for proper training of law enforcement agencies in terms of how crimes and crime scenes are handled and also the establishment of sophisticated forensic labs where evidence and accused persons can be tested in order to determine their guilt or innocence, thereby easing the administration of justice in Nigeria.

Introduction

The importance of criminal justice to the smooth running of any society cannot be overemphasized. An effective criminal justice system is fundamental to the maintenance of law and order. However, the Nigerian criminal justice system (consisting of the Police, Courts and Corrections) is not only dysfunctional but outdated and absolutely not fit for purpose to meet current realities. Many provisions in our criminal laws are anachronistic. The loopholes in the law and its procedure have become so obvious. The reason is not far-fetched, crime and criminals have advanced to a very sophisticated level that the present criminal justice system cannot catch up with it. Forensic science as a scientific method for solving crimes provides a better alternative to the criminal justice system.

Forensic Science

Forensic science is a very interesting study and refers to something “of pertaining to, or used in a court of law”. In today’s day and age, it is almost always referred to as a method of obtaining criminal evidence for the purpose of using it in a court of law. Forensic science has been defined to mean “the

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study and application of scientific facts and techniques to legal problems”. It has also been defined as “the application of biochemical and other scientific techniques in the investigation of crimes”.

The term forensic science has not been clearly defined in Nigerian legislations or decisions of Courts. Statutes such as the Evidence Act, 2011 and Cyber Crimes Act, 2015, among others only make reference to terminologies attributed to or characterized with the forensic science discipline. The Courts also have not proffered a working definition of forensic science and the only reference being made is in relation to expert witnesses. (*See the case of Godwin Chukwuma v. F.R.N(2011) All FWLR (pt.585) p. 231*)

Crime dramas such CSI, have popularized the miracles of forensic and how it can help to convict even the most elusive criminal. From Ballistics to DNA analysis, forensic has become a key tool to help the police solve crimes. An explanation of the major components of forensic science will be provided below.

Deoxyribonucleic Acid (DNA) Analysis:

DNA is essentially the molecule that holds all genetic information and ‘instructions’ for an organism. It is the material on which the genetic information in living things is stored. And no two human beings can have the same DNA profile, except they are identical twins. It is a molecule arranged into a double-helix, its structure as first described by James Watson and Francis Crick in 1953. In terms of forensic DNA analysis, there is a variety of possible sources of DNA evidence. The more useful sources include blood, semen, vaginal fluid, nasal secretions and hair with roots. It is theoretically possible to obtain DNA from evidence such as urine, faeces and dead skin cells, though this is often classed as a poor source due to lack of intact cells and high levels of contaminants preventing successful analysis.

The United States of America has one of the most sophisticated and robust databases on planet earth. Take for instance, the Combined DNA Index System (CODIS) managed by the Federal Bureau of Investigation (FBI). According to the FBI's Quality Assurance Standard for Forensic DNA Testing laboratories, CODIS links DNA evidence obtained from crime scenes, thereby identifying serial criminals. CODIS also compares crime scene evidence to DNA profiles from offenders, thereby providing investigators with the identity of the putative perpetrator. In addition, CODIS contains profiles from missing persons, unidentified human remains and relatives of missing persons.

Although Nigeria is considered as one of the most developed African nations, it suffers from forensic noncompliance. Developing a DNA Data bank will be a step in the right direction. The most important thing needed now is the government's will in making forensics a priority in the criminal justice system. The rising spate of kidnapping and banditry ought to motivate the government to push for reforms. These reforms could include setting up standard forensic labs, enhancing training of forensic experts, utilizing the national data bank, etc. It should be a major focus in enhancing Nigeria's internal security and economic stability. Plausible enough, in 2017 the Lagos State Government established the first DNA forensic lab in Nigeria (*Lagos State DNA & Forensic Centre*)

Fingerprint Analysis:

A fingerprint in its narrow sense is an impression left by the friction ridges of a human finger. Fingerprints can be found on practically any solid surface, including the human body. Analysts classify

fingerprints into three categories according to the type of surface on which they are found and whether they are visible or not. They include; plastic, patent or latent prints.

Plastic prints occur when an individual touches an object such as wax, butter, or soap and leaves a three-dimensional impression of the finger on the object. While patent prints occur when an individual has a substance on their fingers such as grease, paint, blood, or ink that leaves a visible print on a surface. Latent prints occur when an individual touches any porous or non-porous surface. The natural oils and residue on fingers leave a deposit on surfaces which mirror the ridges and furrows that are present on the individual's finger.

Fingerprint analysis in a developed nation like US is usually performed by law enforcement agencies or crime laboratories; however, casework may be sent to private companies if there is a need, so as to reduce backlogs, verify results, or handle high-profile cases. Finger print examination involves looking at the quality and quantity of information in order to find agreement or disagreement between the unknown print (from the crime scene) and known prints on file. To conduct the examination, finger print examiners use a small magnifier called a '*Loupe*' to view minute details (*minutiae*) of a print. A pointer called a ridge counter is used to count the friction ridges (Lyle, et al ,2008). As the computer science field developed techniques to digitize and store complex patterns images like finger prints and firearms, these innovations enabled investigators to search large databases. The Automated Finger print Identification System (AFIS) created in 1974 by the Federal Bureau of Investigation, was the first system introduced for storing finger print information, both to confirm the finger prints and identities of arrestees, and to use latent prints recovered from the scenes of crime and to identify the offender.

Unfortunately, in Nigeria, many crimes go unsolved because of the lack of adequate equipment and training. Very rarely do police take fingerprints in crime scenes. Besides inadequate equipment, lack of training also inhibits investigation. The country's criminal justice system is moribund because it is yet to acquaint itself with fingerprint technology, which is considered as one of the most reliable methods for solving complex crimes. The reason why the Nigerian police finds it difficult to solve high profile murders in the country is because crime investigation has become part and parcel of forensic science which the force does not have. The police need to be equipped with experts and equipment to be able to fight and solve violent crimes in the country. For instance when Late Funsho Williams was assassinated, the three-man detectives from Scotland Yard were unable to perform a meaningful investigation because over 7,000 fingerprints were collected from the crime scene including prints of police officers. This clearly explains the need for a reawakening from every slothfulness.

Polygraph Test:

A polygraph, popularly referred to as a lie detector, measures and records several physiological indices such as blood pressure, pulse, respiration, and skin conductivity while the subject is asked and answers a series of questions (Rosenfeld, 1995). The belief underpinning the use of the polygraph is that deceptive answers will produce physiological responses that can be differentiated from those associated with non-deceptive answers.

Polygraph test is useful as it helps to reveal relevant information related to a crime. The process aids in fact-finding, as it directly helps the investigating agencies to gather evidences, and thereby increase the rate of prosecution of the guilty and the rate of acquittal of the innocent. Polygraph examinations

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often include a procedure called a "stimulation test," which is a demonstration of the instrument's accuracy in detecting deception. Three categories of questions are asked; irrelevant, relevant and control questions.

Irrelevant questions are questions which have no bearing with the incidence of offence in any way. For example – Is your name Mr. X? Are you 50 years in age? Are you a usual inhabitant of Y area? Do you work in Z firm?

Relevant questions are questions directly implicating an individual with the commission of the offence or suggestive of having knowledge about some aspects of the offence. For example, “On 11-10-2012 at 5.00 pm, you stabbed Mr. A at his home.” Or “You saw Mr. B stabbing Mr. A, on 11-10- 2012 at 5.00 pm.” The answers for the relevant questions should be “yes” or “no”.

Control questions are mostly generalized in nature and relate to some minor bad acts which the person might have committed some time in his early life and should have not forgotten. E.g., “Have you at any time during your childhood, stolen some money from your mother’s purse?”

In case of deceptive answers, adverse reactions are reflected in different ways in the graphic presentation of the body functions. Irrelevant questions are asked to facilitate comparison between the reactions to a correct answer and that to a deceptive.

Polygraph Test has a place in the detection of crime because of psychological effect on persons, who are in fact guilty of crime. The theory behind polygraph tests is that a guilty subject is more likely to be concerned with lying about the relevant facts about the crime, which in turn produces a hyper-arousal state which is picked up by a person trained in reading polygraph results. Measurement of hyper-arousal state is based on a number of parameters such as heart rate, blood pressure, respiratory rate, skin conductance and electromyography.

In a country such as Nigeria where employment theft is rife, the need for polygraph test becomes paramount. Polygraph helps identify and eliminate the bad employees. It also eliminates suspicion from honest employees and identifies the deviants. It also helps identify untrustworthy, deceptive or guilty people and also clears innocent people by very reliable means and according to the highest standards, anywhere in the world.

Ballistics:

Ballistics is the part of science of mechanics that studies the motion and behaviour of a projectile, and its effects on a target. It deals with the launching, flight, behaviour and effects of projectiles, especially bullets, unguided bombs, rockets, or the like. Forensic Ballistics is the science of analysing firearms, bullets and bullet impacts. It involves analysis of bullets and bullet impacts to determine information for use by a court or other part of a legal system. There are three categories of ballistics; Internal, External and Terminal (U.S. Marine Corps,1996) There are also two types of firearms commonly used for crimes of violence. These are smooth-bored and rifled arms (Giannou, et al, 2010).

The technique of firearm identification involves the expert examining the marks created on a bullet or shell casings (projectiles). The case of *United States v. Green*, 405 F. Supp. 2d 104, 110 (D. Mass. 2005) is instructive in explaining the parts of a firearm. The bullet and shell casing come from the cartridge, which is made up of four main parts: bullet, case, powder and primer. The case is the covering that holds all of the cartridge components together. The bullet itself is the projectile propelled from the weapon. The powder sits behind the bullet and is exploded during firing. The primer is the component

at the rear of the case that starts the reaction when the cartridge is fired. Crooks that scratch off the serial numbers of their firearms are not as smart as they believe. There are several methods that forensic firearms investigators in developed countries use at their disposal for finding hidden serial numbers; Magnaflux method, Chemical and electrochemical etching

Nigeria has a dearth in the application of forensic ballistics. When the prominent Chief Bola Ige was assassinated, forensic evidence, either of finger prints or ballistics did not feature in the investigations. Also, when Chief Aminasaori Dikibo, former Chairman of the PDP South-South was killed on the 6th Feb 2004 on his way to Asaba to attend a PDP South-South meeting, no ballistic evidence was gathered or tendered in order to match the expended ammunition retrieved from his corpse in the car, or at the scene with the murder weapons.

A fundamental advantage that forensic ballistics has is that it helps to narrow down which firearm was used in a crime. In Nigeria, where armed militancy and banditry is ravaging, ballistics will help law enforcement agencies ascertain the type of weapons used by these culprits and also trace its source.

Forensic Anthropology:

Forensic anthropology is the application of the anatomical science of anthropology and its various subfields, including forensic archaeology and forensic taphonomy in a legal setting (Stephen, 2006). It is a special sub-field of physical anthropology (the study of human remains) that involves applying skeletal analysis and techniques in archaeology to solving criminal cases. Using physical markers present on a skeleton, a forensic anthropologist can potentially determine a victim's age, sex, stature, and ancestry. Forensic anthropologist can assist in the identification of deceased individuals whose remains are decomposed, burned, mutilated or otherwise unrecognizable, as might happen in a plane crash. They are also instrumental to the investigation and documentation of genocide and mass graves.

In addition to the above, anthropologists often assist in the investigation of war crimes and mass fatality investigations. They have been tasked in the U.S. with helping to identify victims of the 9/11 terrorist attacks (Larry, 2004) as well as plane crashes such as the Arrow Air Flight 1285 disaster and the US Air Flight 427 disaster where the flesh had been vaporized or so badly mangled that normal identification was impossible. Anthropologists have also helped identify victims of genocide in countries around the world, often long after the actual event. War crimes anthropologists have helped investigate the Rwandan and Srebrenica genocides. One of the main tools forensic anthropologists use in the identification of remains is their knowledge of osteology (the scientific study of bones).

There have been several cases of mass disasters in Nigeria, which includes the Gasolene Explosion at Jesse in October 1998, where 500 people died and about 100 were wounded; the EAS Airline crash in Kano in May 2002 which recorded 148 deaths; about half of the deceased being those on the ground on the day of incident; the Bellview Flight 210 which crashed at Lisa village in October 2005, killing 117 people on board; and the Sosoliso Airline crash in Port Harcourt in December 2005, killing about 108 students. Other cases include the Pipeline Explosion at Ilado village in May 2006, following pipeline vandalization that left over 200 people dead; the ADC Airline, Flight 53, Boeing 737 which crashed in October 2006 after take-off in Abuja where 96 people died including many medical doctors as well as the then Sultan of Sokoto and only 9 survivors; the Pipeline Explosion in Abule Egba in December 2006, following vandalism leaving over 100 charred bodies, most of whom were buried at the scene; and the DANA Airline crash of June 2012 where all on board died and rescue mission recovered 152 bodies; there were several bags of body parts and bone fragments. Most recently are the terrorist activities in the Northern part of the country where scores of people are killed almost daily.

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The need for forensic anthropology cannot be overemphasized considering the above incidents, but unfortunately the government has not been effective enough to provide sufficient Disaster Victim Identification (DVI) in most instances, thereby resorting to mass burial of remains found at the site of the incident. This creates psychological trauma and social stigma on the survivors or victims family members. Also, apart from mass disasters, and insurgency, forensic anthropology helps in determining body remains of victims of ritual killings.

Forensic Pathology:

Pathology is the study of disease and its causes. It involves discovering the cause of death, especially in cases where it is sudden or the police suspect that it has not occurred by natural causes.

The examination forensic pathologists carry out may be inspections or views of the external surfaces of a body or a medicolegal autopsy, which comprises an external and internal examination of the head, thorax, abdomen, and any other body region pertinent to the case. The nature of the death and its circumstances dictate which type of examination the forensic pathologist performs on an individual case (Abu, et al, 2000). Following the procedure, the pathologist is required to create an autopsy report, which will contain the following opinions; the pathologist will list whether an injury or disease led to the individual's death and the circumstances surrounding the death, meaning whether the death was accidental, homicide, suicide, natural or undetermined. The report will also document all wounds and injuries found on the corpse.

Mostly, such autopsy is upon the directives of the coroner. Coroner autopsies are post-mortem examinations performed at the instance of the law, when a coroner or another authority is instructed to determine the cause, time and the circumstances surrounding the cause of death. It is governed by the coroner system in Nigeria.

Based on the manner of death, coroner (medicolegal) deaths are classified as follows: natural deaths, accidents, homicides, suicides and undetermined (Adams, 2008). Reports to the coroner about such deaths originate through reports by complaints to the police, reports by health practitioners to the coroner or the police, etc.

Forensic Pathologists also assist the criminal justice system as they help the prosecution in proving its case beyond reasonable doubt. They are categorized as Expert Witnesses because they evaluate evidence based on specialized training and experience. Their professionalism helps the state in convicting criminals. Expert Opinion is covered under Section 68 of the Evidence Act, 2011.

Forensic Pathology is very relevant in the Nigerian criminal justice system because apart from ascertaining the cause of death – accidental, natural, suicide or homicide – it also helps to identify the identity of the dead person, which may involve looking at medical records and dental records, especially if the face has been mutilated.

Computer Forensics:

Computer forensics is the task of recovering data that users have hidden or deleted, with the goal of ensuring that the recovered data is valid so that it can be used as evidence. The evidence can be inculpatory (evidence that indicates a suspect is guilty of the crime charged) or exculpatory (Evidence

that indicates the suspect is innocent of the crime). Computer forensics is also the science of obtaining, preserving, and documenting evidence from digital electronic storage devices, such as computers, PDAs, digital cameras, mobile phones, and various memory storage devices. All must be done in a manner designed to preserve the probative value of the evidence and ensure its admissibility in a legal proceeding (Nelson, 2016).

Computer forensics deals with the acquisition, examination and reporting of information found on computers and networks that pertain to a particular investigation. Nearly everything that someone does on a computer or network leaves traces – from deleted files and registry entries to the internet history cache and automatic Word backup files. E-mail headers and instant messaging logs give clues as to the intermediate servers through which information has traversed. Server logs provide information about every computer system accessing a website.

Cyber forensics is increasing in importance for the law enforcement community for a number of reasons, not the least of which is that computers and the internet represent the fastest growing technology tools used by criminals, and this trend will continue for the foreseeable future. Cybercrimes and white-collar crimes are particularly lucrative because they are generally non-violent crimes, yield high profits, and have relatively low risk of capture.

As a fundamental investigative tool, computer forensics can be applied in the following instances; investigation of computer -based financial crimes, legal evidence involving cybercrime, analysis of cyber breaches, enhancing data security capabilities of digital systems and detecting cyber security breaches.

The Nigerian government commendably enacted the Cybercrimes Act in order to curb computer related crimes, but there exists a great lacuna because cybercrimes are constantly perpetrated and there is a dearth in the number of computer forensic experts. The Economic and Financial Crimes Commission (EFCC) must be commended for their efforts in curbing cyber related crimes commonly known as ‘yahoo-yahoo’, but there is still much to be done by all relevant stakeholders. The country loses about 127 billion annually through cybercrime. It is hoped that the Federal Government Cybercrime Advisory Council under the auspices of the Office of the National Security Adviser (ONSA) will steer efforts towards ensuring that computer -related offences are curbed to the barest minimum even as they seek to incorporate computer forensic scientists in their investigations.

Conclusion

Forensic science is generally sophisticated and the question of whether or not it can be adopted as an investigative tool in Nigeria’s criminal justice system is one that renders us susceptible to a hasty conclusion of impossibility. However, although this article seeks to eventually determine the relevance of forensic science in the Nigerian criminal justice system, this conclusion is to be reached only by a thorough consideration of the factors involved as well as peculiar features of the Nigerian criminal justice system.

For Nigeria to have survived the past sixty years’ prosecuting criminal cases without applying forensic science as a fundamental tool is worrisome. It appears the country has not turned its mind to the benefits and potentials of forensic science in creating crime-free society. The Police, Judiciary and Lawyers have been far less successful in developing an enabling environment for forensic science to thrive in the country. Unfortunately, while the traditional methods of proof, eyewitness’ account and confession characterize the present criminal justice system, the criminals are now becoming clever and

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more scientific. It is therefore pertinent that the system embraces this new approach because it has proven to be reliable in other developed jurisdictions such as the United States, United Kingdom, Canada and South Africa.

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