

Forensic Science

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August 23, 2020

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Forensic science can be described as the application of scientific methods in the fields of civil and criminal law. Over the past few centuries, forensic science has been applied in disciplines that are linked to the legal systems. However, it is important to point out that the association of forensic science with the criminal justice system is essentially in its formative years. This field has been in existence for several centuries, with its use being traced back to the ancient civilizations of past years. There is evidence of forensic science being used in the Roman and Greek societies. One of the main reasons why its application in these societies is vital is because these societies made significant contributions to various fields such as medicine and pharmacology. The research conducted during these periods has enabled aspects such as the examination of toxins possible in modern times. Over time, the field of forensic science has increased its credibility by drawing from various disciplines within the natural sciences such as biology, physics, and chemistry. Its main focus has been the identification, recognition, and analysis of physical evidence. This analysis will show why forensic science relies on the scientific method and how it has become a critical part of the criminal justice system through its use of a broad spectrum of fields to produce data and information that is essential to criminal and legal evidence.

Background

In recent times, forensic science has been recognized as a critical part of convictions and criminal cases due to its reliance on objective facts that are based on scientific knowledge [CITATION McE11 \l 1033]. In the criminal justice system, the testimony of forensic scientists has become an essential part of the criminal and civil case. One of the main reasons for this is the fact that forensic science is based on scientific facts and not on the outcome of cases.

Forensic scientists perform their functions by analyzing physical evidence which is often acquired by law enforcement officials and crime scene investigators. These experts rely on complex instruments, scientific and mathematic principles, microscopic examining techniques, and reference literature to evaluate the evidence presented to them [CITATION Bag12 \l 1033]. While the majority of these experts perform their duties in forensic laboratories and morgues, in some cases, their work may take them to the crime scene in order to collect evidence. Forensic scientists often work for federal, state, and local law enforcement agencies, hospitals and private laboratories.

Forensic science is considered a complex discipline due to its reliance on trace evidence particularly in the areas of DNA. Additionally, the study of this field is grounded on techniques and fundamental concepts that are linked to the natural sciences. Therefore, it can be argued that the study of forensic science is essentially reliant on a multidisciplinary approach that involves both analytical chemical techniques and biological methods. In contemporary society, forensic science has shown to have a broad range of applications such as in civil cases like negligence, forgery, or fraud [CITATION Whe16 \l 1033]. It has been used to help law enforcement officers to establish whether specific laws or regulations have been violated. However, this field is mostly used in the investigation of criminal cases such as murder, assault, kidnapping, robbery, and rape.

Link to the Scientific Method

Over time, the field of forensic science has been linked with the scientific method due to its reliance on objective facts. The scientific method, in this case, is the procedure by which experts in the field of natural and human sciences attempt to interpret a specific entity in the world. The use of the scientific method in forensic science has been mainly based on the fact that

it allows for these experts to reduce the presence of bias or prejudice during the examination of theories or hypotheses associated with the evidence. Essentially, the scientific method involves the observation of phenomena, formulation of a hypothesis, use of this hypothesis to make an observation, and the performance of experiments to validate a specific assumption. The process of investigation can be jeopardized by the presence of human errors. In order to address such issues, forensic scientists use the scientific method as it is an integration of standard procedures and decisive factors. In the previous decades, forensic scientists did not use the scientific method because they argued that this field relied on past events and this method could not handle the evaluation of such events. However, as time has progressed, slight modifications have been made to the scientific method and it has become incorporated in the criminal investigation science under careful consideration.

Conclusion

In conclusion, this analysis has shown the significance of forensic science in criminal and civil cases and how experts rely on the scientific method to analyze evidence. Additionally, it has provided an explanation of why forensic science is now considered a fundamental ingredient in the solution of crimes associated with various law enforcement agencies. One of the main contributions that this field has made to the criminal justice system is necessitating the protection of crime scenes from contamination so that forensic scientists can gather and interpret evidence accurately. Ultimately, advances in technology within disciplines such as biology, chemistry, and physics are increasing the technical competency of this field hence the appreciation of the scientific method.

References

- Baggili, I., BaAbdallah, A., Al-Safi, D., & Marrington, A. (2012). Research Trends in Digital Forensic Science: An Empirical Analysis of Published Research. *Digital Forensics and Cyber Crime*, 144-157.
- McEwen, T. (2011). *The Role and Impact of Forensic Evidence in the Criminal Justice Process*. Alexandria: U.S. Department of Justice.
- Wheeler, E. (2016). Applications of Forensic Evidence in Criminal Cases. *Themis: Research Journal of Justice Studies and Forensic Science*, 4(12), 203-214.