ADVANCEMENT IN THE FIELD OF FORENSIC PSYCHOLOGY & CRIMINOLOGY

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Abstract

Forensic Psychology is the psychology applied in law courts. However, the term is used far more widely than this. The term forensic psychology can be focused narrowly on the work of the relatively small number of psychological practitioners who work directly in law courts. A wider definition is employed in this article which embraces the activities of all psychologists whose work is related to the criminal justice system such as psychologists working in the prison system. Psychology and the law are very different disciplines although both try to understand human nature. Their ways of understanding are not the same and sometimes they are incompatible. Even when the lawyers and psychologists use identical words, they may have very different meanings. The term Forensic Psychology was coined by "Wilhelm Wundt" in 1879. The American Board of Professional Psychology (ABPP) recognizes Forensic Psychology as a specialty and defines it as "The application of the science and profession of law to the questions and issues relating to psychology and the legal system". On the other side, Bartol & Bartol defined Forensic Psychology as the research endeavor that examines aspects of human behavior directly related to the legal process and the professional practice of psychology within, or in consultation with, a legal system that embraces both civil and criminal law. Forensic Psychology was recognized as an area of specialization within the field of Psychology in the year 2001 by the American Psychological Association. After the recognition, various guidelines were formulated and the goals of these Specialty Guidelines for Forensic Psychology were to improve the quality of forensic psychological services; enhance the practice and facilitate the systematic development of forensic psychology; encourage a high level of quality in professional practice, and encourage forensic practitioners to acknowledge and respect the rights of those they serve. Forensic Psychologist helps the legal systems by providing their in-depth knowledge of human behaviors to various issues about the legal system. The roles played by forensic Psychologists are diverse and challenging. Any history depends on the teller since history has to be written from a viewpoint. American and European academics may give somewhat different versions of the history of forensic psychology. Each offers an account that stresses the contribution of their traditions to the discipline. The history as written by a psychiatrist will be different from that of a psychologist since it may ignore the contribution, say, of cognitive psychology. And the history written by a lawyer would be different from both of these.

INTRODUCTION

Forensic Psychologist provides their expertise in the following areas of Forensic Psychology like:

Psychological Autopsy - A psychological autopsy is conducted when a person has successfully ended their life with suicide. The goal of the autopsy is to gather the information that will help determine that it was indeed suicide and to assess what, if any, steps could have been taken to prevent the death. It is one of the most valuable tools of research on completed suicide. The method involves collecting all available information on the deceased via structured interviews of family members, relatives, or friends as well as attending health care personnel. The concept and technique of the psychological autopsy were developed by Dr. Edwin S. Shneidman who defined the psychological autopsy as: "A behavioral scientific impartial investigation of the psychological (motivational, intentional) aspects of particular death. It legitimately conducts interviews (with a variety of people who knew the decedent) and examines personal documents (suicidal notes, diaries, and letters) and other materials (including autopsy and police reports) that are relevant to the role in the individual's death". (Sampath et.al 2007). Ebert (1987) described psychological autopsy (PA) as a process designed to assess a variety of factors, including behaviors, thoughts, feelings, and relationships, of a deceased individual. It was developed originally as a means of resolving equivocal deaths. A psychological Autopsy is an extremely important tool to ascertain the mental status of any individual before his or her death. This tool throws light on various facts that may have been missed during an investigation. It is a psychological report developed after someone's death, usually following suicide or suspicious circumstances.

Assessments in Forensic Practices – It is a category of psychological assessment that is used to aid a legal fact-finder and is one of the most common applications of psychology to the law, prevalent in a variety of legal settings. A relatively new specialty, forensic assessment is one of the fastest-growing areas in clinical psychology. Increasing numbers of psychologists are conducting, analyzing, and presenting psychological data in various legal settings. It has been estimated that hundreds of thousands of forensic assessments are conducted annually by psychologists and other mental health professionals. There are various kinds of forensic assessment tools, the most popular of forensically relevant instruments are measures that assess an examinee's response style, specifically evaluating minimization or feigning of problems (e.g., Minnesota Multiphasic Personality Inventory-II or Structured Interview of Reported Symptoms). Other forensically relevant instruments include tests that may help in child custody assessments (e.g., Parenting Stress Index) or measures of psychopathy (e.g., Hare Psychopathy Checklist-Revised). Forensic assessment instruments range from simple interview guides that help structure interviews around the appropriate legal issues to instruments that are constructed and validated with a solid research base. Forensic assessment instruments are most well-known for their use in adult criminal court settings and are especially prevalent in the area of competency to stand trial (e.g., Fitness Interview Test-Revised, MacArthur Competence Assessment Tool-Criminal Adjudication, and Evaluation of Competence to Stand Trial-Revised), although measures exist for other areas of criminal forensic assessment (e.g., Grisso's Instruments for Assessing Understanding and Appreciation of Miranda Rights and Rogers Criminal Responsibility Assessment Scales).

Eyewitness Testimony - The central goal of Police work is to solve and clear crimes. In their efforts to solve crimes, police are more likely to be successful if at-least one eyewitness was present. A major factor that would determine whether a case is solved or not was based on the completeness and accuracy of the eyewitness's account. In-fact those crimes which were solved were the ones in which the offenders were caught immediately or in which an eyewitness provided some specific relevant piece of information. Eyewitness evidence thus is crucial in the outcome of any criminal or even civil case. A major factor that would determine whether a case is solved or not was based on the completeness and accuracy of the eyewitness's account. However, it needs to be noted that eyewitness can be inaccurate in their testimonies. In 1996, the United States Department of Justice published an analysis of the first 28 cases of individuals in the United States who were convicted of crimes but later exonerated based on DNA testing (Connors, Lundregan, Miller, & McEwan, 1996). Of those, 24 involved mistaken eyewitness identification, some with multiple witnesses (as many as five in one case). A later analysis found that in the first 40 of these cases, 36 (or 90%) were cases in which one or more eyewitnesses falsely identified the innocent person (Wells et al., 1998). Elizabeth Loftus, a cognitive psychologist argued that the testimony would have a disproportionate effect on the behavior. She stated that "Eyewitness testimony is likely to be believed by jurors especially when it is offered with a high level of confidence," even when the confident witness is inaccurate. Accuracy will be higher if the witness conditions were conducive, the witness was interviewed immediately after the event and the interviewing procedures were unbiased and evidence-based.

Criminal Profiling – It is the process of identifying personality traits, behavioral tendencies, geographical location, and demographic or biographical descriptors of an offender (or offenders) based on crime scene characteristics. It is the construction of a psychological, behavioral, and demographic profile of the type of person likely to have committed the crime. Profiling is also a form of prediction -- the profiler tries to "predict" who the offender or offenders might be and where and how the next crime may occur. Criminal profiling is involved in the investigation, apprehension, and prosecution phases of the criminal justice process. In the investigation phase, profiling is used to determine whether crimes are linked and to predict the personality and lifestyle characteristics of an unknown perpetrator. In the investigation phase, profiling is used to develop strategies to apprehend the unknown criminal and to assess the likelihood of an escalation in the perpetrator's crimes. In the apprehension phase, profiling is used to predict where to look for an unknown serial criminal, to determine what information should be included in a search warrant, and how he/she may react upon apprehension. In the prosecution phase, criminal profilers act as experts in court to link crimes based on forensic evidence and to connect an alleged perpetrator to a series of crimes.

The field of Forensic Psychology also deals with certain Investigative Tools as well. They are as follows:

Polygraph - The oldest scientific method for detecting Deception was Polygraph Examination developed by Larsen in the year 1921 which recorded Physiological responses such as heartbeat, respiration, and blood pressure. Though the credit for the development of Polygraph goes to California based Policeman & Physiologist John Larson, it would also include efforts of Italian Psychologist Vittorio Benussi who published findings in the year 1914 on the relation between a lie and respiratory symptoms, and American Psychologist, William Marston who in the year 1915 invented discontinuous systolic blood pressure for deception detection. (Synott, Dietzel, & Ioannou., 2015) A polygraph is an instrument, which measures different physiological responses simultaneously as a person is questioned. The theory is that when a person lies, the lying causes a certain amount of stress that produces changes in the autonomic nervous system responses. Different sensors for recording these responses, such as blood pressure, heart rate, breathing pattern (Pneumograph), galvanic

skin resistance, etc. are attached to the body to measure the physiological reactions. These three physiological functions are not under the voluntary control of any living beings but are being controlled by the autonomic nervous system (ANS) of the nervous system (NS). Various Questionnaire formulation techniques are used by investigators on Polygraph examination to investigate the crime under investigation.

NARCO Analysis - The history of the use of drugs to alter consciousness for 'truth elicitation' dates back to the early 20th century. Dr. Robert House had discovered that giving the drug scopolamine to women during childbirth caused them to talk uninhibitedly about their feelings and thoughts, which led him to believe that scopolamine might help in criminal interrogations. In the procedure of Narco-analysis, sodium pentothal is injected into an individual's body and he or she is taken into a semi-conscious state. The person is interviewed in this state of mind and the entire interview is video recorded. Narco-analysis, as a forensic technique has been conducted in operation theatre in a controlled medical set-up with the facilities to monitoring vital physiological parameters.

Brain Electrical Oscillation Signature Profiling (BEOS) – The Brain Electrical Oscillation Signature Profiling (BEOS) is a technique developed by Prof. Dr. C.R.Mukundan. This Forensic Psychological technology brought in a revolution in the field of Forensic Psychology by changing the entire dynamics of a Lie Detection System. The technique instead of focusing on detecting deception techniques of Polygraph or question techniques of the Guilty Knowledge test directly measures remembrance of autobiographic memory of events, when verbal statements in sequence cue the remembrance of the associated memory, without needing any response from the suspect tested. This scientific technique analyses the electrical activation related to the presence of Experiential Knowledge which is the memory acquired by an individual participating in an event, i.e. a crime. BEOS is based on the dual processing model of Memory of Mandler (1980) which talks about knowing and remembrance. BEOS has been used in many sensitive cases in the Forensic Science laboratories and has helped investigative agencies and courts to identify the perpetrators of the crime. The forensic examiner and the investigators would create probes based on the information available about the crime scene and the formulated probes would give contextual information of the crime in the investigation. These probes help in detecting Experiential Knowledge from the suspects of the crime. Four groups of probes are needed for a proper Forensic Examination. Neutral Probes: They are used to compute the activation of semantic processing. Control Probes: The are positive and negative control probes. Positive control probes pertain to an individual's own experience, while negative control probes are referring to unreal experiences.
Target A Probes: These probes are designed based on the investigator's information about the crime and it reflects the suspect's involvement that is hypothesized by the investigator.
Target B Probes: The probes are based on the suspect's version about his whereabouts or his actions of the crime which might be in contradiction to the investigating officer's version.

Criminal Rehab- The most important part of Forensic Psychology is to provide rehabilitation programs based on psychological principles for the offenders which would help them recover and be a part of society. It appears that there are three principals at the core of effective intervention with offenders. The first principle is called the Risk Principle and states that to increase treatment effectiveness the level of service must be matched to the risk level of the offender (i.e., low-risk offenders receive minimal intervention and high-risk offenders receive intensive services). The second principle, the Need Principle, says that treatment should target those problematic needs of offenders that are related to offending (i.e., criminogenic needs). The aim is to give participants the skills and insight they need to accept responsibility for their offending behavior.
On the other side, **Criminology** or Criminal Psychology is one such field that mainly deals with psychological aspects of criminal behavior and includes issues such as the origins of criminality. The difficulty in defining the field is to do with where precisely boundaries are to be drawn. Modern law deals with an incredible variety of aspects of life, and so psychology, when applied to the legal system, is potentially boundless in what it encompasses. This term was coined in 1885 by Raffaelo Garofalo, an Italian law Professor. According to Edwin Sutherland and Donald Cressey: Criminology is a body of knowledge regarding crime as a social phenomenon. It includes within its scope of processes of making laws, breaking laws, and of reaction towards the breaking of laws. The main issues arise in everyone's mind that how Criminology becomes Science? Criminology is a science in itself when applied to laws enforcement and prevention of crimes under the following nature:

- **It is an applied Science**- In a study of the causes of crimes, anthropology, zoology, psychology, sociology, and other natural sciences may be applied. While in crime detection, chemistry, medicine, physics, mathematics, ballistics, photography, legal medicine, questioned document examination may be utilized. This is called instrumentation.
- **It is a Social Science**: in as much as crime is social creations that it exists in a society being a social phenomenon, its study must be considered a part of social science.
- **It is dynamic**: criminology changes social conditions changes. It is concomitant with the advancement of other sciences that have been applied to it.

- **It Sis nationalistic**: the study of crimes must be concerning existing criminal law within a territory or country.

Also, another aspect of the Criminologist is to study the causes of crimes, its treatment, and prevention using scientific methods. Criminologists use scientific principles like Gather data, create theories, Employ established methods of social science inquiry, Experimental designs, and Sophisticated data analysis. The practice of criminal psychology itself is governed by legislation and many of the vocations into which students trained in psychology move are also conspicuously subject to legislation. A very good example is social work in its many forms, which substantially deals with matters subject to government legislation including children and the family. Other examples include education, mental health, health, and advertising, all of which are closely governed by law. Furthermore, all sorts of psychologists may provide expert evidence on virtually any matter to courts of law. The early work in the disciplines of Criminology co-relates with the intellectual origins of forensic and criminal psychology is to be found in related disciplines, especially criminology, sociology, and psychology. Indeed, some of the earliest criminological contributions seem unquestionably psychological.

Cause & Categories of Crime - According to Richard. T Schaefer, "Crime is a violence of criminal law for which some governmental authorities apply formal penalties.
The cause of Crime may be signifying as:
- **Traditional Cause** – Money Grab, Sex Lust, Property, Honour, Publicity, Bad Habit, Greed & Jealousy.
- **Sociological Cause** - Bad Company, Ignorance, Linguistics, Sectarian, Over Population, Broken Home, Irritant Parents & Deprivation.
- **Psychological Cause** – Psychotic, Enraged, Revenge, Drug Addict & Media.
- Economic Cause – Poverty, Unemployment, Less Resource, & Debit.

Categories of Crime
- **Victimless Crime** - A victimless crime is an illegal act that typically either directly involves only the perpetrator, or occurs between consenting adults; because it is consensual, there is arguably no true victim. Examples of these types of crimes include possession of illegal contraband and atypical sexual behaviors.
- **Professional Crime** - Professional crimes are committed by a person or persons from whom criminally punishable acts are a permanent occupation and the primary source of money.
- **Organize Crime** - Organize crime is a category of a transnational, national, or local grouping of highly centralized enterprises run by criminals who intend to engage in illegal activity, most commonly for money and profit. Some criminal organizations, such as terrorist groups, are politically motivated.
- **White-Collar Crime** - White-collar crime refers to a financially motivated nonviolent crime committed by business and government professionals. Within criminology, it was first defined by sociologist Edwin Sutherland in 1939 as "a crime committed by a person of respectability and high social status in the course of his occupation".
- **Transactional Crime** - Transactional crimes are crimes that have an actual or potential effect across national borders and crimes that are intrastate but offend fundamental values of the international community. Examples are Murder, Assassination, Deadly Assault, Kidnapping, Abduction, Torture, Extortion, Human Smuggling, Robbery, Sex trade, drug smuggling- Marijuana, Cocaine, methamphetamine, etc.
- **Corporate Crime** - Corporate crime refers to crimes committed either by a corporation or by individuals acting on behalf of a corporation or other business entity.
- **Cyber Crime** - Offences that are committed against individuals or groups of individuals with a criminal motive to intentionally harm the reputation of the victim or cause physical or mental harm, or loss, to the victim directly or indirectly, using modern telecommunication networks such as the internet and mobile phones.

CRIME DATA ANALYTICS

Day by day the crime rate is increasing considerably. Crime cannot be predicted since it is neither systematic nor random. Also, modern technologies and hi-tech methods help criminals in achieving their misdeeds. According to Crime Records Bureau crimes like burglary, arson, etc. have been decreased while crimes like murder, sex abuse, gang rape, etc. have been increased. Even though we cannot predict who all may be the victims of crime but can predict the place that has the probability for its occurrence. The predicted results cannot be assured of 100% accuracy but the results show that our application helps in reducing the crime rate to a certain extent by providing security in crime sensitive areas. So, for building such a powerful crime analytics tool we have to collect crime records and evaluate it. It is only within the last few decades that the technology made spatial data mining a practical solution for wide audiences of Law enforcement officials which

is affordable and available. Since the availability of criminal data or records is limited, we are collecting crime data from various sources like websites, news sites, blogs, social media, RSS feeds, etc. This huge data is used as a record for creating a criminal record database. So, the main challenge in front of us is developing a better, efficient crime pattern detection tool to identify crime patterns effectively. The main challenges we are facing are:

- Increase in crime information that has to be stored and analyzed.
- Analysis of data is difficult since data is incomplete and inconsistent.
- Limitation in getting crime data records from the Law Enforcement department.
- The accuracy of the program depends on the accuracy of the training set.

Finding the patterns and trends in crime is a challenging factor. To identify a pattern, crime analysts take a lot of time, scanning through data to find whether a particular crime fits into a known pattern. If it does not fit into an existing pattern then the data must be classified as a new pattern. After detecting a pattern, it can be used to predict, anticipate, and prevent crime. Before this clustering algorithms have been used for crime analysis. For instance, on one side it is revealed that the suspect has black hair and from the next site/witness, it is revealed that the suspect is youth and from the third one reveals that the offender has a tattoo on his left arm, etc. By describing the offender details, it gives a complete picture of different crime incidents. Today most of it is manually done with the help of multiple reports that the detectives usually get from the computer data analysts and their crime logs. The reason for choosing this method is that we have only data about the known crimes we will get the crime pattern for a particular place. Therefore, a classification technique that will rely on the existing and known solved crimes, will not give good predictive quality for future crimes. Also, the nature of crimes changes over time, so to be able to detect newer and unknown patterns in the future, clustering techniques work better.

CONCLUSION

Forensic Psychology and Criminology has developed differently in different parts of the world. Nevertheless, it now constitutes an important branch of modern psychology which benefits greatly from its international nature. It unites psychology from a variety of fields of psychology. Crucial changes in the criminal justice system over the centuries have gradually increased the need for psychological expertise within the system. Most forensic and criminal psychology is very recent and mainly confined to the past 25 years or so. However, interest in the field was at best spasmodic and minimal until the late twentieth century when it grew rapidly. Therefore, the field of Forensic Psychology & Criminology has now started to work hand in hand with modern-day Scientific and Technological innovations. This is just the starting point of our way towards the future and this solely depends on our law's adaptability with the present advancements. Our legislators should try making laws with the help of Forensic Psychologists as well as with Criminologists which are future-ready and are open to accepting changes as per the conditions required. In the future, Innovation will be utilized bylaws in ways never envisioned and hence Indian Forensic Psychology & Criminology needs to be future-ready. It is only through modern innovations in both fields. It can move on further and developed into the methodology that could be envisioned to aid the nation's justice system at every front.

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