



Shri Dharmasthala Manjunatheshwara Law College
Centre for Post Graduate Studies & Research in Law

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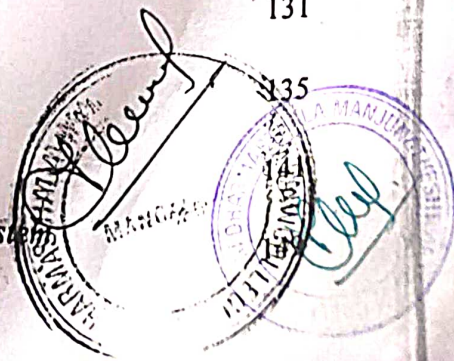


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NEURO LAW: PRACTICAL AND ETHICAL ASPECTS

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Abstract:

Advances in neuroscientific technology has found increasingly broader applications, including in legal neuroscience (or “neurolaw”), where experts in the brain sciences are called to testify in the courtroom. But does interference of neuro science into legal field pose threat to personal liberty? or can the individuals claim for protection of their right to privacy? Neurolaw is an emerging field at the nexus of neuroscience and law. This article discusses the use of neuroscience in the legal system and its issues. The interest in neurolaw increased in the 1990s with advances in functional neuroimaging (e.g. fMRI). Functional neuroimaging measures neural activity in a specific region of the brain, which could then be used to explain one’s behaviour.¹

Introduction:

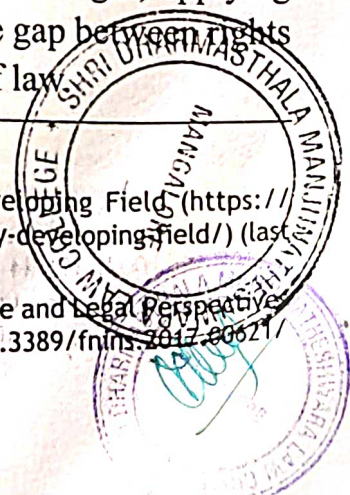
Scientific theories have seen a drastic change through a comprehensive approach covering aspects of relative subjects. Law is no exception as it has been read with many other related fields so as derive required principles. Similarly legal effects are also tied to neuro sciences. With brain lying in as their similar correlative factor, gives rise to neurolaw as an interdisciplinary field, offering more comprehensive, accurate approach to legal phenomena to reach towards a more accurate evidence for legal process, and a fairer justice system.²

There are plenty of cases in which neuroscientific data might be of significance to more accurately understand legal issues. This is why lots of neuroscientific evidences are increasingly reaching courts in a number of legal contexts in practice. Neurolaw would generate a better and wiser judicial, even legislative and executive system. However in India, where Right to privacy rests as a fundamental right, applying neurolaw becomes a challenging task. This article tries to bridge gap between rights of the individual and technological advancements in the field of law.

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¹ JeyKumarasamy, Neurolaw: The Potential and Pitfalls of a Newly Developing Field (<https://mjlh.mcgill.ca/2014/12/14/neurolaw-the-potential-and-pitfalls-of-a-newly-developing-field/>) (last accessed on 13th Nov 2019)

² Calvin J. Kraft, Integrating Brain Science and Law: Neuroscientific Evidence and Legal Perspectives on Protecting Individual Liberties, (<https://www.frontiersin.org/articles/10.3389/fnins.2017.00621/full>)



Neurolaw: the intersection of neuroscience and law

After many investigations on the human brain, scientists have learned a tremendous amount about how it works, how it malfunctions, and how it can be repaired or altered. This emerging neuroscience, namely the scientific study of the nervous system, has already revolutionized medical practices. Neuroscience as a branch of biology is currently an interdisciplinary science that collaborates with other fields.³ Neurolaw is an attempt to know the relationship between law and brain by taking into account neuroscience findings.⁴

The most fundamental question among neuroscientists and lawyers is the relationship between law and neuroscience. Neuroscience is a natural science which is based on experiments on human brain; while law is a humanities' science which gives rise to obligations, arising from the collective propositions. This leads to a real challenge as to how can these two different fields be correlated. Law is the creation of humans as social beings for a civilized society. Ultimate goal being public order, maintaining peace and real justice in the society. According to the jurists it is possible when there are stricter laws and sanctions for the same. Neuroscientific statements, with an open eye on neurological phenomenon, help law to have more accurate rules on this sense. Understanding human psychology becomes necessary to know the acceptance or reluctance rate towards a certain law.

Practically, they deliberate on human brain and nervous system image by medical technology scanning such as radiology, psychiatry, neurology, and clinical neuropsychology.⁵ With these new imaging techniques, researchers are provided with an opportunity to examine the neurobiological correlates of human behaviors. Initially, neuroscience was more exploited for Procedural law to stand criminal and civil liability complaint in court. However, today, we are witnessing the development of neuroscience in various areas of law; such as Intellectual Property Law, Tort Law, Consumer Law, Health Law, Employment Law, Constitutional Law, and Criminal Law.⁶

Research in neurolaw

Neurolaw is a relatively new and highly-interdisciplinary field while the Decade of the Brain⁷ was first introduced to the health care and legal communities. The term neurolaw, among legal scholars, was first coined by Taylor et al.⁸ Neuroscience and

³ Bear MF, Connors BW, Paradiso MA. Neuroscience. Philadelphia, PA: Lippincott Williams & Wilkins; 2007. pp. 4-22.

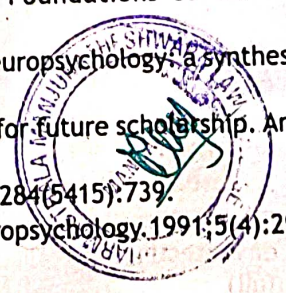
⁴ Pardo MS, Patterson D. Minds, Brains, and Law: The Conceptual Foundations of Law and Neuroscience. Oxford, UK: Oxford University Press; 2013. pp. 23-4

⁵ Bigler ED. Neuropsychological assessment, neuroimaging, and clinical neuropsychology: a synthesis. Arch Clin Neuropsychol. 1991;=6 (3):113-32

⁶ Tovino SA. Functional neuroimaging and the law: trends and directions for future scholarship. Am J Bioeth. 2007;7(9):44-56.

⁷ Jones EG, Mendell LM. Assessing the decade of the brain. Science. 1999;284(5415):739.

⁸ Taylor JS, Harp JA, Elliott T. Neuropsychologists and neurolawyers. Neuropsychology. 1991;5(4):293-305.



the law have interacted over a long history. Since 1990, however, neuroscientists and neurolawyers have often argued about eventuality of spreading neurolaw.

Practical researches

Neurolaw practical researchers emphasize on civil and criminal litigation and its practical challenges such as documenting neuroscientific data as evidence in the court room or neurolitigation problems. There exists much of legal process literature in the neurolaw.

The main issues which have been proposed in neurolaw practical researches are as follows: neurolitigation challenges, neuroscientific Instruments for proving or compurgation legal responsibility, neurocriminology in Procedural law, standing neurolitigation, neuro advocacy and attorney, neuroscience and judgment..

Theoretical researches

On the other hand, in the theoretical approach we understand the brain, its functions in the conceptual value. Such an approach is of particular importance in accentuating impact of brain on behavior. As neuroscientific technologies contribute to understanding of the mind, applying neuroscience discoveries in legal proceedings has also increased. Cognitive neuroscientists interrogate complex relationship between the mind and the brain. They do it rather by using new techniques such as fMRI and electroencephalography (EEG)..

Neuro Ethics:

Neurolaw attempts to relate the brain to law as well as neuroethics to moral values; so the main question in this branch of neuroscience is how it is and will be used in the legal system? Furthermore, Neurolaw encompasses ethical questions regarding nootropics, more commonly known as mind-enhancing drugs. In country like India which protects its citizens against self incrimination can evidence be got by administering these drugs?

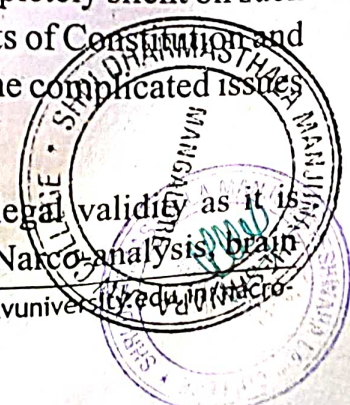
Narco-Analysis Test and Law in India

Recently, Narco-analysis has been the most debated topic amongst the legal fraternity, media and common masses in India .Narco-analysis test, the development of new tools of investigation has led to the emergence of scientific tools of interrogation.. With recent advent of technologies in every sphere of life, criminal investigation is no more left out of its effects⁹. Though The Evidence Act is completely silent on such scientific process, it has often been criticized as against the tenets of Constitution and on the other hand has been upheld as a necessity to evaluate some complicated issues

Constitutional Provisions:

Like confessions, Narco-analysis tests generally don't have legal validity as it is made by a semi-conscious person are not admissible in court. Narco-analysis, brain

⁹ Singh Pradeep Kumar, Narco-Analysis Test and Law in India, <https://madhavuniversity.edu.in/narco-analysis-test.html> (last accessed on 15th November 2019 at 3:30 pm)



mapping and lie detector tests against the will of the accused would be violative of Article 20 (3) of the Constitution. Art. 20(3) which embodies this privilege says, "No person accused of any offence shall be compelled to be a witness against himself". Subjecting the accused to undergo the test, will be violation of Art.20 (3) of Constitution

Admissibility of Narco analysis in the courtrooms

While Narco-analysis yielded an immense amount of information, it also triggered off many questions as several critics shared a view that there was force laid down on the witness to extract truth. Narco-analysis is considered as a tool or aid in collecting and supporting evidence. Therefore Narco-analysis test report has some validity but is not totally admissible in court, which considers the circumstances under which it was obtained and assessed its admissibility. Results of such tests can be used to get admissible evidence, can be collaborated with other evidence or to support other evidence

In India, Narco-analysis was first used in 2002 in the Godhra carnage case. It was also in the news after the famous Arun Bhatt kidnapping case in Gujarat wherein the accused had appeared before NHRC and the Supreme Court of India against undergoing the Narco-analysis. Narco-analysis was in the limelight in the context of infamous Nithari village (Noida) serial killings. The two main accused in the Nithari serial killings Mohinder Singh Pandher and Surendra Kohli have undergone Narco-analysis tests in Gandhinagar in Gujarat

Criticism of Narco Analysis

Narco-analysis has been criticized on the ground that it is not 100% accurate. It has been found that certain subjects made totally false statements.. It is often unsuccessful in eliciting truth as such it should not be used to compare the statement already given to the police before use of drug. It has been found that a person who has given false information even after administration of drug

Primary challenges ahead in Neurolaw

Most neurolaw findings, besides philosophical, psychological and other related scientific approaches, are mainly based on neuro-medical technology experiments. Corollaries are achieved mostly according to the cognitive study of brain by brain-imaging. In this way, neuroscientists expound neuroscientific data that neurolawyers totally link them to legal effects.

Neuroscience and law are very different disciplines in nature from laboratory to the courtroom. Discrepancy of language is a critical issue facing neurolaw scientists. It is obvious, neurolawyers are being confronted with many words having slightly different meanings. Evidence in law must be accurate and reasonable. Thus ambiguity of thought on the legal field will be complicated and difficult.

In 2000, a middle-aged male schoolteacher in Virginia was accused of collecting

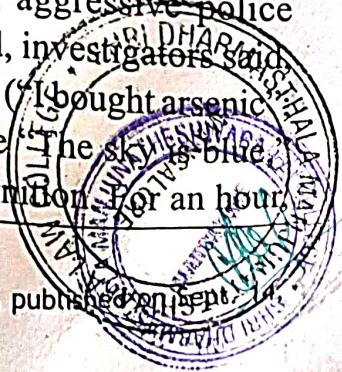
child pornography and trying to molest his stepdaughter. After complaining of headaches and a loss of balance, he underwent a brain scan. The MRI results revealed an egg-sized tumour pushing against the prefrontal lobe of his brain. This area of the brain controls judgment, impulse control and social behaviour. Once the tumour was removed, he stopped downloading child pornography and making unwanted sexual advances toward hospital staff. However, this lasted for only a year before he returned to his old behaviour. Another brain scan indicated that his tumour had returned. Once again, he started behaving normally after the tumour was removed. This is a rare case with a clear causal link between the neurological abnormality and criminal behaviour.¹⁰

Case in India :

India became the first country to convict someone of a crime relying on evidence from this controversial machine: a brain scanner that produces images of the human mind in action and is said to reveal signs that a suspect remembers details of the crime in question¹¹. For years, scientists have peered into the brain and sought to identify deception. They have shot infrared beams through accuseds heads, placed them in giant magnetic resonance imaging machines and used scanners to track their eyeballs. Since the Sept. 11 attacks, the United States has plowed money into brain-based lie detection in the hope of producing more fruitful counterterrorism investigations..

The Brain Electrical Oscillations Signature test, or BEOS, was developed by Champadi Raman Mukundan, a neuroscientist who formerly ran the clinical psychology department of the National Institute of Mental Health and Neuro Sciences in Bangalore. His system builds on methods developed at American universities by other scientists, including Emanuel Donchin, Lawrence A. Farwell and J. Peter Rosenfeld.¹²

The woman, Aditi Sharma, was accused of killing her former fiancé, Udit Bharati. They were living in Pune when Ms. Sharma met another man and eloped with him to Delhi. Later Ms. Sharma returned to Pune and, according to prosecutors, asked Mr. Bharati to meet her at a McDonald's. She was accused of poisoning him with arsenic-laced food. Ms. Sharma, 24, agreed to take a BEOS test in Mumbai, the capital of Maharashtra. (Suspects may be tested only with their consent, but forensic investigators say many agree because they assume it will spare them an aggressive police interrogation.) After placing 32 electrodes on Ms. Sharma's head, investigators said they read aloud their version of events, speaking in the first person ("I bought arsenic-laced food for an hour. I met Udit at McDonald's"), along with neutral statements like "The sky was blue" which help the software distinguish memories from normal cognition.



¹⁰ Supra note 1

¹¹ Anand Giridharadas India's Novel Use of Brain Scans in Courts Is Debated, published in Sept 2008

¹² Ibid

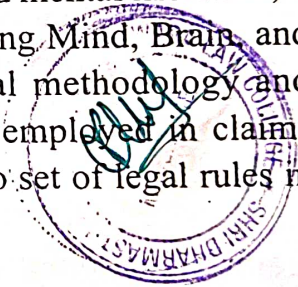
Ms. Sharma said nothing. But the relevant nooks of her brain where memories are thought to be stored buzzed when the crime was recounted, according to Mr. Joseph, the state investigator. The judge endorsed Mr. Joseph's assertion that the scans were proof of "experiential knowledge" of having committed the murder, rather than just having heard about it.¹³

Conclusion.

The law by itself cannot be deemed to be complete unless its backed by the people who follow it. The behavioural science is one of these most effective sciences which gives hand to law mainly in practical sense. Neuroscience, exploring brain functions and structures, throws light on the way to better understanding of human behaviour. The blend of these two subject-matters (neuroscience and law) has paved the way for neurolaw, in 1990's. reaching courtrooms is still a complicated task for the neuro science as it is criticized against the human rights and fundamental rights of the people.

In conceptual sense, the issues are further complicated by the fact that legal doctrine and legal theory make use of our ordinary concepts of mind and mental life. Also, it is extremely difficult to keep a check on the relationship among Mind, Brain, and Law. Realising this, neurolaw theorists consider conceptual methodology and philosophical view, focus on the scope and contours being employed in claims involving neuroscience and law. Thereby, the path is paved to set of legal rules in order to regulate behaviors in society.

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