

## RENDEZVOUS OF LAW AND INTERDISCIPLINARY RESEARCH: A NECESSARY INTERACTION IN CONTEMPORARY TIMES

**Dr. Kaumudhi Challa\***

“The sun, moon and stars shine like centuries ago, and the rose is blossoming like in paradise .....However, law is different. It is like a wanderer in the desert. .....Three words changed by the law-maker may render entire libraries useless...<sup>1</sup> The usual assumption is that academic lawyers are only interested in what the law-makers actually do. Interdisciplinary research is, of course, different. So, if we go beyond traditional legal research, we may be able to find a way out of the desert”<sup>2</sup>.

The above observation highlights the fact that law is very much different from other disciplines. In natural sciences the phenomena like the movement of celestial bodies, the shining of stars, the blooming of the flowers, etc. which follow the laws of natural and physical sciences continue since the centuries. However, law is different in the sense that even if there is a change in any three words by the law-maker the entire meaning of the law changes and may render the libraries useless. Law is thus like a wanderer in a desert. Just like the wanderer in the desert needs to find a way out of the desert, the lawyers and legal academicians need to find out the true meaning of the law. Thus, research in law becomes necessary. However, traditional legal research may not be adequate to know the true meaning and hence interdisciplinary research becomes essential in order to know the true meaning of law.

In the present times, research as a academic endeavour is gaining popularity and various terms such as interdisciplinary research, trans-disciplinary research, multi-disciplinary research are being used increasingly. Almost every other subject/discipline is focussing on the need and importance of such inter-disciplinary research. As law is closely inter-related with the society and operates within the society, the subject of law is also affected by the

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\*Associate Professor, Hidayatullah National Law University, Naya Raipur, Chhattisgarh.

<sup>1</sup> The view of 19<sup>th</sup> Century Jurist Julius Von Kirchmann, as quoted by Mathias M. Siems, in The Taxonomy of Interdisciplinary legal Research: Finding the Way Out of the Desert, Journal of Commonwealth Law and Legal Education, 10<sup>th</sup> November 2009, Volume 7, Number 1, Taylor & Francis, pp 5-17, at p.1.

<sup>2</sup> Mathias M. Siems, The Taxonomy of Interdisciplinary legal Research: Finding the Way Out of the Desert, Journal of Commonwealth Law and Legal Education, 10<sup>th</sup> November 2009, Volume 7, Number 1, Taylor & Francis, pp 5-17, at p.1.

numerous scientific and technological developments in society. The traditional legal research is not adequate to understand the complex issues which arise due to the scientific and technological developments and hence legal research also needs to adopt a multidisciplinary or inter-disciplinary approach.

This article attempts to highlight the need and significance of inter-disciplinary research in law. It points out the necessity to go beyond the traditional legal research and align it with inter-disciplinary legal research in order to develop new ideas and theories as well as to get a comprehensive understanding of any issue/ situation. Such inter-disciplinary legal research would help to understand the complex social problems in a better way and arrive at pragmatic solutions and protection of rights of individuals in society.

### **Research – Meaning and Significance**

Since the dawn of civilisation, human beings have the intrinsic or inherent quality of trying to find out or know something; the quest for unknown; the search for truth and answers; the curiosity to find out something new and to gain knowledge. When the knowledge is gained in a systematic and scientific manner then it is known as research. The art of scientific investigation is known as research. It means a systematic investigation or inquiry in order to find out the truth or an answer to a particular problem/issue. The word research is made of two words: ‘re’ and ‘search’- which means to search again and again. Thus, research is a detailed and careful study of an issue in order to find out detailed information about that issue. According to the American Sociologist Earl Robert Babbie, research is, “a systematic inquiry to describe, explain, predict, and control the observed phenomenon. It involves inductive and deductive methods. The Inductive methods are associated with qualitative research, and deductive methods are more commonly associated with quantitative analysis.<sup>3</sup>”

The Department of Education defines Research as the creation of new knowledge and/or the use of existing knowledge in a new and creative way so as to generate new concepts, methodologies and understandings. This could include synthesis and analysis of previous research to the extent that it leads to new and creative outcomes<sup>4</sup>. It means the careful and diligent search or the collecting of information about a particular topic. It is an investigation

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<sup>3</sup> Dan Fleetwood, What is Research: Definition, Methods, Types and Examples, in QuestionPro, <https://www.questionpro.com> date of visit 01-03-2025

<sup>4</sup> See, Definition of Research, Western Sydney University, <https://www.westernsydney.edu.au> date of visit 01-03-2025

or experimentation aimed at discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws<sup>5</sup>. It means a detailed study of a subject, especially in order to discover new information or reach a new understanding<sup>6</sup>.

One of the most comprehensive definitions of research is given by M. Stephenson and D. Slesinger in the Encyclopedia of Social Sciences as, “ The manipulation of things, concepts or symbols for the purpose of generalizing to extend, correct or verify knowledge, whether that knowledge aids in construction of theory or in the practice of an art<sup>7</sup>.” Thus, research is a systematic and organised way to gain knowledge. It leads to the development of theories and concepts which are the building blocks of any subject and in fact leads to the development of all the subjects. Research helps in developing and evolving new theories as well as verifying, modifying, and adding to the existing theories. All the knowledge acquired so far on the earth is only because of research and the development of each and every subject/discipline has been only because of research.

The research in the field of law is known as Legal Research. As the term law is having very wide meaning and scope, legal research also is having a very wide meaning and scope. It means research in relation to the meaning of law; what constitutes law; the evolution and history of law; the development of law and factors influencing law; the legislation; precedents; customs; the procedure of law making and even the judicial process of interpretation of law and the application of law. Further, it includes the machinery of State and the interaction of different organs of the State; the interaction with citizens; and principles governing the actions of State and remedies available to citizens. Also as law and society are interrelated, legal research includes research in various issues in society ranging from ethics, morals, rights of individuals, to agricultural issues, technology, crimes, developmental activities, environmental issues, etc.. Thus, legal research includes and means research in any area/issue inter-related with law and society.

Research is basically of two types- Doctrinal Research which is centred on doctrines, theories, concepts, principles and legal provisions and helps in building up the existing knowledge; and Empirical or non-doctrinal research which is based on the data collected

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<sup>5</sup> See, Research Definition and Meaning in Merriam-Webster, <https://www.merriam-webster.com> date of visit 01-03-2025

<sup>6</sup> See, Research meaning in Cambridge Dictionary, <https://dictionary.cambridge.org> date of visit 01-03-2025

<sup>7</sup> See, Encyclopedia of Social Sciences Volume 19, Mac Millan 1930

from actual field and helps in knowing the reality. Both these types of research are relevant as per the topic and objectives/purpose of research work being done. However, in the present times, only traditional research in law is not adequate and there is a need to focus on the interdisciplinary research.

### **Interdisciplinary Research – Meaning**

Interdisciplinary research means research in which knowledge, methods and perspectives from multiple academic disciplines are combined to address complex problems. It involves collaboration between experts from different fields to get a better and broader understanding of a topic by integrating diverse approaches and theories. It may involve researchers from different fields like, sciences, social sciences, humanities, etc. working together on a single project in order to understand the complex issues related to a problem. The objective is not simply to gather information from different disciplines; but the objective is to synthesize and interpret the information in a holistic manner and arrive at a complete understanding of the issue and which may not have been possible by studying only a particular or specific field only. For example, studying the impacts of climate change on Environment would involve researchers from different areas such as law, human rights, social sciences, environment and geology. Then only one would be able to understand the various aspects of the complex problem and find out a proper solution.

In the educational and training pedagogies the term interdisciplinary is applied to describe studies that use methods and insights from several established disciplines or traditional fields of study. It involves researchers and academicians in research work connecting and integrating several academic schools of thought, professions or technologies with objective of pursuing a common task. For example, women's studies, or ethnic area studies can be understood only by combining perspectives of two or more fields. Thus, interdisciplinary research can be used in complex subjects which can be understood by combining perspectives of two or more fields/subjects<sup>8</sup>.

This does not mean that monodisciplinary research is not relevant or useful. In fact, in situations where the problem is such that it's understanding and finding a solution requires the expertise of a single disciplinary skill, monodisciplinary research is necessary. Also a

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<sup>8</sup> Interdisciplinarity, Wikipedia, <https://en.wikipedia.org> visited on 04-03-2025

good understanding of monodisciplinary research is necessary for the researcher to proceed with any interdisciplinary research work<sup>9</sup>.

Interdisciplinary research is defined as a process of research in which the researcher explores two or more academic disciplines. Interdisciplinary means involvement of more than one discipline or more than one field of study or a branch of knowledge. Thus, it combines various disciplines- academic, artistic, or scientific for better understanding of the various perspectives of the topic. According to Allen F. Repko<sup>10</sup>, interdisciplinary research is a “decision-making process” where the researcher must take many factors and disciplines into consideration and then decide on which to use going forward. The U.S. National Academics of Sciences, Engineering and Medicine’s Report, *Facilitating Interdisciplinary Research* gave a working definition as: *Interdisciplinary research integrates information, data, techniques, tools, perspectives, concepts, or theories from two or more disciplines or bodies of specialized knowledge. It can be done by teams or by individuals. It advances fundamental understanding or solves problems whose solutions are beyond the scope of a single discipline or area of research practice*<sup>11</sup>. Thus, the interdisciplinary research focuses on integrating information or data from two or more disciplines and is able to give a more comprehensive and detail understanding of a problem or situation from all different perspectives. For example, the issue of environmental pollution cannot be tackled only from a legal perspective. It requires an understanding of various concepts and theories from different disciplines like science, sociology, economics and environmental sciences. Hence, interdisciplinary research done by a team of researchers would help to understand the problem of environmental pollution and to find an answer to tackling this pollution.

### **Interdisciplinary Research- Historical Evolution**

The history of interdisciplinary research is often traced to Greek and Roman philosophy. The Greek philosophers, historians and dramatists took aspects from other realms of knowledge

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<sup>9</sup> Sunita Kapila, Robert Moher, Across Disciplines Principles for Interdisciplinary Research, International Development Research Centre Policy and Planning Group, Ottawa, Ontario, January 1995, p.1.

<sup>10</sup> Allen F. Repko was a Professor and Director of Interdisciplinary Studies at the University of Texas, and has written several books and articles on interdisciplinary research. His research is often looked at to explain the multidisciplinary research definition. See, Natalie Perdue, David White, Interdisciplinary Research, Definition, Process and Advantages, 21-11-2023, <https://study.com> visited on 04-03-2025

<sup>11</sup> U.S. National Science Foundation, US NSF, Learn About Interdisciplinary Research, <https://www.nsf.gov> visited on 03-03-2025

such as medicine, theology and philosophy and developed their theories<sup>12</sup>. Greek Philosophers like Plato and Aristotle explored knowledge across various fields. Even Scientists like Isaac Newton and Artists like Leonardo da vinci were famous for their interests in disciplines other than science and arts respectively and for integrating more than one discipline in their research and art works.

The modern developments in interdisciplinary research can be considered to have taken place after the World War I & II. The evolution and development of interdisciplinary research methodologies can be traced to the 1970s when the International Development Research Centre (IDRC) encouraged economists and agronomists to work together, building upon positive experiences between animal experts and farming projects in Central America. By the early 1980s, anthropologists and sociologists were starting to participate in research in farming, fishing, and food research<sup>13</sup>. Slowly the systems approach to research developed which means the extension of physical and biological sciences to research and attempting to understand the complex problems and interactions between various components of a system. Gradually this systems approach was applied to research in agricultural and fishing areas and methodologies were developed. For example, Farming Systems Research (FSR) focussed on the problems faced by the farmers and the farming activities in the larger socioeconomic and biophysical context of farming activities. The Production to Consumption Systems Research (PCSR) focussed on linking the farming, agricultural, and fishing activities with other non-farming aspects and examining what happens to these farm outputs once it leaves the farm environment. The Integrated Coastal Development (ICD) approach examined the issues of resource depletion, economic growth, and unemployment near coastal zones and involved research expertise from variety of disciplines such as social scientists, biologists, ecologists, engineers etc. Thus, the FSR, PCSR, and ICD created a basis for methodological development of interdisciplinary research tools<sup>14</sup>.

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<sup>12</sup> Gunn, Giles, *Interdisciplinary Studies*, in Gibaldi, J. (Ed.) *Introduction to Scholarship in Modern Language and Literatures*. New York: Modern Language Association, 1992, pp. 239-240

<sup>13</sup> Sunita Kapila, Robert Moher, *Across Disciplines Principles for Interdisciplinary Research*, International Development Research Centre Policy and Planning Group, Ottawa, Ontario, January 1995, p.4.

<sup>14</sup> Sunita Kapila, Robert Moher, *Across Disciplines Principles for Interdisciplinary Research*, International Development Research Centre Policy and Planning Group, Ottawa, Ontario, January 1995, p.4- 7.

In the present times, the emerging new areas of studies also necessitate the combining of two or more disciplines in research work. For example, nanotechnology<sup>15</sup> offers broader scope of combining various disciplines such as physics, chemistry, engineering, biology and even computer sciences. An understanding of these newer areas can be only by combining two or more disciplines such as physics and medicine or physics and ecology/environmental sciences etc. Bioinformatics involves combination of molecular biology and computer science. The understanding of environmental issues and particularly concept of sustainable development requires integrating and combining the understanding drawn from different fields such as ecology, biodiversity, wildlife management, economics, and sociology<sup>16</sup>.

### **Interdisciplinary Legal Research- Meaning and Relevance**

Interdisciplinary legal research combines legal analysis with insights from other subjects such as sociology, economics, political science, environmental science etc. It recognises that law cannot operate or exist in vacuum and that law is closely inter-connected with society and factors in society. As law and society are interrelated and each and every factor in society influences law and vice-versa, the understanding of the various issues in society also requires understanding of the different subjects or disciplines. Thus, it would help the policy makers to arrive at holistic and comprehensive solutions for the diverse issues in society. Interdisciplinary research is very significant in law as it helps to understand the complex issues in society. It encourages collaboration between legal researchers and experts from other disciplines.

This type of research uses empirical research/socio-legal research in law. Sometimes comparative methods are used to compare the legal systems across jurisdictions and identify the best practices with respect to a particular issue, say for example biodiversity protection, or monitoring of blockchain technologies, or genetic engineering and legal control, etc. the databases and search tools ( JSTOR, Web of Science, Google Scholar) are used to access research materials from other disciplines. Also specialized software SPSS, NVivo, ATLAS.ti are used to analyse data.

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<sup>15</sup> Nanotechnology is the manipulation of matter with at least one dimension sized from 1 to 100 nanometers (nm). At this scale, commonly known as the nanoscale, surface area and quantum mechanical effects become important in describing properties of matter. It has applications in diverse fields such as medicine, agriculture, electronics etc. See, Nanotechnology, Wikipedia, <https://en.wikipedia.org> date of visit 10-03-2025

<sup>16</sup> J.S. Edge; S. J. Hoffman; C.L. Ramirez; S. J. Goldie ( 2013)., " Research and Development Priorities to Achieve the Grand Convergence: An Initial Scan of Priority Research Areas for Public Health, Implementation Science and Innovative Financing fro Neglected Diseases: Working Paper for the Lancet Commission on Investing in Health, The Lancet, London, England, October 2016.

Currently, more attention is being given to interdisciplinary research in law. Hence, socio-legal research or empirical research in law is gaining popularity and it is focussing not just on law but also on integration of law with various other disciplines as per the objectives of research. Thus, for example, research in law and economics; law and philosophy; law and environmental issues; law and crimes in society are emerging issues on which research is being done.

An understanding of economics as well as society is essential while examining the problem of environmental pollution and steps for mitigation or reduction of pollution. This is because the prevention and control of pollution requires huge expenses which are somehow then reflected in the goods and services provided by the industries and affect the consumers/common man. Also pollution control requires monetary investments and plan of action by the State. In order to establish the liability or pollution, one needs to understand the scientific aspects of pollution and pollutants, environmental resources and the effects of such pollution on environment and human health. For example, the landmark Oleum Gas Leak Case, M.C. Mehta v. Union of India<sup>17</sup> brought to light the issues of safety concerns of industries engaged in inherently hazardous operations. The Hon'ble Apex Court evolved the principle of Absolute Liability and held that the industries are responsible for any harm caused by their hazardous activities, and the exceptions of strict liability would not be applicable. The Seturaman Committee headed by Shri .Seturaman as Chairman was formed to investigate the oleum gas leakage incident at Shriram Foods and Fertilizers industries and the Committee examined the causes of oleum spillage and its impacts as well as the safety procedures for minimizing dangers to the public. Thus, it requires understanding the link between pollutants and environment, public health, environmental law and ecology, and scientific aspects.

The increasing crimes in society require an indepth study of social and psychological factors influencing the criminals. So also the developments in science and technology are crucial in digital evidence and forensics and an understanding of all these aspects is necessary in criminal law<sup>18</sup>. For example, in case of State of Punjab v. Baldev Singh<sup>19</sup> the Supreme Court

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<sup>17</sup> 1987 AIR 1086; 1987 SCR (1) 819

<sup>18</sup> Patne Sheetal D., Prajakta Pimpalshende, The Significance of Science and Technology in Legal Proceeding, in International Journal of Research Publication and Reviews, Vol. 5, No.8, August 2024, pp. 4512-4518.

<sup>19</sup> (1999) 6 SCC 172

of India emphasised the importance of handling digital evidence with care and the need for proper procedures and techniques in collection and preservation of digital evidence to ensure its reliability. In case of *Shiv Kumar Yadav v. State of Delhi*<sup>20</sup>, the Supreme Court relied heavily on DNA profiling to establish the involvement of the accused in the crime. These examples reflect the interaction between the law and the technology, particularly DNA profiling and forensics and hence need for a law student to understand not just the legal principles but also the scientific principles.

The philosophical understanding helps to know the ethic and morals related to various issues such as law, punishments, etc. Anthropology and history help to know the historical background of the laws, legal framework as well as cultures and development of society which influenced the law<sup>21</sup>.

Further, the developments in computer sciences, artificial intelligence, recombinant DNA technology and genetic engineering, and Intellectual Property Rights have opened new vista for research across disciplines and interdisciplinary research in law. The advent of Artificial Intelligence (AI) has transformed how legal professionals access, analyse, and apply legal information. AI powered legal research tools use machine learning algorithms to sift through vast databases of legal texts, case-laws, statutes and regulations and provide users with vast information quickly and accurately<sup>22</sup>. Also predictive analysis a key feature in AI legal research allows lawyers and judges to assess the likely outcomes of cases based on historical data and legal trends. It helps in formulating case strategies and saves times for focussing on more complex issues<sup>23</sup>. However, a law student or legal academicians and practitioners will be able to utilize these benefits only if they have an understanding of the working and use of AI techniques. For this one needs to delve into research in law and AI techniques.

Hence, in the contemporary times it is very essential for a law student as well as legal academicians and practitioners and all stakeholders to be aware of the significance of interdisciplinary legal research and take steps for conducting and promoting such research.

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<sup>20</sup> (2016) 2 SCC 402

<sup>21</sup> Advanced Legal Research- Interdisciplinary Research in Law, <https://library.fiveable.me> date of visit 05-03-2025

<sup>22</sup> Richard Susskind, *Online Courts and the Future of Justice*, Oxford University Press, 2019.

<sup>23</sup> D. K. Srivastava, "Artificial Intelligence in Legal Research: A Boon for Legal Professionals," *Indian Journal of Law and Technology*, Volume 13, Issue 1, 2021, pp. 55-78

## Challenges in Interdisciplinary Research

Interdisciplinary research faces numerous challenges. The researchers conducting interdisciplinary research must have very clear and strong understanding of research as well as an understanding of the diverse subjects. If the researcher makes an error in understanding the aspects/ principles in other disciplines then it would lead to error in understanding the situation/issue and application of the legal principles. For example, if there is error in understanding the psychological aspects related to crime, then it would lead to error in understanding the reasons for the crimes in society. Similarly if the researcher does not have understanding of technique of genetic engineering or ecology then the aspects of impacts of such technology on environment and biodiversity will not be clear to the researcher. Thus, there is potential for misinterpretation or misapplication of research findings from other disciplines in legal context.

Further challenges are in form of the difficulties in getting funds or incentives for the interdisciplinary research. As research is usually undertaken as part of the mandatory course curriculam, the objective of law students/academicians is only to complete the criteria for acquiring the degree either for the educational or employment purposes. Also as research involves lot of time and patience as well as resources in terms of infrastructure and finances, it becomes difficult for the legal academicians and practitioners to pursue research as an interest unless and until some incentives or encouragement is there to pursue the same. Further, some of the issues in research also raise ethical concerns such as surrogacy, stem cell cloning, artificial intelligence, blockchain technology, patenting of biodiversity etc.

Thus, interdisciplinary research faces numerous challenges such as inadequacy of funds, difficulties in maintaining continued interest in the research works due to the fact that lot of time and patience are required in the research works.

## Conclusion and Suggestions

Interdisciplinary legal research is emerging as a vital aspect of legal studies. Due to the interface between law and society the legal field is being influenced by the rapid changes in the society. The emerging areas such as computer sciences, internet, artificial intelligence,

genetic engineering, molecular biology etc. have revolutionised each and every area of society today and have an interaction with both law and society. An understanding of the application of law in these areas requires an understanding of these different diverse subjects. Thus, research is to focus not just on legal research and traditional doctrinal methods; but research today has to focus on empirical research as well as interdisciplinary research across disciplines.

The educational and research institutions have to encourage interdisciplinary research. The law universities have a major role to play and the research methodology syllabus must be redesigned to include various aspects of interdisciplinary research. Further it requires training, capacity building, and channelling of resources. So also the policy makers and administrators must be sensitized towards the importance of research and adequate steps must be taken to incorporate interdisciplinary legal research in the prescribed syllabus in institutions and adequate funds must be allocated for conducting and promoting interdisciplinary legal research. It must be remembered that: "*The study of law or knowledge of law is both an intellectual and idealistic abstraction as well as behaviouristic study of man in society. It includes political, social, economic and cultural ideas. It covers the study of man in relation to State and Society.*<sup>24</sup>" In this context legal research and interdisciplinary legal research- the rendezvous of law with interdisciplinary research become very much relevant in the contemporary times.

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<sup>24</sup> Opinion of Jurist P.B. Mukherjee as quoted in V. D. Mahajan, *Jurisprudence and Legal Theory*, Eastern Book Company, p.12.