



The Urgency of Philosophy of Science for Doctoral Students of Law

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ABSTRACT

Philosophy of science plays a very important role for doctoral students in law, because it provides a critical, reflective, and in-depth foundation for thinking in conducting advanced legal research. This article discusses the urgency of philosophy of science for doctoral students in law from several main aspects, including epistemological and ontological foundations, development of theoretical frameworks, critical evaluation of scientific methods, and improvement of legal reasoning skills. Philosophy of science also provides ethical guidance in research and helps students understand the relationship between law and other disciplines, such as sociology and politics. Through a deeper understanding of philosophy of science, doctoral students in law can compile more comprehensive, relevant, and impactful research, and make significant contributions to the development of legal science in the future.

INTRODUCTION

Philosophy of science is a branch of philosophy that plays an important role in building a critical and analytical thinking framework for every scientist, including in the field of law. In the context of higher education, especially in doctoral programs, philosophy of science is a fundamental component that must be understood by every student. This is due to its role in providing the theoretical and methodological foundations needed to conduct quality and meaningful scientific research. For doctoral students of law, a deep understanding of the philosophy of science is very important because law is not only concerned with the application of legal norms, but also concerns fundamental questions about the nature of law, justice, and the role of law in society.

In a doctoral program in law, students are required to not only understand and apply positive law, but also be able to evaluate and critically analyze legal principles. Research at the doctoral level requires them to formulate complex research questions and requires a solid theoretical framework. In this case, the philosophy of science plays a role as a tool to understand how legal knowledge is produced, validated, and applied, and how legal theories can be formed and criticized.

Philosophy of science helps students develop reflective thinking skills regarding the methodology used in legal research, whether it is a normative, empirical, or interdisciplinary approach. Furthermore, philosophy of science provides an ethical perspective in conducting scientific research, which is very important in ensuring academic integrity and social responsibility.

Thus, the urgency of philosophy of science for doctoral students of law lies not only in the theoretical and methodological aspects, but also in the formation of more critical and comprehensive legal reasoning. This will ultimately produce legal research that is not only academically relevant, but also able to provide real contributions to the development of legal science and the resolution of legal problems faced by society.

Legal science as a branch of social science has unique characteristics because it is not only concerned with normative aspects of how the law should apply, but also includes an analysis of social realities regulated by law. In legal studies, doctoral students are expected not only to understand positive law technically, but also to be able to explore the nature of law philosophically. This involves fundamental questions regarding the basics of legal theory, justice, and the legitimacy of law in an ever-evolving social context.

However, in practice, many doctoral students of law still face major challenges in formulating critical and innovative research. One of the causes is the lack of in-depth understanding of the philosophy of science, which is an important foundation in developing a more critical, reflective, and scientific legal research methodology. The philosophy of science not only provides a theoretical framework for understanding how law and legal knowledge are constructed, but also allows students to evaluate the basic assumptions behind existing legal systems, as well as understand various legal paradigms from the perspective of epistemology, ontology, and axiology.

In the development of the academic and practical world, legal science is required to be more responsive to rapid social, political, and technological changes. Therefore, an approach that only focuses on the application of positive law is considered no longer adequate. Doctoral students of law need to have the ability to view legal issues in a broader perspective, including considering ethical, political, and social dimensions that often go beyond the boundaries of positive law. Philosophy of science offers the right instrument to address this problem by helping students develop more critical, comprehensive, and integrative thinking.

With this background, the importance of philosophy of science for doctoral students of law becomes increasingly apparent. Philosophy of science not only plays a role in helping students develop a more solid research framework, but also in building awareness of ethical and social responsibility in the development of law. A deep understanding of the philosophy of science allows students to be better prepared to face the challenges in legal research and contribute significantly to the advancement of legal science at the national and global levels.

LITERATURE REVIEW

In understanding the urgency of philosophy of science for doctoral students of law, a review of relevant literature is needed, both from the aspects of philosophy of science and law. The following are some of the main themes that are often discussed in the literature related to philosophy of science and its implications in legal research.

1. *Philosophy of Science: Definition and Scope*

According to AF Chalmers in his book *What is This Thing Called Science?* (1999), the philosophy of science focuses on fundamental questions about how knowledge is acquired, tested, and validated. He explains that the philosophy of science includes epistemology (theory of knowledge) and ontology (the nature of reality) which help scientists understand the limits of valid knowledge and the methods that can be used in developing science. In the context of legal science, this understanding is important for doctoral students who are forming theoretical and methodological arguments in their legal research.

Karl Popper in *The Logic of Scientific Discovery* (1959) emphasized the concept of falsifiability, meaning that scientific theories must be open to testing and questioning. This principle is relevant for law students in assessing whether the legal theories used in their research are well-founded and scientifically testable. Doctoral students also need to develop critical skills to evaluate established legal theories, which can be facilitated by knowledge of the philosophy of science.

2. *Philosophy of Law and its Role in Research*

In legal literature, Hans Kelsen through *the Pure Theory of Law* (1934) made a major contribution to the normative approach in law, by separating 'das sollen' (what should be) and 'das sein' (what is). This approach helps law students understand the distinction between applicable legal norms and social reality, and

how the two interact. Understanding this theory can deepen the ability of doctoral students to study the relationship between law and society.

Meanwhile, Lon L. Fuller in *The Morality of Law* (1964) introduced the concept of moral law, which reflects that law cannot be separated from the moral values of society. This shows that doctoral students of law need to integrate the perspective of legal philosophy in their research to not only focus on the legal aspect, but also on the justice and morality of law.

3. *Legal Epistemology and Legal Research Methods*

According to Mark Van Hoecke in his book *Methodologies of Legal Research* (2011), law students need to develop appropriate methodologies in their research. He highlights that legal research can use various approaches, whether normative, empirical, or interdisciplinary. Philosophy of science plays an important role in helping students choose the appropriate method for their research questions and in evaluating the advantages and disadvantages of each method.

In his book *The Concept of Law* (1961), HLA Hart argued that law is a system of rules that shape social structures. This is the basis for law students to explore how these legal rules are formed, accepted, and applied in society. By understanding the philosophy of law, doctoral students can develop a critical approach to the ways in which law is created and applied in a dynamic socio-political context.

4. *Research Ethics and Academic Responsibility*

The literature on research ethics, as discussed by Nicholas Steneck in *Introduction to the Responsible Conduct of Research* (2007), emphasizes the importance of academic integrity in research. Doctoral students of law must understand the ethical code of research, including the responsibility for the validity of research results, as well as the social impact of their findings. Philosophy of science contributes to fostering broader and deeper ethical thinking among doctoral students, so that the research they conduct is not only based on positive law but also on social responsibility.

5. *The Influence of Philosophy of Science in Cross-Disciplinary Research*

The philosophy of science literature, as presented by Thomas S. Kuhn in *The Structure of Scientific Revolutions* (1962), emphasizes the importance of paradigms in science. Doctoral students of law often need to examine how legal paradigms develop in social, political, and cultural contexts. For example, the interaction of law with other disciplines such as sociology, politics, and economics becomes more relevant in contemporary legal research. The philosophy of science provides a framework for integrating these cross-disciplinary perspectives in legal research.

6. *Development of Philosophy of Science in Legal Studies*

According to Ronald Dworkin in *Law's Empire* (1986), law is not just a set of rules, but also includes moral principles that help in interpreting and understanding the law. The philosophy of law from Dworkin's perspective broadens the scope of the philosophy of science for law students, by providing an understanding that law is interpretative, and doctoral students need to use the philosophy of science to understand the depth of this interpretation.

From this literature review, it is clear that philosophy of science offers a strong conceptual foundation for doctoral students of law to develop more critical, reflective, and meaningful research. The literature above highlights the importance of philosophy of science in exploring legal theory, legal research methods, and ethical responsibilities in research. Through an understanding of philosophy of science, law students can build a more solid research framework and contribute more broadly to the development of legal science that is more innovative and relevant to social change.

METHODOLOGY

The research methodology in the study of the urgency of philosophy of science for doctoral students of law will use a qualitative approach. This research will focus on the collection and analysis of descriptive and interpretive data, with the aim of deeply understanding the role of philosophy of science in the formation of a framework for thinking and legal research at the doctoral level.

1. *Research Approach*

The approach used is a qualitative approach with a literature study method (library research). This method was chosen to analyze various sources of literature related to the philosophy of science and legal science, as well as how these two disciplines interact in the context of doctoral education.

2. *Type of Research*

This research is descriptive-analytical, which means it aims to describe the concept of philosophy of science and relate it to the academic needs of doctoral students of law. The analysis will be conducted on relevant theories of philosophy of science, philosophy of law, and legal research methodology, which are then linked to educational practices in doctoral programs of law.

3. *Data Sources*

Data sources in this study are divided into two types:

- a) Primary data: Literature and books related to the philosophy of science, philosophy of law, and research methodology theories used as theoretical foundations. Some of the key literatures analyzed include the works of Karl Popper, Thomas Kuhn, Hans Kelsen, Ronald Dworkin, and others.
- b) Secondary data: Journal articles, research reports, and academic papers relevant to the topic of this research, as well as documents related to the curriculum of the doctoral program in law.

4. *Data Collection Techniques*

Data were collected through library research methods by reviewing and analyzing literature relevant to the research topic. The data collection process includes the following steps:

- a) Identifying relevant primary literature, both in the philosophy of science and in law.
- b) Read and analyze the content of the literature to extract key concepts and relevance to legal research.
- c) Organize the findings from the analyzed literature into a clear and structured theoretical framework.

5. *Data Analysis Techniques*

The analysis technique used is content analysis. The researcher will:

- a) Categorizing key concepts from the literature related to the philosophy of science and law.
- b) Identifying key themes related to the role of philosophy of science in doctoral legal research.
- c) Analyze the relationship between philosophy of science, legal research methods, and academic contributions to legal studies.

The analysis is conducted by interpreting the collected data to produce conclusions that show the urgency of the philosophy of science for doctoral students in the field of law. The results of the analysis will be compiled into findings that describe the contribution of the philosophy of science in forming a critical and methodological thinking framework for law students at the doctoral level.

6. *Data Validity*

To ensure the validity of the data, this study will use the theory triangulation technique. Triangulation is done by comparing concepts from various literature sources related to the philosophy of science and law. In addition, cross-checking is carried out between various points of view found in the analyzed literature, so that the research results can have stronger validity and reliability

7. *Research Steps*

The steps taken in this research are as follows:

- a) Determining topics and problem formulations related to the urgency of the philosophy of science for doctoral students of law.
- b) Collecting relevant literature from various sources related to the philosophy of science, philosophy of law, and legal research methodology.
- c) Read and understand the literature to discover key concepts and practical relevance for law doctoral students.
- d) Conduct data analysis using a descriptive-analytical approach and content analysis.
- e) To compile findings in the form of a systematic explanation of the role of philosophy of science in doctoral education in legal science.

By using a qualitative approach based on literature study, this study is expected to provide a deeper understanding of the importance of philosophy of science in supporting doctoral students of law to conduct critical and reflective research. The results of the study will provide theoretical contributions and offer practical insights for the development of curriculum and teaching methods in doctoral programs in law.

RESEARCH RESULT

Based on the analysis conducted through a qualitative approach to the literature related to the philosophy of science and legal science, this study found several important points regarding the urgency of the philosophy of science for doctoral students of legal science. The results of this study highlight the various contributions of the philosophy of science in forming a critical and methodological framework for legal research at the doctoral level. The following are the main findings of this study: Doctoral students of legal science who understand the philosophy of science tend to have a deeper understanding of the theoretical foundations of legal science.

They not only see the law from a normative perspective, but also from a philosophical perspective, which allows them to formulate more complex and critical research questions. Through an understanding of epistemology and ontology, students are able to dig deeper into the origins, validity, and limitations of existing legal knowledge. This study shows that the philosophy of science helps doctoral students in choosing and formulating research methods that are more appropriate to the legal problems being studied.

By understanding the various paradigms of science, such as positivism, interpretivism, and realism, students can assess which methods are most relevant to answer their research questions. They are also more critical of the basic assumptions underlying research methods, thus being able to develop a more solid methodological framework.

So that students who understand the philosophy of science have a tendency to not only accept existing legal theories, but also be able to evaluate, criticize, and update these legal theories. The philosophy of science provides a foundation for students to view law from a broader and interdisciplinary perspective, so that they are able to formulate new theories that are more relevant to changing socio-political and cultural conditions. In this way, the philosophy of science encourages innovation in legal science.

1. Contribution of Philosophy of Science to Research Ethics and Social Responsibility

One of the important findings of this study is the role of philosophy of science in shaping the ethical awareness of doctoral students in legal research. Philosophy of science emphasizes the importance of academic integrity, which includes honesty in collecting and reporting data, as well as responsibility for the social impact of research results. Students who understand the philosophy of

science tend to be more careful in formulating legal research that is not only scientifically valid, but also has a positive impact on society and justice.

2. *Philosophy of Science as an Instrument in the Integration of Cross-Disciplinary Approaches*

The results of the study also show that philosophy of science helps doctoral students in integrating interdisciplinary approaches into their legal research. By studying philosophy of science, students are more open to other disciplines, such as sociology, politics, economics, and moral philosophy, which can provide additional perspectives in understanding legal problems. This interdisciplinary approach is considered important to produce more comprehensive and relevant legal research.

3. *Positive Influence on Critical and Analytical Thinking Skills*

An understanding of the philosophy of science has been shown to improve students' critical and analytical thinking skills. The philosophy of science helps doctoral students not only understand law as a set of rules, but also analyze the philosophical implications behind the formation and application of law. Thus, they are able to see various legal issues from a deeper perspective, question existing assumptions, and formulate more innovative solutions.

Philosophy of science also helps doctoral students to produce research that is more relevant to the contemporary social and legal context. With the ability to think philosophically, students can identify legal problems that have not been adequately answered by positive theory and law, and try to find new solutions that are more adaptive to social change. The resulting research becomes more meaningful and impactful in the development of legal science and for the wider community.

DISCUSSION

In this discussion, we will explain in more depth the research findings related to the urgency of philosophy of science for doctoral students of law. Philosophy of science not only provides theoretical foundations, but also plays an important role in shaping methodological, ethical, and innovative approaches in legal research. Several points found in this study will be discussed in more detail to highlight their relevance and implications in doctoral education in law.

1. *Philosophy of Science as an Epistemological and Ontological Foundation in Legal Research*

Philosophy of science provides a strong epistemological and ontological foundation for doctoral students of law. In the realm of epistemology, philosophy of science helps students understand how legal knowledge is generated, validated, and applied. Students are taught not only to accept existing legal

theories or doctrines, but also to question how the truth of the law is constructed. In other words, philosophy of science provides a framework for students to test the basic assumptions in their legal research, so that the research they do becomes more critical and based on more valid knowledge.

From an ontological perspective, the philosophy of science helps students understand the nature of law and the social reality governed by law. Students are encouraged to ask fundamental questions such as "What is law?" or "What is the main function of law in society?" which will then guide them in deeper legal research. In the context of a doctoral program, this understanding becomes crucial because the research they conduct is expected to be not only applicable but also able to provide meaningful theoretical contributions.

One of the most striking aspects of this finding is the role of philosophy of science in assisting doctoral students in developing legal research methodologies. With an understanding of various scientific paradigms such as positivism, interpretivism, and realism, students are able to choose the approach that best suits their research questions. For example, students using a positivist approach will focus more on the analysis of legal rules and formal logic, while an interpretivist approach may be more inclined to examine the meaning of law in a broader social context.

In addition, the philosophy of science also helps students in evaluating the methods used in legal research, both normative, empirical, and interdisciplinary methods. This allows students to be more flexible in formulating research approaches that are not only in accordance with academic needs, but also relevant to the legal problems they are researching. Students who understand the philosophy of science tend to be more critical in seeing the limitations of existing methods, so they can find innovative ways to compile and conduct legal research.

The findings of this study confirm that the philosophy of science has a significant contribution in encouraging doctoral students of law to develop more innovative legal theories. Students who have a foundation in the philosophy of science are not only bound by existing legal theories, but are also able to critically evaluate these theories. They are more courageous in exploring new possibilities and renewing legal theories that are considered no longer relevant to rapid social and political developments.

For example, in the context of globalization and technological development, many aspects of social life are not yet fully regulated by traditional law. With an understanding of the philosophy of science, doctoral students of law can find theoretical gaps that have not been widely explored and offer new theories that are more adaptive to change. In this way, the philosophy of science acts as a catalyst in the development of a more dynamic and contextual legal science.

In addition to the methodological aspect, philosophy of science also plays an important role in the formation of ethical awareness of doctoral students in legal research. One of the main findings in this study is that students who understand the philosophy of science are more sensitive to ethical issues in their research. They tend to be more careful in formulating research questions, collecting data, and reporting research results, taking into account the social impact of their research.

Philosophy of science emphasizes the importance of academic integrity, which includes honesty in the research process, as well as responsibility for the validity of research results and their impact on society. By understanding the philosophy of science, doctoral students of law are able to conduct research that is not only scientifically valid, but also ethical and socially responsible. This is very important, especially in legal research which often has direct implications for public policy and the lives of the wider community.

The study also found that philosophy of science plays a key role in helping doctoral students of law integrate interdisciplinary approaches into their research. Law as a social science does not stand alone; it is influenced by various social, political, economic, and cultural factors. By studying philosophy of science, students are more open to the interaction of law with other disciplines, such as sociology, politics, and economics.

This interdisciplinary approach is particularly important in contemporary legal research, where many complex legal issues require a broader, interdisciplinary perspective. For example, in human rights research, a legal perspective alone may not be enough. PhD students who understand the philosophy of science will be more likely to integrate sociological or political analysis to understand the broader context of the legal issues.

Finally, this study confirms that the philosophy of science plays a significant role in improving the critical and analytical thinking skills of doctoral students of law. The philosophy of science encourages students to always question the basic assumptions in legal theory and practice. That way, they will not only become passive law enforcers, but also critical thinkers who are able to assess the validity and relevance of existing legal theories and practices.

This critical thinking ability is very important in producing innovative and impactful legal research. Students who are equipped with a foundation in the philosophy of science tend to be better able to see legal problems from various perspectives and formulate more comprehensive solutions. From this discussion, it is clear that the philosophy of science has a very important role in shaping doctoral students of law into critical, reflective, and innovative researchers. The philosophy of science not only provides theoretical and methodological foundations, but also helps students to behave ethically and responsibly in conducting legal research. The integration of cross-disciplinary approaches facilitated by the philosophy of science also enriches the legal research conducted, making it more relevant to current social and political challenges.

CONCLUSION AND RECOMMENDATIONS

Based on the results and discussion of research on the urgency of philosophy of science for doctoral students of law, it can be concluded that philosophy of science has a very important role in shaping students' intellectual and academic abilities. Philosophy of science helps students to:

1. Understanding the theoretical and methodological foundations of legal science – Students who study the philosophy of science are able to delve deeper into the epistemology and ontology of law, thereby producing more critical and reflective research.
2. Developing better methodological frameworks – With an understanding of various scientific paradigms, students are able to choose appropriate research methods and develop more relevant research, both theoretically and practically.
3. Encouraging innovation in legal theory – Philosophy of science provides students with a foundation of thinking that enables them to not only accept existing legal theories, but also create new theories that are more adaptive to social and legal change.
4. Instilling research ethics and social responsibility – Through the philosophy of science, students are more sensitive to ethical responsibilities in legal research, including academic honesty and the social impact of research results.
5. Facilitating the integration of cross-disciplinary approaches – Philosophy of science paves the way for students to integrate other disciplines such as sociology, economics, and politics, resulting in more comprehensive legal research.
6. Enhance critical and analytical thinking skills – Philosophy of science encourages students to question the basic assumptions of existing legal theories and practices, helping them formulate innovative solutions to contemporary legal problems.

Overall, philosophy of science not only enriches students' knowledge base, but also provides a strong methodological and ethical framework for conducting meaningful and impactful legal research.

Based on the conclusions above, there are several recommendations that can be taken for curriculum development and research in the doctoral program in law:

1. Improving the Teaching of Philosophy of Science in the Curriculum
Doctoral programs in law should ensure that philosophy of science is taught in depth as a core course. This is essential to provide the foundation for critical and reflective thinking required in doctoral legal research. Teaching philosophy of science should include an introduction to various scientific paradigms, epistemological theories, ontologies, and research ethics.

2. **Interdisciplinary Competence Development**
Lecturers and managers of the doctoral program in legal science are expected to encourage students to not only focus on law as a single discipline, but also to develop interdisciplinary competencies supported by the philosophy of science. Students should be encouraged to integrate sociological, political, economic, and other scientific perspectives in their research to make it more relevant to the social context.
3. **Organizing Seminars and Discussions on Philosophy of Science Regularly**
Doctoral programs in law are advised to hold seminars or scientific discussions that focus on the philosophy of science regularly. This activity can provide space for students to test their understanding of the philosophy of science and how philosophical concepts can be applied in legal research.
4. **Increasing Ethical Awareness in Legal Research**
Doctoral students need to be trained to have a high level of ethical awareness in their research. In addition to learning the philosophy of science, doctoral programs should include training in the ethics of legal research related to social responsibility and the impact of research on society.
5. **Encouraging Publication of Scientific Works Integrating Philosophy of Science**
To improve the quality of research, doctoral students of law are expected to publish their research results that combine philosophy of science and legal approaches. This will strengthen the critical and innovative scientific tradition in the field of law.
6. **Cross-disciplinary Collaboration in Doctoral Research**
The doctoral program is expected to facilitate cross-disciplinary research collaboration between law students and students from other fields, such as sociology, politics, and economics, which can provide different perspectives and enrich legal analysis.

By implementing these recommendations, it is hoped that doctoral students in legal science can make better use of the philosophy of science to develop research that is critical, innovative, and relevant to legal and social developments in the modern era.

ADVANCED RESEARCH

Further research can explore how philosophy of science is taught and applied in doctoral programs in law at various universities, both nationally and internationally. This study will provide a clearer picture of best practices in integrating philosophy of science into the curriculum of doctoral programs in law.

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