

## **The Role of Epistemological Paradigms in Research in Social Sciences and Humanities**

**Silvia IACOB**

Bucharest University of Economic Studies, Romania  
popescusilviaelena@yahoo.com

**Constanța POPESCU**

“Valahia” University of Târgoviște, Romania  
tantapop@yahoo.com

**Ana Lucia RISTEA**

“Valahia” University of Târgoviște, Romania  
risteaanalucia46@yahoo.com

**Abstract.** *Currently used in science, the term “paradigm” gives rise to a series of very important philosophical, ontological, epistemological and historical inquiries, which are nevertheless a source of confusion for the researchers sometimes, when they should actually be a point of reference in the realization and validation of the scientific works. Indeed, the term paradigm is a polysemantic term, its senses including in Universal Illustrated Dictionary of the Romanian Language (Dictionarul universal ilustrat al limbii romane) (2010) the individualized meaning of the syntagm “scientific paradigm”: “set of concepts, results, methods, procedures, usually instituted by certain scientific works, according to which research takes place in a certain scientific community and during a certain historical epoch”.*

*Our paper aims to clarify this term, focusing on the essential components situating it among the fields of analysis of epistemology. We do not aim to approach all the semantic ambiguities included in the definition of the scientific paradigm, because these are actually a sign that the evolution of the epistemology of a science is a perfectible process, and, along history, the development of science has been faced with a genuine competition between the old and the new paradigms.*

**Keywords:** epistemology; scientific paradigm; pluridisciplinarity, interdisciplinarity, transdisciplinarity.

**JEL Classification:** M2, O3, I25.

## Introduction

To the extent to which the final aim of scientific research is to elaborate knowledge, it appears as crucial for a researcher to endeavor mainly to answer the following questions: “*What is knowledge?*”, “*What are the fundamental hypotheses lying at the basis of the conception of knowledge?*”, “*How is knowledge elaborated?*”, “*What is the value of knowledge?*” These questions are the object of study of epistemology, which according to the definition of Piaget (1967, p. 6, quoted in Gavard-Perret, Gotteland, Haon and Jolibert, 2008, p. 7) is “*the study of the constitution of valid knowledge*”.

The term “epistemology” appeared at the beginning of the 20<sup>th</sup> century to designate a branch of philosophy specialized in the study of knowledge theories; today, it has become synonymous to *philosophy of science*. In other words, the exclusive domain of study of epistemology is science itself, respectively the study of the formation and structure of scientific concepts and theories. Being an analytical and reflexive study, **epistemology delimits four fields of analysis** (Simard and Rimouski, 2001, p.2):

- nature and structure of the scientific concepts and theories, which is sometimes called syntax of theories;
- object, domain of interest and sense of the scientific concepts and theories, which is analogously called semantics of theories;
- scientific method;
- limits and value of the scientific works.

In essence, one can affirm that epistemology aims to “*study critically the principles, hypotheses and results of diverse sciences*”, in order to “*determine their origin, their value and their objective domain of interest*” (Virieux, 1966, p. 3, quoted in Simard, and Rimouski, 2001, p. 2).

Starting from the four fields of analysis and reflection mentioned above, it results that epistemology covers four different types of problem, schematically grouped by Simard and Rimouski (2001, p. 2) as follows:

- 1) the logic of science or the identification and analysis of the problems of logic raised by the science and structure of the scientific theories (validity problems);
- 2) the semantics of science or the analysis and evaluation of the concepts of representation, reference and interpretation applied to the scientific tools (problems of significance and truth/pertinence);
- 3) the methodology of science, respectively the study of the scientific method in general and the issue of the eventual existence of methods specific of certain sciences (problems of method);
- 4) the theory of scientific knowledge, respectively the status of this type of knowledge and the issue of the delineation between science and non-science (problems related to the limitations and to the value of the scientific approach).

### 1. The scientific paradigm: conceptual delimitations

The term “paradigm” has become a landmark in science after the publication, in the year 1962, of Kuhns work, by which he exposes a theory of the paradigm of modern science.

Kuhn conceptualized the paradigm starting from two meanings of it (Kuhn, 1972, p. 207, quoted in Willett, 1996, p. 2):

- on the one hand, its perception as a whole set of beliefs, recognized values and techniques common to the members of a given group, and
- on the other hand, the restraining of its content to an element isolated from this entirety: the solutions to concrete problems, which, used as models or examples, can replace the explicit rules in quality of fundament of solutions for the problems pertaining to normal science.

To Kuhn, the operation of modern science relies on research traditions founded on a relatively firm consensus between the practitioners of scientific research. This consensus regarding the solutions to a particular problem under investigation is established in two ways (Willett, 1996, p. 2):

- the practitioners agree that a specific situation articulated in a particular manner constitutes a specific problem;
- the practitioners also agree that the precise method used to deal with the respective problem constitutes an acceptable scientific solution; concrete solutions to concrete problems are therefore accepted not just for what they are, but also because they constitute specific research and practice guides.

Hoynigen-Huene (1993, p. 162, quoted in Willett, 1996, p. 2), analyzing the conception of Kuhn on the notion of paradigm, considers that *“the central role of a paradigm in Kuhn’s theory is to set the network of relations of similitudes and differences, and the solutions to a pragmatic problem serve as a model for the traditions of research built based on paradigms”*.

In another critical analysis of the 1962 edition of Kuhn’s work, Masterman (1970, p. 66, quoted in Willett, 1996, p.3) considers that there is a sociological and not philosophical vision of the paradigm, Kuhn’s study relying first of all on the global process leading to the construction of a scientific explanation, without turning to suppositions (hypotheses). From this perspective, *“the paradigm is what functions even when there is no theory”*.

Masterman (quoted in Willett, 1996, p. 3) inventoried **21 different manners used by Kuhn to define a paradigm, subsequently regrouping them into three categories of paradigms:**

- **“the metaphysical paradigm or the metaparadigm”**, for the analogies or equivalences made by Kuhn between the word paradigm and a set of beliefs, a myth, a successful metaphysical speculation, a standard, a new way of seeing, an organizing principle determining the perception or defining a large part of the reality;
- **“the sociological paradigm”**, for the analogies or equivalences between the word paradigm and a concrete scientific discovery, a set of political institutions, a concept meant to be structured and perceived under newer or stricter conditions;
- **“the artifactual paradigm”**, in the cases in which Kuhn uses the word paradigm in a more concrete sense, referring to a scientific textbook or a classical scientific text, a source of research tools, a technique or a system of apparatuses.

Kuhn's works concerning the scientific and epistemological practices have contributed to the transformation of the way science, its methods and the practitioners of research are perceived. Willett (1996, p. 4) **summed up the perspectives of Kuhn's conception on paradigm, as follows:**

- 1) Science is founded on a consensus at the same time implicit or explicit, non equivocal and relatively firm between the specialists of a specific research domain.
- 2) In all sciences, there are three periods – pre-paradigmatic, paradigmatic and post-paradigmatic – characterizing the evolution of scientific thinking and paradigmatic crises.
- 3) Concepts, conceptual models, definitions, the definition of the characteristics of the quasi-theoretical terms, laws, theories, perspectives, explicit rules, postulates, principles, explicit generalizations, rationalizations, abstract features join the concrete solutions proposed by a paradigm.
- 4) Paradigm is what founds and maintains the consensus among the specialists in point of the legitimate choice of the concrete problems to solve, of the methodologies to use and of the manners of finding concrete solutions. In this sense, one can highlight the main virtues of the paradigm as a defining component well situated among the fields of analysis of epistemology:
  - very rarely is a paradigm put under discussion by the specialists who are its supporters being constituted on the global normative set of beliefs, values and techniques recognized by and common to a group of specialists;
  - it permits to develop a specialized language, respectively a metalanguage, regarding the problems to be solved;
  - it determines the bases of validation, verification and elaboration for the scientific approach;
  - it determines the interpretation of the results observed;
  - it prevents the researcher from chasing after the problems already approached starting from a different perspective.
- 5) The paradigm is at the same time a source of stability of the scientific knowledge and a normative, global and local, set, allowing the specialists to coordinate their efforts and explore in a pluridisciplinary or transdisciplinary manner a scientific research sector.
- 6) A theory turned into a paradigm will be rejected for the sake of another paradigm by means of a scientific revolution. When such a revolution takes place, the meaning of the previous observations and experiences, sometimes established for a long time, lead to the need of profoundly transforming a paradigm.

There are, however, other ways of understanding a paradigm, as well. We have retained two such approaches. One is the case of Boudon (1989, quoted by Willett, 1996, p.4) who uses the term paradigm “to designate the language in which theories or eventually important subsets of theories emitted within a discipline are formulated”. Boudon defines numerous types and subtypes of paradigms: “*deterministic*”, “*interactionist*”, “*hyper-functionalist*”.

Another approach is the definition given to the paradigm, in the spirit of the systematic study on sociological theories – of meta-theoretization –, by the sociologist Ritzer (1975/2001, p. 60, quoted in Chelcea, 2004, pp. 26-27): “*A paradigm is a fundamental image of the subject matter within a science. It serves to define what should be studied, what questions should be asked, and what rules should be followed in interpreting the answers obtained. The paradigm*

*is the broadest unit of consensus within a science and serves to differentiate one scientific community (or sub-community) from another. It subsumes, defines and interrelates the exemplars, theories, and methods and tools that exist within it.”*

Ritzer underlines, by this definition, that a **paradigm has four basic elements:**

- a model, a general way of working serving as a guide for other researchers;
- an image on the domain of study, in the case in point of the social domain;
- theories in science;
- the set of investigation ,methods and tools.

## **2. Paradigmatic interrogations in the context of the new challenges of the contemporary research**

Starting with the second half of the 20<sup>th</sup> century, the scientific production has grown unprecedentedly, knowledge being multiplied as new disciplines have emerged. Thus, there appears an indispensable need to develop some connections between the various scientific disciplines. Indeed, as Morin underlined (1997, quoted in Le Boulch, 2002, p. 2), in the context of the contemporary scientific research, the problem is no longer to accumulate fragmented knowledge – given the role of science of fragmenting them into well-delimited disciplines – but to use the most diverse knowledge to construct a reactive and practical scientific knowledge, in response to the complex problems of our contemporaries (Kourilski, 2001, quoted in Le Boulch, 2002, p. 2).

Answering this challenge, numerous theorists, mainly enrolled in the academic scientific research, consider transdisciplinarity, pluridisciplinarity and interdisciplinarity as a necessity for the contemporary research due to the evolution of the content and of the complexity of knowledge.

**Pluridisciplinarity** concerns the study of an object of one and only discipline via several disciplines at the same time. For example, a city can become a pluridisciplinary field of study for economic geography and urban marketing. The knowledge of the object in one's own discipline, in the example taken, the city from the perspective of urban marketing, is deepened through the pluridisciplinary contribution brought by the economic geography. Although the pluridisciplinary approach goes beyond the borders of the disciplines, its final aim remains encompassed by disciplinary research. This approach is today appropriated by many scientific research practitioners.

**Interdisciplinarity**, different from pluridisciplinarity, concerns the transfer of paradigms and methods from one discipline to another. One can distinguish **three degrees of interdisciplinarity** (Le Boulch, 2002, pp. 3-4):

- a degree of application; for example, the methods of nuclear physics transferred to medicine lead to the emergence of new treatments for cancer;
- an epistemological degree; for instance, the transfer of the methods of formal logic to the domain of law generates interesting analyses in the epistemology of law;
- a degree of generation of new disciplines; for example, the transfer of informatics in art: infographic art.

Just as pluridisciplinarity, interdisciplinarity goes beyond the boundaries of disciplines, yet its final aim remains encompassed by a disciplinary research.

**Transdisciplinarity** differs from pluridisciplinarity and interdisciplinarity by its final aim, which is: understanding the present world by a precise point or even a precise matter. Therefore, it goes out of the framework of disciplinary research trying to answer questions related to what exists common for all disciplines, via various disciplines and beyond any discipline.

---

## References

---

- Blanché, R., 1972. *L'épistémologie*. Paris. P.U.F.
- Boudon, R., 1989. *Effets pervers et ordre social*. Paris. Quadrige Presses Universitaires de France.
- Chelcea, S., 2001. *Metodologia cercetarii sociologice. Metode cantitative si calitative*. Bucuresti. Economica.
- Gavard-Perret, Marie-Laure, Gotteland, D., Haon, C. and Jolibert, A., 2008. *Méthodologie de la recherche. Réussir son mémoire ou sa thèse en sciences de gestion*. Paris: Pearson Education France.
- Hoyningen-Huen, P., 1993. *Reconstructing Scientific Revolutions. Thomas S. Kuhn's Philosophy of Science*, Chicago. University of Chicago Press.
- Jacob, P., 1989. *L'épistémologie – L'âge de la science*. Paris. Odile Jacob.
- Kuhn, T.S., 1972. *La Structure des révolutions scientifiques*. Paris. Flammarion. Traduction de la nouvelle édition augmentée. *The Structure of Scientific Revolutions*. publiée par The University of Chicago Press. 1970.
- Kourilski, F., 2001. Introduction au débat, Conférence-Débat NCX-H.A. Simon: Intelligence de la complexité & Ingénierie de l'interdisciplinarité. 25 octobre.
- Le Boulch, G., 2002. Vers une méthodologie transdisciplinaire? 3-èmes Journées des Doctorants FROG 2002. Université Paris IX Dauphine. 3 et 4 octobre.
- Masterman, M., 1970. *The Nature of a Paradigm*, dans Imre Lakatos et Alan Musgrave, eds. *Criticism and the Growth of Knowledge*. London. Cambridge University Press. pp. 59-89.
- Morin, E., 1997. De la réforme de l'Université, Congrès International de Locarno: Quelle université pour demain? Vers une évolution transdisciplinaire de l'université. 30 avril n- 2 mai 1997: Annexes au document de synthèse CIRET-UNESCO.
- Nicolescu, B., 1996. *La Transdisciplinarité, Manifeste*, Paris: Editions du Rocher.
- Oprea, I., Pamfil C.-G., Radu R. and Zastroiu, V., 2010. *Dictionar universal ilustrat al limbii romane*. Bucuresti. Editura Litera.
- Ristea A.L. and Ioan-Franc, V., 2009. *Metodica in cercetarea stiintifica*. Bucuresti. Expert.
- Ritzer, G. [1975], 2001. *Sociology: A multiple paradigm science*. In G. Ritzer. *Explorations in Social Theory. From Metatheorizing to Rationalization*. pp. 58-78. London. Sage Publications Ltd.
- Simard, J.-C. and Rimouski, C., 2001. *L'épistémologie*, [www.apsq.org/sautquantique/tresors.html](http://www.apsq.org/sautquantique/tresors.html), accessed on 01.09.2011.
- Willett, G., 1996. Paradigme, théorie, modèle, schéma: qu'est-ce donc? *Communication et organisation* [en ligne]. 10/1996. online since March 2012. accessed on 04.10.2015. URL: <http://communicationorganisation.revues.org/1873>.
- Virieux, R., 1966. *L'épistémologie*. Paris. P.U.F. (SUP).