

## **Culturalization and Democratization Of Scientific Research Perspective In Feyerabend's Epistemology**

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### **Abstract**

Feyerabend's thought constitutes a particular perspective in epistemology. The methodology used in this paper is based on the text analysis of some of Feyerabend's major works. By this aspect, a particular vision for the construction of a new critical epistemology will be presented. As the basis of criticism in the conception of science throughout tradition, Feyerabend cites many examples of the history and practice of scientific research. Under the influence of postmodernism, he describes science as a local narrative of knowledge which does not appear superior to other narratives (myth, religion, philosophy, etc.). Like any knowledge it represents a unique cultural form, based on different historical traditions under the influence of numerous methodologies and extra-scientific elements. Under this methodological pluralism, Feyerabend appeals for a democratization of science, away from rationalist dogmatism, consistent with the free and critical spirit that democratic societies cultivate. On the other hand, the proliferation of scientific methodologies and the construction of science as an open form of debate with cultures and other forms of knowledge, enables the most efficient solution of scientific problems. The democratization of science as Feyerabend's appeal, implies not only criticism of the mythical and common conceptions about science, but also the moment of a civic responsibility and ethics. Far from closed scientism and the power of scientific experts, science as a particular mode of solving human problems requires the participation of all citizens not only to publicly supervise but also to make a real contribution to scientific research expertise.

**Keywords:** culturalization, democratization, methodology, plurality, science

## 1. Introduction

In today's conditions, Feyerabend asks: "Why does science seem so successful?" The answer does not seem simple as there are many perspectives. There is essentially an ideological element, pervaded by the triumphant culture of the West that qualifies science as the most certain knowledge of human progress. To understand this fact, Feyerabend constructs a critical vision of science in the wake of the postmodern situation by defining it as a social narrative supported by diverse cultural traditions and influenced by social, historical, economic and political elements. According to Lyotard, science "... play by the rules of the narrative game; its influence remains considerable not only on the users of media, but also on the scientist's statements" (Lyotard, 1984, p. 28).

On the other, traditionally, science, even through the forms of its applications, emerges as a successful discourse, based on solid rational principles and indisputable experimental conclusions. Since antiquity, science has been conceived as an independent knowledge that bases its conclusions on the analysis of an objective reality where through rigorous testing can be chosen between two rival theories. This view is also defended by critical rationalists such as Popper. According to him, "Theories may be more, or less, severely testable; that is to say, more, or less, easily falsifiable. The degree of their testability is of significance for the selection of theories" (Popper, 2002, p. 95). Then, this idea will create the belief that science has to do with the true theories that advance towards a single truth. In short, this image created by traditional science and philosophies, appears in the minds of ordinary people.

## 2. Dismantling a myth of a unified method: history as trial

According to Feyerabend, with the erroneous idea of rational self-foundation, rationalists created and propagated the idea of a universal and immutable scientific method. Further, this idea creates the impression that science presents ultimate truths. Throughout the philosophy of science, this view has been prevalent since antiquity, but has come to dominate convincingly with the rise of scientific positivism. Furthermore, over time, this panorama takes on the dimensions of a myth that spreads through the popular imagination of people. In this sense, Feyerabend's critique appears primarily as an ethical and political moment, not just an epistemological one. But, referring to history, "is best attributed to an event together with a type, not absolutely" (Feyerabend, 2001, p.10). In this respect, all philosophies presenting a single vision of scientific research are denounced by Feyerabend as ideologies unfounded in historical realities and scientific practice. Not by accident, "portraying scientific method as a fixed, generalized entailment relation also occasions the objection that following such recommendations would have precluded scientific progress when the social character and costs of inquiry are considered" (Nola, R., & Sankey, H. (Eds.), 2000, p. 189). If we take a

look to the scientific practice, we find that the theories explain and cover restricted regions by applying different methodologies as the scientist emerges as an actor surrounded by beliefs and superstitions under the influence of a certain historical tradition. “There is not a single important scientific idea that was not stolen from elsewhere...While astronomy profited from Pythagorean is made from the Platonic love for circles, medicine profited from herbalism, from the psychology, the metaphysics...” (Feyerabend, 1978, p.105) . Indeed, these historical facts not only realistically describe the typology of the formation of scientific knowledge, but also naturally prove a quality of the growth of scientific knowledge itself to produce new fruitful ideas from extra-scientific narratives (games). In this sense, “science is a model of an “open system”, in which a statement become relevant if it “generates ideas”, that is, if it generates other statements and other game rules” (Lyotard, 1984, p. 64).

On the other, Feyerabend's very idea is that all theoretical traditions are really historical traditions. As such, they should be treated and respected as historical intellectual productions based on the principles of critical historiography. As in the science of history, the past tradition is not judged according to the criterion of an “ultimate truth”. If the idea of scientific progress were to be accepted according to the principle of the “final trial” then no intellectual production in the past can withstand the present conditions, thereby annihilating the history of science itself. But if we look at the history of science, we rightly understand that no scientific theory constitutes a final truth as long as alternative scientific theories continue to be created even today. Even according to Feyerabend, the lack of a “final trial” constitutes the very possibility of scientific discourse for continuous progress. This fact implies that “... there is not a single rule, however plausible, and yet firmly grounded in epistemology, that is not violated at some time or other ... they are not results of insufficient knowledge or of inattention which might have been avoided. On the contrary, we see that they are necessary for progress” (Feyerabend, 1993b, p.14). As an example of this progress in physics we can mention the case of Galileo, Newton, Einstein, who solved scientific problems in an original and non-traditional way. According to Feyerabend, in demystifying a myth of a unified method this point of view, it is necessary to address a critique that stems from an epistemology inseparable from the historiography of scientific research. In this perspective, he describes some notions about science as myths or dogmas that do not correspond to the true history of its development. At best, Feyerabend thinks this is just one of the views about science, spread by rationalism. At worst, this point of view is presented as unrealistic as it does not coincide with the history of scientific research. Following this perspective, Feyerabend's thought presents a profound scientific realism since his criticisms are not aimed at scientific research but at the philosophical perspectives and reflections that philosophers present around it. Consequently, the idea that there is an objective truth, a single scientific method, etc., are points of view that are not found in the progress of scientific research but in the conceptualizations of philosophers of science. Rightly, Chalmer says that “modern developments in the philosophy of science have pinpointed and stressed the deep-seated

difficulties associated with the idea that science rest on a sure foundation acquired through observation and experiment” (Chalmers, 1982, p. xvi). Feyerabend, for his part, argued that what is to be rejected, if one adopts the historical approach, is not method as such, but a monistic theory of method. Thus, the point of view that Feyerabend defends is not the idea that all methods should be rejected in science (as some others have criticized) but the fact that they should not be considered universal and objectively rational. His particular epistemological anarchism also supports this conclusion as a condition for scientific progress. “If anarchy means ignoring the rationalist's rules from time to time, then science requires anarchy. This is not to say that the rules never apply: if anything goes, reason sometimes goes too. Nor is this simply a bromide to the effect that since science is a human activity it *cannot* be perfectly rational. The point is rather that science *must not* be perfectly rational (in the rationalist sense that equates rationality with adherence to rules), if it is to achieve progress” (Preston, et al., 2000, p. 69).

### 3. Culturalization of science as a social tradition

Under the postmodern influence, “Scientific knowledge is a kind of discourse” (Lyotard, 1984, p. 3). By the discursive aspect, it is defined as a certain form of knowledge which is similar to other non-scientific forms. So “first, drawing a parallel between science and non-scientific (narrative) knowledge help us understand, or at least sense, that the former's existence is no more-and no less-necessary than the latter's. both are composed of sets of statements; the statements are “moves” made by players within the framework of generally applicable rules; these rules are specific to each particular kind of knowledge, and the “moves” judged to be “good” in one cannot be of the same type as those judged “good” in another, unless it happens that way by chance” (Lyotard, 1984, p. 26). In a similar but more particular perspective, Feyerabend conceives science as a local narrative of knowledge, entirely influenced by the cultural and social tradition of the West. “Science is to be treated as one tradition among many, not as a standard for judging what is and what is not, what can and what cannot be accepted [because] traditions are neither good nor bad, they simply are” (Feyerabend, 1993a, p. 39). Feyerabend values science as a product of different cultural traditions, not only between East and West, but also within Western civilization itself. Within it, different and opposite currents and schools have existed and exist, such as rationalism and irrationalism, positivism and vitalism. It is precisely the pronounced presence of the cultural dialectic that accompanies science that drives Feyerabend to accept epistemological pluralism and relativism as necessary and expressions of the human being himself. “Variety of opinion is necessary for objective knowledge. And a method that encourages variety is also the only method that is compatible with a humanitarian outlook” (Feyerabend, 1993b, pp. 31-32). Based on the cultural conception of scientific research, Feyerabend thinks that the theories and conclusions of science are relative and closely related to a certain cultural tradition. Science is not an abstract and logical discourse but a practice exercised by historical and

social communities to explain the world throughout time. For example, “general ideas such as the idea of 'humanity', or the idea of 'freedom', or the Western idea of 'rights', arose in particular historical circumstances ... [and] it can not be settled from afar” (Feyerabend , 1993a, p. 39). In this respect, it makes no sense to compare the scientific results of different cultures to determine their validity and success through rigorous testing. In this perspective, Feyerabend rejects the dominant view of critical rationalism represented by Popper. According to the latter, “we choose the theory which best holds its own in competition with other theories; the one which, by natural selection, proves itself the fittest to survive. This will be the one which not only has hitherto stood up to the severest tests, but the one which is also testable in the most rigorous way” (Popper, 2002, p. 91). Indeed, the opposing views between Feyerabend and Popper have their genesis in the way they conceive of scientific discourse. Popper thinks that scientific theories qualify as such because they involve intersubjective verification through rigorous empirical experiment, while Feyerabend thinks of them as cultural productions and ways people explain the world based on practical and ideological interests. According to Feyerabend, this also explains the superiority of Western science over Eastern science. It is precisely the privilege of the success of Western science that arises when this culture judges other cultures by its own standards. Therefore, acknowledging the superiority of Western science over forms of knowledge (myth, religion, philosophy) or non-Western cultures, is not the result of an objective success or experimental conclusion but of the ideology of political power based on a cultural racism. “Again the superiority of science is the result not of research, or argument, it is the result of political, institutional, and even military pressures” (Feyerabend, 1978, p. 102). In terms of relativism and cultural pluralism, science is one of the many forms of knowledge developed by man to understand and solve the problems of reality, not necessarily the best. For Feyerabend, in cultural terms, there is no objective reason to always prefer Western science or rationalism. In this regard, “there was never any fair competition between this entire complex of ideas and the myths, religions, procedures of non-Western societies” (Feyerabend, 1978, p. 102). Feyerabend thinks that scientific success also comes by the influence of the knowledge of other non-Western cultures. An example of this is the results achieved by the techniques of folk medicine of the East (China) that not only successfully cure certain types of diseases but can also contribute to the development of Western medical research itself. In epistemological terms, different scientific schools, and even different cultures, have different worldviews and ways of using scientific knowledge. This element constitutes what Kuhn calls a “incommensurable ways of seeing the world and of practicing science in it” (Kuhn, 1996, 4). According to Feyerabend, the nature of scientific concepts is holistic, meaning that they acquire meaning and function within the corpus of theory as a whole. This creates the idea that the change of the theory also brings the change of the concepts used. In the scientific revolution, the terms used acquired different meanings in the theories deriving by them, as in Einstein and Newton's case of the concept of mass and energy. So, across theory change,

then, scientists are speaking different languages. This is exactly the thesis of immeasurability which Kuhn and Feyerabend defend. Through the numerous examples and illustrations that Feyerabend presents in the area of scientific research, he tries to explain the reason for resistance to the principle of incommensurability. According to him, the rejection of the principle of incommensurability does not come from the activity of scientists but from philosophers of science because “philosophers insist on stability of meaning throughout an argument while scientists, being aware that 'speaking a language or explaining a situation means both following rules and changing them” (Feyerabend, 1993a, p. 272). According to Feyerabend, the very history of scientific research bears witness to the existence of a plurality of theories or paradigms which compete for scientific support in a given area of scientific research. However, the principle of pluralism in science, according to Feyerabend, is not only a historical product that we find in the development of science but also the way science works. Science explains the scientific phenomenon using different theories and tools. In this sense, science assumes a heuristic meaning related to solving problems of scientific reality. The principle of pluralism is more fruitful in this sense as the use of different theories increases the chances of solving the scientific problem more efficiently. In this regard, Feyerabend defends the idea of the principle of proliferation to multiply theories and give opportunities to scientific research to have more tools in use. For this reason, Feyerabend takes an active position by accepting the creation of “... more crises, and therefore more fruitful change (in Kuhn's terms) by providing a mechanism to strengthen the anomalies. To accomplish this goal, science should be organized so as to require the continuous generation of alternatives” (Preston, et al., 2000, p. 66).

#### **4. Democratization of science as the right way of life**

The culturalist character of science, supported by its history, serves Feyerabend as a political, moral and pedagogical instrument to democratize science. For the democratization and emancipation of science, Feyerabend applies a political model originating in Mill's liberal vision. According to this view, science is a discipline that respects individuals' autonomy and freedom, allowing them to choose how they want to live. The truth, according to Mill, is discovered when all the different opinions are compared and considered because “truth has no chance but in proportion as every side of it, every opinion which embodies any fraction of truth, not only find advocates, but is so advocates as to be listened to” (Mill, 1912, p. 65). But following Mill's perspective, Feyerabend's critique is not aimed at scientific research per se but at (mainly) the philosophical authorities and instances that impose a monistic view of science on people's minds. So Feyerabend does not criticize science but the philosophy of science that disseminates this type of opinion (or fairytales, as he calls them). “I want to defend society and its inhabitants from all ideologies, science included . All ideologies must be seen in perspectives... One must read them like fairytales which have lot of interesting things but which also contain wickled lies” (Feyerabend, 1981, p. 156). The emphasis on the

ideological element in creating and defending scientific theories is significant to Feyerabend's vision as it confirms the idea of science as a social and historical enterprise. Consequently, science is not only a discipline that provides knowledge but also a tool of political persuasion. On the other, the pluralistic element of methods, instruments, criteria and solutions of science is also a democratic appeal for a free society. But at first an epistemological guarantee is required. "A free society is a society in which all traditions are given equal rights, equal access to education and other positions of power ...." (Feyerabend, 1993b, p. 228). Thus his appeal for the democratization of scientific research does not simply arise as a political argument as he takes inspiration by the very purpose of science. "It is to science that we owe our increased intellectual freedom vis-a-vis religious beliefs; it is to science that we owe the liberation of mankind from ancient and rigid forms of thought ...." (Feyerabend, 1981, p. 156). However, nowadays, science has betrayed its ideal because "it has become rigid, that it has ceased to be an instrument of change and liberation ..." (Feyerabend, 1981, p. 157). This act is the example when a particular culture prevails and is considered superior to other cultures and forms of knowledge, denying pluralism and critical spirit. However, Feyerabend's concern is not simply with science's false view of itself as dogmatic research, but with the special role that education plays in reinforcing and transmitting this image. "Scientific 'facts' are taught at a very early age and in the very same manner in which religious 'facts' were taught only a century ago .... At the universities the situation is even worse, for indoctrination is here carried out in a much more systematic manner" (Feyerabend, 1981, p. 157). In this sense, education is seen as an important weapon for the democratization of science in order not to cultivate a dogmatic and intolerant mentality in society. Furthermore, this emancipatory pedagogy is also precious for the correct education of scientist because "scientist work from models acquired through education and through subsequent exposure to the literature often without quite knowing or needing to know what characteristics have given these models the status of community paradigms" (Kuhn, 1996, 46). Feyerabend therefore, under the name of cultural pluralism and epistemological anarchism encourages an open debate where all cultures and attitudes are welcome. "In a free society there is room for many strange beliefs, doctrines, institutions" (Feyerabend, 1978, p. 74). The appeal to the plurality and relativity, according to Feyerabend, does not undermine the objectivity of science, but enables and improves it, because scientific discoveries and prejudices are revealed by contrasts and by critical debate between different perspectives.

## **5. The science of Amateur and “keep an eye”**

One of the allies for the democratization of scientific research is the citizen or rather, amateur. Nowadays, Feyerabend thinks that scientific research has become too dogmatic and occult as it is left only in the hands of experts. “In society at large the judgment of the scientist received with the same reverence as the judgment of bishops and cardinals was accepted not too long ago” (Feyerabend, 1981, p. 157). Even daily life is surrounded by this expertise leaving no room for judgment and resolution offered by amateurs as “increasing parts of the lives of individuals, families, villages, cities are taken over by specialists” (Feyerabend, 1993a, p. 11). But the management of life and social reality only by scientific experts does not only endanger the freedom of individuals but shows shortcomings in the scientific aspect. Scientific experts “... do not study all phenomena but only those in a special field; and they do not examine all aspects of these special phenomena but only those related to their occasionally rather narrow interests” (Feyerabend, 1993a, p.56).

According to Feyerabend, the power of experts as the ultimate voice of truth in matters of science and society stems from a prejudice. There is a widespread opinion in science that its activity is complex and the experience of amateurs is incapable of understanding and solving the problems of science. To counter this scientific bias, Feyerabend addresses three perspectives. First, in the history of science, there are numerous contributions of amateurs to problem solving. Data collection of scientific phenomena in areas not accessible by scientific expertise has been just one of the cases. This process occurs commonly in the field of environment, astronomy, monitoring of fauna and flora, food, etc. Second, the involvement of citizens in scientific processes increases knowledge, awareness and helps the population to keep up with current scientific developments. Feyerabend thinks that “the knowledge we need to understand and to advance the sciences does not come from theories, it comes from participation” (Feyerabend, 1993a, p. 284). Citizens usually show an increased and special interest in phenomena that directly affect the life of their community. Third, to expand the frontiers of science and proliferate the possibilities of solution also requires the mind of the amateur. The latter, exhibit solutions that the scientist's mind does not perceive throughout the routine of scientific research. According to Feyerabend, the extended engagement of the citizen in science “... is not an intellectual virtue, it is a sensitivity that can only be acquired by frequent contacts with different points of view ... it can be acquired by participating in citizens initiatives” (Feyerabend, 1978, p.107). Fourth, in a free and democratic society, the citizen has the right and must say his word using science in ways most suitable to him. This aspect contributes to human freedom and to the development of a mature democratic citizenry. Finally, a citizen must not only decide for himself what to believe or how to use scientific information, but must constantly monitor science based on the public interest. Therefore, according to Feyerabend, not only science should be separated from the state, but should be under constant monitoring by citizens without compromising the autonomy of the

researcher. The focus of science, respect for ethics and transparency of public and private funds dedicated to it, are some of the elements that must be subject to public transparency. Only in this way, the perspective of science will be in line with the principles of a free, democratic society where freedom, plurality of opinion and debate leads to better epistemic outcomes.

## 6. Conclusion

In conceiving a realistic view of science, Feyerabend first deconstructs some myths constructed around it, throughout the history of civilization. The reasons for these myths about scientific discourse are linked to ideological aspirations that present a simplified and unrealistic vision of science. Objectivist conceptions of science, the presence of a single objective method, progress towards objective truth, etc., form an unrealistic picture if one analyzes the history of science. From the point of view of historical development, scientific discourse is very complex as it is influenced by social, cultural, political, etc. elements. Addressing the history and traditions of science, Feyerabend proves that scientific discourse is a plural historical and cultural narrative that contains many different methodologies, principles and instruments, but also opposites. Therefore, Feyerabend seeks to respect and multiply this plural reality not only as a contribution to maintaining the critical spirit of science, but as the only firm to offer creative solutions to human problems. This critical and tolerant spirit of science towards self, narratives of knowledge and other cultures becomes possible only with the involvement of citizens to offer their opinion, without distinction. In this perspective, the scientific knowledge of different cultures is seen as a heritage of the human mind that must be protected, debated and used critically.

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