European Journal of Science and Theology, August 2013, Vol.9, No.4, 77-86

EDUCATION AS PHILOSOPHY AND TECHNOLOGY

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(Received 19 August 2012, revised 2 May 2013)

Abstract

The complexity of the phenomena and of the interactions from nature highlights that the subsequent scientific interpretations which are given to the physical reality appeals in default to a philosophy of language. The language, through its structural-functional complexity, reveals the power of the knowledge in general. But knowledge can decrypt itself by paradigms of communication. This is why the technological education could be the philosophy of education of our nowadays.

Keywords: level of reality, epistemological education, explanatory model, educational purposes, technology

1. Introduction

The existence of natural laws within the levels of reality highlights that the physical reality is subordinate to them. Moreover, the physical reality shows the existence of some reality levels that can not be 'imagined' only through the idea of possible worlds. In this way, philosophical meanings that are specific to a *possible world* could be understood from a double perspective: as reflexion and as scientific knowledge. Obviously, it reveals significant differences of ontological and epistemic statute between the traditional and the contemporary approaches on the Science methodology.

The scientific knowledge becomes comprehensible under the conditions when, it gives us a research method. But these methods are possible through some specific rules. So, when a rule is established, the knowledge process reports to the importance of a scientific fact, on which H. Poincaré said that it is measured after the quantity of economic thinking, where the disparate elements and apparently without any contact between them, manage, through a scientific connection, manage to give valuable results [1].

Some of the features are highlighting a certain convergence between the philosophic and the scientific reflections, toward an interdisciplinary approach of the theories and the research methods. Moreover, the evaluation standards of the theoretical constructions show levels of complexity in the process of

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scientific knowledge. Beyond the establishment of connections between various disciplines, we will try to show how is working this paradigm of reality thought, in terms of organization levels, and at the reality levels. In this context, we support the idea that understanding the physical reality in terms of a specific language involves a new perspective on the ontology and the philosophy of science namely, a transdisciplinary one, which introduces another level of Reality, linking together the disciplinary absolutes [2].

The meanings that appear within these paradigms give rise to modelling and methodological fundaments of the scientific knowledge. Therefore, many discussions held around these ideas refer to the understanding of these theories in terms of reality levels. Extrapolation appears when talking about the scientific theory as being underlined by the experience, which creates the possibility of a rigorous definition of the concepts used in. In this respect, we consider thetransdisciplinary approach shows a way of thinking that has to be taken into account when understanding the physical reality. Thus, it is necessary, in the context of a transdisciplinary methodology, the need for transdisciplinary language [3] that could constitute a global language.

We have given an important role to these issues for two reasons. The first one shows that both the idea of identity, as well as that of the demarcation, need a methodological dynamic at theoretical level. So, the scientific theories that approach these aspects show the fact that, in any moment, the problematic that these involve will remain open to any interpretation. The second reason (which justifies the order in which this research was made), highlights that these issues involve through their interpretation way a conceptual dimension that is specific to the transdisciplinary approaches.

Under these conditions, we consider, on a first place, which is normal to take into account the models of the physical reality, as well as their eligibility criteria. Moreover, as far as they prove useful both at the theoretical level and at practical level, there should be accepted the interdisciplinary explanations of such models. For instance, the idea of complementarity is found through its applications in the context of several levels of reality. Therefore, human possibilities to get to know the existing laws inside the reality levels involve contradictory arguments, which in some situations, support new theories. Secondly, we will try to analyze how the conceptual transfer is made between different areas, attention focusing particularly on the idea of complementarity. Therefore, we will investigate the way in which the principle of complementarity can be explained by reference to the levels of reality. In this way, following the conceptual way which is specific to inter and transdisciplinary approach, we argue in favour of the structuralist point of view in understanding the physical reality. However, what we propose is not a theory that is based on the idea of certainty, but rather a development of a way to understanding the reality in terms of scientific language, but at the linguistic transformations that are meet in the scientific theories (paradigms). Thus, we can admit that there is a justification for supporting the point of view which sustains the need for a transfer of methods and concepts (paradigms) between theories.

In this respect, we take into account, from methodological point of view, the determination of some criteria by which the explanations could be given to the optimal forms of understanding. Otherwise, this is the reason why, the analysis will focus on a language philosophy and, by default, on the conceptual relativism. By doing this, we want to emphasize that the conceptual relativism may lead to confusion at language level and in this way, making smaller the degree of understandability. In this respect, we support the idea of Donald Davidson [4], according to which the conceptual relativism represents a doctrine which does not satisfy most of the times the degree of understandability in Philosophy. Therefore, we believe that it is quite difficult the attempt to improve this understandability, under the conditions when the specific form of expression reports to subjectivity. The idea is that it can accept the doctrine according to which, where conceptual schemes differ, the same thing happens with languages. Speakers of different languages can share a particular conceptual scheme which is given only if there is a simple way of crossing from one language into another.

2. Rethinking the reality

In the contemporary period there has been a rethinking of reality, and in this respect, some philosophers of Science have made distinction between information and knowledge. If this information is more important than processing, knowledge involves „a report of opening and closing between a person who knows and the known" [5]. In this way, the closing that opens may provide a methodological unifying of sciences, and disagreements that generate some problematic situations inside the scientific community may be overpassed.

Therefore, we are going to show that the re-evaluation and reconstruction of Science needs a methodological analysis of Science history through which there can be traced and removed some inaccurate formulations that are accepted in the process of explaining the scientific knowledge. Furthermore, the understanding of a phenomenon depends on the views of constructions of some assumptions that are specific to certain paradigms. That is about the fact that any form of human rationality refers to the historic fact. This situation is shown by R.C. Collingwood when saying that „history and philosophy are the same thing" [6]. Thus, from this perspective, the history of Science and rational, and the historic dimension of the scientific explanation allows a certain justificative dimension of the way in which the paradigms of knowledge were established.

3. At first it was simplicity

If „at first it was the simplicity" [7], then the beginning of the Universe is quite difficult to explain. With this phrase it begins the 'Replicators' chapter from the work Selfish Gene of Richard Dawkins. In the proposed approach the author refers to the famous theory of C. Darwin on evolution by natural selection. This theory is in fact a decryption of simplicity, as well as a picture of the way in which the simplicity can turn in complexity. In these terms, the

natural selection expresses the law of stability conservation. Therefore, R. Dawkins analyzes in a new light the evolutionist theory of C. Darwin. Thus, showing that survival of the best adaptation represents a special case of a more general law, R. Dawkins describes simplicity with the help of the concept of stable structure of atoms. This description refers to the most elementary processes of micro-universe. So, the supported idea is that before life appeared on Earth, because of the usual chemical and physical processes, it can be seen an rudimentary evolution of molecules. However, the basic principles of this evolution does not represent the key elements through which there can be explained the complex entity, such as the man. Admitting that his idea about the origins of life is a speculative one, R. Dawkins admits that at one point in the first moments after an accident, a molecule was formed which had the property to create its own copies. Gradually, this replicator's elements (which, incidentally, is the modern equivalent of DNA) have developed giving birth to some stable structures. In all of this development have appeared some errors, whose number grows due to the fact that certain copies are made after other copies. However, „the wrong copying in biological replication can lead to certain improvements" [7, p. 16] and, therefore, it is acceptable the idea, says R. Dawkins, that the occurrence of some errors in the progressive evolution of life was essential. From here, it results the idea that the replicators have three fundamental traits: ability to multiply, the speed of replication, precision in the replication process. In this way, we can sustain that this described situation is, in substance, the acceptance of the complementarity principle by means of which it offers an explanation of the helical structure of DNA.

These traits underline an explanation of C. Darwin theory, who admits in his theory of natural selection the idea of competition. In other words, the replicators are another sense of the genes concept towards which the survival of humanity depends a lot. Therefore, the simplicity of ideas determine complex problematic. Therefore, simplicity involves conceptual interpretations that can express the exact truths or possible truths.

Simplicity is in fact that certain concepts, although they take place of others (in the case of new paradigms), they can (re-) build physical reality. Here it appears a problem of interpretation which gives birth to a query about the genesis of scientific theory. Scientific theories and concepts are human creations or objective truths? Such a problem is analyzed by G. Thomson. He brings into discussion the fact that experiences and observations always involve an observer. The idea that he sustains is that theories and concepts are „rather discovered than invented" [8]. However, the scientist can admit the idea that in nature there is a rational order that should not be subjected to a total determinism.

4. At first there was complexity

If at first there was complexity [9], paradigms offered by Philosophy-Science relationship emphasize the existence of multinivelation entities through

which models of classical thinking are restored in question and they are subject to analysis from totally different perspective. In this way, the reality of which is veiled [10] is required to be decrypted. The development of a uniform approach in recognition of the role that the complexity has in the Philosophy-Science relationship constitutes a major factor in sustaining a free thinking that is in continue processing. For instance, Newton's theory was accepted for many centuries, but when he tried to extend it to new areas there have been displayed some uncertainty, in the sense that the knowledge of physical reality has led to new forms of understanding.

The complexity of physical reality reveals a complexity thinking which leads to a reorganization of the realistic. An example of understanding the complexity has offered him a holographic principle whereby the concept of order tries to justify this form of reorganization, where the organizational complexity of the entire requires the organizational complexity of the parts, that require the organizational complexity of the whole. This model of complexity is from David Bohm who describes in detail the way in which the general structure of matter can be understood by reference to the concept of implied order. Also, this way to watch an impartial description of processes related to the coherency of the world requires a evaluation from the point of view of the main scientific results.

The world is viewed as the interrelationships between phenomena within a system. More, the „live systems are organized in such way, that forms the multistratificate structures, each level being parts of subsystems that are entire on their side, and, on the whole" [11]. In this way, the passage from a level of organization to another one involves the transition from simple to complex. The *thing* is that you can not admit the existence of slopes or entire absolutely.

This analysis concentrates on the scientific research of the relationships between consciousness and human being. For instance, H. Stapp talks about „a model of mind-brain system" [12], which is the direct result of revolutionary ideas in Psychology and Physics. This model shows that the processes of the brain depend on atomic processes [12, p. 199]. Therefore, within this system it admits the need for Quantum theory in Biology.

P. Suppes, pleding for plurality of Science, analyzes the mind-brain relationship He considers that there is no unity of the science in the brain and mind level [13], even if it the existence of the connections could be accepted. Giving the example of hash coding, P. Suppes sustains the idea that the mental is not conditioned by the physiological (brain function). In other words, Psychology remains a fundamental science such as Physics, and mental events can be understood through acts of behaviour that do not offer adequate definitional conditions [13]. On the other hand, related to the human being, the relationship between Philosophy and technology expresses the fact that individuality and society does not represent two distinct realities, but at the same time, they are complementary and contradictory, in the sense that, the individual and society are mutually exclusive, and at the same time they parasite each other. In other words, the complexity is, on the one hand in the uncertainty of

complementarity (individual-society), and on the other hand, in the antagonism between them.

5. Education and virtuality versus Philosophy and technology

Gradual development of Science has allowed the emergence of scientific methods of abstraction. With the condensation of information appeared a whole alphabet of symbols and language was becoming more and more abstract. The fields where are visible such situations are concerning Physics and Mathematics where some terms are being replaced with symbols. For instance, the process of understanding in Physics reports to the possibility of making an explanatory model. But this model, which should be explained in the terms of a common language in order to be understood by the persons who do not have competences in that field, results from the elaboration and acceptance of a mathematical formalism. In other words, this is the result of a mathematical concept of experimental correlation between facts relating to the phenomenon to be explained. As a result, through this mathematical model, that reality is described through symbols. However, though, mathematical models and their applications in some disciplinary areas lead to the idea that specialized common language is less accessible to people and sometimes even lacking of precision. In this case, the difficulty is found in the language level, where the concepts are not always well defined. Therefore, their use remains an open issue for the scientific community.

In this context, we believe that pragmatic aspect of the mathematical formulation should be underlined. This, in conjunction with a standardized logic gets an applicative value in virtual reality. Such an observation determines us to admit that, in fact, there is a passage to a new level of reality, to cyber-space-time. Respecting the specific terminology of the transdiciplinary model, according to which, by cyber-space-time we understand the informatic space in its whole, we can conclude that the coherent transmission of information flowing inside this level of reality shows a picture of complexity.

Therefore, the image of complexity is close related to the existing relationship between Philosophy, Science and education. This situation becomes applicable by a process of abstract mathematization, reality being characterized through complex images. The explanatory aspect of knowledge reveals that certain events are similar from physical point of view. The knowledge of real is possible under the conditions when scientific reasoning uses observation as a mean of distinguishing between theoretical explanations.

This fact is linked to the emergence of a new branch of Science, Cybernetics, through which is accomplished the establishment of knowledge through overlapping of methods and concepts in areas as Mathematics, Physics, Biology or Chemistry, but all reported to a philosophy of education. Thus, there can be mentioned the new discoveries in the world of information. The fact that we underline sends to the idea that through a synthesis of linguistic representations, but also through the real images, the symbolic order gives birth

to a new kind of reality. It is about virtual reality in which the mathematical logic has an important role. These connections can be found in the theory of information. Thus, a specific technology is used for the transmission of information in which the mathematical models and methods have an important role. In this case, the transmission unity of information is the bit (binary digit) through which it shows that information contained in a message can take two values, 0 or 1.

Concluding, we can admit that scientists, trying to establish connections between the laws of Physics and Biology, send to the idea of complexity. Furthermore, trying to reduce the Biology laws to physical laws, can not be accepted.

6. Scientific education and educational philosophy

Due to this fact, the problem of knowledge entails a general transformation. It is about an isolation of language. In this way, the relationship between society and knowledge is externalized. Therefore, any scientific method involves a diachronic temporality through which a cumulative process is materialized. This cumulative process consists in storing the previous scientific sentences in order to get the new by means of scientific connections. However, such scientific connections are found at the level of educational paradigms, as various forms of knowledge [14] written down explicitly through inter-and transdisciplinary approaches.

Inside the educational reality, the value of knowledge shows, from theoretical point of view, a methodological continuity. Thus, at scientific level, social responsibilities of the educational actors involve some methodological approaches, through which there are legitimated the assumptions that are related to an educational epistemology. In addition, the pragmatic criterion of such important assumptions emphasizes the importance of novelty in the learning process. In addition, the methodological means through which there are exposed the cognoscible structures of the learning process, contributes to the architectonics of the new educational paradigm, in which communication is one of equal type [15]. In this way, a logic of educational reality requires a dynamic structure whose scientific arguments support the idea of connecting theory with experience.

Through this process of approaching common types of education we can only accept a surplus of methodological consistency of the theoretical-conceptual dimension relating to the idea of education. This surplus of content in terms of the cognoscible structure of education (with the affective and social one) expresses the form through which the socio-educational actors can adapt themselves to the change of paradigms [16]. The birth of the new forms of education offers a perspective situated beyond the classical approach of the theory of the education. This does not mean, however, that classical forms of education should be completely removed, but rather, we believe that it is required a reassessment of their area of concern by formalizing the existing

cultural structures and their use in achieving further objectives of teacher education [17], but also by appealing the principle of tolerance [18].

7. The dynamic structure of educational reality

Beyond the conceptual-theoretical approaches, education in general assumes from the perspective of paradigm re-evaluation an epistemological understanding of the informational contents that they assume in a social context. In this respect, we believe that certain aspects that emphasize a certain convergence between the reflections on the social-educational nature highlights a number of curricular transformations that are included at the same time in the idea of human responsibility [19]. Furthermore, we believe that the issue of the necessity of re-evaluation the educational paradigms send default to the idea of quality of a social system. Social organisation involves the will of the subjectivities that are involved in the process of sociality. Also, this type of reality has a particular character which resides in the form of social organization according to which human activities are shaped. Furthermore, as a social result, the purpose of these activities send us to the need of the principles according to which social organisation is materialized. However, one can speak of an actual crisis in the educational field [20], a crisis in which the tensions accumulated in time are obvious.

The axiological-pragmatic nature of educational paradigms reveals a specific typology of learning process, which depends on which the methodological strategies are being established. Thus, as functional structure, a new educational paradigm, in terms of a new physics, a new world, a new psychology [21] follows a major aspect of social reality, namely, the teaching-pedagogical model. Under these conditions, the implemented strategies in the learning process focuses on specific means of analysis, through which educational activities shall be materialized. Moreover, there are significant the epistemic capabilities of understanding offered by the social actors involved in this approach. Therefore, the axiological-pragmatic nature of the educational paradigms has a social connotation.

8. Conclusions

The analysis of the structure of learning process from the perspective of private models and those general of education constitutes a scientific approach whose relevant aspects are given by certain theoretical differences, related to social responsibilities of practical nature. It is also mentioned in this context, the role that a competitive activity allows pragmatic curricular openings. Furthermore, methodological innovation is encouraged at the level of new communication paradigms through exposing the pedagogical experiences in the dimension of the educational pragmatism.

First of all, the acceptance of a conceptual-theoretical relativism in terms of educational content means a surplus of methodological consistency. Thus, at curricular level is highlighted the need of accomplishing the methodological correspondents that are present in educational process. In addition, setting a value item in an educational approach reveals a methodological strategy of conventional type that can offer a pragmatic perspective on the education process. In this way, the general characteristics of new paradigms find their utility at social level under the conditions when the extension of the informational content contribute to the validity of operationalization the objectives assumed by the socio-educational actors.

Secondly, professional practices are sustained by the new conceptual-theoretical structures that are obvious at the level of the communicational paradigms. Informational valorisation must materialise on the benefic relations of educational communication according to the way in which the approaches and understanding methods show a special complexity of initiated approaches within the framework of social reality. This complexity consists on the fact that a society in which the focus is on the value-educational dimensions does nothing else but to reflect a special way of thinking, one that is materialized in a didactic-pedagogical logic. Therefore, we believe that it is necessary a good understanding of the assumed strategies at social level.

Under these conditions, the qualitative parameters of the educational activity underline a communication paradigm whose pragmatic-axiological nature sends to the assumption of a curriculum management. In relation to this structure of educational finalities, implementation of new educational models acts as a level of theoretical and practical training in harmony with social needs. Thus, the flexibility of the cognitive structures is given precisely by the complexity of the educational perspectives. Therefore, the unique assumption of the new communicational paradigms should be correlated with the optimisation of the methodological strategies used in education, strategies in conjunction with everything it is related to the new informational technology.

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