

Complexity, Pedagogy and Aristotelian Metaphysics

In Italy a large number of Pedagogy scholars are interested in Aristotle's Philosophy because the Stagirite starts from the real situation in order to devise his metaphysical theories. This attitude is close to the Paradigm of Complexity, common today from the epistemological point of view. This article, after a brief reconstruction of the Paradigm of Complexity, focuses on Aristotle's doctrine of the multivocity of being, interpreting it as a good theory to support the Paradigm of Educational Sciences in contemporary Pedagogical thought.

Keywords: Aristotle's pedagogy, metaphysics/philosophy of education, complexity, educational sciences

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Complejidad, pedagogía y metafísica aristotélica

En Italia, un buen número de pedagogos se ha interesado por la filosofía de Aristóteles debido a que el Estagirita reflexiona sobre situaciones reales a partir de las cuales elabora sus teorías metafísicas. Tal actitud es similar a la del 'paradigma de la complejidad', tan habitual hoy en el ámbito de la epistemología. En este artículo, una vez definido el 'paradigma de la complejidad', nos centramos en la doctrina aristotélica sobre la univocidad del ser, pues creemos que es una buena teoría en la que fundamentar el paradigma de las Ciencias de la Educación propio del pensamiento pedagógico contemporáneo.

Palabras clave: pedagogía aristotélica, metafísica y filosofía de la educación, complejidad, Ciencias de la Educación.

THE MAIN FEATURE OF CONTEMPORARY culture is complexity. In fact, nowadays it is impossible to reduce knowledge only to a kind of science because everyone is aware of the many facets composing the world. Especially during the Modern Age many sciences started,

scholars directed their attention to every cultural field; our Civilisation grew day by day. At first it seemed that Mathematics could offer the universal method in order to discover all secrets of natural and human life. Later it was understood that it isn't possible to reduce the multiplicity of beings and knowledge to only one perspective. That is how the Paradigm of Complexity was recently born.

As far as Pedagogy is concerned, Complexity means that the knowledge of education needs many sciences in order to investigate it deeply. The Paradigm of Complexity originated in the 20th century as a scientific paradigm mainly by the comparison between humanistic and natural sciences. It isn't obvious, however, to share this idea. In fact, while it increases our ability to research concrete situations, it also gives rise to the fragmentation of educational knowledge. But this is a problem because the human being needs unity to recognise meanings and values in his life and in human society.

This article, referring to my piece of research recently published (Mari, 2007), synthetically deals with the Paradigm of Complexity in educational theory. On the one hand, I agree with the concept of Educational Sciences related to the complexity of education; on the other hand, I'd like to underline its theoretic limits menacing the unity of education. In order to avoid the danger and to increase the opportunities, I turn to Aristotelian Metaphysics (particularly to the doctrine of the multiplicity of being) because it allows me to investigate education without misunderstanding its specific identity and to connect unity and multiplicity. For this reason I will start by showing the present relevance of Aristotle's thought even from the Pedagogical point of view.

1. Aristotle and Contemporary Italian Pedagogy

Beyond all criticisms related to Aristotle's metaphysics, there are good reasons to agree with Aubenque (1988) asserting that "we are still Aristotelian without consciousness" (p. 320). In fact, the Aristotelian mind is really topical mainly because the Stagirite appreciates the concrete world even from the natural point of view: as he says in *Parts of animals*, "we must not betake ourselves to the consideration of the meaner animals with a bad grace, as though we were children; since in all natural things is somewhat of the marvellous" (I, 645a 15-20). He thinks that the changing world is nevertheless the real world, open to knowledge and theoretically significant. This way of thinking fits the present common interest in contingency and natural world.

We can recognise another peculiarity of the Aristotelian mind: its problematic foundation. Ackrill (1981) says:

"In fact, an account of Aristotle's philosophy as a set of doctrines must be terribly misleading. For his work extended over many years, from his student days in Plato's Academy to his death at the age of sixty-three. During this time his ideas developed and sometimes changed, he dropped old arguments and invented new ones, he

handled central themes in a variety of contexts and with a variety of weapons. It follows that any serious understanding of his thought must allow for its *movement*, and not treat it as a mere catalogue of conclusions” (p. 1).

In Italy Berti (2000, pp. 45-62) supports the same idea: he is sure that this peculiarity makes the Aristotelian thought relevant. Also from the pedagogical point of view this concept is notable, particularly in opposition to the modern mind, as Pellerey (1999) says:

“Ancient thought, especially inspired by Aristotle from the Gnoseological point of view, took into consideration many kinds of knowledge and argumentations [...]. Modern theory, on the contrary, especially increased the value of analytical or scientific theory. Nowadays we are rediscovering the complexity of reason also in Pedagogy” (p. 112).

Xodo (2002) is on the same wavelength: “In Aristotle’s opinion educability isn’t apodictical but induced through human experience. Aristotle intends to study the human being not only through abstract theories but even through concrete experience, with respect to real and daily life” (p. 111). Vico (2002) is the most incisive: in fact, referring to Aristotle, he stresses “the importance of Metaphysics and Ethics related to each other and able to lead the human being to the acknowledgement of the roots and the goals of human life. In his mind responsibility is related to virtuous habits, attainable day after day in concrete situations” (p. 108).

He makes it clear that the “Aristotelian doctrine (...) gives many opportunities to pedagogy. First of all because its roots are in ethics and metaphysics; second, because Aristotle stresses virtues as daily tasks, increasing through the practise of reason and will direct efforts towards the attainment of virtues” (p. 109).

That’s why in pedagogy –at least in Italian pedagogy– there are many reasons to consider Aristotle’s doctrine. I think that such an attitude is promoted –from the epistemological point of view– by the Paradigm of Complexity affecting the pedagogical knowledge too.

2. The Paradigm of Complexity in Twentieth-Century Culture

2.1. The new idea of Epistemology according to Popper

At the beginning of the 20th century, Epistemology was at an important crossroads because the Positivist explication of scientific research didn’t fit in with the concrete scientific method any longer. According to the Positivist mind, the scientist discovering the cause of natural phenomena achieves definitive knowledge; on the contrary, Popper objected that sciences grow in a different way, i.e. by acknowledging their mistakes in the light of new and better observations. That’s why Popper passed from the Principle of Verifiability (corresponding to the positivist view of science) to the Principle of Falsification in order to recognize scientific sentences. In that way he left the positivist and neopositivist conception, according to which

the scientific knowledge is definitive, and embraced his evolutionary idea of science beginning from the concrete experience. In Popper's mind scientific laws are not untouchable ideas but explanatory constructions: they are scientific because they are open to be reconsidered. "I hold –he says– that scientific theories are never fully justifiable or verifiable, but that they are nevertheless testable. I shall therefore say that the *objectivity* of scientific statements lies in the fact that they can be *inter-subjectively* tested" (Popper, 2002, p. 22): so they constantly change. This was a turning point in epistemology.

After Popper, many researchers agreed with him and criticized modern epistemology because it was inspired by Newtonian physics leading to the illusion of certainty. In the Newtonian Physics the observer is out of the scene as an absolute subject exploring the world subdued to deterministic laws. In short, he isn't related to the other components of the knowledge system; on the contrary, according to the new epistemological idea, at the same time everyone is subject and object, everybody is both spectator and actor, and the situation is open to many different results because there are many ever-changing variables. Particularly Kuhn believes that scientific knowledge springs from contingent circumstances such as situations, aspirations, coincidences... it isn't objective but it shows traces of the scientist's subjective mind and common prejudices, i.e. cultural "paradigms" in Kuhn's language. In fact, "the criteria with which scientists determine the validity of an articulation or an application of existing theory are not by themselves sufficient to determine the choice between competing theories" (Kuhn, 1977, p. 288). Kuhn stresses the fact that scientific paradigms actually depend not only on the scientific recognition but also on the cultural context. For this reason, unlike the Positivist convictions, they aren't objective.

Feyerabend (1978) is also against the supposed objectivity of the Modern method. He affirms:

"The idea of a method that contains firm, unchanging, and absolutely binding principles for conducting the business of science meets considerable difficulty when confronted with the results of historical research. We find then, that there is not a single rule, however plausible, and however firmly grounded in epistemology, that is not violated at some time or other. It becomes evident that such violations are not accidental events; they are results of insufficient knowledge or of inattention which might have been avoided. On the contrary, we see that they are necessary for progress" (p. 23).

He criticizes the objectivity of science. He rejects the absoluteness of reason, keeping in his mind especially the modern idea of method. According to Modernity, science is intrinsically empirical and experimental. Feyerabend, just like Kuhn and Popper, argues that concrete experience is necessary to science but they all are aware of its contingency. Modern science, on the contrary, aims at the absolute knowledge through mathematics. Feyerabend, for his part, appreciates practical knowledge, especially Aristotelian poetics: in his opinion this kind of reasoning is close to the one of scientific research.

Also Lakatos (1970) claims that scientific knowledge it isn't objective. In fact, "Science cannot *prove* any theory (...), it can *disprove*" inductively, and it represents not "a whole, but rather *particular* research programmes" (pp. 96 & 132) because the scientific knowledge depends on the concrete situation related to subjective scholars' attitudes. From this point of view it is necessary to interpret the experimental confirmation according to preconceived ideas and subjective aspirations. This way of looking at things is very different from the Modern one. All these authors agree with Popper in some way or other, and appreciate ancient thought, especially the Aristotelian one. Actually Popper looks at him critically because he believes that the Stagirite is representative of the ancient –"Platonic" as for Popper– attitude against freedom. In fact he says that "Aristotle's thought is entirely dominated by Plato's" (Popper, 1945, p. 2). But this statement isn't true: in fact Aristotle's mind is very different from Plato's, as shown by the doctrine of the multivocity of being, which supports a new theoretical idea close to current Complexity, as we will see later on.

2.2. Complexity as a new paradigm to interpret science

The new epistemological approach, introduced by Popper and by the other authors close to him, started a new way of approaching science, emerging from the attitude of failing to consider scientific knowledge as a necessary result of observations and experiments. Around the middle of the 20th century, the Paradigm of Complexity developed according to the postmodern cultural context connoting itself as opposed to Modernity. In fact, Modern Epistemology supports only one kind of method related to observational and experimental science and leads to mathematical formalization. The modern mind aims at certain knowledge and appreciates mathematical formalization as the means to get a clear result, as it is evident –for example– in Spinoza's *Ethica* "*more geometrico demonstrata*".

The Paradigm of Complexity is on the opposite side. Actually, it doesn't search for objective knowledge because it professes that no science can ultimately explore the world. On the contrary, as things are many and different, there are also many different epistemological views. Modernity was characterized by univocity and simplicity, while Postmodernism is characterized by equivocity and complexity. In fact, the Paradigm of Complexity rejects the simple conception of the world: everything is composed of many factors from the ontological point of view and the gnoseological one. The very idea of Complexity moves from the impossibility to simplify knowledge through only one kind of method. For this reason the Paradigm of Complexity emphasizes the mobility and plurality of things, taking care of time, situations and individual experience: in order to know something we must put knowledge in its particular context. In fact Morin (1990) affirms that "complexus" is related to many different views, not only to one. Nowadays epistemological thought doesn't proceed by deduction, but according to the continuous succession of changes in concrete situations.

Prigogine, winner of the Nobel prize in Chemistry, and Nicolis, in the introduction of their book *Self-Organization in Nonequilibrium Systems* (1977), stress as follows: “Classical physics has emphasized stability and permanence. We now see that, at best, such a qualification applies only to very limited aspects. Wherever we look, we discover evolutionary processes leading to diversification and increasing complexity” (p. 1). The Paradigm of Complexity highlights the difference between the invariable concept of space in Newtonian physics based on Euclidean geometry and the changing space in Biology because it is functional, not geometric; Prigogine is very interested in Aristotle’s theory accrediting the concrete reality in opposition to Plato’s *Metaphysics*. The Stagirite is attentive to the world, not only from the *Metaphysical* but also from the physical point of view, emphasizing its multiplicity and variety. Aristotle partially goes beyond the Greek prejudice, according to which the object of science is only eternal and unchangeable. In fact, he was a student of nature, and he was interested in natural observation. The Paradigm of Complexity too originates from the biological world. Its supporters consider the real and natural world, as well as the ever-changing living creatures inside it; this idea leads them close to Aristotle’s *metaphysics*.

The interest of complexity supporters in Aristotle’s thought is important because it gives the opportunity to re-examine his philosophy in order to make *metaphysics* credible according to advanced scientific perspectives. This also concerns the Pedagogical theory, particularly referring to the Paradigm of Educational Sciences, directly related to complexity.

2.3. Aristotelian Philosophy vis-à-vis the permanence and changes in the world

When Aristotle considers the ability of human thinking to face reality, he calls Heraclitus to account, asserting that –according to the Ephesian philosopher– ascertaining the truth is like running after a flying bird (cfr. *Metaphysics*, IV, 5, 1009b 40). Actually, the Stagirite doesn’t agree with him because –as he points out– something gets lost in changes, but something else remains, i.e. what is virtually present before the change itself. In fact, changes necessarily come from something existing before, and this process can’t happen endlessly (cfr. *Metaphysics*, IV, 5, 1010a 15-20).

In this way Aristotle acknowledges changes in reality but he doesn’t abdicate his aspiration to recognize the hidden unity of the world. Philosophical theories, in fact, originate from the aim to lead the multiplicity of events to unity, as the Stagirite says in *Metaphysics*. In the beginning the ancient philosophers founded the *arché* in physical principles (like the water according to Thales), but Aristotle complains about their acknowledging only the material cause. Later Empedocles and Anaxagoras discovered the efficient cause but not clearly, he says (cfr. *Metaphysics*, I, 4, 985a 10-15). According to Aristotle, there was a jump of quality only when the ancient philosophers acknowledged the formal cause, first Pythagoras and Parmenides and then (even more accurately) Plato. Actually, Plato’s *metaphysics* is criticized by the Stagirite, who maintains that the formal

cause isn't separated by real individuals (cfr. *Metaphysics*, I, 9, 991b 1-5). The Aristotelian doctrines of the Four Causes and of the Categories aim to combine multiplicity and unity in the knowledge of the world, especially with reference to the doctrine of actuality and potentiality: in fact, Aristotle solves the paradox of unity arguing that

“the matter from which a composite is generated survives in the product potentially but is actually destroyed. This single modification within the theory of generation allows him to argue that composites whose constituent matter is potential are vertical unities. The pre-existing matter survives in a product potentially, in the sense that its essential properties (as well as some nonessential properties) survive to modify the higher construct” (Gill, 1989, p. 241).

For this reason the Aristotelian metaphysics embraces a complex idea of reality. In fact, the Stagirite asserts that it isn't possible to study all kinds of causes only by means of one science (cfr. *Metaphysics*, III, 2, 996a 15-20). From the epistemological point of view, this doctrine is very important because it allows interpreting science as an articulated totality of knowledge: the modern theory of complexity is close to this idea and it is also close to the multivocal Aristotle's interpretation of the being.

3. Aristotle's Doctrine of the Multivocity of Being and the Paradigm of Complexity

3.1. The Aristotelian doctrine

Aristotle enunciates the doctrine of the multivocity of being both in *Physics*: “the term ‘existent’ is itself ambiguous, it lies at the very heart of the matter to inquire whether they who assert all existing things to be ‘one’ are thinking of all existing things substantively or quantitatively or qualitatively” (*Physics*, I, 2, 185a 20-25), and in *Metaphysics*: “The term ‘being’ is used in various senses, but with reference to one central idea and one definite characteristic, and not as merely a common epithet” (*Metaphysics*, IV, 2, 1003a 30-35). Through this doctrine the Stagirite affirms on the one hand that the being structurally and originally involves multiplicity; on the other hand, that the being is unitary because everything exists as substance, the first of Aristotle's categories. Among the categories, related to the existing things, substance is the principal because it affirms the existence of something. For this reason it represents the common reference: in fact, categories are related to the concrete existence of something from a particular point of view.

In the Aristotelian mind the being is multivocal but this doctrine doesn't involve ambiguity, i.e. the impossibility to distinguish among different meanings. The Stagirite gives these examples:

“Thus as the term ‘healthy’ always relates to health (either as preserving it or as producing it or as indicating it or as receptive of it), and as ‘medical’ relates to the art

of medicine (either as possessing it or as naturally adapted for it or as being a function of medicine) –and we shall find other terms used similarly to these– so ‘being’ is used in various senses, but always with reference to one principle. For some things are said to ‘be’ because they are substances; others because they are modifications of substance; others because they are a process towards substance, or destructions or privations or qualities of substances, or productive or generative of substance or of terms relating to substance” (*Metaphysics*, IV, 2, 1003b 1-10).

In this way the being applies to different things which are individual and separable as substances. The same happens to the word “good”; Aristotle says in *Tópica*: “as applied to food [good] means ‘productive of pleasure’, as applied to medicine it means ‘productive of health’, as applied to the soul it denotes a certain quality such as ‘temperate’ or ‘brave’ or ‘just’, and similarly also as applied to man” (*Tópica*, I, 15, 107a 5-15).

The most appreciable feature of this conception is the joining together of unity and multiplicity. In fact, everything existent is related to the being. Since Aristotle gives substance a concrete form, he acknowledges the variety of concrete beings. For this reason, *Metaphysics* is the highest form of science but not the only one. This Aristotelian attitude is close to the Epistemological Paradigm of Complexity, because it professes many sciences as a knowledge plurality.

3.2. The doctrine of the multivocality of being and the challenge of relativism

Nowadays many authors deal with “relativism”. This word means not only the existence of many points of view (it could be positive according to the variety of cognitions and the inexhaustibility of truth) but that someone aims to support his/her point of view without a rational comparison. Very often, as Taylor (1991) says, theoretical and ethical ideas are related only (or principally) to the Self

“in concern at the fruits of a ‘permissive society’, the doings of the ‘me generation’, or the prevalence of ‘narcisism’ [...]. The sense that lives have been flattened and narrowed, and that this is connected to an abnormal and regrettable self-absorption, has returned in forms specific to contemporary culture” (p. 4).

The problem is that in this way human *logos* isn’t appreciated at all. On the contrary, the Aristotelian doctrine of the multivocality of being gives a fundamental contribution in order to recognize the peculiarity of human knowledge able to compare, to characterize, and to connect.

In fact, Aristotle’s doctrine recognizes the existing things as various but, at the same time, also related to each other as substances. This situation also regards the way of knowing. The Stagirite is frankly polemical against the Platonic conception of Idea:

“One might also raise the question what precisely they [*Plato and his disciples*] mean by their expression ‘the Ideal so-and-so’, seeing that one and the same definition of

man applies both to ‘the Ideal man’ and to ‘man’, for in so far as both are men, there will be no difference between them; and if so, no more will there be any difference between ‘the Ideal Good’ and ‘Good’ in so far as both are good. Nor yet will the Ideal Good be any more good because it is eternal, seeing that a white thing that lasts a long time is no whiter than one that lasts only a day” (*The Nicomachean Ethics*, I, 6, 1096 b 1-5).

Aristotle is ironic about the “eternal” white “no whiter than one that lasts only a day” because he wants to give value to the concrete reality. Especially from the ethical point of view, the Stagirite rejects the formalization according to the variety of goods. So Aristotle is able to recognise many factors affecting the moral decision. Does this mean that Aristotle supports moral relativism? Not at all. He rejects the accident from the knowing experience; therefore, he doesn’t interpret human life as a mere succession of facts. On the contrary, everything happens for a reason; that’s why it is possible to find it by the *lógos* picking up in unity the different things. This attitude denotes one of the most important Socratic ideas, according to Plato’s testimony:

“Of what sort am I? – Socrates asks – One of those who would be glad to be refuted if I say anything untrue, and glad to refute anyone else who might speak untruly; but just as glad, mind you, to be refuted as to refute, since I regard the former as the greater benefit, in proportion as it is greater benefit for oneself to be delivered from the greatest evil than to deliver some one else” (*Gorgias*, 458a).

Aristotle reflects this attitude in his conception of dialectical reason, attentive to the comparison of the multiplicity of views. The supporters of the Paradigm of Complexity appreciate this attitude. As to the pedagogical knowledge, the Aristotelian mind is available for interpreting Educational Sciences.

3.3. Pedagogical consequences

Aristotle discusses the problem of *being* and of *the knowledge of being*. This is very important from the pedagogical point of view, according to which education regards concrete human activities allowing human beings to reach freedom, i.e. moral responsibility. The Stagirite starts from the ancient philosophers and underlines that they were not able to explain clearly the movement of living beings, particularly in the case of Pitagorism (cfr. *Metaphysics*, I, 8, 990a 5-10). Aristotle especially rejects the interpretation of being as a genus, because differences are also supposed to exist. He says:

“it is impossible for either Unity or Being to be one genus of existing things. For there must *be* differentiae of each genus, and each differentia must be *one*; but it is impossible either for the species of the genus to be predicated of the specific differentiae, or for the genus to be predicated without its species. Hence if Unity or Being is a genus, there will be no differentia” (*Metaphysics*, p. 119; III, 3, 998b 20-30).

If the being were a genus, every difference would be destroyed and the variety of beings in the world would be mere appearance. But the Stagirite rejects this Platonic doctrine and offers the key to interpret the concrete world combining unity and multiplicity.

This idea is very important, because Aristotle is able to conjugate unity and diversity through homonymy: “His preoccupation with homonymy –Shields (1999) emphasizes– influences his approach to almost every subject of inquiry he considers, and it clearly structures the philosophical methodology that he employs both when criticizing others and when advancing his own positive theories” (p. 3). In this way the Stagirite recognizes the singularity of each being (especially human creatures) and – at the same time – the unity of all beings: this idea –as Enrico Berti points out– arose directly from Aristotle (cfr. 1997, p. 27).

For the same reason the Aristotelian doctrine of substance is fundamental. In fact, by affirming that substance is either a “detached being” or an “individual being” (cfr. *Metaphysics*, VII, 3, 1029a 25-30) the Stagirite underlines the singularity of each human creature. Naturally this idea will be completely focused only by Christian faith through the doctrine of person, especially as St Thomas showed affirming that the human creature is an end in him/herself (cfr. *Suma de Teología*, I, q. 29, a. 4, *resp.*). The Stagirite, however, among other ancient thinkers, is very close to this idea. From the Pedagogical point of view this is very important. In fact, education is always related to each individual, but not like someone isolated, because “person” means “relation”. Nowadays the theory of complexity allows interpreting the variety of human situations with reference to the common identity of human beings.

4. Complexity, Education, Pedagogy

Over the last decades the complexity of education has been growing. This was principally due to the new Epistemological Paradigm of Educational Sciences having arisen from three perspectives:

- a) the foundation of the “Rousseau” Institute, called “School of Educational Sciences” (in Geneve), in 1912 by Claparède and Bovet;
- b) John’s Dewey studies about Pedagogy as “Educational Science”, i.e. knowledge structured in interdisciplinary form: in Dewey’s mind Pedagogy comes out of practical situations supplying the “materials”, while human sciences supply the “sources”;
- c) the publication of the *Traité des sciences pédagogiques* by Gaston Mialaret and Maurice Debesse in 1969: the degree in Educational Sciences was set up in France during the Sixties (1967): related to it, Mialaret and Debesse wanted to increase teachers’ Pedagogical training.

The sources of these perspectives are not the same. Claparède and Bovet drew inspiration from Positivism; in fact, in his *Autobiography* Claparède (n.d.) follows the “scientific spirit”

of Positivism connoted by “no prejudices on principles” (p. 30). On the other hand Dewey looks at Modern times, especially at the technological society and democratic challenge in industrial countries. Finally Debesse and Mialaret reflect about teachers from a scientific perspective (especially from the Psychological point of view).

Nonetheless, common ground can be found among these authors: they know a little about metaphysics, in particular the Aristotelian one. In 1921 Jean Piaget was appointed director of the “Rousseau” Institute. With regard to metaphysics, he says (1965) that this kind of knowledge allows us to achieve more “wisdom” than “science”: it’s the same idea of Kant losing credibility to metaphysics as science. About Aristotle, in particular, Piaget doesn’t seem to appreciate his new perspectives, different from the Platonic ones. Piaget doesn’t realize either that Aristotelian metaphysics is related to concrete experience or that the Stagirite emphasizes the acting attitude of the human being when he describes the Psychological complexity of human action in *The Nicomachean Ethics*.

Dewey (1920) too is opposed to metaphysics knowledge. He isn’t aware of Aristotle’s original thought in regard to the Platonic philosophy; in fact he says: “When Aristotle criticized the theory of Ideas of his master, Plato, by saying that the Ideas were after all only things of sense eternalized [...], is it not possible to say of Aristotle’s Forms just what he said of Plato’s Ideas?” (p. 105). No, it isn’t possible: Aristotle rejects Plato’s abstract idea of truth; he places side by side theoretical and practical truth making credible the concrete experience, but Dewey doesn’t appreciate it.

Mialaret and Debesse, finally, refer to philosophy more than Dewey, but in the historical volume of their work there is no trace of Aristotle’s metaphysics or anthropology or psychology. They aren’t interested in Aristotelian philosophy either.

Nowadays the Paradigm of Educational Sciences is overused; still everybody recognises the problem of fragmentation in pedagogical sciences. In Italy, for example, authors differently oriented say the same thing. From the metaphysical point of view, Vico (2002) affirms:

“Today, pedagogical knowledge is included in ‘Educational Sciences’ (...). But there is the problem of avoiding the blow to the unity and completeness of the educational processes. New perspectives were opened by the multiplicity of sectional interests through more precise and specific studies but what a mess!” (p. 88);

From a critical point of view toward Metaphysics, Fadda (2002) says:

“introducing other disciplines in Pedagogy would have meant to promote educational knowledge but it happened that confusion grew, Pedagogical knowledge disappeared and it was no longer necessary to safeguard the specificity and identity of Pedagogy according to the unity and multiplicity of approaches” (p. 186).

That’s why we must examine again the concept of Educational Sciences. In Italy, in particular, many authors claim to consider Pedagogy as a “fundamental science” (Cambi, 1995, p. 7; Gennari & Kaiser, 2000, p. 15; Acone, 2001, pp. 59-63).

How is it possible to combine the paradigm of Educational Sciences and the necessity of Pedagogy as a “fundamental science”? Aristotle’s doctrine of the multivocity of being can suggest a relevant theoretical approach.

5. The Multivocity of Being and the Educational Sciences

Like the other ancient philosophers, Aristotle says that only eternal substances allow science in the absolute sense (*epistémē*) because the object of science is eternal (cfr. *The Nicomachean Ethics*, VI, 6, 1140b 30-35) but –unlike the others– he also acknowledges the “practical truth” (*alétheia praktiké*: cfr. *The Nicomachean Ethics*, VI, 2, 1139a 25-30). This is very important because –according to Aristotle– a science of concrete situations is also possible, even if it is less certain in comparison with the theoretical knowledge: in fact, this kind of knowledge is only sure “for the most part” (*Metaphysics*, VI, 2, 1026b 25-35). Also this theory comes from the doctrine of the multivocity of being, because it recognizes many ways to study and understand the world in accordance with the many ways to experience the world.

This doctrine is related to the one of the Primacy of Actuality, very important from the pedagogical point of view too. In fact, actuality is related to movement (cfr. *Metaphysics*, IX, 3, 1047a 30-35) and the same occurs with education. For this reason the Stagirite’s attitude is very concrete, when he affirms that the starting point of individuals is another individual, i.e. the person who gave birth to him/her (cfr. *Metaphysics*, XII, 5, 1071a 20-25). From this standpoint, Aristotle can help us understand concrete educational situations. But his philosophy is useful from another point of view too. Now the question is: “Can Aristotle’s metaphysics help us to focus the Paradigm of Educational Sciences?” I think so.

The Aristotelian doctrine of the multivocity of being combines unity and multiplicity, and seems apt to understand education, to which belongs either the individual life or the universal idea of value. It’s a complex situation, embracing many factors and in a mirror-like way many sciences. But the problem, as I said before, lies in the fragmentation of Pedagogical knowledge that doesn’t correspond to the unity of person, either from the educator’s or from the educating person’s standpoint. For this reason it is necessary to assure the unity of Pedagogy just as the unity of education.

Educational Sciences (Sociology of Education, Psychology of Education and so on) provide a significant contribution from many points of view. They are descriptive sciences; they arose during Modernity through the application of the scientific method; they have been increasing and they are still increasing the knowledge of the world, of the human being and of education, but they call for a science recognising education by itself. This kind of knowledge only depends on pedagogy as the science of education par excellence. In fact, not every kind of actions corresponds to education but only the actions leading to the explication of freedom as Morality in practice. Pedagogy is the kind of knowledge which recognises this kind of action, the same of moral behaviour: for this reason Pedagogy stands

next to the other Sciences of Education, suggesting what is peculiar to education in itself.

I think that Aristotle's doctrine of the multivocity of being can offer the key to explain this idea. Actually, Aristotle says that all that exists belongs to substance, while the other categories describe each situation from specific points of view. The Stagirite highlights the fact that the most important science is Metaphysics because it corresponds to the science "which studies Being *qua* Being, and the properties inherent in it in virtue of its own nature" (*Metaphysics*, IV, 1, 1002a 20), but he maintains that side by side there also stand the other sciences according to the multiplicity of situations referred to each category. These are real sciences, even if their objects correspond not to substance but to accidents, the accidents regarding real objects, too. In the same way Educational Sciences, corresponding to the many factors influencing education, are important to analyse education in itself but they depend on Pedagogy in order to recognise the peculiar "educational side" of things and situations. For example, the Psychology of Education analyses concrete pedagogical situations by the means provided by the modern psychological science; the same happens to Sociology of Education from the sociological point of view, and so on. But Psychology, Sociology and other human sciences can't recognise by themselves the specific "educational side" of what they are thinking about: they all need Pedagogy as the specific knowledge of education corresponding to the very idea of education. From this standpoint the Aristotelian multivocity of being is helpful. In fact, as I said before, the categories correspond to the variety of beings but each being is such because of the substance related to its concrete existence. In the Paradigm of Educational Sciences, Pedagogy is like substance in the Aristotelian doctrine, as it recognises the "educational side" of things and situations that Psychology of Education, Sociology of Education and so on investigate from their own point of view.

In this way there is no fragmentation due to Pedagogy; at the same time Pedagogy isn't enough to analyse educational objects completely. The complexity of concrete situations need a close relationship between Pedagogy and the other Educational Sciences, like there is a close relationship between substance and the other categories in Aristotle's doctrine of the multiplicity of being.■

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