

Life Concept: a debate in the light of education

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ABSTRACT – Life Concept: a debate in the light of education. Reestablishing the concept of life at the center of the epistemological discussion is essential to understanding its power and effects within a discourse that, prior to being scientific, is philosophical. In this sense, the present essay provides some insights into the concept of life by placing it in a kind of grid of intelligibility created according to authors such as Nietzsche, Bachelard, Canguilhem, Wittgenstein, Foucault, Deleuze, Guattari, and others. Thus, it is a possible epistemological approach to this concept at the interface between philosophy and the biological sciences with practical references from the field of education, where its function has been observed.

Keywords: Life Concept. Discourse about Life. Epistemology. Education. Biology.

RESUMO – O Conceito de Vida: uma discussão à luz da educação. Recolocar o conceito de vida no centro da discussão epistemológica é essencial para que se possa compreender sua potência e seus efeitos no interior de um discurso que antes de pretender ser científico, é filosófico. Nesse sentido, o presente ensaio joga luzes sobre a vida inserindo-a em uma espécie de grade de inteligibilidade construída a partir de autores como Nietzsche, Bachelard, Canguilhem, Wittgenstein, Foucault, Deleuze, Guattari entre outros. Assim, trata-se de uma aproximação epistemológica possível para esse conceito no entrecruzamento da filosofia e das ciências biológicas com referências práticas que advém do campo da educação, onde percebemos sua funcionalidade.

Palavras-chave: Conceito de Vida. Discurso sobre a Vida. Epistemologia. Educação. Biologia.

Introduction

It is impossible to have a discussion on epistemology without considering the dimension of language. When shedding light on any form of knowledge production, at different socio-historical moments, we must have a debate on concepts as linguistic elements that emerge in the sciences. These elements must be analyzed beyond a syntactic or semantic perspective, but within a pragmatic dimension in order to explore their powers.

Concepts are signs. Therefore, by revealing the multitude of existing epistemological positions in the scientific field, we can observe the conceptual features generally expressed based on what they are, or become: rubrics, labels, or tags. There is no other word strong enough to describe them within a science.

In the case of an epistemology that decides to go beyond the history of science, which is truly dedicated to studying these features, the concept/user/environment triad expresses the pragmatism of what we could call rules of the game, either of language or truth. It is based on this that we are authorized not only to express ourselves in the way we express ourselves, but also, to advance in how to understand concepts as symbolic expressions, which are thus subject to representation. It is within this game that concepts operate, at the disposal of the specific desire and goals of those who use them to produce meaning.

The present essay intends to broaden the focus on epistemology, examining it according to the power of concepts, mainly based on contributions by Friedrich Nietzsche, Gaston Bachelard, Georges Canguilhem, Ludwig Wittgenstein, Michel Foucault, Pierre Bourdieu, Gilles Deleuze, and Felix Guattari, since there is no way to consider it radically without a meeting between science and philosophy. However, there is one peculiar characteristic. In outlining the possibilities for building a general framework – a kind of grid of intelligibility founded on that which is permissible in the theories by these authors – we decided to work with a specific concept: the concept of life.

Reestablishing the concept of life at the center of the epistemological discussion is essential to understanding its power and effects within a discourse that, prior to being scientific, is philosophical. But how shall we address life within an analysis that aims to provide elements to understand its powers expressed through its conceptual features? The answer to this question can take on different degrees of complexity.

A possible answer consists of placing the concept within a determined field so that one can observe how it is used, its application, and therefore, its function. Meanwhile, the pragmatic implications should be observed, which allow the concept to functionally account for (in the terms in which it is used, understood and referenced) field agents. Ultimately, it is an analysis of how its users expose it to power-knowledge relations at the same time in which it becomes open to dispute, thus being implied in determined and distinct discourse specifications.

As an example, we will take the field of education, more specifically science education (teaching Biology), as a basis for the scientific-philosophical contributions essential not only for defining the concept or structuring the notion of life, but also in a subject/object relational dimension. In other words, it is the life that intends to be the real object of a science based on a discourse on life, that which defines what is alive and what is not alive. In this sense, biology is established as a tangible, real analysis, which emerges from within the biological field and, alone, cannot go beyond an always arbitrary delimitation of the threshold between the living and the non-living. However, it is up to philosophy to corroborate the biological discussion by presenting other powers for the construction of a grid of epistemological analysis that is more involved and, at the same time, more complete.

A Grid of Intelligibility for the Concept of Life

To make something intelligible means, apart from making it comprehensible with a number of meaning references, to make it visible and tangible from a determined perspective. This sheds light on an object by letting it emerge as such, at the same time in which criteria are defined for its emergence, the rules of the game. While there is a phenomenological dimension in the development of the object that emerges, determined conditions that make this emergence possible should not be ruled out.

In this sense, the construction of an intelligible structure for a concept, whatever it may be, is found in the nature of the epistemological activity being guided by power-knowledge relations (Foucault, 1979; 2006a). Moreover, there are many conditions of possibility that could lead us to building different grids of analysis if we consider concepts to be perpetually unfinished objects of language.

A concept is what it is because, once placed in a set of specific symbolic references, it offers us a form of intelligible representation. It then establishes a relation of meaning that is exclusive due to its contingency, but is not exclusionary. This means that every relation of meaning, established as unique due to its use of concept, while leading us to a specific function of it, does not exclude other powers, other ways to use and/or represent it. This we call polysemy.

One can say that polysemy is an expression of the power of a concept. The greater the degree of polysemy, the greater the capacity to express a determined notion based on the relation between signifier and signified, whether it is a thing or a relation. Friedrich Nietzsche would say that a power is a will to power (Nietzsche, 2011a). When the German philosopher discusses the will to power, thus, power, he alludes to Spinoza and Schopenhauer.

For Schopenhauer (2015), will is like an act, hence, an action is the expression of will, its materialization, its embodiment. Will, according to the authors, is the desire to live to the fullest, an invariable element

of the spirits, a fundamental principle of nature. Meanwhile, in Spinoza (2009), the notion of desire as the essence of man, as a will to power is expressed by distinct diseases of the body: power in action. These diseases are different types of experiences, which place the body in movement, thus, always transitions that can increase or decrease the powers related to thinking and existing.

Based on this, Nietzsche claims that the will to power cannot be separated from life itself. Life is this will to power based on games of self-perpetuation and self-intensification (Nietzsche 2011a; 2011b). Life as a form of expression of power, for the philosopher, presents multiple formations and forms of realization and, therefore, assumes a non-linear conformation (Nietzsche, 2008). Considering polysemy, we could also *distance ourselves* from the biological dimension, understanding it in terms of culture: life as a creative impulse (Nietzsche, 1996).

Gilles Deleuze and Felix Guattari (2007; 2011) discussed flows. Possible flows within a rhizomatic structure that enables life to develop according to specific agencies that are taken into consideration by those who try to approximate a definition for the concept. Therefore, this approximation always consists of a development, caused by the deterritorialization of the concept of life based on ruptures and the production of lines of flight (Deleuze; Guattari, 2007; 2011).

In Deleuze and Guattari, flows in the rhizome lines are related to desire and will. As such, one might say that these flows correspond to a certain conservation of desire. In each (de)territorialization, there is desire manifested and desire in action, an expression of will, desire materialized. Therefore, for each line of flight that is projected from different agencies of life, there is a desire for a specific development of the concept of life, a will to power. It is worth noting that this development is characterized as an expression of power, as well as a transition and movement.

From the various forms of agency of the rhizome to the n possible contingencies of the game. From Deleuze and Guattari to Ludwig Wittgenstein, the concept of life is (de)territorialized, such that the word life can be put into a language game. Therefore, being associated to a series of different situations, life acquires and produces different meanings. For Wittgenstein, the language game consists of using words as pieces. Their use, the usage of words, is contingent on and corresponds to the play that a player makes when moving his pieces in a board game (Wittgenstein, 2012). Therefore, using a concept goes through a position-taking by whoever wishes to make it work in a particular situation.

In the case of the concept of life, the word in question may mean anything from the sum of abilities or qualities that enable living things to avoid death, going through a cycle that represents the specific stages of existence of a living thing, to a series of conditions that can distinguish a living thing from a non-living thing, in this case, the line between biotic and abiotic. Regardless of the situation, one thing is true: life, when placed in the domain of language, as a concept, can present

a series of meanings confined to a space-time, having a middle and an end.

Wittgenstein and the language game are part of our understanding of human life, extraterrestrial life, the lives of couples, the lifespan of a battery, eternal life, the half-life of a chemical element or any other type of association that we can make with this concept, some other possible way that we can play. Life thus becomes a powerful noun, and in science, more specifically in Biology, the discourse built around it also takes on a qualitative nature.

There is a shift. A shift produced in the transition between two epistemes: classical and modern. When Foucault (1966), in *The Order of Things*, observes the derivation of Biology according to Natural History, he shows that it is the concept of life, the emergence of life, that marks this transition. In this case, life is no longer a unique history that can be told for each species that takes into account their specific habits and behaviors, but occupies a symbolic space that unifies common features among beings considered living.

Consequently, we see Biology as creating a specific discourse about life so that it can be labeled as a science that studies life. Whenever a professor of this discipline begins their course, one of the first things that they tend to do is delimit the field of Biology built by this discourse. It is important to notice that it does not define *the* or *a* concept for life, but outlines the line between living and non-living based on the characteristics of the former. A living being, for example, (I) has a cellular structure; (II) has its own metabolism; (III) has the ability to nourish itself; (IV) produces its own energy through processes of cellular respiration; (V) has the ability to reproduce sexually or asexually; (VI) has organic molecules, among them a genetic code susceptible to mutations; (VII) has a certain adaptability, being exposed to natural selection and to the possibility of evolution and, finally; (VIII) is able to respond to environmental stimuli.

These are some of the premises presented by Biology in building a discourse about life, which is always what can be said about living things. Therefore, it is much more the science of living things than of life itself (Ferraro, 2010; 2011). And if it is living things that express the condition for life, we might venture to say that the polysemy related to the concept of life depends on multiple performances related to each being's mode of existence, though the discourse on Biology values only regular performance, in building a general formulation for this approach.

The biological discourse thus emerges by establishing a normativity regarding specific and more recurrent performances, capable of unifying them within the general framework of the species, not only in an attempt to explain how they are related, but also their relations of proximity, their degree of relatedness when proposing to (re)build evolutionary lineages, always according to how they perform. Foucault illustrates this fact with the emergence of the term *population*, capable of

unifying the qualities and characteristics of humans around the concept of a species, which becomes defined within the issue of governmentality (Foucault 2008a; 2008b).

The term population emerges from the perception of a performing regularity that is established in human beings as a species. This can even be justified in the identity perspective regarding who one intends to govern. One must know the target of governance and describe it based on its performances, in order to elaborate specific strategies for guiding their behaviors.

In the transition from feudalism to a mercantile society, there was also a transition in the forms of government, of guiding behaviors. The feudal lord assumed a role of sovereign that no longer existed with the formation of States and the emergence of their forms of reason of state. The sovereign was the owner of the territory, organizing the life and death of the people, able *to put one to death* depending on one's will. The ruler of the State, far from being a sovereign, had to make people live, since the population needed to be cared for. Thus, statistics, case studies, and risk calculations emerged. People needed to be kept alive and there needed to be a proper circulation of people and things in the state organization. This is the task of the ruler (Foucault 2008a; 2008b). Life is made mathematical by subjecting it to a statistic rationale, to calculations, which then builds criteria for a normality that establishes parameters, the limits of what is *acceptable*.

This perspective makes governance take on a biopolitical state. Biopolitics corresponds to a set of practices extended to the government of the living (Foucault 2008b). It is about directing the living, governing them according to strategies and policies aimed at guiding their behaviors, while becoming imperative to establish practices of caring for one another and for oneself. The theme of care of the self (*epiméleia heautou*), extended to knowledge of the self (*gnôthi seautón*), is very dear to the philosophy that Foucault intended to practice (Foucault, 2006a).

In *The Hermeneutics of the Subject* (Foucault, 2006a), the French philosopher claims that being concerned with oneself constitutes a way of life. Based on this claim, still another power for the concept of life emerges, that of a concern with oneself, which should be understood as a kind of aesthetics of existence, the art of living. This topic is included in the discussion of governmentality because by choosing an aesthetic for his existence, the subject chooses modes for his governance as well as the governance of others, insofar as the way in which they exercise their (self)governing influences the way in which one relates to other subjectivities. Therefore, caring for the self becomes established as one of the ways to exercise the construction of a specific subjectivity.

The Discussion from the View of Education

Based on our analytical proposal on the concept of life, composed of perspectives from different authors and having as a backdrop the field of Education, it is possible to connect the above approach to life in the

curriculum of the discipline of Biology according to the understanding of its discourse as a science: life as the structural axis of its epistemological status. If *turning inward* becomes a strength of life itself (thus broadening the polysemy of this concept), the relation between care of the self and knowledge of the self only exists insofar as we depend on the latter in order to achieve the former. Hence, beyond justifying the existence of Biology as an academic discipline, this reinforces the importance of life as its central element, an epistemological obstacle connected to and built according to its object of study: living things.

In this sense, it is worth noting that the curriculum of the discipline of Biology offers biological discourse as a type of official, valid and, hence, scientifically endorsed knowledge of life. It is the decisive factor for outlining the aforementioned threshold between life and non-life while enabling the production of distinct forms of knowledge about life through subjectivities. This is knowledge that will infuse forms and practices with care of the self, defining types of knowledge of the self and, consequently, interpretations of the world. In other words, they are forms of power-knowledge that influence the subject's relation with the truth. Therefore, a subjective practice can be established as an experience capable of transforming the relation that the subject has with himself and with the world, from the perspective of *games of truth*, related to how knowledge is produced in a determined time and space (Foucault, 2006b; 2016).

By characterizing life for Biology as an epistemological obstacle, a term proposed by Gaston Bachelard (1996), it is not just a mere attempt to overcome it definitively (given that *life* does not have an unequivocal definition), but to add other possibilities to an approach of what else the concept of life can develop. Life will always be the theme around which Biology is organized, first because the effect of replacing it would result in a kind of epistemological exhaustion, if it were possible for us to say everything about it.

Secondly, as Biology is founded on the Biological Sciences, it is organized in such a way that would prevent this possibility. This is because each biological science (Anatomy, Biochemistry, Physiology, Genetics, Ecology, Zoology, Botany, Evolution, etc.), observes life from a specific perspective. Therefore, life as an epistemological concept or obstacle remains complex, developing within Biology, which studies parts of a body, metabolism, functions of systems, the gene pool and mechanisms of genetic inheritance, the relation between living things and the environment, the domain of animals, the domain of plants, biodiversity and the processes of natural selection, among others.

Regarding this discussion within the academic curriculum, one can say that there is life that eludes the traditional organization of Biology based on the Biological Sciences. Consequently, it is up to the professor to include this discussion in the grid of analysis within which Biology is established, so that it can be permeated by different perspectives of the Biological Sciences. Therefore, it is an outlet that takes into consideration an intrinsic analysis.

Historically, the curriculum has approached life from a consistently binary dimension, expressed not only by the (aforementioned) living/non-living relation, but also by sick/healthy and true/false relations. The emphasis on the sick/healthy relation is explored with respect to care and prophylaxis. Meanwhile, the true/false relation emerges when one wishes to place some species within some classification, or if one intends to define the determinants of biological processes, such as, for example: things that use and things that do not use photosynthesis, things that reproduce sexually or asexually, things that breathe aerobically or anaerobically, etc. It is precisely this binary nature in which a considerable number of conceptual errors occur, restricting specific processes to determined groups, such as, linking photosynthesis only to plants or heterotrophic nutrition only to animals, among others.

Thinking about that which falls outside the organization of the Biological discourse expressed by the curriculum, means thinking about how a discussion on issues of gender, for example, can be conducted within the scope of Biology, dispelling the belief that biological sex determines not only gender, but the way to exercise sexuality. Judith Butler (2007) corroborates this by illustrating that gender, as well as sexuality, are constructions and that both attend to an order of performance. And how does this problem fit into the discipline? The answer is not entirely complex. By offering other types of knowledge based on other theoretical perspectives to which biological knowledge may be anchored, we contribute new forms and possible conditions for producing new/other knowledge. This offers to subjectivities other ways of relating to the world, constituting new ethical perspectives for the self and, therefore, other forms of truth.

The difficulty that emerges at the origin of the discussion is related to the male/female binary reinforced by the gene expression of the sex chromosomes in the development of the male or female reproductive system. It happens that Biology, in the case of professors of the academic discipline, cannot keep silencing life, setting aside the performing perspective of a multiple and potent body in detriment to a sick, anatomic and/or simply physiological body. If a Biology class is traditional, disciplines such as Art or Physical Education, in general, are also important in revealing the powers of the body and, therefore, it is important to demonstrate that there is also life outside, and long before, Biology. It is possible to continue this conceptual exploration, and increase its power, beyond the discourse of Biology. Therefore, the structure of the grid of intelligibility is broadened to consider the concept of life from the view of other fields of knowledge.

And this is what makes the epistemology that Georges Canguilhem (2005; 2012) proposed to do possible. For Canguilhem, the concept of epistemology cannot be restricted only to knowledge produced during a determined period nor should its object be confused with that of the History of Science as a field of knowledge. The history of sciences is the product of a linear and factual organization of knowledge that operates on a descriptive logic. Meanwhile, epistemology accounts for

a historical philosophy of sciences, allowing epistemologists to not be concerned with starting from some origin, but focusing their attention on the past in order to understand elements that justify the present (Canguilhem, 2005; 2012).

Therefore, this is not about building a history of the concept of life, but about understanding how, over the course of history, the same word has had different applications or meanings (see the study on the application of the term reflex, in different fields of knowledge, illustrated by Canguilhem), which led to the emergence of specific conditions of possibility for a stronger understanding of what life is, or what it can develop, nowadays (Canguilhem, 2012).

In this sense, by addressing this concept, we can say that the biological discourse present in the epistemological stance of Biology is one of the possible ways of including the concept of life within language, indicating a form of representation specific to this science. By allowing knowledge from other fields of study to join the discourse specific to Biology, all the developments for this concept are added to this general framework of possibilities about life.

We see in this process an understanding of episteme in Canguilhem. For him, epistemology reflects the possibility of establishing a series of relations that connect the different kinds of discourse of a determined concept in different periods of time. It is not about looking at continuity and creating a conceptual narrative, but the opposite. The epistemology of Georges Canguilhem wants to look at discontinuity, ruptures, accidents from the past, in order to understand the present (Canguilhem, 2012).

Therefore, the entire concept (in this case, life) has the potential to align with different discourses, while the role of epistemologists is to build possible connections between them. It is always an event that enables a concept to be aligned with different scientific fields. In this discursive agency between different fields of knowledge, something always remains (there is talk of a game of vestiges), even if for this transition some type of rupture is fostered (Canguilhem, 2005; 2012; Machado, 2006). The only requirement related to applying the concept of life, implied within Biology or not, is the idea of a cycle that has a beginning and end. Between these two moments, the will to power remains. This is what remains of this concept, regardless of how and where it is applied.

Based on Canguilhem, one can refer to the archeological proposal by Michel Foucault (2007) in *The Archaeology of Knowledge*. Foucauldian archeology intends to establish different kinds of conceptual relations on a level of knowledge. By challenging science, it does so according to different rationales. Therefore, Biology, in turn, is established by examining life as an event, which is materialized as its own object in different time periods within the biological discourse. For example, the current discourse on life excludes viruses from the condition of living things. Viruses present some qualities of the living, but since they do

not meet all the conditions of what was delimited and/or defined as being life, they are not considered living. On the other hand, current theories that try to explain the origin of life in the cell speculate that viruses and cells may share a common ancestor, or that viruses, due to their simpler structural complexity, may have given rise to the first cells (Nasir; Caetano-Anollés, 2015; Harish et al., 2016). In this second perspective, the forms of primitive life originated from non-life, which would not rule out abiogenesis as the initial kick-start of evolution, representing a kind of original paradox for life on Earth, a rupture in the understanding of what is alive.

Moreover, this discussion constantly refers to what is learned in school. When a professor explains that viruses do not share all the requirements presented in the biological discourse and that, consequently, cannot be considered living, by this logic, students start to perceive within science that the game of conventions – which is nothing more than a game of truth – is the result of a series of power-knowledge relations, which illustrates discourse as a normative element. Pierre Bourdieu (2004) previously established the concept of field as a territory of struggles and disputes, where subjects, upon participating in these relations, find specific means for engagement within it. This shows that archeology as a *method*, as a mode of action in Foucault, enables the existence of his genealogical proposal inspired by Nietzsche (1987), as an analysis of struggles, tension and asymmetry established, in this case, by the games of power and truth.

It is also important to highlight that the power of a determined discourse that regulates the epistemological conditions for the existence, use and functions of a concept, can only be challenged if one first challenges the forms of knowledge production that gave it, more than an origin, but a certain autonomy of forces. This corroborates the fact that the history of science always operates on a smooth surface, but only when we “dig” and shed light on the different levels of knowledge do we determine the discontinuity and the power of its events that in Foucault, upon being documented, are addressed as monuments to be used for understanding the present (Foucault, 2007).

When considering this perspective, what type of monument could be erected for the concept of life based on the curriculum? The answer is: as long as no attention is duly given to the concept in professor planning, making it so that students focus on issues of the internal organization of biological epistemology, none. Everything about life will be treated like a mere document, without greater contextualizations, if the discussion in school remains rooted in traditional methodologies. Biology will thus continue to be limited to a utilitarian dimension, with its powers reduced to a superficial knowledge of living things. In other words, understanding each of its discursive premises as a historically-constructed element, that is, as a document of a time period, resulting from knowledge-power relations, would lead us to a developing, non-static, always unfinished, monument about life, which would always make it more interesting, and hence, powerful, to students.

The grid of intelligibility would not arise from the monuments at first, but, prior to this, from an association between documents. These documents constantly (re)new monumental forms and dimensions. This is exactly what happens with Biology as a science. The discoveries within each biological science confer a certain plasticity to the biological discourse. If it were a monument, its aesthetic would be a mixture of ode to Apollo and Dionysus, referring us to Nietzsche (2007) in *The Birth of Tragedy*. The Apollonian would be every type of representation or reference to scientific organization. While the Dionysian would represent the powers and multiplicities that confer a non-static or metric and, consequently, unlimited condition for the development of life, in its relation to the truth, which also includes the enjoyment of life and possible forms for its aestheticization.

When questioning how much Biology could contribute to the production of subjectivities, which can be related in multiple ways, considering distinct possible realities, what is relevant in understanding possible *subject-reality* agencies that are not mediated by an existential condition and, consequently, by life?

In this sense, the biological sciences could provide their knowledge towards training that would enable subjects to participate in discussions on particularly controversial topics, such as the legalization of abortion, for example, regarding when life begins. We see that as the reach of the epistemological potential of Biology expands, it increasingly makes Philosophy indispensable. Biological knowledge can only move into the legal dimension, in this case, with philosophical mediation.

By proposing a possible epistemology for the concept of life, we attempted to examine it according to historical-philosophical contributions from certain authors and, to the extent possible, discuss its possibilities in the field of Education. The educational endeavor related to life within the hard sciences is the responsibility of Biology as an academic discipline that uses Physics, Chemistry, and Mathematics as tools for understanding how it operates and understanding biological processes in context, transposing them didactically. The academic discipline is one of the devices that mediates the discursive transition between scientific and pedagogical fields.

Highlighting life in this way means emphasizing not only the importance of there being a specific science for living things, which can be taught, but it is precisely in the universe of Education that the function of this concept emerges through the possibility of producing meaning and (re)definitions. Therefore, beyond an epistemological reflection, the present essay extends its contributions to the professorship, which makes efforts to infuse other meanings to its classes, suggesting a repositioning of the concept of life in a perspective that is broader, guided by history, as well as connected to other sciences, made dynamic by philosophical thought.

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