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Reflections on Philosophy and Sociology of Education: A Paradigmatology Approach

Reflexiones filosóficas y sociológicas de la educación: un abordaje paradigmatológico

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Abstract

The philosophical reflections of this article aim to study the epistemological and paradigmatic problems inherent in the processes of educational transformation. The study combines the transdisciplinary methodology with Complexity Theory to organize knowledge horizontally, without hierarchizing the different epistemes that co-exist in the same space-time. From this epistemological perspective, research shows that individuals know, think, and act according to the cultural paradigms inscribed in them. Hence the need to create a liberating education that sows seeds of human emancipation in the 21st century. In this sense, the work analyzes paradigmatic constraints that transcend human training through the study of our human relationships and social role of education in the social and natural environment. Sustainable development requires reorienting our models of life within the biophysical limits of nature, without compromising ecosystem regeneration neither a dignity development of our next generations. This is an investigation that aims to contribute to the debate between philosophy and sociology of education through co-evolutionary vision that integrates the human being in his cosmic and earthly context. As a result, it is discussed philosophically about the paradigmatic conditions that occur in the field of sociology of education. In conclusion, it is argued that education represents a paradigmatic transformation tool when it is promoted an ecology of knowledge that combines scientific reason with other epistemic, spiritual, religious, emotional, political, rhetorical, poetic, artistic, and philosophical aspects.

Keywords

Paradigmatology, human training, sustainability, complexity, epistemology.

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Resumen

Las reflexiones filosóficas del presente artículo tienen el objetivo principal de estudiar las problemáticas epistemológicas y paradigmáticas inherentes a los procesos de transformación educativa. En el estudio se combina la metodología transdisciplinar con la Teoría de la Complejidad para organizar el conocimiento de forma horizontal, sin jerarquizar las diferentes epistemes que co-existen en mismo espacio-tiempo. Desde esta perspectiva epistemológica, la investigación muestra que los individuos conocen, piensan y actúan según los paradigmas inscriptos culturalmente en ellos. De ahí la necesidad de crear una educación libertadora que siembre semillas de emancipación humana en el siglo XXI. En este sentido, el trabajo analiza los condicionamientos paradigmáticos que transcienden la formación humana mediante el estudio de nuestras relaciones humanas y la función social de la educación en el entorno social y natural. El desarrollo sostenible requiere reorientar nuestros modelos de vida dentro de los límites biofísicos de la naturaleza, sin comprometer su regeneración ecosistémica ni el desarrollo digno de nuestras próximas generaciones. Se trata de una investigación que pretende contribuir para el debate entre filosofía y sociología de la educación mediante una visión coevolucionista que integra al ser humano en su contexto cósmico y terrenal. Como resultado, se debate filosóficamente sobre los condicionamientos paradigmáticos que se producen en el campo de la sociología de la educación. Para concluir, se argumenta que la educación representa una herramienta de transformación paradigmática cuando promueve una ecología de saberes que combina la razón científica con otros aspectos epistémicos, espirituales, religiosos, afectivos, emocionales, políticos, retóricos, poéticos, artísticos y filosóficos.

Palabras clave

Paradigmatología, formación humana, sostenibilidad, complejidad, epistemología.

Introduction: unlearn what has been learned to relearn

In addressing the relationships of philosophy, sociology, and education from a complex and transdisciplinary epistemological approach, it is noted that the processes of human formation are paradigmatically conditioned by different phenomena that interreact-act in the psyche of individuals and in the social character of the collective imagination. In dealing with knowledge in a scientific-philosophical way, it is very difficult to find the etymological origin of words and concepts beyond the "traditional" Ancient Greece (Dussel, 2005). For centuries, modern science and philosophy have imposed Western vision as a hegemonic perspective above the rest, and that greatly hinders their own endogenous development in a multireferential way. Although other great civilizations have already preceded Greek culture, such as Mesopotamia, Egypt, or China, there is a general consensus that it is the origin of the prevailing knowledge of present-day planetary civilization.

As an illustrative example, the article "Ancient Babylonian astronomers calculated Jupiter's position from the area under a time-velocity graph" published by the astrophysicist Mathieu Ossendrijver (2016) in the journal Science, points out that the inhabitants of ancient Babylon

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already used geometric mathematical methods for astronomy to describe the movement of the planets between 350 and 50 years before Christ. This means that they were 14 centuries more advanced than European scientists, considered to date as the discoverers of this type of mathematical operations on the universe. It is urgent to denounce this phenomenon of epistemic construction that imposes Greek culture as the epistemological origin of modern science. That is why the present philosophical reflection seeks to question the sociological conditions that affect the educational processes of human formation. We cannot accept things as they are if we want to free ourselves from the paradigmatic epistemic chains that push us to consume natural resources incessantly. We need to be more aware of what we think and what we do as interconnected global citizenship to avoid reaching points of ecosystem non-return.

Achieving planetary sustainability implies a radical paradigmatic rupture of our habits, customs and routines, which implies a joint revision of the collective imaginary where all our beliefs and epistemic constructions reside. The philosophy and sociology of education have the role of transforming our reality through processes of "unlearning" the paradigmatic epistemic models culturally imposed (Collado, 2016a). We must learn to unlearn to relearn again. But what is understood by paradigm? What are the paradigmatological issues that emerge from human relationships with their environment? How do the different paradigmatic phenomena affect the educational processes? What epistemological perspectives and approaches question the problems of philosophy and the sociology of education? In the next few lines it is intended to answer these and other questions.

Paradigmatological issues of epistemic-social structures

According to the work Education and sociology published by Emile Durkheim in the early twentieth century, sociology of education is born as a science that seeks to raise the educational phenomenon beyond the pedagogical approach, implying a sociological perspective (Collado, 2017a). In this way, the sociology of education aims to study the historical constitution of educational systems and their evolution in our contemporary societies. Here lies the interest of the present work in recognizing the different paradigmatic conditioning that occurs in the constitutive processes of human formation. It is a transdisciplinary approach that addresses the exterior and interior dimensions of society, that is, the inter-

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retro-actions between the intersubjective and intrasubjective dimensions of the human being with his paradigmatic environment.

This epistemic perspective of the philosophy and sociology of education is in harmony with the thought posed by Pierre Bourdieu and Jean Claude Passeron (2009), considering the students heirs of a paradigmatic educative culture. According to these authors, the different elements inherent in the school system reproduce the same social class structures ascribed to their social paradigm. This notion of paradigm was widely discussed in science with the philosophical debates concerning the changes of thought that took place at the beginning of the twentieth century, with the formulation and development of quantum mechanics. An important trigger was The Structure of Scientific Revolutions by the philosopher and historian of science Thomas Kuhn.

According to the Kuhnian view, the scientific paradigm "represents the whole constellation of beliefs, values, techniques, etc. shared by the members of a given community" (Kuhn, 1970, p.176) to identify problems and define solutions. In other words, the paradigms are a large scientific structure that establishes theoretical and methodological criteria that allow the explanation of certain aspects of reality and, for this reason, are accepted by the majority of the members of a scientific community during a historical period. According to Kuhn, normal science corresponds to an era characterized by a paradigm where certain models and concepts that guide scientific research to create theories, in relation to a certain matter of disciplinary matrix predominate.

In this sense, his work is tinged by a marked Darwinist competition, where "paradigms gain their status because they are more successful than their competitors in solving some problems that the group of practitioners has come to recognize as acute" (Kuhn, 1970, p.. 2. 3). During the process of evolution of science arise certain problems or anomalies that lead to widespread dissatisfaction of concepts and methods that compel the scientific community to seek new theoretical referents, originating what Kuhn called paradigm crisis. Paradigmatic transformation occurs through a scientific revolution that gives rise to a revolutionary science as a counterpoint to established normal science: "In times of revolution, when the normal science tradition changes, the scientist's perception of his environment must be re-educated: in some family situations he must learn to see a new Gestalt "(Kuhn, 1970, p 112). In addition, Kuhn considers that scientific knowledge does not develop in a continuous and cumulative form, but rather the opposite. The development of science and paradigm shifts occur after discontinuous and revolutionary ruptures

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through scientific leaps that, after much discussion between the groups of a scientific community, suppose the establishment of a new paradigm that substitutes partially or totally the previous paradigm. In summary, following Kuhn's cyclic scheme (1970), science evolves through the following stages: 1) establishment of a paradigm; 2) normal science; 3) paradigm crisis; 4) scientific revolution; 5) establishment of a new paradigm.

In a way, the idea of paradigm is indisputable. We observe and understand the world through a series of scientific theories and cultural beliefs that conform a given epistemic-social paradigm. These paradigmatic epistemic structures of each society manage to frame our thinking in patterns of behavior, social norms, legal rules, economic models, religious beliefs, national identities, etc., transforming our mental schemas intrinsically to our individual worldview. Kuhn (1970) rightly states that the development of science is influenced by the contextual character of political, sociological and psychological factors. Thus, the notion of paradigm is not limited to the academic field of history of science, but can be extrapolated to other social, political, cultural, artistic, educational, religious, etc.

In fact, the term "paradigm shift" is often used in the social sciences to refer to a structural change in the values, attitudes or systems of thought that operate at different levels of a given paradigmatic structure. But if we observe with more attention we can perceive that scientific revolutions or paradigm changes do not always occur following the Kuhnian scheme of scientific evolution. In the book The myth of the common framework: in defense of science and rationality, the philosopher Karl Popper (1997) makes a very correct criticism when pointing out that Kuhn is mistaken in saying that to defend a scientific paradigm means not being able to recognize the merits of another paradigm, being unable to change from one paradigm to another, or the impossibility of adopting two paradigms simultaneously.

For the philosopher of science Paul Feyerabend (1997) there is no predominance of one paradigm or theory over another, but reality is plural and comprises several paradigmatic models where contradictory theories coexist: shaping a poly-paradigmatic reality. For medical researcher and psychologist Waldo Vieira (2003, 2008), reality is inter-paradigmatic if we take into account all para-psychic phenomena that study and address the neosciences of "conscientiology" and "projectiology" (bilocation, precognition, retro-cognition, telepathy, clairvoyance, deja vu, near death and extra-corporeal experiences). For philosophers Imre Lakatos and Alan Musgrave (1975), Kuhn's theory also suffers from a fundamen-

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tal defect, which is to explain the succession of one paradigm by another in sociological or psychological terms (gestalt), instead of relating it basically to the objective merit of rival explanations.

In this critical line, the position of the epistemologists Jean Piaget and Rolando García (1987) stands out, stating that the Kuhnian paradigm only takes into account the sociology of knowledge and not epistemology. The fundamental point of divergence with the Kuhnian perspective is the conception of continuity, both in the historical evolution of science and in the psychological development of cognitive systems (psychogenesis). For these authors the discontinuity or rupture of a certain type of thought is more an ideological and epistemological rupture that prompts the emergence of a new theoretical picture, which would characterize an epistemic paradigm and not a social paradigm, as Kuhn claims. In other words, for Piaget and García (1987) exogenous factors are those that originate the social paradigm, while the endogenous factors give rise to the epistemic paradigm: "in each historical moment and in each society a certain epistemic picture predominates, product of a social paradigm that is the origin of a new epistemic paradigm "(Piaget and García 1987: 234). According to these authors, the ideology of a society conditions the type of science that develops in it, since, from the moment a given epistemic picture is able to be constituted, it becomes impossible to dissociate the contribution of a component of that which is intrinsic to the cognitive system itself. The epistemological frame of the collective imagination begins to act as an ideology that conditions the later development of science and is only reformulated when it enters into crisis, through new epistemic referents.

Also interesting is the conceptual definition that the sociologist Edgar Morin (2001) makes about the original paradigm proposal established by Kuhn, since his epistemological approach conceives contrary concepts and theories. For Morin (2001) individuals know, think and act according to the paradigms inscribed culturally in them, since, in all systems of ideas (theories, ideologies, doctrines, beliefs, etc.), "the paradigm is hidden under logic and it selects logical operations that become at once dominant, relevant and evident under its empire (exclusion-inclusion, disjunction-conjunction, implication-negation) "(Morin 2001: 35). In this way, the paradigm manages to establish itself in the unconscious to control conscious thought and to act as a logical organizer of the nucleus of ideas that we represent through scientific theories, myths, etc. Morin's Theory of Complexity (2000) argues that the education of the future must promote seven epistemological principles to think paradigmatic complexity:

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1. *The systemic principle:* by uniting the various fragmented knowledge (parts), there is a formation of a whole with unexpected and new characteristics in relation to the knowledge that originated it. They are variables that throw new properties on both the parts as well as the whole. Therefore, the inseparable understanding of the knowledge of the parts to the knowledge of the whole causes that the whole is "more and less simultaneously" than the sum of the parts separately.
2. *The hologramatic principle* comes to show the dichotomy of the previous principle. Although the whole presents novelties in relation to the characteristics present in the parts and vice versa, one coexists in the other. The individual is a constituent part of society and is constituted by it. There is a clear dynamism in this principle: the subject acts in the social environment, builds and is influenced by him, receiving the result of his actions.
3. *The principle of retroactive cycle* says that the cause acts on the effect and it on the cause, breaking the principle of linear causality by the inclusion of the self-regulating processes. The feedback loop reduces the deviation by stabilizing the system.
4. *The principle of recursive circle* shows that the products originate what it produces, introducing the notion of self-production and self-organization. It is a generator circle where producer, production and product are coupled.
5. *The principle of self-eco-organization* is the result of a system of reproduction, by this same practice and perpetuation, recreated in the exchange with the environment, in a contiguous relationship of autonomy and dependence. Every living organization is regenerated permanently from the death of its cells. There is an autonomy as a dependency in the whole living system: "To live of death, to die of life" (Heraclitus).
6. *The dialogical principle* comes to associate conflicting and/or antagonistic ideas and notions. The dialogical between order, disorder and organization through innumerable inter-retro-actions is constitutive of the physical, biological and human world.
7. *The principle of the reintroduction of knowledge* into all knowledge is perceived by the subject on the cultural-temporal influence of local-global and global-local emergencies. It operates the restructuring of the subject and presents the central cognitive problem: all knowledge is a reconstruction of the spirit/brain in a given culture and time.

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From this Morian view it can be inferred that the paradigmatic worldview we have of the world are interpretations of the reality in which we live, which reflect, in turn, the epistemological picture that encompasses the existing social paradigms. That is to say, the introspective mode in which the processes that condition the forms of understanding and interpretation of the world are experienced and understood are at the very core of the paradigmatic beliefs of a given historical epoch (Collado, 2017b). The hegemony of a certain type of reading of reality is impregnated in our being by the fact of being circumscribed to a concrete social paradigm that acts as an epistemic-cultural referential of our inner world. That is why the philosophical and sociological debate of education must take into account the different paradigmatic levels that interreact-act in the social psyche of our hermeneutical imaginary, that is, from our personal and contemporary interpretation (Collado, 2016e).

This conceptual reflection of paradigm is fundamental to understand the processes of simultaneous control in the logical and semantic relations of a certain discourse that privileges certain types of relations to the detriment of others (Morin, 2008). This is what happens with the current cultural discourse imposed by the capitalist West, stating that all economic growth is good in itself. In fact, postulating that human quality levels are measured by a country's GDP means committing an intellectual fraud of dangerous consequences in the era of the global ecological crisis. All that we consume comes from the biophysical regeneration of nature, which no longer accounts for the resources demanded to maintain this epistemic illusion of growth.

In other words, the speed of extraction of human material and energy resources in nature is much faster than the time it takes for the Earth to regenerate. According to the scientific community, the human impact on Earth has given rise to a new geological period different from the Holocene: the Anthropocene. According to the article published by geologist Colin Waters and his team in the journal Science in 2016, the ecological footprint of our human activity has profoundly modified multiple stratigraphic processes since the second half of the twentieth century, which has led to a change of geological age. Hence the transcendental importance in philosophically discussing sustainability through a more concrete approach on the paradigmatic conditioning that occurs in the field of sociology of education.

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Paradigmatological approach to the philosophy and sociology of education

The general identification of paradigmatic conditioning in the processes of human formation encourages us to reflect in a more analytical way to complement conceptually several paradigmatic aspects of human relations with their environment. It is also necessary to reflect on the aspects that the biologist, philosopher and neurologist Francisco Varela (1996) conceives as "microworlds", that is where individuals are constituted as such in a social system where there is a recurrence in a cooperation interaction, establishing a self-consciousness Unlike other animals, humans use a large amount of energy and material resources to perform their activities in agriculture, industry, telecommunications, transportation, etc. The human impact on Earth has transcendentally changed the processes of coevolutionary organization that nature has been developing for billions of years, from the social structures derived from the Industrial Revolution (Collado, 2016b). We are at a crossroads of planetary unsustainability that requires questioning the civilizing course to which we are heading as an interconnected world-society.

From a bio-cultural point of view, the great difference that distinguishes us from other animal species is our dependence to survive from our early childhood. At birth, we absorb an epistemic, cognitive and affective modeling of our familiar cultural environment: we receive a name, a nationality, a certain language to communicate and a religious orientation, among other aspects. And this family environment is conditioned, in turn, by the political, economic, ideological, cultural, religious and linguistic structures of the society in which the family nucleus is located. That is, from our own birth we are immersed in a process of paradigmatic learning from which we can not be unlinked. Since every newborn has a vital need to develop under the protection of its parents (or equivalent), individuals are conditioned by the paradigmatic epistemic structures adjacent to the social, cultural, religious, ideological, etc. context. of their caregivers.

Hence, this natural fact is elevated to the status of international legal law, finding its maximum expression in Section 3 of Article 16 of the Universal Declaration of Human Rights: "The family is the natural and fundamental nucleus of society and has the right to the protection of society and the State ". One could say, then, that the family is the "universal cell" by which the human race acquires the first "cultural-genetic traits" (values, habits, beliefs) for the development of character and personal identity in a social and environmental. While all individuals evolve

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throughout their life, these early patterns of social behavior greatly influence their endogenous development (personal, nutritional, intellectual, affective...) and their form of interrelation-act later with the world.

In this respect, it is interesting to read the psychoanalyst and social psychologist Erich Fromm in his book The Fear of Freedom (2004), which states that "the family can be considered as a psychological agent of society" (Fromm, 2004, pp. 272). By reorienting Sigmund Freud's concept of "psychoanalysis", Fromm constructs a true social psychology which serves to understand the notions of dynamic adaptation and the social character of the human being in a given epoch, culture and social group of history. For Fromm, the central problem of psychology is the connection of the individual with the world, since the development of the human personality must be understood as an integral part of the total problem of the relations of the human being with the world. Through this relational process, Fromm considers that every individual manages to develop a unique character that distinguishes him from others, despite the ideological conditioning he receives from paradigmatic socio-cultural circumstances during the construction of his individuality.

> Social conditions exert influences on ideological phenomena through character; this, on the other hand, is not the result of a passive adaptation to social conditions, but of a dynamic adaptation that is realized on the basis of elements biologically inherent to human nature or acquired as a result of historical evolution (Fromm, 2004, pp. 282).

These considerations on human nature and historical evolution lead Fromm to focus on the social character, since it delimits the thinking, action and emotional life of individuals of a particular social order. Dynamic adaptation and social character are the elements that allow to perform a psychoanalysis of history to understand the relational aspects between structural and psychosocial phenomena. Through the historical psychoanalysis of protocapitalism, Protestant reform, Nazism and democracy, Fromm's work addresses the psychological mechanisms that structure the social character and contribute to the formation of the consciousness of the individuals of a society, as well as the way in which this consciousness manages to transform the facts that structure the social character. It is an inter-retro-active loop where "not only man is the product of history, but history is the product of man" (Fromm, 2004, p. 34).

For Fromm, the structure of the social character conditions the thoughts, the emotions and the actions of the individuals. That is why it is inferred that the pathological structures of the social character of capital-

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ism have not only provoked the systematic destruction of life and nature in the last centuries, but have also established a paradigmatic epistemic model that has conditioned both social relations and our own identity / human condition. "Man not only sells goods, but also sells himself and is considered a commodity" (Fromm, 2004, p. 127). Thus, the dynamic adaptation of individuals to the social structure originates within the social character itself, where new needs arise, anguish, etc. It is important to conceive of this epistemological vision in the field of the sociology of education in order to philosophically question the socio-educational relations of individuals-subjects.

In this line of thought lies the idea of action that the political philosopher Hannah Arendt has analyzed in depth in his work The Human Condition published in 1958. Arendt notes:

> The sphere of human affairs, strictly speaking, is formed by the web of human relationships that exists wherever men live together. The revelation of the "who" through discourse, and the establishment of a new beginning through action, always falls within the already existing plot where its immediate consequences can be felt. Together they initiate a new process that in the end emerges as the only story of the newcomer's life, which only affects the vital histories of those who come in contact with him. Because of this already existing web of human relations, with its innumerable and conflicting wills and intentions, action always accomplishes its purpose (Arendt 1998: 207).

Through the notion of *action*, Arendt states that the birth of an individual means the possibility of generating a new beginning, where the individual must shape his world in relation to the world of other people. In this way, birth simultaneously found renewal and radical contingency for the change of paradigms. In his work shows a distinction of the active vita of the human condition in three fundamental activities: labor, work and action. As for labor, Arendt (1998) understands it as the human activity that corresponds to the biological process of the human body. Work is the activity that corresponds to the artificiality of human existence in relation to natural environments. And action is the only activity that develops directly among people without a mediation of things or matter.

The crucial point of Arendt's thought is that action exposes our unique and distinct character, since individuals are not interminable repetitions that reproduce from the same model (as in industrial production). "Through action and discourse, men [and women] show who they are, actively reveal their unique personal identity and make their appearance in the human world" (Arendt 1998: 203). It is through action that we succeed

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in revealing our personal identities as unique and plural. This is why Arendt (1998, p. 200) emphasizes that "human plurality, the basic condition of both action and discourse, has the dual character of equality and distinction." Thus the concept of action proposed by Arendt reveals a recognition of the complexity to become a presence through alterity, which is a fundamental aspect of human plurality in his community. It can be inferred that by acting and speaking together, human plurality occurs as a condition of all forms of political, social and cultural organization.

This complexity of acting and speaking together is also developed in the concept of "communicative action" created by the philosopher and sociologist Jürgen Habermas in his Theory of Communicative Action of 1981. In order to develop his critical theory of advanced capitalist society, Habermas (1997) makes use of the philosophy of language to establish what he calls universal synonyms of speech, which are the assumptions of intelligibility, truth, rectitude and truthfulness. Through these assumptions, language becomes the vehicle of communication that gives us the possibility of agreeing rules of behavior to walk towards historical progress. For Habermas communicative action is established in those social contexts whose objective is the mutual understanding between the members of a community. That is why the debate on philosophy and sociology of education should extend its "range of action" and go beyond formal education to emotionally and ecologically alphabetize other members of the social community (adults, media, policy makers, etc.) through a collaborative communicative action that provides an integral vision of contemporary socioecological problems (Collado, 2016e).

In this social and epistemic context, where individuals become a presence in mutual understanding with the other members, the notion of "ethical space" that Emmanuel Lévinas (1991) introduces in his work Ethics and Infinity is interesting. Influenced by Husserl's transcendental phenomenology and Heidegger's hermeneutic and existentialist thought, his book is a systematic research that addresses the relationship of the "I" to the "other," both in its dimension of temporality and in the dimension of transcendence with the others. It is a work characterized by the infinite ethical relationship of responsibility for the other, where Lévinas (1991) argues that this responsibility towards the other has its roots within our own subjective construction:

> The Self is the point that supports the gravity of the world, which in the being undoes the work of being, imperturbable and without exemption. To be cursed against oneself, he is the non-being of being. Not nothing, since that undo is ambiguous or "mixed" or beyond being.

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> It is not because among beings there exists a thinking being structured as I, pursuing some ends, so that being acquires a meaning and becomes a world; it is because in the proximity of being inscribes the imprint of an absence - or of the Infinite - so there is abandonment, gravity, responsibility, obsession and the slef. The non-exchangeable par excellence - the I - is, in a world without play, what, in a permanent sacrifice, replaces the others and transcends the world. But it is the source of speech, for it is the essence of communication (Lévinas 1991: 94).

Similarly to Arendt, Lévinas reasons that this subjective construction of the "self" is the sum of all the encounters it has in the intersubjective space common to the other members of its community. Hence the social dimension of the ethical space through which the individual develops the individual identity is conditioned by the intersubjective space, insofar as it meets the space of the other. That is, the subject becomes a presence through a feedback loop with other subjects, where it acts as conditioning and conditioned in the same ethical space. In this way, Lévinas considers that our existence is transmitted by the word, and therefore, knowledge represents a strategy of appropriation and domination in human relations. This means that education entails "transcendental violence" in the student's sovereignty, as the "deconstructive" philosopher Jacques Derrida (1978) states, since, as educational agents, it is inferred in the students' lives in a profound, transformative way and even disturbing.

For this reason, the study of the sociology of education should promote a learning of the ontological condition of the human race at all its constituent levels, taking into account its existential interdependence with all other entities of nature and the universe. "I" am who I am by relationship with all "others". If others pollute the environment, I also suffer the consequences. If others die of hunger, poverty and starvation, I die with them, because "responsibility is what, in an exclusive way, belongs to me and that, 'humanly', I cannot refuse. That burden is a supreme dignity of the one. I am not interchangeable, it is I in the sole measure in which I am responsible "(Lévinas, 1991, pp. 95-96). The inalienable identity of the subject makes us ethically responsible to the infinite with the current problematic paradigms. According to the Russian philosopher Fyodor Dostoevsky (apud Lévinas, 1991: 96): "We are all responsible for everything and everyone before all, and I more than all others." With this reasoning, the problems of planetary unsustainability require a "cosmodern consciousness" shared by all world citizens in their unity as individual-society-species (Collado, 2016c). Cosmodern consciousness constitutes an ecology of transdisciplinary knowledge with the objective of integrating scientific and non-scientific knowledge (arts, spirituality, ancestral worldviews and others).

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In this line of thought is the Brazilian educator Paulo Freire, committed to the life, existence and liberation of human consciousness. Paulo Freire's Method of Awareness raises a critical pedagogy through a problematizing education with the paradigmatic processes of domination of a society, to promote a dialogical cultural action that results in a "cultural revolution". Through literacy, the Freirean method promotes "limit situations" to stimulate a critical understanding of social, political, educational and economic reality. For Freire (1971, 1997) contemporary societies are governed by economic interests (of multinationals, plutocratic political classes, dominant nations, power groups, etc.) who carry out various mechanisms of domination in the consciousness of individuals through different cultural structural dynamics.

The pedagogical proposal of Freire (1971) is based on two parts: 1) the awareness of the reality that the individual lives, as being oppressed subject to the paradigmatic structures that the oppressors impose; and 2) the initiative of individuals to fight and free themselves from that contextual status that oppresses them. In this sense, the Brazilian critic points out that "education as a practice of freedom, unlike that which is the practice of domination, implies the negation of the abstract, isolated, detached man, disconnected from the world, as well as the denial of the world as a reality absent from men "(Freire 1971: 78). In this reflexive way, Freire believes that the school is an instrument of domination controlled by the classes that hold power: "the banking conception of education aims to transform the minds of individuals so that they adapt better to real situations and thus to dominate them more easily "(Freire 1971: 6). Oppression takes place in the "domesticating" teaching-learning processes of schools, where knowledge is fragmented by disciplinary specialties and "deposited" unidirectionally in students. On the other hand, his critical pedagogy places special emphasis on the dialogue between teachers and students, since the articulating words and pedagogy of the question generate a new type of knowledge necessary for the awareness and liberation of the oppressed. That is to say, in order to reach the consciousness of the situation of the oppressed one must reflect dialogically on the daily experiences and acquire theoretical and cultural elements in a process of permanent education that will lead to act on this reality.

In other words, in the Freirean method, literacy is intrinsic to the act of conscientization of individuals, since reading the word implies the reading of the world. Therefore, the act of raising awareness is closely related to liberation through human praxis, "which implies the action and reflection of men on the world to transform it" (Freire 1971: 75). It is in

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this sense of praxis and educational action that Freire considers that any person without awareness will be a culturally invaded person who will fold up before the invader and will be alienated to a marginal subculture that will transcendentally condition him. The Brazilian thinker argues that the invention of the possibility of liberation lies in the human being's capacity for perception as an unfinished, conditioned and historical cultural being: "culture marks the appearance of man in the long process of cosmic evolution. The human essence takes on self-discovering itself as history "(Freire 1971: 22). This historical consciousness is what makes it possible for the human race to write its own history through the political action of paradigmatic transformation of the world.

For this reason, it is possible to reflect that the praxis of the sociology of education must be constituted as a tool that problematizes with the experiences of the students themselves, questioning if they are sustainable and help reach the horizons proposed by the philosophy of good living. The dialogical interaction between subjects is one of the Freirean keys to transgress the paradigmatic power relations. That is why educators must create a climate of trust among the subjects to provoke a deep dialogue that promotes the development of a critical consciousness capable of transforming the current planetary culture of unbridled consumption and production. This implies paradigmatically reformulating the colonial relationship that humans exert on nature, but also on us, since Freire's thinking is based on the strategy of the marginal classes defying the powerful classes to achieve a cosmopolitan world oriented towards social justice and equality.

This paradigmatic reformulation of the relations between individuals to the social structure is also approached from a cosmopolitan point of view by the specialist in law and ethics Martha Nussbaum (1999), in his essay Patriotism and cosmopolitanism. Cosmopolitanism is a philosophical current that has its roots in the Stoic tradition and is characterized by replacing the central role of the polis in the ancient political thought by the cosmos, where humanity lives in peace and harmony. In a similar way to the concept of cosmopolitan law of the German philosopher Immanuel Kant, Nussbaum (1999) considers that the political and educational systems favor the reproduction of the national character of each country, making a weak approximation to the cosmopolitan perspective that is reduced to the teaching of a common commitment among nations to the fulfillment of basic human rights. Hence the author herself asks the following questions:

> But is it enough? Is it enough for our students to learn that, above all, they are citizens of the United States, although they must respect the ba-

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> sic human rights of the citizens of India, Bolivia, Nigeria and Norway? Or should they, as I see it, as well as pay special attention to the history and current situation of their own nation, to learn a great deal more than they do about the rest of the world in which they live, Nigeria and Norway, as well as their respective histories, problems and comparative successes? Should they only learn that Indian citizens have equal basic human rights, or should they also know something about the problems of hunger and pollution in India, as well as the implications of these problems on global hunger and ecology? And most important of all, should they be taught that, above all, they are citizens of the United States, or rather should be taught that, beyond that, they are citizens of a world of human beings and that, although they are located in the United States, they have to share this world with the citizens of other countries? (Nussbaum, 1999, pp. 16-17).

Nussbaum acknowledges that her approach to all these issues is motivated by the experience gained by working on quality of life issues at the international level in an institute for economic development linked to the United Nations. She argues for four reasons to make global citizenship embrace a commitment encompassing the whole community of human beings: 1) Cosmopolitan education enables us to learn more about ourselves, for "if we look at ourselves with the eyes of the other, we will see what in our practices there is local and non-essential, as well as what is more widely and deeply shared "(Nussbaum 1999: 22). 2) We move forward by solving problems that require international cooperation, so intergovernmental planning, global knowledge and the recognition of a shared future are necessary, since ecological problems do not understand national boundaries. 3) We recognize moral obligations to the rest of the world that are real and would otherwise go unnoticed, "if we truly believe that all human beings are created equal and have certain inalienable rights, we have a moral obligation to think what is that this idea requires us to do with and for the rest of the world "(Nussbaum 1999: 24). 4) We elaborate solid and coherent arguments based on the distinctions that we are ready to defend, "the very question of multicultural respect within a nation is weakened by not making education contemplate, as one of its central elements, respect to a broader world "(Nussbaum, 1999, p.26) beyond national boundaries.

In contrast to this cosmopolitan perspective, political philosopher Andrew Dobson (2003: 33) argues that "while globalization and feminism provide the context for post-cosmopolitan citizenship, there is a phenomenon that gives rise to its articulation more environmental policies. " In this sense, Dobson argues that in order to better understand the nature

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of the contemporary debates of citizenship in general, and of "ecological citizenship" in particular, we must think in terms of four contrasts: rights and obligations; territorial and non-territorial conceptions of citizenship; public and private spaces as possible sites of civic activity; and the virtue (and not virtue) that corresponds to the ideas of citizenship.

According to Dobson, the space of ecological citizenship "is not something given by the boundaries of nation states or supranational organizations such as the European Union, or even by an imaginary territory of the cosmopolis. It is rather produced by the metabolic and material relationship of individual people to their environment "(Dobson, 2003, p.106). Ideally, the strong ecological footprint of daily human activity in the current globalization period has meant that the concept of ecological citizenship has transgressed the conception of traditional national citizenship of nation-states. Its post-cosmopolitan approach to ecological citizenship is closely linked to the rights of nature and the rights of future generations, not forgetting that "material production and reproduction of everyday life [develops] in an unequal and asymmetric globalized world. "(Dobson 2003: 30), where people in rich countries consume far more natural resources than those in poor countries.

In the face of this panorama of global inequality, Manuel Castells, a sociologist who specializes in research in the information, communication and globalization society, points out that from "a global approach, there has been, in the last three decades, an increase in inequality and the polarization in the distribution of wealth "(Castells, 2001, p.351). It seems that the decisive historical factor for this acceleration of social inequalities has been the process of capitalist restructuring undertaken since the 1980s, where the new techno-economic system gave rise to the paradigm of current information technology: "informational capitalism". While it is true that since the emergence of the internet the least developed countries have integrated productively into the networks of the global economy, there are still billions of people disconnected to those networks that fully incorporated them.

According to Castells and Cardoso (2005: 19), "the global segmentation of the network society, precisely because of its dynamism and productivity, is positioning a significant part of the human being under conditions of structural irrelevance." This seems to indicate that the global economy and network society work more effectively without hundreds of millions of our co-inhabitants on this planet. This circumstance reveals the social pathology of the capitalist system. The correction for this massive process of social exclusion requires an approach focused on epistemologi-

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cal, social, political, economic and educational paradigms to understand the complexity of the contradictory dynamics of global markets and local identities. This is a great epistemological key not to fall into reductionism or cultural homogenization in the teaching-learning processes, since there are no magic formulas that are universally extrapolable from one context to another. All sociological experience must be constantly created and recreated based on the specific problems of each educational context.

Faced with these contradictory dynamics that produce great global asymmetries, the sociologist Zygmunt Bauman suggests in his work Globalization: the human consequences that we are in the so-called liquid modernity. "There is a tremendous advantage enjoyed by the new global elite in confronting the guardians of order: orders are local, while the elite and the free market laws that obey it are translocal," explains Bauman (1999, 133-134), adding that "if the guardians of a local order become too intrusive and infamous, there is always the possibility of appealing to global laws to change local concepts of order and the rules of the game premises" (Bauman, 1999, pp. 133-134). This possibility of changing the rules of the local game that have the translocal groups hierarchical of paradigmatic form the freedom of movements, the social promotion and the progress of the developing countries.

Increasingly, the globality implanted by translocal elites makes the locality a spatial dimension with fewer opportunities, since "global financial markets impose their laws and precepts on the planet. Globalization is nothing more than the totalitarian extension of its logic to all aspects of life "(Bauman 1999: 73). Under this logic also the educational processes of formal schooling towards the economic interests of the world elites are dragged. The sociological processes of education are subordinated to the capitalist logic of the globalizing economic market. For this reason, it is urgent to take into account different psychological, philosophical, sociological, pedagogical, epistemic, economic, political and environmental approaches and perspectives that denounce the paradigmatic dominance of the globalizing economic markets of our planetary civilization. But what is the role of education to transform our everyday reality? Some conclusions are made below.

Final conclusions: education as a tool of paradigmatic transformation

As we have been reflecting throughout the article, education has a fundamental role to achieve sustainable development on our planet Earth. Edu-

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cation is conceived as a seed to be cultivated for our present and future flowering. It is a tool of epistemic and socioecological transformation that UNESCO (2002, p.7) recognizes from its own constitution in 1945, which states that "the widespread diffusion of culture and education of humanity for justice, freedom and peace are indispensable to the dignity of man and constitute a sacred duty which all nations must fulfill in a spirit of responsibility and mutual help." Since then, the numerous events, congresses, forums and conferences that UNESCO has been carrying out with its partners have served to expand, develop and concretize the educational sphere from different anthropocentric and ecocentric approaches.

But achieving sustainable development implies a comprehensive vision that includes the human being within the co-evolutionary processes of the Great History, which integrate and unify the history of the universe, the Earth, life and the human being (Collado, 2016b). "Sustainability is not only a problem among us," explains environmental educator María Novo (2009, p. 368), "it is also a very serious problem in our relations with the biosphere, in the way we appropriate resources, exploit nature, manage common goods, consider the limits of ecosystems... ". The horizon of planetary sustainability will only be possible if we manage to reorient our models of life within the biophysical limits of nature, without compromising neither their ecosystemic regeneration nor the development worthy of our next generations.

It is urgent to transform the predatory patterns and behaviors that the human race exerts on our planet, as well as the unequal processes of wealth distribution that only benefit a minority of world citizens. For this reason, the identification of the paradigmatic problems that condition the processes of human formation allow us to develop a transdisciplinary vision in the field of the sociology of education (Collado, 2016d). Since its appearance on Earth some 200,000 years ago, the modern human being has had to learn to cooperate to survive physically, mentally, spiritually and emotionally, so he has had to learn during his evolutionary journey to share food, take care of their predecessors, transmit knowledge, live sexually, etc. These primitive social interactions were favored by the emergence of language, which gave rise to a conversational space of consensual behaviors for mutual acceptance. For most of the human evolutionary history, non-formal and informal education has predominated in all the peoples of the Earth.

At present, many native indigenous peoples still continue forming people through a "bio-literate look" that has lasted for thousands of years. Far from educating them to be submissive workers of a globalizing

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economic system that tends toward the homogenization of cultural diversity and that ends up with a great part of the biodiversity, the human formation that develops between native and native aboriginal peoples is focused on strengthening the bonds and the relationships between the human being and nature. That is why the United Nations Declaration on the Rights of Indigenous Peoples (2007, p. 2) recognizes that "respect for traditional indigenous knowledge, cultures and practices contributes to sustainable and equitable development and to the proper management of the environment". As a whole, all the worldviews of the original peoples are a good example of sustainable and resilient development, both for their excellent socioecological practices and for their long historical journey practicing them. While one cannot fall into its romantic ideation of this human community, its rich epistemic multi-referentiality is in full harmony with the limits and co-evolutionary margins that natural ecosystems establish in a self-organizing way.

In 2009, as a result of this harmony with nature, the UN General Assembly proclaimed April 22 as the "International Mother Earth Day". Since then, the UN General Secretariat has been publishing annually a resolution on Harmony with Nature to recognize the Earth and its ecosystems as our common home, so that Member States achieve a fair balance between economic, social needs and environmental issues in present and future generations. For this reason, we must face the paradigmatic crossroads of climate change from a "knowledge ecology" (Santos, 2010) that develops and enhances all human dimensions through a transdisciplinary organization of knowledge that combines scientific reason with other epistemic, spiritual, religious, affective, emotional, political, rhetorical, poetic, artistic and philosophical reasons (Collado, 2016c). Undoubtedly, dialogue with indigenous and aboriginal wisdom will allow us to develop more resilient epistemological horizons.

When this multireferential and transdisciplinary perspective is adopted, education becomes an epistemic tool that seeks the individual development of people within a vast network of relationships with other human beings, but also with nature and the cosmos. That is why theoretical models that reduce sustainable development in three dimensions (economic, social and ecological) are insufficient to address the intrinsic complexity of the interdependent network of systems that interconnect at different levels of ontological reality. This is the epistemic point of departure for creating a sociological vision of education that is holistic and transdimensional, with the intention of reinforcing the ties with the processes of planetary sustainability.

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Philosophically reflecting on the sociology of education entails rethinking the paradigmatic structures of individuals in their specific contexts. In reflecting on the historical origin of our educational systems, education is conceived as a double-edged sword: it can be both a way of aggravating socio-ecological problems and an instrument of change that helps us to solve them. "It is necessary to accept that, among the many possible positions, the educational apparatus can align itself, and in fact it does, in favor of the reproduction of an unjust world, the slogans of those who handle the economy, the positions of privilege "Explains María Novo (2009: 353)," education is an important part of the problem, it is at the root of unsustainability, and we can expect nothing more from it than the social reproduction of the discourse of the powerful." From a historical point of view, the ideological discourse created by the power groups during Modernity has used educational knowledge to establish a series of behaviors, norms and actions that have served to structure hierarchically the modern societies of the West.

Individuals have been learning and internalized the order and hierarchy imposed by the dominant classes through the formalized educational processes of the public system. In this sense, the social philosopher and theoretician Michel Foucault (2007: 44) also argues that "every education system is a political way of maintaining or modifying the appropriation of discourses, with the knowledge and the powers they bring with it". Therefore, power and knowledge are two complex areas inseparable from the same sociological and educational process where discourse, ideology, content, forms of relationship between teachers and learners, textbook, etc. are established. Hence the impact of the formal education system cannot be considered neutral since all these elements of power and knowledge harbor the ability to epistemically colonize individuals in order to sustain the purposes of economic fundamentalism and its competitive market values. But they also have the potential to develop a complex thinking that relates the whole to the systemic parts, in order to create alternatives oriented to a transnational sustainable cooperation that transforms the current paradigm, characterized by an enormous ecological footprint caused by neoliberal economic globalization (Wackernagel and Rees, 1996).

At present, there is a broad consensus among the community of philosophers, sociologists, educators and pedagogues that the system of formal education that is institutionalized in almost all countries is obsolete. The prevailing educational model of the present time was designed, conceived and structured for a historical epoch totally different from our

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own. In the Western world, the transition from the Old Regime to the Liberal State made it possible for the nascent commercial capitalism driven by the incipient bourgeoisie to transform the socioeconomic structure of feudalism. The European Renaissance was a movement where a large number of thinkers replaced medieval theocentrism, established in the collective imagination by the sociopolitical influence of the Church, to seek human flourishing from the arts, philosophy, politics and science. A few years later, the intellectual culture of the Enlightenment and the economic circumstances of the Industrial Revolution favored the emergence of the public school. Even before the first half of the nineteenth century there were no public education systems and only those who had money to go to the Jesuit centers could study.

Public education paid with taxes collected from the people, which was established compulsory and free for all social classes, was a revolutionary idea that provoked the opposition of the more conservative elites by the threat to overthrow the hierarchy of the social structure of the time. But as Western models of public education expanded into other countries of the world during the 19th and 20th centuries, what Spivak (2006), Said (1994) and Carnoy (1977) called "cultural imperialism." This process allowed the geopolitical influence of European metropolises to be extended to colonized countries to shape their social institutions by imposing their dominant culture, values and structures. Important African authorities, such as Ghana's Prime Minister Kofi Abrefa Busia (1960, 1964) or Nigeria's Minister of Education Aliu Babs Fafunwa (1967, 1975) have addressed these difficulties of cultural settlement brilliantly.

It was in this historical period that education was greatly influenced by the prevailing conception of the role of knowledge and intelligence, creating an academic profile that was deeply rooted in the genetic structure of public education. According to educator Ken Robinson in his Out of Our Minds: Learning to be Creative, this belief in school culture divides all students into two groups: those who are academically valid and those who do not. That is why Robinson (2011) defends the idea that schools kill creativity, since many brilliant minds do not adapt to the standardized pattern of sociological processes in schools and fail dramatically in their respective assessments, dropping out of school.

On the whole, the discourse between philosophy and sociology of education considers that institutionalized formal education systems are obsolete because they have not been renewed in parallel with social changes (Young, 2000). They still remain anchored in the historical structures of the past and must be reformed. Formal education continues to train

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technicians-professionals based on the profile demanded by the labor market. That is why the educational system does not focus on developing human talent more broadly and effectively. The school operates, in this way, as a meritocratic social control agency that imposes a pedagogy where a socialization in the dominant culture is required as a precondition for educational success. In this line the ideas of the educational sociologist Michael Young (1971) are framed, considering that the school is a "black box" that distributes titles to reproduce the original social status of the students.

In short, the present philosophical essay seeks to discern the different paradigmatic models that inter-retro-act on a multilevel scale in the sociological processes of human formation. Although there are no magic or universal formulas to transform our everyday reality, it is important to openly and multi-referentially question the vitiated and unsustainable behaviors perpetuated in social and educational processes. For this reason, education becomes a fundamental piece to change the historical civilizatory course and walk towards sustainability. We must understand that we are a unique species that co-evolves in an ecosystem shared with more than ten million species that we must learn to respect, preserve and regenerate in order not to extinguish its rich biodiversity. It is urgent to transform the relations of paradigmatic domination that human beings have been exerting on nature to learn to coevolve as a sub-system within the biophysical limits of our Earth-Motherland (Morin and Kern, 2005). All readers are encouraged to discuss the philosophical and sociological reflections on education presented in this paper. They are ready? How can social change be achieved through the processes of human formation? What innovative aspects are needed at the multilevel level for a change in the paradigm of civilization? How can the philosophical and sociological dimensions of education teach us to co-evolve in harmony with nature?

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