Editorial

The issue 30 of the Sophia Journal: Collection of Philosophy of Education, reflects on the philosophy of cognitive sciences and its links with education.

In order to establish some guidelines for understanding the subject, it has been deemed convenient to carry out a brief conceptual approach to what is understood by cognitive science. As a general rule, most researchers such as Medina (2008) coincide in calling cognitive science the scientific study of the mind and its processes, it is an interdisciplinary field that examines the nature, tasks, and functions of cognition in a broad sense. According to Medina (2008), "cognitive science conceives that human knowledge is a system that is always collecting, storing, recovering, transforming, transmitting and acting on information" (p. 188). This is how cognitive scientists seek to study intelligence and behavior, focusing on the way in which the nervous systems represent, process, and transform information.

Cognitive sciences have as their object of study the internal process that originates cognoscibility, the cognizant subject, the cognoscible, and what is known as intercognizability, aspects that, according to Medina (2008), would respond to the very nature of the knowledge process, so that, from this point of view, "it can be said that the human being, as a knowing being, acts on the basis of his representations" (p. 188), an important aspect in the cognitive process. In addition, it is necessary to consider that according to the purposes of cognitive science: "human cognitive representation is described in terms of symbols, schemes, images, ideas and other forms of mental representation" (Medina, 2008, p. 188), and these together allow the subject to act. In other words, an organism's experience in relation to information-laden objects or events results in the formation of a cognitive representation. These aspects lead us to think that endogenous and exogenous factors intervene in the construction of knowledge that explain the multidimensionality and complexity of knowledge; furthermore, they allow us to consider that, in this construction of knowledge, two perspectives coexist: one of an individual or psychologist nature and the other of a cultural or sociological nature. As cited in Aguilar (2012), the first one, has the subject as the main protagonist in the construction of knowledge, since through the subject's

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interaction with the physical and social world, their cognitive capacities develop, and reality is built through the application and readjustment of the cognitive schemes that are permanently carried out in the cognizant subject; the second, establishes that "knowledge has a socio-cultural origin, it conceives knowledge as an "artifact of social communities" (Aguilar, 2012, p. 14).

From the perspective of cognitive sciences, thought is understood as a series of structures and mental representations on which computational processes operate, so that in the representational-computational model of the mind, for the most part, a clear symbolic link between mind, brain, and computer is evidenced.

Despite this, coinciding with the study carried out by José María Zumalabe (2014), it is important to note that "there are also non-symbolic representational models (connectionism) and non-representational cognitive models of the mind" (p. 125). Along this same line of analysis, it is found that, for cognitive sciences, according to Zumalabe (2014), "information in an internal representation can refer to everything that we can know about the world. When we think, we manipulate the mental representations of objects, activities, and situations" (p. 126). Which means that a representation is a structure that tends to symbolize something as a product of "relationships of similarity, causality or links with other representations. It is about a structure or a symbolic activity that is constructed to encode the experience" (p. 126).

Rethinking cognitive sciences implies considering the study of cognition comprehensively and multidisciplinary, taking as a reference the contributions of theoretical and empirical disciplines such as philosophy, psychology, linguistics, anthropology, neurosciences, and computer science. However, the complex, transdisciplinary and multidisciplinary nature of cognitive sciences has allowed that from 1980 onwards, various neuroimaging procedures have been developed in order to increase knowledge about brain functions; neurolinguistics is promoted, the possibility of experimentation with cognitive psychology is considered, evolutionary psychology is rethought, the Turing machine is created, etc.

Not surprisingly, cognitive science scholars maintain that in their configuration a series of processes intervene between object (natural), subjective and historical-subjective (social) sciences, and even object (engineering) technologies and subjective technologies (social). It is necessary to consider that historically, the concern to develop scientific and technological research on the phenomena of behavior, mind, and intelligence has already been found since the end of the 19th century and the

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first part of the 20th century, consequently, in the 1940s, Kurt Gödel, Alan Turing, Alonzo Church, and John von Neumann stand out as the main precursors of cognitive science and are the ones who lay the foundations of the theory of computation and computers. It is established that cognitive science as an intellectual movement began in the year of the so-called cognitive revolution, that is, in the 1950s and it is said that one of the attempts to understand cognitive science is found in Howard Gardner.

Within the philosophy of cognitive sciences, there is the philosophy of the mind which has been supported by computer science. In this sense, from the 1950s on, a set of theories about the representational mind emerged that, in the style of Jerry Fodor (1980) and Alan Turing (1948), considered that the mind is a computer (Turing, Fodor). What has been said has served to establish a nexus between the philosophy of mind (in charge of providing conceptual analysis) and artificial intelligence (in charge of providing the necessary tools to represent and maneuver knowledge).

In the philosophy of science, questions about knowledge and scientific discovery have been a characteristic object of study of theoretical research, but they have also served as the basis for computational models of human behavior, aspects that together have shaped a new logic understanding of the functioning of the brain, mind, and science. Thus, in the field of philosophy of science, as is generally known, abduction as a form of explanatory reasoning, new forms of computational representation, and other similar processes have been developed to configure the inferences of scientific reasoning.

The link between the philosophy of cognitive sciences with education is very strong due to their inter, trans and multidisciplinary nature, each of the disciplines that contribute to education carries with them a series of cognitive processes related to thinking skills that enable the learning of each subject according to the formation area; each content aims to strengthen the mental processes with the aim of constructing new knowledge in which it is integrated, among other aspects: perception, attention, thought, imagination, language, memory, emotion. And to understand the various human faculties, cognitive science resorts to the help of different fields such as linguistics, psychology, artificial intelligence, philosophy, neuroscience, anthropology, etc.

The results that emerge from the cognitive sciences provide education with a set of comprehensive, interpretive, explanatory, and even predictive instruments that justify the cognitive processes of the subjects involved in the construction of knowledge. Likewise, cognitive sciences in

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the educational field refer to various levels of organization that go from learning and decision-making to logic and planning of the different processes; they try to understand from neural circuits to the modular organization of the brain.

The above invites to formulate a series of questions such as the following: what is the philosophy of cognitive science? What is the relationship of the philosophy of cognitive sciences with education? What is the main philosophical debate on cognitive science? What is the philosophical foundation of cybernetics? What are the epistemological foundations of cognitivist theory? What are the philosophical foundations of connectionist theory? What are the main current trends in cognitive science? What are the auxiliary sciences of the cognitive sciences? What are the relationships between the theory of mind and cognitive science? What is the link between evolutionary psychology and education? What are the main relationships between cognitive and educational sciences? What are the main contributions of cognitive sciences to education? Questions that somehow will find an approximation of answer in the various reflections reflected in each of the research lines of the ten articles that are detailed below:

The horizon of discussion on the theme proposed for Sophia, issue 30, is initiated by the document *Cognitive Sciences and Education: A Proposal for Dialogue*, developed by Adela Fuentes Canosa, Jennifer Paola Umaña Serrato, Alicia Risso Migues, and David Facal Mayo, it contains a proposal of transdisciplinary communication between cognitive sciences and education. The authors contextualize the communication processes experienced since the beginning of the last century with the configuration of educational psychology within the construct of educational sciences mediated by the constitution of cognitive sciences (mid-20th century) that led to the emergence of disciplinary synthesis between the sciences of the brain and the mind and that, currently, made possible new proposals for consilience between cognitive neuroscience and education. In this sense, the article presents a proposal for dialogue between the different epistemes (educational and cognitive), in relation to the phenomenon of bilingual education in the Ecuadorian intercultural context.

Next is the article *Dialogue in Cognitive Sciences in the Face of the Coeducation Controversy*, prepared by the Spanish Sonia Reverter Bañón, who reflects on neuroscientific research in relation to sexual difference; she addresses the debate about coeducation versus sex-segregated education. The author considers that in order to resolve this controversy, it is important to consider the contributions of neurosciences, as well as the

views coming from other disciplines such as the philosophy of education and the self-criticism of the neurosciences themselves. As such, the set of cognitive theories should be in permanent dialogue to understand important aspects that neurosciences alone cannot answer. She establishes that neuroeducation is an alternative to resolve the aforementioned controversy.

In this same direction of analysis is the manuscript *The Indispensability of Laws in Cognitive Sciences,* structured by the Argentine Sergio Daniel Barberis Almirón. The author defends the explanatory indispensibility of the laws of science in the field of cognitive sciences; he argues that the laws of science play an indispensable epistemic role both in functional analysis and in the mechanistic explanation of cognitive abilities. He makes it clear that both those who defend and those who reject the ontological commitment to intentional causal laws assume that those laws do not contribute to the functionalist or mechanistic explanation of the phenomena they describe; he argues that functional analysis requires the specification of non-causal scientific laws and that the precise scientific representation of the activities and the dynamic organization of a mechanism that unfolds in the context of a mechanistic model, through the specification of scientific laws.

For its part, the article *Re-thinking the subject in the field of cognitive sciences,* developed by the Mexican Jonathan Cepeda Sánchez, aims to analyze the relevance of cognitive sciences in conjunction with the educational field. For the reflection of the subject, the author considers it important to review the discourse of neoliberalism and its inscription in the enigma of subjectivity. He establishes that resignifying the factor of human experience implies overcoming the challenges of the biological-reductionist vision, to privilege the maxim of unconscious knowledge. The hermeneutical path of this document takes up an interdisciplinary scaffolding, the basis of which is represented by disciplines such as philosophy, neurosciences, and psychoanalysis. The author considers it necessary to carry out a paradigm shift that weighs the history and subjective constitution, in contrast to practices that degrade the uniqueness of the human being. Furthermore, he argues that it is necessary to prioritize the influence of the social environment in the lives of the students, safeguarding their mental, physical and psychological development as the key to sustaining an ideal functioning of the nervous system and construction of the psyche.

To close this block of reflections on the central theme of Sophia's issue 30, we present the manuscript *Jerry Fodor's Philosophy of Mind,*

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written by the Chilean Leopoldo Edgardo Tillería Aqueveque. The article makes an approach to the philosophy of mind of Jerry Fodor, it stops in the problem that his thesis of computational naturalism represents; emphasizes the ontological differences between the modular input systems and the central systems of this mental machine; concludes that conceptual innateness is the greatest epistemological problem of the Fodorian program and, paradoxically, constitutes the greatest philosophical contribution, especially due to the incorporation of the notion of common sense in the field of informational semantics.

Next, the second block of documents approved for the Miscellaneous section of the journal is presented. In this context arises the article *Meeting Points between critical thinking and metacognition to rethink the teaching of ethics,* structured by the Argentines Ernesto Joaquín Suárez Ruíz and Leonardo Martín González Galli. The authors argue that the traditional vision of critical thinking based on a rationalist approach has been questioned since the end of the last century by the 'second wave' of critical thinking, which, despite not being a fully defined movement, has included aspects such as imagination, creativity and cooperative work in its understanding and in its application to teaching. The manuscript analyzes a perspective of critical thinking alternative to the traditional one based on the potential contribution of metacognition and the social intuitionist model, in order to open new avenues of research to update the moral foundation that is assumed in the teaching of ethics. To delve into the aforementioned, the authors proceed to exemplify the relevance and applicability of metacognition in the teaching of ethics with situations related to the current Covid-19 pandemic.

The reflections developed in the document *Didactical Projections of the argumentative theory of reasoning,* presented by the Argentine Rodrigo Sebastián Braicovich move our issue forward. The objective of this work is to put into dialogue three lines of research within contemporary epistemology: the Epistemology of Virtue, the paradigm of Bounded Rationality and the Argumentative Theory of Reasoning. The author intends to analyze the search for a theoretical framework that allows designing pedagogical strategies on realistic premises, the Epistemology of Virtue is shown as a markedly optimistic current. The paradigm of Bounded Rationality represents the counterpart of this trend, insofar as it seems to lead to a marked pessimism regarding the possibility of designing strategies that allow perfecting the epistemic practices of the subjects. Faced with these two poles, the author suggests that the Argumentative Theory of Reasoning represents an alternative because it offers

an answer to the problem (faced by the Bounded Rationality paradigm) of the adaptive character of human reason from an evolutionary point of view and because allows overcoming the epistemic pessimism essential to the Bounded Rationality paradigm when planning realistic and effective pedagogical strategies.

Likewise, the manuscript *The modes of attention*, prepared by the Colombians Daniel Eduardo Chaves Peña and Jaime Yáñez Canal, analyzes some classic and alternative conceptions of the attention phenomenon; reviews some traditional approaches to the cognitive process; defends the importance of a phenomenological perspective of attention for which they take up the ideas of Husserl, Sartre, and Merlau-Ponty in order to establish a distinction of levels in the attentional process. Furthermore, the authors distinguish between passive and active forms of attention. The passive form corresponds to the pre-reflective consciousness and the active form can be linked to the reflective forms of directing attention.

With a view to responding to the current context, the article *Philosophy and pandemic*, prepared by Samuel Madrid Guerra Bravo, is presented. The Ecuadorian philosopher analyzes three critical aspects related to philosophy in these times of pandemic: the first refers to the end of Minerva's Owl as a universal symbol of philosophy, that is, the end of the idea that philosophy only begins to explain the world once the events have occurred; the second makes a critical distinction, from a Latin American and Global South horizon, between 'Metaphysics / Ontology of universal and abstract being' and 'Historical onto-logies of being-here'; the third, he intends to position life, not only as an ethical value capable of guiding human action but as a universal foundation and critical category. Likewise, Guerra intends to defend the simultaneity of philosophy with facts and a certain transforming power of thought; he tries to defend the significance and value of historical onto-logies as theoretical decolonization devices as opposed to metaphysical ones. The researcher considers that the 'historical onto-logies of being-here' ask about existence and everyday life itself that have been endangered by the pandemic which has revealed the true end of Eurocentric modernity and has opened the challenge to think in diverse but equal societies in the right to existence and life.

To end the route followed by the reflections presented regarding the call for the publication of Sophia 30, there is the article *The covid-19 pandemic as a limit experience of the sense of existence of the post-modern human being*, structured by the Panamanian Remberto Ortega Guizado. The researcher considers that one of the current concerns of the human being is the search for an answer about existence, its meaning and its

purpose. For this reason, he proposes to make a philosophical approach to the Covid-19 pandemic as a limit experience of the meaning of the existence of the postmodern human being that has led to a kind of existential destitution, in this sense, he argues that the ontological is rooted in existence.

It is important to indicate that the ideas contained in this volume are intended to provide a series of categories and categorical tools that activate critical-reflective-propositional analysis, that promote new questions and that become hotbeds for new research.

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