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Editorial

We are happy to present *Sophia volume* 37, which offers a set of philosophical reflections with aspects interrelated between physics, metaphysics and education.

This publication, rather than providing answers to the various problems that arise around the proposed theme, seeks to set new questions, leaves tasks for future research and invites us to rethink various questions: how can we understand and make sense, from various philosophical currents, to theories of physics such as quantum mechanics or relativity theory? How does metaphysics, in the present 21st century, address fundamental questions about reality, being and existence, in the context of current scientific, technological and educational advances? How has the understanding of physics evolved over time and what have been its main contributions to science, technology and education? What are the main approaches of philosophers who have interpreted and contributed to the development of theology, theories of physics and their contributions to the understanding of scientific practice, reality and education? What are the main philosophical and epistemological assumptions of theories in contemporary physics that guide research and current science? How has relativity theory transformed our conceptions of time and space? What are the implications of Newton's classical mechanics formulated in the 17th century? What are the implications of Einstein's special and general theory of relativity on the understanding of current reality? What didactic strategies, methods, techniques and instruments can be considered effective in the teaching-learning process of the contents of physics? What is the theoretical-practical articulation existing between physics, metaphysics and education? What mechanisms and pedagogical approaches are proposed to integrate the conceptual and practical understanding of physics, metaphysics and education in the current context? What are the advantages, limitations, perspectives and challenges of string theory or quantum gravity, of the special and general theory of relativity, of quantum mechanics (early 20th century), of Clerk Maxwell's electromagnetic theory (developed in the 19th century), of quantum field theory understood as an extension of quantum mechanics, etc.?

Articulation between physics, metaphysics and education

Based on the criterion that the articulation between physics, metaphysics and education strengthens the understanding of the world, promotes the intellectual development of the human being and contributes to the preparation of the subject to face the new socio-political, ethical-historical and techno-scientific requirements, from the perspective of the editor, some general brushstrokes that allow understanding the existing link between physics, metaphysics and education are considered. Here are the optics of a possible approach:

1. *Ontological optics*, both physics and metaphysics, concentrate their attention on fundamental questions about the very nature of reality, its being, essence, existence and meaning. Physics seeks to explain reality from the observable laws and phenomena of the universe and metaphysics proposes an explanation from the deepest and most categorical aspects, seeking the first causes and fundamental principles such as: finding the origin of time, space, causation and the very existence of the universe. The integration of these approaches in education will allow students to develop their analytical, critical and comprehensive skills about themselves, others and reality as a whole.

2. *Interdisciplinary optics*, in that the integration of the contents of physics with metaphysics in education promotes a holistic understanding of the world; helps to understand that the human being is immersed in a complex and dynamic system in which everything requires everything; understands the dynamics of the universe and fully understands that observable physical laws interact with philosophical questions about the surrounding environment, time and space: "We experience an era like a network of systems, functions and interrelated processes in which man is an integral part" (Aguilar, 2020b, p. 336). From this perspective, interdisciplinarity fosters an integral education that, in addition to scientific knowledge, considers the meaning and practical application in life.

3. *Ethical-social-epistemological optics* are linked to interdisciplinarity, since both physics and metaphysics are transversalized by fundamental ethical, social and epistemological issues, so that technologies derived from physics, for example, raise questions about their impact on society and nature, while metaphysical reflections can influence *the understanding of morality and ethics of this type of action.* At the epistemological level it can address questions of existence, knowledge and morality. By integrating this knowledge into the educational field, it prepares

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students to reflect on the purpose and meaning of science and its impact on society to be able to face in an analytical, reflective and informed way the ethical-social challenges and challenges of the current era, to be able to build their own categorical *corpus* on knowledge, the ways of acquiring knowledge and the fundamental values of each of the historical-social practices, for which it is necessary to "rethink the mechanisms of democratization, dissemination and socialization of information and new knowledge to guarantee the access of human beings to the various products, uses and services" (Aguilar, 2020a, p. 33).

4. *Optics of the development of philosophical critical thinking*, since students can develop critical thinking skills when exploring the relationship between physics and metaphysics by questioning essential aspects about the nature of the universe and experiences in it. The teaching-learning of physics and metaphysics promotes the development of critical thinking and the ability to question assumptions, propose alternative solutions and new approaches to apprehension of reality. The understanding of observable and measurable aspects of the world (physics) and the underlying categorical and philosophical aspects (metaphysics) contribute to the integral formation of the human being, and allow to enrich the teaching-learning processes with a philosophical dimension helping to understand the foundations and implications of everything to discover, know-how. This articulation inspires curiosity and fosters the capacity for wondering what motivates us to continue searching for answers to the different questions about the universe and about ourselves.

5. *Pedagogical optics*, insofar as the integration of metaphysics with physics allows enriching the curriculum and educational experience, by introducing philosophical and critical debates that may not be evidenced in the purely scientific approach. Likewise, incorporating metaphysics into science education can train students who master concepts of physics and who are prepared to consider the broader implications of that knowledge in their practical lives and in society.

The articulation between physics, metaphysics and education, from the pedagogical level, contributes to the improvement of teaching-learning, strengthening a broad framework to understand science and impact with the understanding of the world and the human being. While physics provides the empirical knowledge and tools to understand the physical world, metaphysics offers a broader philosophical perspective that can complement and enrich science education, providing additional contexts and reflections on knowledge of the ultimate nature of reality and on life itself.

The pedagogical relationship between physics, metaphysics and education offers an enriching and holistic perspective in the academic and personal training of students. However, this integration at the pedagogical level, in the curriculum, has its advantages, limitations and challenges, which must be faced due to the different nature of the approaches and methodologies of each one. The implementation of this articulation requires professionals well versed in the three fields of knowledge: physics, metaphysics and education, which requires additional training and a globalizing interdisciplinary approach that considers all divergent criteria, interpretations and approaches.

6. *Gnoseological optics*, insofar as metaphysics invites to reflect on the possibility, origin, form, essence, truth and limits of scientific knowledge and the implications of current theories of physics, which leads to understanding the construction of science as a human construction subject to permanent review and certain expansion.

Metaphysics addresses deeper questions about the nature of matter, space, time, and causation, exploring concepts that go beyond the physically measurable, so that, while metaphysics deals with questions about the nature of reality and the human being about existence and the fundamental principles that underlie physics and other sciences, physics focuses on observable and quantifiable phenomena, offering an empirical understanding of the material world underpinned by observations and experimentations.

To the extent that both metaphysics and physics respond to fundamentals, metaphysics from the rational and categorical level, and physics as a natural science that studies the fundamental laws of the universe; in pedagogical practice complications and/or confusion may occur. The diversity of conceptions about the meaning and purpose of metaphysics and physics can affect the way of understanding pedagogical conceptions and can even affect the purpose of education, the nature of knowledge and the purpose of ethics. The logical laws of metaphysics and the laws of physics can have an impact on how science is taught and understood in education. Moreover, contemporary physical theories often raise philosophical questions about reality and the limits of knowledge.

In summary, to understand the articulation between physics, metaphysics and education, it is necessary to recognize that these fields of knowledge are connected to each other to provide a more complete framework and promote critical-analytical, propositional and ethical reflection, supported by the experiences of the context and the situation.

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To-do tasks for educational work

From the latter, some pending tasks are foreseen to achieve an adequate articulation between these areas of knowledge:

- To create curricular programs that integrate fundamental concepts of physics and metaphysics located and contextualized.
- To design of texts, guides, digital resources and teaching materials that address the two fields of knowledge (physics and metaphysics).
- To promote an interdisciplinary training in the two areas of knowledge aimed at educators with conviction and vocation.
- To propose professional development events that integrate physics and metaphysics in education through the organization and execution of seminars, workshops, continuous training courses, diplomas, specializations, etc.
- To promote spaces for reflection, research and publication, taking as a starting point the resolution of problems, case studies and others that allow to determine advantages, limitations and/or the effectiveness of the integration of this knowledge in different educational contexts.
- To develop innovative pedagogical approaches that facilitate the integrated teaching of physical and metaphysical concepts.
- To develop methods, techniques and teaching-learning strategies to contribute to the integral formation of the human being. It is necessary to promote theoretical and practical tools that allow "to problematize, choose and decide, evaluate, correct and project the very existence of the subject […] from an analytical, reflective and propositional perspective" (Aguilar, 2019, p. 113).
- To create methods, techniques and assessment tools that allow to determine the understanding and impact of the integration of this knowledge in the learning of students.
- To establish interdepartmental and interdisciplinary networks and collaborations between careers, schools, departments or areas of knowledge linked to physics, philosophy and education. There should be "learning communities and research networks which are inter, trans and multidisciplinary that would respond to the cultural and social diversity of the subjects" (Aguilar, 2019, p. 113).
- To organize conferences, symposiums, working tables and other similar meetings that bring together experts from the three fields

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to reflect, share knowledge, experiences and best practices, to propose new approaches and/or models to be implemented.

- To execute relevant and accessible cultural, curricular and contextual adaptations for students of diverse contexts, ensuring the integration of metaphysical and physical knowledge into unique, local and specific student realities.
- To develop and use educational technologies, *online* platforms, tools and digital resources to facilitate the teaching-learning of physics and metaphysics in an integrated and context-sensitive way.
- To generate mechanisms to evaluate, give feedback, adjust and permanently improve the impact of the integration of physics and metaphysics in education.

Structure of Sophia's number 37

This volume is made up of ten articles that have passed through all the filters of preliminary review, preselection, evaluation and approval. The first five documents are attached to the central theme of the call and the other five articles belong to the miscellaneous section of the journal. Below is a brief systematization of the content, approach or proposal of each of them.

The central theme opens the route of reflection with the manuscript "Rigor and objectivity as foundations of the rationality of physics in Evandro Agazzi", by Linda Marcela Rivera Guerrero, Arjuna Gabriel Castellanos Muñoz and Carlos Andrés Gómez Rodas, from Colombia. The authors propose to make an approach to the understanding of Agazzi's thought, for which they address some essential aspects of his epistemology applied in the specific field of physics. They consider that two opposing epistemological attitudes predominate in relation to the empirical sciences: as an essential tool for the advancement of knowledge and as a doubt about the metaphysical and epistemological bases of trust in scientific knowledge, an aspect that has led to skepticism and pragmatism of science.

In the same direction, the document "Realism, General Relativity and Schrödinger's Cat", written by Ricardo Restrepo Echavarría, attached to the Technical University of Manabí in Ecuador and the University of Melbourne in Australia. The author examines the nature of reality within the framework of modern physics, including the possibility of freedom. A reform to the metaphysics of realism is proposed, considering that for re-

alism the world is as it is, independent of the mind. Moreover, it states that "the Copenhagen interpretation estimates that quantum states are in an overlap that only materializes at the moment of observation: Schrödinger's cat is alive and dead, until we observe it." He argues that modern physics, deterministic or indeterministic, also threatens the possibility that we have freedom; in this sense, the researcher analyzes and develops the compatibility of freedom as self-government with modern physics.

The article "Analogy among electrical potential difference and gravitational potential difference on the teaching of physics" written by Raira Maria Lima Bahia and Pedro Javier Gómez Jaime, from Brazil, continues the calibration process. The authors propose to create a strategy that allows a solid learning of the topic of electric potential, through an analogy between electric and gravitational potentials. The proposed activity conceives the use of low-cost materials with the aim of bringing physical knowledge closer to the daily life of students. The researchers conclude that the teaching of physics through analogies elaborated by the teachers of this subject allows a better learning of this science to the extent that scientific and everyday knowledge are linked.

The debate continues with the manuscript "The problem of the knowledge of the thinking substance in the Meditations and in the Objections and Replies of Rene Descartes", by Vinícius França Freitas and Ana Cláudia Teodoro Sousa, from Brazil. In this article the authors develop the hypothesis that the knowledge of the thinking substance in the *Meditations on the first philosophy* and in *Objections and Answers* has not been explained clearly by René Descartes, a necessary question for understanding the status of Cartesian philosophy when writing the *Meditations* to assimilate the knowledge of the thinking substance in the years 1641 and 1642. The researchers conclude that, in *Meditations*, Descartes faces a gap between the ontology of the substance and its knowledge.

This section closes with the article "Phenomenology of audiovisual narrative for an ethical formation employing "anime", presented by Víctor Francisco Casallo Mesías, from Peru. The author presents a phenomenological proposal to work dialogically in the classroom the problematization of an ethics focused on duty, as it is staged in two Japanese animation products ("anime"). Firstly, it discusses phenomenologically how to understand the formative potential of the experience of watching an animated narrative and, secondly, it argues how the phenomenological reinterpretation of the categorical imperative can overcome its disconnection from the affective dimension of the ethical subject and its factual contexts of action to focus on the care of the human condition of vulnerability. Al-

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though the topic does not seem to relate directly to metaphysics or physics in traditional terms, indirect or tangential connections could exist at the metaphysical level, depending on the approach of phenomenological analysis. It could be explored how the narratives of the "anime" address topics such as the nature of reality, personal identity or the relationship between mind and body; at the physics level, some narratives of the "anime" incorporate scientific or speculative topics that could be related to physical concepts such as quantum theory.

On the other hand, in the Miscellaneous section, there are topics of philosophical and educational interest reflected in the different articles presented below.

First, there is the manuscript "Philosophical foundations for a pedagogy of culture" by Gustavo Adolfo Esparza Urzúa, from Mexico. The writer makes a pedagogical reading of Ernest Cassirer's philosophy of symbolic forms, focusing on the phenomenology of knowledge, where it is detailed that the foundations adduced by Paul Natorp, in *Introduction to Psychology* constitute a critical view of psychology as the foundation of intellectual operations. The author proposes to demonstrate that the recovery of the natorphic vision allows Cassirer to argue that all cultural activity has as its foundation in the psychological activities of the subject; it shows that a theory of formation is necessary to explain how the cultural environment conforms the intellectual activities of the subject, a general thesis assumed by Cassirer for the development of his theory of the symbol; finally, it states that the cultural formative agents considered by Natorp for the formation of the individual constitute the theoretical bases of culture in which the student develops his theory of language, myth/religion, art and science as cultural formations.

The discussion continues in the article "Philosophy as a continuation through the educational task", written by Jorge Alarcón Leiva from Chile. The author refers to the current state of the philosophy of education, and seeks to understand the nature and fundamentals of education to improve its effectiveness and identifies a significant gap between the theoretical and practical problems of education, as perceived and responded to in the public agenda. In this sense, it is proposed to explore how to integrate philosophical theory and educational practice, and for this purpose it analyzes Wittgenstein's point of view, enriched with the perspectives of Williams and Medina. It also notes the current state of philosophical research in education with a view to moving towards a more comprehensive and practical approach in the philosophy of education.

The manuscript "Character Education Grounded in the Values and Norms of Indonesia's Philosophical System," developed by Yulius Rustan Effendi, from Indonesia, aims to demonstrate how students' attitudes and behaviors are shaped by the norms and values of Pancasila, a philosophical system typical of the Indonesian world. An integral understanding of the philosophy of the Pancasila involves breaking down the data into its constituent parts, i.e. the ontological, epistemological, and axiological dimensions of philosophy. The interpretative approach used by the author allows the recording of transformation in character education, with a particular focus on fostering the sense of nationality in students.

The discussion continues with the article "Development of socio-emotional skills in the training of educators in today's society", by Antonio Calderón, from Chile. The researcher intends to reflect on the socio-emotional skills of future education professionals, exploring their influence on teaching and their contribution to society. It seeks to present the role of socio-emotional education in the university curricular activities of teacher trainers in Chile, in that sense, it underlines the urgency of integrating socio-emotional education into the training curriculum of professionals of university education and highlights the coincidence between Goleman, Bisquerra and Morin as the theorists who have deepened the subject.

To conclude with the reflection, we present the article "Learning processes and repercussions from handicrafts for social and popular education" by Fanny Monserrate Tubay Zambrano and Alex Darío Estrada García, from Ecuador. The authors analyze the experiences of a group of artisans from the perspective of Paulo Freire's social and popular pedagogy. They argue that the recognition of artisanal methods and procedures can be used as powerful formative elements to strengthen identity, democratic participation, dialog of knowledge, social justice and intercultural education, when taken seriously by academia, especially in educational science careers. Teaching and learning a trade are pedagogical works framed in the Freirian principles of the pedagogy of liberation and whose experiences can enrich academic pedagogy.

To conclude, it is necessary to emphasize the importance of the topic for current society; hence, are invited to actively engage in the discussion and critical reflection on the topics presented in this volume, in order to reformulate, reframe, explore and/or implement the ideas or aspects that are considered relevant and/or functional to the context and to the subjects.

We are thankful to all those who made possible this new volume. Thank you all for being part of this project.

Enjoy reading and for those who are immersed in the field of education and the philosophy of education, remember what William Butler Yeats said: "Education is not filling a bucket, but lighting a fire", an aspect we want to happen with each of the lines and ideas expressed in this publication.

Floralba del Rocío Aguilar Gordón
Editor

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Articles / *Artículos*

Rigor and objectivity as foundations of the rationality of physics in Evandro Agazzi

Rigor y objetividad como fundamentos de la racionalidad de la física en Evandro Agazzi

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Abstract

There are two opposing attitudes in current epistemology towards the empirical sciences. On the one hand, they appear as an essential tool for the advancement of knowledge. On the other hand, there is doubt about the metaphysical and epistemological bases of this confidence in scientific knowledge, which has led science down paths of skepticism and pragmatism. This paper aims to contribute philosophically to the rationality and ontological status of physics, taking as a starting point some works of the philosopher of science Evandro Agazzi. The article introduces Agazzi's thought and the core issues of his epistemology. It then defines the concepts of rigor and objectivity as understood by Agazzi, and finally establishes criteria of rigor and objectivity for physics, showing how they are verified in two classical experiments. Based on these ideas, it is shown that physics, as the science, has criteria of rigor and objectivity that allow it to effectively reach the real, thus responding to the formalist and pragmatist challenge. Thus, the article does not exhaust itself in a description of Agazzi's thought, but will apply his ideas to the concrete field of physics, making explicit ideas that have not been sufficiently made explicit by the Italian philosopher.

Keywords

Philosophy of science, science of science, basic sciences, epistemology, metaphysics, physics.

Resumen

En la epistemología actual, hay dos actitudes opuestas en relación con las ciencias empíricas. Por una parte, aparecen como herramienta esencial para el avance del conocimiento. Por otro lado, existe duda sobre las bases metafísicas y epistemológicas de esa confianza en el saber científico, lo cual ha llevado a la ciencia por caminos de escepticismo y pragmatismo. Este trabajo se propone aportar filosóficamente a la racionalidad y al estatuto ontológico de la física, teniendo como punto de partida algunas obras del filósofo de la ciencia Evandro Agazzi. El artículo que aquí se presenta introduce al pensamiento de Agazzi y a asuntos nucleares de su epistemología. Posteriormente, define los conceptos de "rigor" y "objetividad" según los entiende Agazzi, finalmente, establece criterios de rigor y objetividad para la física, mostrando de qué manera se verifican en dos experimentos clásicos. Con base en estas ideas, se demuestra que la física, como ciencia que es, cuenta con criterios de rigor y objetividad que le permiten un alcance efectivo de lo real, respondiendo así al desafío formalista y pragmatista. Así pues, el artículo no se agota en una descripción del pensamiento de Agazzi, sino que aplica sus ideas al ámbito concreto de la física, explicitando ideas que no han sido lo suficientemente explicitadas por el filósofo italiano.

Palabras clave

Filosofía de la ciencia, ciencia de la ciencia, ciencias básicas, epistemología, metafísica, física.

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Introduction[1]

In the vast and diverse landscape of the philosophy of contemporary science, Evandro Agazzi stands out as one of the most influential and academically qualified thinkers. His contributions have addressed a wide range of topics, from logic and epistemology to the ethics of science. In particular, its emphasis on rigor and objectivity as fundamental pillars of scientific rationality has generated a solid theoretical framework for understanding scientific practice, especially in the field of physics. This article focuses on analyzing and developing Agazzi's ideas on these key

concepts and their specific application to physics, highlighting their relevance and contributions to the philosophy of science.

The aim is to examine the notion of rigor and objectivity in the work of Evandro Agazzi, with special attention to its application in physics. It demonstrates how these concepts not only constitute the basis of scientific rationality according to Agazzi, but also how they provide a normative criterion for evaluating scientific practice. Through a critical analysis, it is intended to establish the coherence and validity of its arguments, as well as its impact on the development of a robust philosophy of science applicable to contemporary challenges in physics.

The main problem is the understanding and articulation of rigor and objectivity in science as posed by Evandro Agazzi, and its relevance in the context of modern physics. In an environment where science faces growing epistemological and methodological challenges, how can Agazzi's ideas provide an adequate framework to ensure the rationality and credibility of physics? This question is addressed by exploring both the theoretical foundations and practical implications of his thinking.

The main idea to defend is that rigor and objectivity, according to Agazzi's conceptualization, are not only essential but also sufficient to sustain the rationality of physics. Through a detailed analysis of his writings and a comparison with other philosophical perspectives, it will be argued that these notions provide a solid basis for the understanding and evaluation of scientific practice in physics, offering clarity and structure to a field that, by its nature, can be deeply abstract and complex.

The importance of this topic lies in its ability to offer a deep and nuanced understanding of the principles underlying scientific practice. At a historical moment where trust in science and its methodology faces significant challenges, a critical and detailed review of concepts such as rigor and objectivity is crucial. Agazzi's ideas not only enrich the philosophical debate, but also have practical implications for science education, science communication, and science policy making.

The topicality of the issue is evident. Physics, as one of the most fundamental sciences, remains being a dynamic field where accuracy and reliability are essential. Moreover, in a global context where science and technology play essential roles in everyday life and political decision-making, understanding the philosophical underpinnings that ensure the integrity of scientific research is more relevant than ever. Agazzi's contributions offer insights that can inform and guide current debates about science in society.

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The methodology of this work is based on a critical and hermeneutic analysis of the texts of Evandro Agazzi, complemented by a comparative review of the relevant literature in philosophy of science. Exegetical approaches will be used to interpret Agazzi's key concepts, and his ideas will be contrasted with other contemporary theories in the philosophy of science. In addition, an analytical framework will be applied to assess the internal coherence and applicability of their notions of rigor and objectivity.

The document is structured in the following sections: a first section about physics as rigorous and objective knowledge according to Agazzi; a second section about rigor criteria as an expression of the rationality of physics; a third moment about the criteria of objectivity as an expression of the rationality of physics. Finally, some considerations about rigor and objectivity are presented based on two experiments, and the conclusions.

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Physics as rigorous and objective knowledge according to Evandro Agazzi

Throughout his academic career, the Italian philosopher of science and physicist Evandro Agazzi has argued that there are two essential requirements when it comes to understanding scientific rationality. These requirements are *rigor* and *objectivity*. In the future, both concepts will be explained, so that, in the future, they will be presented as an expression of the rationality of physics.

> Agazzi distinguishes empirical sciences and formal sciences to elucidate the concept of rigor. In the former, justification can be given by appealing to the formal deduction that would justify the statements from other propositions drawn directly from experience; it can also be given by combining the deductive and the empirical through a hypothesis […]. In the formal sciences, on the contrary, the essential role is played by the axiomatic method according to which starting from some initial statements or axioms is possible to achieve their logical effects through a formal demonstration (Castellanos, 2021, p. 70).

However, according to Agazzi, the deductive method and the hypothetical method demonstrate the wonder and vulnerability of the experimental sciences. The vulnerable becomes evident when examining its conditions of validity with logical criteria, since elementary logic indicates that the fact that true logical consequences can be deduced from a statement is not sufficient reason to declare the truth of that statement.

Agazzi's studies of scientific rigor and objectivity provide the foundation for the reliability of experimental sciences, i.e. the real capacity to achieve their two main objectives: to grant the necessary tools to sustain the rigorous nature of scientific explanations and to control nature as an effect of the knowledge that man acquires on it.

According to the Italian philosopher, scientific rigor "corresponds to the requirement to 'give reasons' for something that is declared in science (it consists of explaining *how* and *why* a particular declaration was reached)" (Agazzi, 2019, p. 21). This definition is complemented by Agazzi with a historical context on the traditional notion of the concept of *science* that runs through a period from the Athens School to the Renaissance. In this conception of science, *truth* and *rigor* were the essential traits. The idea that science offers knowledge of the highest level:

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> It was gradually emerging in Greek philosophy by requiring such knowledge to explain the reasons for what happens and not just what happens. Providing a reason (*logon didonai*) carried the classical notion of science as a discourse of demonstrative character, i.e. it grants convincing logical evidence of what it declares (Castellanos, 2021, p. 72).

Regardless of what the compelling logical evidence is in each case, in providing it lies a fundamental feature of the scientific rigor that the notion of *scientific truth* requires and presupposes. Precisely for this reason, it could not be considered as science to an exclusively empirical knowledge, even if it were true. At most, it would be considered *history* in a broad sense of the term.

Thus, it is easy to understand that, in the history of the West, *rigor* as an indispensable requirement has been one of the essential characteristics of the concept of *science*. This requirement is the result of the claim to verify the truth of certain propositions through the use of logic and starting from more elementary truths that would provide sufficient reasons for the content of such propositions, i.e. that would confirm this truth making it credible (Agazzi, 2019).

To summarize what has been said so far, it must be clarified that the notion of rigor is analogical, not unequivocal or equivocal. The same can be said about the concept of objectivity and the concept of science. *This* can be explained by saying that, according to what Aristotle affirms, concepts that possess a single meaning and apply in a single way to a particular type of objects are known as univocal. On the other hand, concepts that apply in the same way to different objects are called equivocal

(Agazzi, 2019). Finally, a concept is analogous or analog if it refers to different things, partially in the same way and partially in a different way.

Regarding the concept of objectivity, it is worth starting with a few words from Agazzi:

> The meaning of the word "objectivity" seems, first of all, characterized through a (indirect) reference to the *subject*, not the object. When one says, for example, that a certain judgment is objective, that an investigation was conducted objectively, or that something or someone objectively possesses a quality, it is usually meant to mean that judgment, investigation, or quality do not depend on the subject or subjects expressing the judgment (Agazzi, 2019, p. 69).

In other words, subjectivity, despite being the first step of all knowledge, is considered, simultaneously, its worst defect. Humanity has fought against this defect for centuries, since the goal is a type of knowledge that has a validity superior to the group of subjects that have acquired it and is independent of them.

Apparently, the human being has been concerned with achieving a *corpus* of knowledge independent of the subjects, because in the mind of Western civilization is embodied the idea that there is only one way to verify whether the efforts of human understanding to know reality have achieved its end, namely, to verify that the representation of what is real is "independent of the subject", that other subjects agree in relation to the truth of that representation.

> Claims as simple as "People live in Ecuador" or "cats are animals" express true facts, which simply mean that the veracity of the claims is nothing more than a connection between the claims and their content. To this extent, there is nothing innovative, as Aristotle has already stated it. And Gabriel rightly states that nothing is easier than the truth [while remembering] […] sometimes it is difficult to discover what the truth is. And it is here that is the error of constructivism that confuses truth with recognition by the institutions created by the human being. We could not even communicate without the existence of truth, because a set of common beliefs is necessary since any disagreement on an important issue presupposes that we share a common system of opinion (López, 2021, p. 143).

The natural end of human knowledge is none other than to apprehend reality and it could be affirmed, more technically, that such an end is reached when one reaches *objective knowledge*, i.e. knowledge that corresponds to the portion of reality with which one seeks to correspond. This

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is nothing more than an echo of the classical Aristotelian definition of the concept of truth, which González (2021) explains in the following terms

> That righteous truth, that minimal definition of truth is that of Aristotle, who expressed: "It is false, in fact, to say that what is, is not, and that what is not, is true, that what is, is, and what is not, is not." This is already relevant information in a double sense. First because it offers clues about the age of the problem. Second, because there is a surface on which to start thinking about post-truth. It is, in an abstract way, a departure from the original sense of what we mean "is" (p. 95).

However, the human being always harbors a fear of not being able to achieve this end; his concerns in this regard are rooted in the evident fact that, continuously, very diverse people, located before the same portion of reality, describe it in very different ways. The conclusion is simple: if different images of the same reality are presented:

> Then none of them (or perhaps only one) can be objective, i.e. only one can "correspond to the object", while all the others (with some possible exception) must be considered merely "subjective", as if they expressed a particular way of conceiving objective reality, which is typical of an individual subject (Agazzi, 2019, p. 70).

Everything said to this point is so simple that it seems obvious, however, it clarifies several of the essential features of objectivity. As seen, the existence of various subjective images should be sufficient for none of them to be considered within objective knowledge. Therefore, the fact that knowledge is independent of the subject is a *sine qua non* of its objectivity, but it is not sufficient to guarantee it. Herein lies a deep and complex philosophical problem: determining what additional condition should add to this necessary independence of the subject.

It is not so simple to establish what that condition is that would ensure the complete objectivity of knowledge. This is one of the thorniest issues in the history of philosophy, as it involves a profound reflection on the very nature of knowledge and reality. The crucial point is obvious: the nuclear problem lies in having a tool that provides the assurance that, in a specific case, knowledge is independent of the subject. This allows us to understand why objectivity has maintained a type of indirect characterization, i.e. through the subject, who, initially, should not be related to the notion of object.

With this indirect characterization in mind, *universality* and *necessity* are better understood as two indispensable characteristics of any

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authentic knowledge throughout the history of philosophy. Agazzi (2019) explains it in the following words:

> Although these conceptions of universality and necessity were, and remain, distinct, a practical confluence of the two took place in the history of philosophy, and helped each other achieve the status of distinctive marks of objectivity. To express this fact in a synthetic way, it could be said that both the ontological structure of the object and the guarantees of having a solid knowledge of it have emphasized the two characteristics of universality and necessity until they become the most outstanding fundamental marks of objectivity (p. 72).

All human knowledge activity is intrinsically characterized by the purpose of being objective, understanding objective as the ability to capture the real characteristics of objects. In this regard, the Italian philosopher notes:

> As a result of the above discussion, it must be said that, *if* this undertaking is successful, *then it* must result in something universal and necessary, which is equivalent to saying that universality and necessity, taken together, arise as a *necessary condition* for a form of knowledge to be objective (p. 72).

This section aims to understand the ontological and epistemological bases that enable rigor and objectivity in physics from the scientific realism of Evandro Agazzi. Thus, it focuses on analyzing the essential features of the ontological status of physics. As Islas (2021) states, "in the scientific field some defenders of certain realistic positions of science have considered that truth is the most important goal of scientific activity" (p. 65). Scientific realism broadly holds that scientific entities and theories refer to real-world objects and processes independently of the human mind (Agazzi, 2012a). According to Agazzi's realistic approach, it is possible to understand the essential features of the ontological status of physics from three characteristics that will be presented.

Structural nature of the real

A highly relevant element in Agazzi's approach is the emphasis on the structural nature of everything real. The Italian philosopher argues that scientific theories capture models and links of a structural nature found in the physical world (Agazzi, 1997). Therefore, according to Agazzi's scientific realism, the ontological status of physics implies understanding reality as structured and organized by its own nature (Alonso, 1995). This

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conception involves recognizing that science not only gives superficial presentations of facts and objects, but also seeks to demonstrate the deep relationships and laws that underlie nature, and, fundamentally, how things are:

> The thesis mentioned in this book is that science is first of all an authentic way of knowing: even the only way of knowing objectively, even if it is not an absolute knowledge, i.e. absolute and incontrovertible. As such, science makes us genuinely aware of reality, although it never exhausts this knowledge (Agazzi, 1978, p. 15).

In this character or structural nature of reality, some points stand out for their relevance and meaning. The first is *systematicity*. Agazzi asserts that reality is not simply a chaotic set of objects and facts, but, on the contrary, is characterized by models, links and regularities. These underlying models or patterns are what make it possible for science to establish theories and laws that denote and explain phenomena observed by the scientific community (Agazzi 2008).

The second point is the *definition*. The scientific community can abstract and define through scientific theories, through concepts, specific aspects of the totality of the real. These theories make possible the identification and analysis of the essential structures and relationships that make up the studied phenomena. The precise definition of concepts is fundamental for constructing scientific knowledge, since it allows clear communication and a shared understanding between researchers, facilitating the advance and accumulation of knowledge.

The third point concerns *understanding* and *predictability*. Once it has understood the structures and relationships that underlie the real, science is able to detail and explain present facts, and to predict future facts. In this sense, scientific theories allow predictions to be made based on the regularities that can be identified. The predictive ability of theories is one of the most robust tests, as it validates the robustness of models and provides tools to anticipate and prepare responses to future events.

The fourth point is *interdisciplinarity*. The notion of "structural nature of the real" also indicates that scientific disciplines are linked, because, on many occasions, the same structures and relationships can be applied to phenomena in different areas of knowledge (Agazzi, 2012a). This interconnection between disciplines favors the development of integrative and multifaceted approaches to solving complex problems, promoting a more holistic knowledge and enriched by the perspective and methods of different areas of knowledge.

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In addition to these four points, it is important to note that the structural nature of reality suggests a continuous process of discovery and revision. Science, when approaching reality in a systematic and structured way, must be open to modifying its theories and models in the light of new data and better interpretations. This openness is essential for scientific progress and for maintaining the relevance and accuracy of scientific explanations in a world in constant change and evolution.

Existence of physical entities

Agazzi's scientific realism asserts that physical entities, for example black holes, electromagnetic fields, and subatomic particles exist objectively in the real world and are not mere constructs of human perception. They are not conventions arising from the human mind or mathematical abstractions but are genuine and concrete components of reality (Agazzi, 1988).

Agazzi points out that physical entities, even unobservable ones, are real and exist independently of human perception. This essentially realistic conception inspires the idea that science aims at the discovery and understanding of the world as it is in itself, transcending the perceptions and subjective experience of individuals.

On the other hand, even if there are physical entities that are directly unobservable, such as subatomic particles, science can infer the existence of such entities and describe their properties from the empirical evidence given by experiments and observations. As part of this process, scientific theories provide a conceptual and mathematical framework for understanding and explaining the phenomena being observed.

In the epistemology proposed by Agazzi (1978), physical entities are involved in causal links and cooperate with the movement and development of natural systems, which means that physical entities are not reduced to being mere abstract concepts, but have consequences and an essential role in natural processes.

The consistency and correspondence of scientific theories in elucidating the facts of the natural world supports the existence of physical entities. Theories offer the scientific community conceptual patterns that detail the traits of these entities and allow prediction of their behavior in different situations.

Thought does not produce reality, as the classical idealist philosophers claimed, but, at the same time, it must be admitted that whenever it is believed possible to affirm that a certain discourse is true, the very notion of truth forces us to admit that, for the same reasons, it must also be

admitted that there are the referents of this discourse. Otherwise, nothing would be true. At this moment, a fruitful perspective opens up: if one accepts that there are very different types of discourses that are normally considered true, one must also admit that there are different types of referents about whom these discourses are true (Agazzi, 2022).

In summary, in Agazzi's scientific realism, the existence of physical entities is supported by a basic metaphysical realism that affirms the reality and objectivity of such entities as genuine *things* in the world, regardless of human perception and knowledge. This perspective highlights the importance of understanding science as a knowledge that aspires to the unveiling of truth about nature and about the underlying reality.

Independence of theories

According to Agazzi's scientific realism, theories, although they are constructions of human understanding, can denote and signify objective and real elements, i.e. belonging to the totality of the real, which are transcendent to human perception and to the mental constructions of which human understanding is capable. In other words, theories correspond to real-world aspects and relationships and are not merely subjective inventions.

Some key points related to the independence of scientific theories in Agazzi's scientific realism are the following: first, the *correspondence* with reality. The philosopher of Bergamo has always maintained that scientists describe and explain natural phenomena through theories, which are their instruments. These theories are not limited to arbitrary inventions but are intended to manifest real elements that exist independently of human perception.

Second, *scientific progress*. The independence of theories implies that, as science progresses and develops, theories are adapted and perfected to achieve a more accurate representation of the real. Scientific progress has as its essential feature an increasingly precise approach to the primordial attributes of the natural world (Mark, 2015).

The third point is the reference to *real entities and processes*. Agazzi argues that scientific theories refer to entities and processes with metaphysical consistency and real-world existence, even if they cannot be observed directly. Theories provide a way to understand and explain how these entities and processes relate in different circumstances and scenarios (Minazzi, 2015).

The fourth point is *empirical procedure*. Despite the independence of the theories, Agazzi acknowledges the importance of empirical evi-

dence in verifying scientific theories. Observations and experiments provide the foundation for examining the correspondence between theories and natural facts.

To summarize, in the philosophy of science proposed by Agazzi, the independence of the aforementioned theories highlights that scientific theories, although they are creations of human understanding, have an objectivity status and represent authentic elements of reality. This conception places the emphasis on scientific theories being consistent with empirical results and progressing as science advances its understanding of nature.

Criteria of rigor as an expression of the rationality of physics

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The rigor criteria of physics are set out and explained below:

- *Logical coherence*: refers to the internal consistency and the solid logical structure that should have theories and statements within physical science. This requires that the different components of a theory connect with each other in a coherent way and lack logical contradictions. For Agazzi (1978), logical coherence is fundamental because a theory that lacks internal coherence or that presents contradictions lacks scientific validity and reliability. If a theory lacks coherence, it is very likely that its predictions and explanations are not accurate or correspond to the observed reality.
- *Mathematical precision*: refers to the requirement that theories and scientific propositions be formulated clearly and accurately, using rigorous mathematical language. In other words, mathematical precision implies that scientific characterizations and patterns must be formulated precisely and numerically, using determined mathematical terms (Rossi, 1986). Agazzi argues that mathematical precision is fundamental in physics because it provides a firm and stable basis for the transmission, testing, and examination of theories. Accurate mathematical representation facilitates that scientific propositions are communicated in a clear and intelligible way, which allows and favors the cooperation and interaction of knowledge between scientists. In addition, mathematical precision is essential when preparing calculations and forecasts (Agazzi, 2011).

- *Empirical dimension*: it has to do with the transcendental relevance of the scientific theories based on empirical verification, i.e. on observation and on experience. Agazzi emphasizes that scientific theories must be verifiable or falsifiable through information gathered in direct contact with the facts and phenomena of the natural world. In the specific context of physics as a science, the empirical dimension implies that theoretical propositions must be supported by explorations and measures that are repeatable and evaluable by researchers other than the one that, for the first time, explores and measures. Theories that cannot be empirically tested do not meet the criterion of rigor, because they lack a consistent foundation in observed reality. The empirical dimension also refers to theories being in line with experimental data (Agazzi, 2019).
- *Relationship with previous theories*: there is rigor when new theories and scientific propositions are in line with theories proposed previously and supported by empirical evidence. In other words, new theories must be attuned to, and compatible with, the existing *corpus* of scientific knowledge, and must not contradict it. Agazzi (2014) insists that scientific progress is gradual and cumulative. Thus, novel theories are built on previous ones and expand or perfect human knowledge of reality.
- *Critical examination and control*: science, as rigorous knowledge, is inherent in the permanent process of examination and questioning of scientific theories in a strict and systematic way. This criterion highlights the imperative need for theories to be thoroughly scrutinized and continually tested to reach an ever better and more perfect understanding of the real. Critical examination and control involve aspects such as constant review, contrast with empirical evidence, analysis of inconsistencies, debate and scientific discussion, and independent or intersubjective validation (Agazzi, 1996).
- *Cultural independence and subjectivity*: for Agazzi, rigor in physics demands independence from cultural and subjective factors. Scientific theories and propositions must be universally applicable and cannot depend on hermeneutics of a cultural or personal nature, being free of social influences, prejudices and biases of a personal nature. Agazzi (2007) emphasizes that genuine science is characterized by an impartial and universal effort to understand natural reality, regardless of the culture,

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subjective points of view or worldviews that scientists personally have. This implies diminishing cultural and subjective influences on the formulation, evaluation and application of scientific theories.

Objectivity criteria in physics

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- *Scientific agreement*: Agazzi considers it vital that the scientific community participate in the evaluation and revision of physical theories (Bolaños and Carvajal, 2019). Peer review and scientific agreement are essential to ensure the objectivity and quality of scientific knowledge. In relation to the subject, a scholar of his thought states the following:

  Weak *objectivity*, i.e. understood as *intersubjective* agreement, is based on the plurality of the *subjects'* observations. This is important for Agazzian thought, since it is not enough with the verification of a subject with respect to the object for it to be considered objective, in addition, it is essential that this constancy exists for more than one subject or for the same subject in different situations, because, with it, the object is confirmed by a group of determinations concerted by the totality of subjects that intervene in it, thus achieving validity for a plurality of subjects (Castellanos, 2021, p. 77).

- *Experimental character*: implies that theories should be able to be tested with data obtained from experience and from observations. A given theory must be revised or discarded if it proves to be incompatible with the results of meticulously designed and repeatable experiments. Agazzi argues, on the other hand, that experimental character is linked to the possibility of reproducing experiments and objectivity in the collection and analysis of information. It is an essential requirement of objectivity that results can be verified by other researchers in various places, circumstances and times, which contributes decisively to the validity and reliability of empirical evidence (Agazzi, 1977).

- *Absence of external influences to scientific methodology*: Agazzi emphasizes the need for no cultural, political, ideological or personal factors in scientific inquiry, as they are alien to a properly scientific methodology. Scientists must strive to be far from preconceptions and orientations that may influence a distortion of the results of their research, thereby affecting the

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objectivity that makes knowledge properly science. This approach involves aspects such as universality, reduction of bias, unbiased critical assessment and diversity of perspectives. While Agazzi acknowledges that various factors such as intentions, proposals and interests interact in science, it is necessary to "ensure that the effect of such a complex interaction, even if it leads to some 'shaping' of scientific knowledge, does not destroy its 'defining characteristics', since this would amount to eliminating science as such" (Agazzi, 2019, p. 450).

- *Replicability of methods and procedures*: Objectivity is promoted through the accurate and thorough description of the methods and processes used in scientific research. This allows other scientists to replicate the experiments and obtain similar results, which strengthens the validity of the findings. The fact that other scientists or other scientific communities cannot replicate the results obtained could be indicating methodological or information interpretation problems. The inability to replicate entails the need to critically review procedures and contributes to the identification of possible errors or sources of variability (Agazzi *et al*., 1989).

- *Assessment*: Objectivity is achieved through a permanent assessment procedure by the scientific community. Scientists should submit their theories and findings to peer review and be willing to modify their conclusions based on feedback and new data. This assessment implies constant review, since scientific knowledge is never definitive and is not immutable; contrast with empirical evidence, because, in the absence of correspondence, it is necessary to seek explanations or adjustments that can improve concordance; the analysis of inconsistencies, since the assessment involves identifying and treating any inconsistency or contradiction that may originate in the elaboration of a theory; and the debate and scientific discussion, to question theories and approaches in a joint effort to improve collective understanding (Agazzi, 2015).

- *Interpretative neutrality*: Scientists should strive to present data in a neutral and objective way. Accurate presentation of information allows other scientists to assess it impartially. In his book *Science and the Soul of the West*, the Italian philosopher speaks out:

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> It is recognized that science does indeed have the structure and means to provide objective and rigorous knowledge that is independent of social motivations and conditionings, so it is and must be "neutral" in this regard. On the other hand, it cannot and should not be, if it is considered as a *human activity*, which legitimately depends on demands of a social nature and must also respond to demands from society. The real problem, then, is to make these two aspects compatible (Agazzi, 2011, p. 299).

Some considerations about rigor and objectivity in physics

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After referring to the scientific rationality of physics under the criteria of rigor and objectivity described by Agazzi, it is possible to test some canonical phenomena and experiments that have been key to the development of this science. Experiments such as Galileo's free-fall experiment gave rise to the scientific method and overthrew the Aristotelian tradition that had prevailed until now, establishing the foundations of mechanical physics or classical mechanics that Newton would later perfect. Similarly, experiments such as the double slit experiment by the English scientist Thomas Young in the early 19th century demonstrated the wave-like nature of light and how it behaves when passing through two narrow slits. The experiment has also been repeated with subatomic particles such as electrons to illustrate interference and diffraction phenomena, which are fundamental in quantum theory.

Free fall experiment

Galileo Galilei's experiment of falling bodies is one of the fundamental historical events that contributed to the development of the scientific method and laid the foundation for classical physics. Here are some of the key features of the experiment and its importance:

- *Observation and curiosity*: Galileo began his research by observing how objects fell to the ground from different heights. This curiosity and attention to initial details are essential to the scientific method, since they start from the observation of natural phenomena (Bilbeny, 2015).
- *Manipulation of variables*: Galileo changed one variable in his experiment: the height from which objects *fell.* By varying this

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height, he could observe how the time it took for objects to fall to the ground changed. This controlled manipulation of variables is a fundamental principle of the scientific method (Ruvalcaba *et al.*, 2021).

- *Hypotheses and predictions*: Galileo formulated a hypothesis: objects, as long as there is no air resistance, precipitate with equal speed. In addition, he predicted that the fall time would increase with the square of the height. This formulation of a hypothesis and the derivation of measurable predictions are essential to the scientific method (Perilla, 2005).
- *Experimentation and measurement*: Galileo dropped objects from different heights and measured the time it took for them to fall to the ground. These precise measurements are a crucial component of the scientific method, since they allow comparing the results with theoretical predictions (Quiroz, 2015).
- *Comparison with reality*: the results of Galileo's experiments contradicted the ideas accepted at the time, according to which the speed of the fall depended on the weight of the objects. However, Galileo's measurements showed that all objects fell at the same speed, as long as the resistance of the air was ruled out. This confrontation between experimental results and previous theories is a fundamental part of the scientific process (Agazzi, 1994).
- *Analysis and conclusions*: Based on his observations and measurements, Galileo concluded that objects fall to the ground with constant acceleration. This conclusion laid the foundation for the modern understanding of gravity (Guevara, 2020).
- *Iteration and refinement*: as Galileo conducted more experiments and refined his methodology, he was able to further confirm his conclusions. This shows how the scientific method is an iterative process in which scientists continue to refine their ideas as they gain more data and evidence (Romo, 2005).

The Galileo body drop experiment was an important milestone in the development of the scientific method and classical physics. Its features, such as observation, hypothesis formulation, controlled experimentation, and comparison with reality, laid the foundation for the systematic, evidence-based approach that characterizes modern science.

RIGOR AND OBJECTIVITY IN THE FREE FALL EXPERIMENT

The principles of rigor and objectivity in this context refer to the application of precise scientific methods and impartial observations to reach reliable conclusions. In the free fall experiment, objects were dropped under controlled conditions and observations were recorded in detail.

Rigor, in this context, refers to the precision and accuracy in the conduct of the experiment and in the measurement of the data. To meet rigor, the experiment must be conducted in a consistent and controlled way (Agazzi, 1996). Factors such as the drop environment (atmospheric pressure, temperature, etc.), the height from which the object is precipitated, and the time measurement method must be carefully controlled to obtain reliable and reproducible results. The following is what Agazzi says in each of its parts:

- *Logical coherence*: lies in the way Galileo collected data, analyzed it, derived mathematical relationships, and finally formulated general laws that explained observed behavior. For example, when studying the fall of bodies, Galileo observed that all objects, regardless of their mass, fall at the same rate in the absence of air resistance. He analyzed these data and formulated the law of free fall, which states that the distance traveled by a falling object is proportional to the square of the elapsed time. This evidence-based approach and logic laid the foundation for the scientific method and notoriously impacted the evolution of physics and the understanding of object motion (Agazzi, 1994).
- *Mathematical precision*: it is shown that the relationship proposed by Galileo perfectly correlates with experimental data, which shows that its mathematical model is an accurate representation of the behavior of objects in free fall. This evidence of mathematical precision supports the validity of the relation, and by extension, the law of the fall of bodies that it formulated (Agazzi, 2019). By using inclined planes to slow the fall of objects and measure time more accurately, Galileo was able to demonstrate that the acceleration of an object in free fall is constant. These precise observations and calculations proved the validity of his mathematical models and supported the law of falling bodies, which is fundamental in classical mechanics.
- *Empirical dimension*: Galileo was noted for its empirical approach to collecting direct data through repeatable observations and experiments. He used innovative methods to measure

time and distance, such as inclined planes, which allowed him to perform controlled and repeated experiments. Comparing these data with his theoretical predictions allowed him to support and verify his conclusions about the movement of objects in free fall, thus laying the foundations for a scientific approach based on empirical evidence (Agazzi, 2012b).

- *Relationship to previous theories*: Evidence shows how Galileo's observations and experiments directly contradicted Aristotelian beliefs about the movement and fall of bodies. Aristotle argued that objects fell at speeds proportional to their mass, an idea that Galileo refuted with his empirical approach. By demonstrating that all bodies fall at the same speed in the absence of air resistance, Galileo not only contradicted previous theories, but also marked the beginning of a new era in science, based on observation and experimentation rather than authority and speculation. His empirical approach and results led to a fundamental revision of previous ideas and marked the beginning of a new era in scientific understanding (Agazzi, 1978).

- *Critical review and control*: allowed to eliminate confusing factors, refine the understanding, and reach more accurate, evidence-based conclusions. For example, by carefully controlling experimental conditions and removing air drag, Galileo was able to conclusively demonstrate the constancy of acceleration in free fall. This rigor in variable control and accurate measurement laid the foundation for the modern scientific method, emphasizing the importance of critical analysis and repeatability in scientific research (Agazzi, 1994).

- *Cultural independence and subjectivity*: By focusing on objective observation, data collection and empirical evidence, its rigorous approach paved the way for the development of the modern scientific method, which values objectivity and universality of results over cultural or subjective beliefs (Agazzi, 2000). This rigorous approach allowed his discoveries to be accepted and verified by other scientists, regardless of their cultural or personal contexts, paving the way for the development of the modern scientific method that is universal and based on observable and reproducible facts.

Objectivity refers to impartiality and neutrality in the experimentation and interpretation of facts. In the free-fall experiment, objectivity

implies that data is collected and analyzed in an unbiased way, without bias or subjective interpretations. For example, the fall time would be measured using accurate and calibrated methods and devices, and any systematic errors would be considered and corrected; it will be presented as follows:

- *Agreement of the scientific community*: despite initial resistance over time, as his ideas were supported by solid evidence, logical arguments, and the gradual recognition of the validity of his conclusions, his work eventually gained acceptance and became a milestone in the development of modern physics. As other scientists replicated their experiments and confirmed their findings, Galileo's conclusions about free fall were consolidated as fundamental truths in physics. This gradual process of recognition and acceptance in the scientific community is a testament to the objectivity of his work, as it is based on evidence and logical reasoning rather than authority or tradition (Agazzi *et al.*, 1989).

- *Experimental character*: it is reflected in its rigorous and systematic methodology, which was based on direct observation, controlled variation of parameters, collection of accurate data and quantitative analysis. This experimental approach laid the foundation for the development of the modern scientific method, had a significant impact on the understanding of physics, and enabled the collection of accurate data and its quantitative analysis. For example, by measuring the distance traveled and the fall time of different objects, Galileo was able to formulate mathematical laws describing uniformly accelerated motion. This experimental approach laid the foundations of the modern scientific method and transformed the understanding of physics (Drake, 1970).

- *Absence of external influences to scientific methodology*: Overall, the absence of external influences to scientific methodology in Galileo's free fall experiment is reflected in its objective, systematic and evidence-based approach. For example, it controlled variables such as air resistance and used precise mechanisms to measure time. This attention to detail and removal of external factors ensured that its conclusions truly reflected the observed physical phenomena, setting a precedent for independence and objectivity in scientific research. His work laid the foundation for independence and objectivity in scientific research, which

is essential to obtain reliable and robust results in any scientific field (Akhutin, 1982).

- *Replicability of methods and procedures*: evidenced through their ability to describe their methods in detail, record data carefully, and communicate their results to the scientific community. By providing complete and accurate information, it allowed other scientists to conduct similar experiments and obtain consistent results, which is critical to the validity and reliability of scientific research. His use of inclined planes to slow the fall of objects and measure time allowed others to reproduce their experiments and confirm their results. This replicability is fundamental to the validity and reliability of scientific research, ensuring that discoveries do not depend on a single researcher or experimental context (Agazzi, 2011).
- *Assessment*: manifests itself in its focus on observation, empirical evidence, objectivity, logic, and scientific debate. His work laid the foundation for the modern scientific method, which values the pursuit of evidence-based truth and objectivity over pre-existing assumptions and beliefs (Agazzi, 1994).
- *Interpretative neutrality*: manifests itself in how it presented data, observations and conclusions in an objective and non-judgmental manner. Its evidence-based and objective approach laid the foundation for an impartial and rigorous scientific method, where results are evaluated in a neutral manner, without subjective interpretative influences (Agazzi, 2019).

Thus, the free fall experiment in classical mechanics exemplifies the principles of rigor and objectivity advocated by Evandro Agazzi. These principles are essential to ensure that scientific results are reliable, accurate and valid (Ruvalcaba *et al.*, 2021).

Double slit experiment

The double-slit experiment is one of the most iconic and surprising in the field of quantum physics. This experiment illustrates the unique and often disconcerting properties of subatomic particles, such as electrons and photons. In the double-slit experiment, a particle, such as an electron or photon, is fired into a barrier that has two open slits. Behind the barrier, there is a sensitive screen that records the location of the particles when they arrive. The main question to be answered is what pattern of interference forms on the screen behind the cracks (Giacosa *et al.*, 2019).

In classical physics, one would expect to see two separate patterns behind the slits, each corresponding to a slit, since the particles should pass through one slit or the other. However, something surprising happens when the experiment is performed with quantum particles, such as electrons, photons or even atoms. An interference pattern is observed on the screen. This pattern is similar to that observed whenever light is transported through two slits and a light and shadow pattern occurs on the rear screen. This implies that the particles are showing undulatory phenomena, such as interference.

What is disturbing is that, when one tries to observe which specific slit goes through each quantum particle (for example, by placing detectors to measure the path), the interference pattern disappears and a two-band pattern is obtained behind the slits, as in classical physics. This is due to quantum interference and the principle of superposition, which says that a particle can be in multiple states at the same time until measured (Idarraga, 1994).

The double-slit experiment highlights the wave-particle duality of the quantum nature of particles and raises profound questions about how particles interact with their environment and how they behave under different circumstances. Furthermore, this experiment is an example of how quantum physics often challenges human intuition and entails questioning the very nature of reality at the subatomic level.

Against this background, it can be argued that an interpretation of quantum mechanics should be consistent with experimental data and supported by a sound theoretical framework. In addition, the importance of interpretation to accurately predict experimental results and to be able to maintain consistency with other scientific theories could be emphasized. This experiment is fundamental in understanding the key concepts of quantum mechanics, but it also raises philosophical and epistemological questions. From Agazzi's perspective, a rigorous and objective analysis of the double-slit experiment could involve the following.

As for rigor there are:

- *Logical coherence*: interpretation must be logically coherent and avoid internal contradictions. For example, when considering the dual properties of particles, a coherent interpretation must be able to explain how a particle can behave as a wave in certain circumstances and as a particle in others, without incurring paradoxes. This requires a precise logical formulation that integrates both behaviors within a single conceptual framework,

such as Copenhagen's interpretation of quantum mechanics, which posits that the quantum state is a superposition of all possible positions and states of a particle until a measurement is made (Agazzi, 1996, 2019).

- *Mathematical precision*: lies in how quantum theory accurately describes the seemingly contradictory behaviors of particles at the subatomic level and how wave functions, probability calculations and mathematical operators allow predicting and explaining the results observed in experiments. Mathematical precision is crucial in describing the seemingly contradictory behaviors of particles at the subatomic level. Quantum theory employs wave functions, probability calculations, and mathematical operators to predict observed results. For example, the Schrödinger equation allows one to calculate the probability of finding a particle at a given position, while the wave function describes the quantum state of the system. These mathematical calculations have been experimentally corroborated with high precision, demonstrating the effectiveness of quantum theory in predicting phenomena such as the interference pattern observed in the double-slit experiment (Agazzi, 2019).

- *Empirical dimension*: It is based on the observations and concrete experimental results that confirm quantum theory and associated concepts. The presence of interference patterns and the response of particles to direct observations support the idea that quantum particles exhibit dual wave-particle behavior, as predicted by the theory. Quantum theory must be corroborated by concrete observations and experimental results. In the double-slit experiment, the observation of interference patterns when particles pass through the slits without being directly observed, and the absence of such patterns when direct observation is performed, confirm the wave-particle duality. These experimental results support quantum theory and its predictions, showing how particles can exhibit different behaviors depending on whether they are observed (Agazzi, 2012b).

- *Relationship between theories*: Interpretation must be compatible with, and not conflict with, other physical theories, such as quantum field theory and relativity. For example, quantum field theory extends quantum mechanics to include the creation and annihilation of particles, while special relativity introduces the need for physical laws to be invariant under Lorentz transfor-

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mations. A rigorous interpretation of the double-slit experiment must respect these compatibilities, integrating the results of the experiment into a framework consistent with both theories (Alonso, 1995).

- *Critical examination and control*: refers to how the way the experiment is observed and controlled and how it can change the behavior and results of quantum particles. This highlights the influence of the observer and the environment on the interpretation of quantum phenomena and highlights the complex and subtle nature of physics at the subatomic level. For example, in the double slit experiment, the introduction of a measuring device to detect which slit a particle passes alters the interference pattern. This underscores the importance of observation in quantum mechanics and the need for a critical examination of how experimental conditions and the environment affect observed outcomes. This phenomenon is known as the observer influence, highlighting the non-deterministic and contextual nature of quantum physics (Agazzi, 1994).

- *Cultural independence and subjectivity*: they manifest themselves in how different people and cultures interpret and make sense of the results and concepts of the double-slit experiment. Quantum physics has given rise to many philosophical discussions and debates about the very essence of the real and about the link between observation and observed phenomenon. These issues often relate to how people interpret the results of the experiment and its broader meaning. Quantum physics has generated numerous philosophical debates about the nature of reality and the relationship between observation and observed phenomenon. For example, some philosophical interpretations, such as structural realism or instrumentalism, offer different approaches to how to interpret experimental results and what implications they have for our understanding of the world. These debates reflect how subjectivity and cultural context influence the interpretation of quantum phenomena, highlighting the need for a broad and critical perspective when analyzing such experiments (Agazzi, 2000).

On the other hand, in terms of objectivity there are:

- *Agreement of the scientific community*: although there are agreements around certain aspects, quantum physics has also gi-

ven rise to diverse interpretations and philosophical debates. Interpretations range from Copenhagen theory to the theory of the many worlds, among others. These interpretations can influence how quantum phenomena are understood and explained, leading to ongoing discussions and explorations in the scientific community (Agazzi *et al.*, 1989). For example, the Copenhagen interpretation, advocated by Niels Bohr and Werner Heisenberg, suggests that quantum phenomena have no definite properties until they are observed. In contrast, Hugh Everett's theory of the many worlds posits that all possible alternative histories of a quantum system are equally real, each in its own parallel universe. These differences in interpretation have led to significant philosophical debates and have influenced how quantum phenomena are understood and explained, demonstrating the dynamics and continuous evolution within the scientific community.

- *Experimental character*: lies in the realization of practical and controlled actions in a laboratory to observe and measure the results. The experiment is an essential example of how scientific principles are tested by data collection and comparison with theoretical predictions, supporting the scientific method and understanding of quantum phenomena. In addition, it demonstrates both wave interference and electron and photon particle behavior and highlights the importance of direct observation and measurement in a controlled environment to validate scientific theories. The replication of these experiments in various laboratories and with different technological configurations has allowed to corroborate the predictions of quantum mechanics, emphasizing the value of the scientific method and the importance of empirical evidence in the understanding of quantum phenomena (Agazzi, 2000).

- *Absence of external influences to the scientific methodology*: the double slit experiment is related to the need to minimize any factor that is not controlled or measured in the experimental process, to ensure that the results accurately reflect the effects that are being studied. To ensure the validity of the results of the double-slit experiment, it is essential to minimize any uncontrolled or measured factors that may influence the experimental process. This involves rigorous control of the experimental environment, including removal of potential sources of

interference and accurate calibration of measurement instruments. For example, when measuring electron interference, factors such as ambient noise and temperature variations should be monitored to ensure that observed patterns are effectively caused by the quantum phenomena being studied and not by external variables (Agazzi, 1996).

- *Replicability of methods and procedures*: evidenced through detailed documentation, use of standardized protocols, data availability, cross-checking by other researchers, scientific publication and review, conference communication, and collaboration. The ability to obtain consistent results in different contexts reinforces confidence in the validity and understanding of the quantum phenomena involved in the experiment (Agazzi, 2019). Replicability is a main milestone of the scientific method. In the case of the double-slit experiment, detailed documentation of procedures, the use of standardized protocols, and the availability of data for verification by other researchers are crucial. For example, experiments with electrons and photons have been repeated in multiple laboratories around the world, always obtaining consistent results that validate the theoretical predictions of quantum mechanics. This ability to reproduce results in different contexts and conditions reinforces confidence in the validity of observed quantum phenomena.
- *Valuation*: evidenced through comparison with theory, coherence with previous experiments, replicability, statistical analysis, discussions in the scientific community, exploration of alternative interpretations, and influence on theoretical development. Evaluation involves interpreting the results critically and reflexively within the existing scientific and theoretical context. The evaluation of the experimental results is carried out through comparison with theoretical predictions, coherence with previous experiments and statistical analysis. In the case of the double-slit experiment, the observed interference patterns have been critically analyzed in the context of quantum theory and shown to be consistent with mathematical predictions of wave functions. In addition, the ongoing discussion in the scientific community, including the exploration of alternative interpretations and their influence on theoretical development, shows a commitment to a critical and reflective interpretation of the results (Agazzi, 2012b).

- *Interpretative neutrality*: evidenced through focus on empirical data, use of standardized methods, consideration of multiple perspectives, peer review, comparison with existing theories, transparency in methodology, and scientific debate. Scientists strive to minimize any subjective influence and personal bias on the interpretation of results to achieve objective, evidence-based understanding (Agazzi, 1977). Peer review, transparency in methodology and scientific debate are essential practices that help to maintain objectivity. For example, different interpretations of quantum phenomena are continually debated and reviewed, allowing for evidence-based understanding and avoiding personal or cultural biases.

For this reason, it could be said that both Galileo's free-fall experiment and the double-slit experiment meet the different criteria of rigor and objectivity that allow physics to be a true knowledge and consistent with experimental data, established scientific theories and logical principles, while offering a clear and predictable explanation of the observed phenomena.

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Conclusions

Agazzi has pointed out that there are two fundamental requirements when explaining scientific rationality, these are rigor and objectivity.

The rigor (from the Latin *rigoris*, which relates to severity, accuracy and rigidity in respect of a norm) consists in that for a speech to be considered scientific, sufficient reasons must be given for the propositions that make it up in an argued way. An effective and effective way to do this is through mathematical calculation and demonstration, although it is not the only form of rigor. In the social sciences it is argued from the facts and the compatibility that one has with certain sources, and in the law the subtle logical rigor is used. The rigor requirements vary from science to science, without the essence of what rigor means varying or transforming.

The objective is what can be shared by a plurality of observers. In this way, the discourse of the different disciplines has elaborated criteria that allow specialists to reach shared statements and differentiate one science from another, obtaining from them certain aspects through cuts of reality, which is valid and necessary, as it allows to gain in objectivity from the specialized look of the sciences. It is thus held that each science is devoted to certain attributes or properties that are important and ignores others that will be considered by other sciences. In this way, each science

has its criteria of objectivity which are, at the same time, criteria of referentiality and truth, which allow investigating certain aspects of reality, as well as achieving a consent from specialists in that specific field.

Scientific realism generally asserts that physical theories and entities refer to objects and processes of reality independently of human knowledge. According to Agazzi's realistic approach, it is possible to identify three essential features of the ontological status of physics: the structural nature of the real, the existence of physical entities, and the independence of theories.

The rigorous criteria in physics are logical coherence, which relates to the internal consistency and the solid logical structure that scientific theories and propositions must have; mathematical precision, which refers to the requirement that theories and claims in physics be formulated clearly and accurately; the empirical dimension, relative to the great importance of physical theories being based on empirical verification; the relationship with previous theories, i.e. the requirement that new theories be compatible with the corpus of scientific knowledge and not contradict it; *critical examination and control*, which highlights the importance of physical theories being evaluated in detail and *permanently contrasted; cultural independence and subjectivity*, since, for Agazzi, theories and assertions of physics must be universally applicable and cannot depend on cultural or personal interpretations.

The criteria of objectivity in physics are the agreement of the scientific community, since peer review and intersubjectivity are fundamental to ensure the objectivity and quality of scientific knowledge; the experimental nature, since theories must be able to verify with information collected from experience and based on what is observed; the absence of external influences to scientific methodology, because it is necessary that, in physical research, there are no factors of cultural, political, ideological or subjective order; the *replicability of methods and procedures*, since objectivity is promoted through the exact and detailed description of the method and process used in scientific research; *valuation*, since physicists must submit their theories and results to the review of experts and be willing to modify their conclusions to the role of feedback and new information received from peers; and, finally, *interpretative neutrality*, as physicists must strive to present information in a neutral and objective manner, so that the information presented allows other scientists to evaluate it impartially.

This paper could have different educational implications. Some possible are the training of teachers of physics and philosophy, contribut-

ing to a more complete and contextualized presentation of physics and its philosophical foundations in the classroom; the design of educational programs, since research could inspire the design of educational programs in philosophy of science, specifically, teaching the scientific realism of Agazzi; the development of critical thinking, since, by delving into the onto-epistemological foundations of physics, students can develop critical thinking skills, which, in turn, would facilitate a better and deeper understanding of scientific research and its difficulties; and, finally, interdisciplinarity, since its subject promotes dialog and collaboration between experts in physics and philosophy.

Note

1   This article is the result of the research project "onto-epistemological foundations of physics: contributions from the scientific realism of Evandro Agazzi".

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Realism, general relativity and Schrödinger's Cat

Realismo, relatividad general y el gato de Schrödinger

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Abstract

This paper examines the nature of reality, including the possibility of freedom, in the framework of modern physics. Additionally, it proposes a reform for the metaphysics of realism. For realism, the world is the way it is independent of the mind. However, general relativity supposes that the speed of objects and the temporal order of events depend on the frame of reference adopted. Which frame of reference is adopted depends on human interests. However, there are still physical facts independent of the frame of reference: the speed of light, spacetime distance, and the equivalence of matter and energy, amongst others. On the other hand, the Copenhagen Interpretation supposes that quantum states are in a superposition that is only realized at the moment of observation, leading to the implication that Schrödinger's cat is both alive and dead until observed. However, less incredible realist possibilities are analyzed. Modern physics, whether determinist or indeterminist, also threatens the possibility of freedom. The compatibility of freedom as self-government and modern physics is analyzed and developed. Although central aspects of realist metaphysics are conserved, a philosophical-scientific conception of the universe that integrates mental beings within it emerges, which supposes a reform for standard scientific realism. The existence of facts independent of what we happen to think is saved alongside ineliminable mental phenomena.

Keywords

Metaphysics, Epistemology, Relativity, Quantum Mechanics, Freedom, Science Philosophy.

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Resumen

El presente trabajo examina la naturaleza de la realidad en el marco de la física moderna, incluyendo la posibilidad de la libertad. Adicionalmente, propone una reforma a la metafísica del realismo. Para el realismo, el mundo es como es, independiente de la mente. Sin embargo, la relatividad general supone que la velocidad de los objetos y el orden temporal de los eventos dependen del marco de referencia que se adopte. Qué marco de referencia se adopta responde a intereses humanos, pero sigue habiendo hechos físicos independientes del marco de referencia: la velocidad de la luz, la distancia espaciotemporal, la equivalencia entre energía y materia, entre otros. Por otro lado, la "interpretación de Copenhague" estima que los estados cuánticos están en una superposición que solo se concreta en el momento de observación: el "gato de Schrödinger" está vivo y muerto, hasta que lo observamos. Sin embargo, se analizan posibilidades realistas menos inverosímiles. La física moderna, determinista o indeterminista, también amenaza la posibilidad de que tengamos libertad. Se analiza y desarrolla la compatibilidad de la libertad como autogobierno con la física moderna. A pesar de que aspectos centrales de la metafísica realista se conservan, se concluye con una concepción filosófica-científica del universo que integre a los seres mentales dentro del mismo, lo cual supone una reforma a la metafísica del realismo científico estándar.

Palabras clave

Metafísica, epistemología, relatividad, mecánica cuántica, libertad, filosofía de la ciencia.

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Introduction

Modern physics challenges many common senses of reality. The four-dimensional block universe, three spatial and one temporal, represented in Minkowski's graphs (Hossenfelder, 2022), would give force to Parmenides and Plato's position that reality is eternal, change is illusory, and the passage of time is only an illusion of our perception. Also, the fact that space is curved by massive bodies as if it were made of rubber, as was proved by Sir Arthur Eddington in 1919 with observations of the curvature of light from distant stars behind an eclipse, is a fact that defies common sense. The displacement of Euclidean geometry (adopted by Newton and postulated by Kant as a necessity a *priori* condition of the knowable universe itself), by Riemann's geometry of curved space, postulated in Albert Einstein's universe, constituted an event worthy of being considered a true "scientific revolution" (Kuhn, 1962). Aristotle would perhaps smile with this twist as if it were a reincarnation of his aether, supplanting Newton's "eerie action at a distance" of gravity for a malleable space.

This article deals with the question of realism in the foundations of the two great theories of modern physics: general relativity and quantum mechanics. Aspects of these theories challenge one of the pillars of scientific realism: the idea that the universe is the way it is independent of what we think or observe of it. General relativity, and more specifically special relativity, involves Galileo's idea of the relativity of motion and

extends it to the relativity of time. For general relativity, there are several frames of reference for which the velocity of objects and the temporal order of events are distinct, and there is not particularly "real" frame of reference in front of the rest. Second, for the most widespread interpretation of quantum mechanics, the Copenhagen interpretation, the probabilistic values that characterize particles are not determined until they are observed. Protagoras and George Berkeley would be pleased with this confirmation of their theories, in the face of their realistic rivals, whose theories would be refuted by the very science they claim. The objective of this paper is to provide a realistic response to the challenges posed by modern physics, within the framework of an integrative philosophical-scientific vision of the universe. The epistemological and metaphysical analysis of modern physics has been an important task since its inception, and debates about it continue to evolve human knowledge. Likewise, as this article suggests, while scientific realism is one of the most accepted positions in professional philosophy, it is also in need of refinement.

Methodologically, to answer the challenges posed by modern physics, we seek resolutions of philosophical concerns using the same resources and without leaving the same framework of knowledge that physics itself delineates. Thus, it is under the understanding of modern physics and assuming its approximate truth that answers to philosophical questions about reality are sought. In the second section, this paper argues that general relativity maintains some crucial aspects of the independence of reality from our thinking of it. In the third section, it argues that quantum mechanics does not imply an idealistic thesis, as there are more promising realistic relevant alternative interpretations. In the fourth section, it states that realism is superior to epistemological, metaphysical, ethical, and educative subjectivist idealism. In the fifth section, it mentions that the causal view of modern physics does not eliminate freedom as self-government—a conception that holds much of what we value in freedom. In the last section, it concludes with some general reflections on the vision of scientific realism, modern physics, and a reform to its standard metaphysical formulation.

Realism and general relativity

Realism implies the thesis of a world independent of the mind: the idea that the world, in general, is as independent of mental states. The physical world is supposed to be the paradigmatic case of a world independent

of the mind. However, general relativity theory, and particularly special relativity, states that:

- The movement is relative to a frame of reference.
- Time is relative to a frame of reference (Hossenfelder, 2022; Zee, 2013; Bunge, 2016).

Thus, for general relativity, it might seem that Protagoras was right when he formulated subjectivism with the famous phrase: "the human is the measure of all things, of things that are, and of things that are not" (Plato, ca 375 BC). The same object can have different speeds according to different frames of reference, and there is not intrinsically truer, or absolutely correct, frame of reference. Thus, questions such as "how fast is the planet moving?" and "does the Earth rotate around the Sun or the Sun around the Earth?" do not have a single coherent answer. Relative to the Sun's frame of reference, the Earth moves at 107,226 km/h around the Sun. In relation to the frame of reference, the Earth does not move and it is the Sun that moves at 107 226 km/h. This is what is known as "Galilean relativity" (Hossenfelder, 2022; Zee, 2013).

Intriguingly, this means that, although the simplest trajectory is plotted in the heliocentric model, the geocentric model is accurate in the Earth's frame of reference (Hossenfelder, 2022; Zee, 2013). While it may be more useful for us to use the Sun as a frame of reference, there is no absolutely "better" or "correct" frame of reference independent of our mind-dependent uses. Thus, Galilean relativity has some tension with the common interpretation of Galileo's claim that we have learned, that the heliocentric model would be the absolutely correct one. It is correct, but relative to the frame of reference of the Sun, which turns out to be more useful and easier to calculate for our human purposes. Given other purposes, the geocentric model would also be correct (Hossenfelder, 2022; Zee, 2013). Since human purposes and computing abilities are mental, the discovery that the Earth revolves around the Sun and not vice versa does not constitute the discovery of a fact independent of the mind.

This conclusion translates to the framework of general relativity theory, which states that the speed of light is constant from all frames of reference. This implies that, relative to different frames of reference, an event occurs before, after, or simultaneously with different events. There is not a single time when a specific event occurs, as different frames of reference order the sequences of events in the universe differently. Moreover, there is no single true frame of reference (Hossenfelder, 2022; Zee, 2013).

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All frames of reference are equally valid, although some may be more useful for our purposes.

According to the theory of general relativity, and specifically special relativity, unlike other phenomena, light reaches its target at 299,792 km/s in vacuum, no matter how fast the target moves (except for the speed of light itself) towards or away from the source. Thus, a laser will reach a target at 299,792 km/s in exactly one second, whether the target was still or moving toward or away from the source at 100,000 km/s (Hossenfelder, 2022; Zee, 2013).

Suppose a spacecraft A chases another spacecraft B at this speed and both fire lasers at each other. The time it will take for the lasers to reach the other ship will be the same. From the point of view of an observer watching the chase, both ships fired at the same time, however, the light from A to B will have traveled a longer distance, since B advanced while the laser reached it. Consequently, A had to fire before B, from the perspective of spacecraft. Thus, there are at least two sequences of events as to who fired first in pursuit. But these are not the only frames of reference. If there was a third craft C between the original two, moving from A to B at a faster rate, B would have been the first to fire. This is because, from C's perspective, B would have to fire the laser first to reach spacecraft A moving away from its frame of reference. What is the "only right" order? None. All are correct for different frames of reference, and no frame of reference is the "only true frame" (Greene, 2020; Carroll, 2020; Hossenfelder, 2022; Zee, 2013).

For general relativity, the duration of events varies according to their relative velocity. If you take off on a rocket at close to the speed of light and return to Earth a year later, *ceteris paribus*, you may be landing thousands of years later in the age of Earth (Hossenfelder, 2022; Zee, 2013). What was for you a year on a rocket could be for someone on Earth thousands of years. In that sense, it is possible to travel back in time to the future faster than the normal speed we share in our ecological niche on Earth (Hossenfelder, 2022; Zee, 2013).

The question at this point is whether we can also travel back in time to the past. The answer seems to be no (Hossenfelder, 2022; Zee, 2013), as we would have to travel faster than the speed of light and that would be naturally impossible, although some physicists play with the possibility, including in the early universe (Krauss, 2017). In the literature on the possibility of time travel, the "grandmother paradox" emerges. This paradox highlights the causal cosmic chaos that would create the possibility of time travel. The grandmother paradox asks what would happen

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if a time-traveling killer murders his grandmother, thereby never being able to be born, exist, and thus never cause the death of his grandmother (Hossenfelder, 2022; Zee, 2013). But if his grandmother did not die because the killer was not born, then the killer would be born. But if the killer was born, he murdered his grandmother and was never born. It is sometimes theorized that in the early universe it traveled faster than the speed of light, however, if it traveled faster than the speed of light, it would be set back in time and would never have reached the current stage where this speed limit is not violated.

In the framework of general relativity theory, are there facts independent of the mind? Yes, one is the speed of light, which remains constant under the Lorentz transformation (Bunge, 2016). Second, spacetime distances remain constant under the Lorentz transformation (Bunge, 2016). Third, the fact that there are multiple frames of reference that produce different outcomes in terms of movements and timing of different events. Fourth, the existence of objects that move and emit light. Fifth, that the passage of time is slower for faster objects, compared to less fast objects. Sixth, the conservation of energy, and the equivalence of matter and energy of the famous equation $E = MC^2$ remain true independent of the frame of reference (Bunge, 2016). However, it seems that certain times, the order and speed of the movement of objects are frame-dependent properties and, consequently, are mind-dependent facts. As Mario Bunge himself (2016) analyzes:

> Special relativity also proved that the values of certain properties, such as distance, duration, mass, temperature, and electric field strength, depend on the frame of reference, while others, such as spatio-temporal distance, electric charge, and entropy are invariant with respect to frame of reference changes... Therefore, the relativization was partial and refers to the relationship with the objective frame of reference, not with the conscious subject... There is nothing unreal or apparent in the dependence of a frame, neither in relativistic physics nor in classical physics... Invariance assumes reality, but not the other way around (pp. 80–81).

Realism and Schrödinger's Cat

Quantum mechanics is famous for driving a number of anti-realistic implications (Penrose, 2016). The center of quantum mechanics is the "Schrödinger equation." For this equation, the state a quantum particle has depends on the probabilistic evolution of the function wave, which collapses at the moment of observation, in which the probability is fixed

in a given state. Thus, the state of the material subject to the laws of quantum mechanics would depend on the observer. George Berkeley (1710) would come from death to recognize his metaphysical principle of the universe: *esse est percipi* ("to be is to be perceived").

On the other hand, Schrödinger refuted this interpretation of his theory, with his famous "Schrödinger cat" (Penrose, 2016). In this hypothetical experiment, it is assumed that there is a box with a radioactive material operating under the laws of quantum mechanics with a probability of decaying. This material is connected to a gun pointed to a cat. If it decays, it shoots the gun and kills him. If it does not decay, it does not shoot and the cat lives. Now, before looking on the inside, is the cat dead or alive? Copenhagen's interpretation, which became the most deeply rooted among scientists and the general consciousness, would say that there is an overlap between a state of decayed material and dead cat, and a state of undecayed material and living cat. Only when the box is opened, and it is seen what it is on the inside is the life or not of the cat determined. Before that, the cat is alive and dead (Penrose, 2016).

Copenhagen's interpretation is frequently attributed to Schrödinger as having admitted the idealistic implication, however, that does not seem to be the correct understanding of the situation (Penrose, 2016). Albert Einstein replied that the

> [Copenhagen's] interpretation is more elegantly refuted by the system of radioactive atom + Geiger counter + amplifier + powder charge + cat in a box, in which the psi function of the system contains the cat both alive and torn to pieces. Should the cat state be created only when a physicist investigates the situation at some definite time? (Maxwell, 1993).

Famously, Einstein, despite being one of the pioneers of quantum mechanics, objected in the same line of this interpretation with the Einstein-Podolski-Rosen paradox (Mermin, 1985), something that in popular consciousness has been mimicked with his claim that "God does not play dice with the universe". What the Nobel Prize in Physics, Roger Penrose (2016), points out about these cases, is that what these physics, Schrödinger and Einstein, pointed out was not an acceptance that the cat was in an overlap between dead and alive that is only defined once it is observed. What they point out is that the interpretation or the theory itself must change, because Copenhagen interpretation is blatantly absurd. The categories "live cat" and "dead cat" are mutually exclusive, and the cat could not be in both (Penrose, 2016).

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An idea proposed in this context is to say that the exit is in the consciousness of the cat (Carroll, 2019). As it is a conscious being, it will be fixed by its own observation that it is alive or dead compatible with the decay arrangement of radioactive material, so it would not be confined to the problematic live/dead overlap. However, while the case of the cat is striking, we can replace it with states of unconscious beings with the same effect. We can replace the jack with a *switch* that can start down, it stays there if the material does not decay and rises if the material decays. Prior to observation the *switch* would be in an up/down overlay that is only fixed once observed, which, again, demonstrates the implausibility of the statement (Penrose, 2016).

To highlight the implausible implication of the Copenhagen interpretation, we can point to decay dating techniques of radioactive material, the material used in the case of Schrödinger's cat. Peppe and Deino (2013) provide a catalog of methods. The most famous is carbon dating. True, it measures the dating of living objects (considered reliable up to 50,000 years of age). True, that it includes cats and other beings with consciousness from many years ago, however, it also measures the age of shells and trees, which would require additional arguments to say that they are beings with consciousness, in addition to having metabolic cycles and processing information. If a shell existed 30,000 years ago, does its existence depend on an observation made by an archeologist who was born 29,970 years later? Does current observation change events 30,000 years in the past? Other methods also used to date objects, even inorganic, are K-Ar dating using decay of isotopes K-40, uranium-lead, uranium series using U-238 and Th-230, fission tracks with U-238, among many others (Peppe and Deino, 2013). could observations using these methods now determine if a volcano erupted thousands of years ago? Clearly, no. This is the point of Schrödinger's cat.

Another alternative is Everett's interpretation of multiple worlds, which itself rejects the metaphysical primacy of the observer (Carroll, 2019). For this interpretation, the Schrödinger equation describes the deterministic evolution of the universe, which is constantly splitting into multiple universes that realize the various possibilities specified by the equation and never interact again. In some universes the cat is alive and in others it is dead, but never alive and dead in the same universe (Carroll, 2019). When making an observation, we simply observe the cat that is in the universe where the version of us is. In some our version observes a live cat version and in others observes the dead cat version (Carroll, 2019). Hossenfelder (2022) argues that the claim constitutes pseudosci-

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ence, as it is, in the Popperian spirit, not falsifiable: it does not generate predictions at risk of being empirically refuted. Penrose has criticized that this interpretation does not constitute a true explanation, in this case, of the observed phenomenon that the cat is either alive or dead, but not both. It is unexplainable from the observed fact that the cat is alive, that we are in a universe, among other possible ones, where the cat is alive.

We wanted an explanation of the observed fact of the cat's life. Now we "explain" it in an *ad hoc* way by multiplying cats, observers and universes infinitely. Everett's model is a clear violation of Occam's razor, being orders of magnitude more complex than need. Everett's interpretation sounds like a child's argument that the coin tossed will be expensive. When the seal comes out, he says he has won anyway because in another universe the coin is expensive. It is an *ad hoc* and complex proposal. Schrödinger confronted us with an absurd interpretation of his equation, in the strict sense, a *reductio ad absurdum* in formal logic: the cat is alive and not alive. Everett returns coherence with another reduction to the absurd: the cat, the observer, and the universe multiply infinitely.

Another interpretation uses paraconsistent logic. For realistic paraconsistent logic there are contradictions in the world (Priest, 2014). For example, if two inconsistent laws of the same rank are created certain acts may end up being legal and illegal, or if someone has contradictory beliefs, they may believe that P and that ~P. Paraconsistent logic has also been used to analyze certain paradoxes, such as the "liar paradox." "This phrase is false" could be true and false at the same time, because if it is false, it is as it says it is, then it is true, and if it is true, it would have to be as it says it is: false. Perhaps the superimposition of states between decayed radius and non-decayed radius is yet another example of existing inconsistencies in the universe, I would suggest this idea. This idea may be worth exploring for the most part in the fundamentals of quantum mechanics. However, the possible existence of contradictions does not imply that all contradictions exist. The fact that the cat is alive and dead at the same time does not seem to be a possible situation, which would seem to remain the paradox of Schrödinger's cat.

Another interpretation is that of Bohm, originally suggested by Einstein and De Broglie (Veritasium, 2016; Harris *et al.*, 2016) and most recently defended by Mario Bunge (2016), among others. To them, it is clear that the cat is either alive or dead, and not in an overlap between the two states that is only defined by observation. In both cases, it is recognized that quantum matter operates according to quantum laws, including when it interacts with physical entities like us. Ignorance of the state

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of the dice does not imply the absence of its pre-observation state or that we interact with them and change it, since we are also physical entities. But this does not imply that our mental activity is setting a reality that does not exist without observation. (It is worth noting that this issue is distinct from the return of the "creepy action at a distance" in quantum mechanics, with quantum entanglement, among other distant events.)

It is worth noting that this interpretation in De Broglie and Bunge (2016) allows probabilistic causation with non-local effects, but they remain objective facts of the universe. In such a case, perhaps the Cat is alive or perhaps dead, with some objective probability given the circumstances, but it is never in an overlap between dead and alive. De Broglie's realistic world of quantum mechanics is stranger than a deterministic world of local causation. In such a case, God did play dice with the universe, but this is little strange compared to a world without facts, a world of impossible states prior to observation, of a living and dead cat prior to observation, which is defined between the two only with observation, or a universe that multiplies in different universes at each instant. Again, Bunge manages to formulate the realistic conception for the foundations of quantum mechanics with great clarity and depth:

> In the new realist interpretation, the dispersions, "indeterminations," or "uncertainties" are as objective as the probabilities underlying them: they are properties of the quantum themselves, whether observed or not (Bunge, 1967, 1973, 1985; Gottfried and Yan, 2003; Lévy-Leblond and Balibar, 1990; Phillips, 1949) (Bunge, 2016, p. 108).

Reasons to Prefer Realism Over Idealism

Metaphysical idealism and its epistemological counterpart, subjectivism, can recognize the existence of our mind, our preferences, our mental states, our consciousness, and the mental contribution contained in much of our knowledge and reality itself, as beings within the world. The perception of red, the blue of the sea, the value of money, the ethics of driving on the left or the right, the taste of chocolate ice cream versus passion fruit ice cream, all are examples of the mental, epistemological and metaphysical contributions (Restrepo Echavarría, 2023). However, subjectivist/idealist philosophy has serious weaknesses. It is clear that whatever you think, if you jump from the tenth floor, without any equipment, the force of gravity will operate and you will crash into planet Earth at an acceleration of 9.8 m/s^2, correcting for the resistance of the air against the body. The

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independent reality of the mind clashes and disproves the wrong ways of thinking and acting. Even scientific knowledge, which is increasingly approaching reality, refuting misconceptions, would be impossible if it is simply what we want. We were never wrong, for there would be no external reality to correct us. Subjectivist/idealist philosophy does not allow the existence of an external world that would exist even if we did not exist (Restrepo Echavarría, 2023).

It is important to mention Marx's (1852) assertion that humans create history, even if it is not always according to our taste. Perhaps an idealist could say that we create gravity, even if it is not to our liking. But then, was gravity born with humanity instead of being one of the factors that made possible the causal network that led to humanity's existence? Logical considerations and the best physics pay against this possibility (Restrepo Echavarría, 2023).

The existence of the mind is relatively recent in the history not only of the planet Earth, but of the universe (Chaisson & McMillan, 2017). For billions of years, since the Big-Bang, a universe has evolved without the human species and no other animals. The light of the explosion began to cool (cosmic microwave background radiation) and by quantum temperature fluctuations, eventually, hydrogen atoms emerge, which by agglutinations made by gravity initiate the proton-proton chain emitting nuclear energy at the center of stars compressed by their own weight. Atomic elements of life, such as carbon, are born, and in subsequent generations of solar systems, there may be life. Life, as Aristotle noted, cannot all feel and think. First it took millions of years for our planet to be covered with plants and generate an atmosphere with oxygen, bacteria, primitive animals, eventually dinosaurs, mammals, already with complex mental systems, capable of having interests, perceptions, tastes and suffering. Eventually we emerge humans with these mental abilities and our remarkable abilities of reasoning, problem solving, language, and social organization. During more than 99% of this process of universe evolution to the present, which causally explains the eventual emergence of the human mind (and not the other way around), the human mind did not participate (Chaisson & McMillan, 2017). In summary, subjectivism/idealism does not know the reality of the external world, its physical, chemical and biological causal processes, the reality of the past, and particularly of our cosmic and evolutionary history, and our place as beings part of the universe that can look fascinated, curious and open to knowledge, to the rest of the vast cosmos (Restrepo Echavarría, 2023).

When learning, new knowledge is acquired, sometimes refuting a false belief, perceptual illusion, cognitive bias, personal or social prejudice, false propaganda, superstition, undue authority, or unfair judgment. It seems incredible to be able to educate us when accusations of witchcraft are as true as their denial, that there were weapons of mass destruction in Iraq to what was a lie by Bush and the military-industrial complex, and that we fall by gravity to what was not. What remains for the subjectivist/idealist educator is the sophists' stance: teaching young people how to be successful in the face of power, in essence, be mediocre like Eichmann in his banal evil (Arendt, 1963). A minimum of thought would reveal not only the incoherence of the position, as it would be evaluable to review whether it is true that it would provide success to the student, but the lack of meaning of life and the anti-citizen decomposition of society that it would imply. It is not possible to educate for knowledge and emancipation if all belief is true simply because of the fact of having it (Aguilar Gordón, 2019; Alonso Rodríguez, 2021).

Freedom in the framework of modern physics

Laplace's demon endangers freedom and moral responsibility. Philosophers have concerned themselves with free will intrinsically, as well as derivatively being the condition for moral responsibility, for we cannot be morally responsible for things over which we have no control. Laplace imagined a demon who, knowing the state of each particle in the universe and the physical laws that apply to them, could predict the sequence of the rest of the universe's events in the same way that if you know with certainty the physical properties of a coin toss you would know if it will fall on face or seal with 100% certainty. For Laplace, Newton, Einstein, and the Bohemian interpretation of quantum mechanics, the universe is deterministic, and the future is fixed from the start (even if the chaos of the universe system and the Heisenberg Uncertainty Principle make impossible the computational power required for Laplace's demon to actually make the prediction).

From this consideration, the argument of the consequence and position of hard incompatibilism is strengthened (Van Inwagen, 1975; Pereboom, 2013). The consequence argument recognizes that, if determinism is true, all our wills and actions are the inevitable consequence of the laws of nature and conditions of the past, even before we were born. Thus, to be free and morally responsible, we would have to change the

laws of nature or conditions of the universe before we were born, which we obviously cannot do (Van Inwagen, 1975; Pereboom, 2013). The only option would be, as Nietzsche put it, that to be free we would have to be a cause without cause, which is hard to believe without falling into an anti-scientific, *ad hoc,* and superstitious position.

Libertarians state that quantum mechanics postulate events that have a random component (Kane, 2013). Thus, at the micro level a particle can move to one side or the other even if the history of the universe is fixed. For libertarians, probabilistic quantum events open the cosmos garden paths. Armed with these paths, libertarians postulate that we have the freedom to freely choose between them.

But, does one element of nature's fundamental chance give us freedom? Chance is not a type of control we have (Pereboom, 2013). If we conditioned our wills and actions on the outcome of a hypothetical currency subject to fundamentally random movements, there would not be free wills or actions. They would be at the antipodes of freedom, far removed from reason, deliberation and values. If we do not have freedom if we are determined and we do not have freedom subject to upward movement, there seems no reason to think that if our wills or actions are the determined result of historical conditions with a component of chance, we would be freer (Pereboom, 2013).

Libertarians respond that what makes the probabilistic causation of quantum mechanics is to open possibilities and that our wills and actions are caused in a free, non-random way. However, the frequencies of events that would be observed would be exactly those that are in accordance with the probabilistic laws of quantum mechanics. Thus, there would be a series of trillions of events for which we have a sufficient physical explanation compatible with the rest of physics and another additional explanation, based on free will, that coincides in its observable results and would not change the distribution of frequencies of events. As Pereboom points out, this is an implausible "wild coincidence."

At this point in the discussion, Manuel Vargas (2013) suggests revisionism: to reengineer our concepts of freedom and moral responsibility, so that they are compatible with the laws of physics, whether deterministic or probabilistic. Classical discussion of freedom integrates metaphysics and political philosophy. Thus, for example, we find in Plato that freedom is that capacity of reason to lead us in our life without being dominated by the passions or prides of the soul. Thus, Phineas Gage is an example of someone who lost his freedom with an accident that pierced his frontal lobe (Harlow, 1868; García Molina, 2012). After the

accident, Phineas lost his ability to reason, deliberate and balance, he became an unbridled role in the whirlpool of his emotions, a loving moment, the second moment hating, laughing, crying, without any stable coherence (Harlow, 1868; García Molina, 2012). Likewise, Bunge places freedom neuropsychologically in the prefrontal neocortex, dedicated to reasoning, deliberation, planning, and evaluation. This approach explains a reason why, for example, an infant is less free, and therefore less morally responsible, than an adult. Freedom and responsibility must be cultivated (Vargas, 2013).

It is worth noting that, from the perspective of microphysics, the mind, including the ability to respond to reasons, values, deliberations, and other cognitive processes, are overshadowed. In this perspective, it is not only freedom and responsibility that is eliminated, but also intelligence, perception and knowledge. It is only when we take a perspective of the systems that make up microphysics that we realize the emerging properties that characterize systems, among them the mental properties of biopsychosocial beings such as humans.

Likewise, when a person is rational, but subject to a number of external conditions, his freedom may be reduced. An example of this is when someone threatens you with a gun for stealing your wallet. There is an element of violent obligation against their rights. The same happens when he is enslaved, in prison, in poverty or under the effects of false propaganda, either Stalinist style or the propaganda model in "democratic" capitalism (Herman and Chomsky, 1988). These situations indicate clear and strong reduction of freedom due to external factors.

In this context, the concept of non-domination from political philosophy becomes particularly useful for analyzing freedom. There may be factors, both internal and external, that affect freedom. In the absence of domination there is a kind of freedom in complex systems like humans that is worth distinguishing, securing, and cultivating. We find self-government in the ideal regulatory limit of a healthy educated person living in systems where domination has been eliminated. The ideal of self-government is an emancipatory ideal to which we can approach, even if the laws of physics are deterministic or probabilistic (Vargas, 2013; Shapiro, 2012).

Perhaps this way of seeing freedom, responsibility and the senses of life does not preserve all our pretheoretical intuitions. In this case, we realize that freedom does not require that there are metaphysically real alternative paths that we can take in a decision (Vargas, 2013). This is a consequence of this revisionist proposal. However, revision of our concepts is common in the sciences. In this case, this assumption would be

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replaced by the assumption that the available alternative to be taken will depend on the decision of the subject, even if this decision can be traced to far-off factors beyond their reach. Originally, atoms were conceived as indivisible particles. This was conceived by Democritus and Epicurus, and this idea was retained until the concepts developed by Dalton and Mendeleev in their pioneering works on elements of the periodic table in the 18th and 19th centuries. However, Thomson and Rutherford, in transit to the 20th century, discovered that the atom had parts, with a proton nucleus orbited by electrons (Heilbron, 2018). Rutherford speculated about the existence of a neutron also in the nucleus of atoms, but it was Chadwick who got the credit for discovering it in 1932. Eventually, it was discovered that even protons and neutrons were not indivisible but were composed of quarks. However, this did not lead us to conclude that the atom does not exist. We had to review our concepts and design new ones that allow us to follow our exploration and knowledge of the universe (Heilbron, 2018).

The same goes for freedom and moral responsibility. Modern physics comes into tension with them. But it is because we will not find freedom and responsibility at the fundamental levels of physics. We will find them in the psychosocial systems of our lives. From a more detached and historical perspective, this is not so unexpected. In fact, this proposed new modern turn is in tune with the classical approaches of Ancient Greece. As it happened with the revision of the concept of the geometry of space in the transit from Newton to Einstein, who is again in some tune with certain aspects of Aristotle's theory. Freedom and moral responsibility are too precious to lose. Science and nature give us the opportunity to preserve them. We are right to take it.

Conclusion and discussion

The scientific understanding of us and the universe, while fascinating, contains a number of challenges not only for certain common senses, but for realism, even scientific realism, and our concept of ourselves as beings with degrees of freedom and moral responsibility over our actions and our lives.

General relativity maintains the Galilean relativity of motion and extends it to the time and order of events. There are multiple frames of reference according to which objects move at certain different speeds in certain different directions, without there being any single speed and direction of movement of objects. Likewise, there are different frames

of reference that fix different moments and order for the events of the universe, without there being any particular moment or order that is the only real one. In any case, the laws of general relativity remain the laws of the universe independent of us, they existed and applied long before the emergence of the mind and will apply long after mental beings, like us, are extinct. Objects and events, with different spatial and temporal coordinates, exist independent of reference frames.

Likewise, Copenhagen's interpretation of quantum mechanics that was popularized in planetary consciousness challenges the realistic concept that there is a reality that exists independent of observers. However, this is not the only interpretation in force. There are other options compatible with realism that do not have the great epistemological, metaphysical, ethical, and educational disadvantages of subjectivism and idealism implicit in Copenhagen's interpretation. The realistic interpretation of Einstein, De Broglie, Bohm and Bunge, for example, does not have the absurd conclusion of Schrödinger's cat where it is in an undetermined overlap between dead and alive before observation comes to define it. Nor does it have the absurd consequence that there were no erupting volcanoes, planets, stars and the evolution of the universe and life, before the emergence of beings with neurons organized in such a way that they could observe them.

Likewise, realism, in contrast to idealist-subjectivism, makes sense of the phenomena of learning, error correction, critical thinking, and resistance to unjust authority. Idealist-subjectivism strips us of our epistemological system of immunity against falsehood, lies, and injustice, and at best can simply adhere to power, as advocated by Protagoras, Thrasymachus, Gorgias, and Heidegger, who eventually put it into practice. The resulting postmodern relativism, with its disregard for truth and reality, ends up even being founded on an admitted intellectual farce. Lyotard confesses that his "Postmodern Condition," the pillar of postmodernism, is his worst book, among all his bad books, where he invented stories, cited books never read and the whole process of production and dissemination is a kind of parody (González Arocha, 2021).

It is important to make a comment on scientific realism. In its standard version, scientific realism includes the metaphysical thesis that:

- The world has a definite structure independent of the mind (Psillos, 2009).
- The world exists outside of conscious subjects (Cárdenas, 2011, p. 93).

- Metaphysically, realism is committed to the mind-independent existence of the world researched by the sciences (Chakravartty, 2017).

This formulation, however, succumbs to severe objections derived from its eliminativism with respect to the mind (Restrepo Echavarría, 2023). Here I summarize the six objections. This thesis says that the world is as independent of the mind. I mean, the real world is not mental. First of all, however, if we are beings who think, even that we think that the mind does not exist, the real world contains us who are thinking beings. The position is as incoherent as asserting the theory that "I think I do not think." We had learned this lesson from the *Metaphysical Meditations* of René Descartes.

Second, scientific realism proposes to give special epistemological and metaphysical recognition to science. However, science is not only the scope of their research, but it is scientists, mental beings with knowledge objectives, who make observations, have ways of thinking, and who sustain and test their theories. The sciences, even the supposedly "least mental of all," physics, include scientists. In physics, unlike behavioral psychology, there are few overtones about recognizing that research is done by mental subjects trying to approach the world. Any writing by Einstein or another great physicist is proof of that. For example, in his 1923 work, Einstein talks about the "ideas of Eddington, Levi-Civita, and Weyl." In fact, every bibliography is a recognition of the ideas of other mental beings that we recognize as such precisely because of the ideas that we attribute to them, and the physicists are no exception. Bolaños Vivas (2017) highlights this reality in his conceptualization of knowledge.

Third, scientific realism is not only realistic about physics, it is realistic about the sciences in general. There are sciences that study mental beings, as beings that reason, perceive, feel, learn and have social relationships. Psychology, as noted by Balseca Bolaños and Viteri Basante (2021), as well as education, sociology, economics, and much of biology and zoology, involve an ontological commitment to the existence of mental beings. Thus, the formulation of standard scientific realism suffers from being empirically inadequate. Theories are empirically adequate when they agree with observations (Van Fraassen, 1980). Scientific theories claim to be at least empirically adequate, though realism asserts that they must also correspond to those unobservable parts of the universe. However, standard scientific realism is incompatible with the observable fact that these sciences deal with mental realities.

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Fourth, a view of the real world as independent of the mind eliminates the possibility that consciousness is part of the real world. We may doubt that the ocean itself is blue, but denying the existence of conscious experiences of blue perception is a mental act that cannot be sustained honestly. Consciousness is the reality that we know directly, as part of reality itself. Denying the existence of our phenomenal states of pain, joy, perception of colors, smells, tastes and others, is a price perhaps unpayable epistemically and metaphysically.

Fifth, ethics, according to all theories, presupposes the existence of mental phenomena such as happiness, suffering, reason, consent, good life, and virtue. If the metaphysical thesis of standard scientific realism were true, a world without any of this is equivalent to ours, which does involve these mental states with their derived criteria of justice, good and evil. This would be a huge entry price to pay for a metaphysical thesis unlikely to be true given the observations made.

Sixth, asserting that the world is as independent of mind implies the assertion that the mind would have no causal link with the physical world. At best, this would imply that the mind is an epiphenomenon with no connection to the objects that seem to cause our perceptions and no connection to the actions we attribute to our cognitive control, in such common activities as running, driving, sitting, talking, etc. The coherence between our mental states and the causal flow of our environment would be an implausible coincidence, all to sustain the unattractive position that the mind does not cause, not being part of the independent world of the mind. In the worst case, it would be noted that epiphenomenalism over the mind violates the elastic principle that only things with causal links exist, and would end up back in eliminativism. Evidently, under this assumption, freedom would be beyond any *ab initio* scope.

Wittgenstein's philosophy has fallen into a trap worth remembering. In his antimetaphysical analysis of philosophy he concluded that his own analysis would be meaningless and therefore famously deduced that "what cannot be spoken of, must be silenced." He went on to publish his book, evidently falling into a contradiction. To avoid falling into analogous traps, scientific realism and more generally our scientific view of the universe must include the undeniable fact of our own existence. Obviously, if our world were as it is independent of whether the mind exists or not, it would be equal to one where mental beings such as octopuses, humans, whales, dogs, cats and perhaps current or eventually artificial intelligence do not emerge. But obviously, that world is not ours. It might be the same in terms of atoms and electrons, but it is not the same in terms

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of the obvious and undeniable fact of the existence of mental beings. But what can replace standard realism, preserving its virtues, but without falling into its weaknesses? Here is an idea like this:

> Reformed Realistic Metaphysical Thesis: the world is, in general, as it is, regardless of how one thinks it is. Yet the way the world is known is itself a part (but never the whole) of the world. The things of nature, sometimes mental and sometimes not, to which we pretend to refer with our scientific theories, make our theories true or false (Restrepo Echavarría, 2023, p. 88).

This realistic thesis can recognize the fact of the existence of galaxies and atoms prior to our existence, the possibility of error, correction and critical thinking, without eliminating our own existence as mental beings, philosophers, educators, researchers, scientists, without eliminating sciences such as physics, psychology and others, without eliminating ethics and the possibility of mental causation, at a minimum cost to the Occam knife (Restrepo Echavarría, 2023).

Modern physics also has challenges for our conception of ourselves as free beings and morally responsible for our actions. From the perspective of modern physics, it seems that we are purely vehicles of forces beyond our control and whose future has been determined since before we were born, excepting the occasional possible quasi-random movements of quantum physics. However, looking at physics to identify freedom is the wrong level, just as it would be the wrong level to identify intelligence. Freedom as self-government suggests that freedom and moral responsibility exist at a higher level that adds physical components in psychobiosocial systems, involving our intelligence, knowledge, social opportunities and increasing in proportion to the elimination of domination (Vargas, 2013; Bunge, 2016).

Sankey (2010) argues that science repositions, refines and more generally does not displace common sense. In this case, we can see that it is. From these reflections emerges a philosophical-scientific view of ourselves as organized pieces of the universe with capacities of reasoning, knowledge and degrees of freedom and moral responsibility, that we look at the stars, thus becoming an instance of the universe itself, looking at itself. When there are such beautiful, ethical, meaningful, and truth-oriented philosophical and scientific views, the incoherence of anti-realism becomes irrelevant. Although there is still the need to explore and know the interactions between the positions related to realism and freedom with modern physics, advancing in the construction of this integrative vision is the proposal of this work.

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Analogy among electrical potential difference and gravitational potential difference on the teaching of physics

Analogía entre diferencia de potencial eléctrico y diferencia de potencial gravitacional en la enseñanza de la física

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Abstract

This paper proposes to create a strategy that enables solid learning of the topic of electrical potential, through an analogy between electrical and gravitational potentials. The proposed activity conceives the use of low-cost materials with the objective of bringing physical knowledge closer to the students' daily lives. This is because a certain lack of interest in Physics has been perceived in the focus population of this study, which in some way is contradictory, since the presence of this science in our daily lives is manifested in the various activities that we carry out in the context in which we are inserted as well as in the widespread use of new information and communication technologies to which the human species has been having access in recent years. The methodology includes a review of the available literature on the subject and has a qualitative-quantitative tendency, referring to the collected data's analysis during the experience. The results shows that there were better students performances during the second stage of the research process, which allows us to conclude that teaching Physics through analogies developed by the teachers of this subject enables better learning of this science to the extent that scientific and everyday knowledge are linked.

Keywords

Education, Inclusion, Significant Learning, Pedagogical Innovation, Academic Thinking.

Resumen

Con el presente trabajo se pretende crear una estrategia que posibilite un aprendizaje sólido del tema de potencial eléctrico, a través de una analogía entre los potenciales eléctrico y gravitacional. La actividad que se propone concibe el uso de materiales de bajo costo con el objetivo de aproximar el conocimiento físico al común de los estudiantes. Esto porque se ha percibido en la población foco de este estudio, un cierto desinterés por la física, lo que de alguna forma resulta contradictorio, una vez que la presencia de esta ciencia, en nuestro día a día, se manifiesta en las diversas actividades que desenvolvemos en el contexto en que estamos insertados, así como en el uso extendido de las nuevas tecnologías de información y comunicación (TIC) a que la especie humana ha venido teniendo acceso en los últimos años. Por su parte, para la creación de la citada estrategia se ha considerado el uso de una metodología que concibe una revisión de la bibliografía disponible sobre el tema y tiene una tendencia cualitativa-cuantitativa, siendo esta referida al análisis de los datos que serán colectados durante la experiencia. Los resultados muestran que hubo un mejor desempeño de los estudiantes durante la segunda etapa del proceso investigativo. Esto nos permite concluir que la enseñanza de la física a través de analogías elaboradas por los profesores de esta asignatura posibilita un mejor aprendizaje de esta ciencia en la medida en que se vinculan conocimientos científicos y cotidianos.

Palabras clave

Educación, inclusión, aprendizaje significativo, innovación pedagógica, pensamiento académico.

Introduction

According to Pinheiro, Silveira e Bazzo (2007), the teaching of science in recent decades has become a very important topic. On the one hand, this movement has concentrated mainly on research and actions that, governed by educational instruments, require significant attention to these issues. Thus, this approach, like that of experimentation in the teaching of physics, constitute trends on which researchers committed to this area have focused their interests with more emphasis in recent years. This has

been favored by the recent conceptions proposed by the Common National Curricular Base (BNCC, 2018), in which skills and competencies are more in line with the human being that is intended to be formed with the aim that he coexists better with the environmental demands and technologies of the 21st century.

In this way, such trends constitute a way of approaching physical and scientific knowledge, in general, to students. No longer from a teaching of physics steeped in classic Skinnerian traditionalism, where the approach of the different topics of this science is reduced to the ultrapast stimulus-response format. Today new visions are projected for teaching the contents of physics in secondary education; so that critical and reflective positions on the topics studied are potentialized, once these are reflected in our daily life. Consequently, space is opened to possible understandings and interpretations of nature that are more in line with the structure of science. So that common perceptions built from individual experiences and systematized observations are left aside, but not permeated by a deductive logic regarding the events that happen around us.

This research conceives this discussion in a particular way from the establishment of an analogy between the electric and gravitational potential. This is because it has been perceived, during the teaching of physics through the Pedagogical Residency (RP) and University for All (UPT) programs, promoted by the University of the Southwest of the State of Bahia, in the municipality of Itapetinga-Brazil, that students who are part of these programs present difficulties in understanding and interpreting the concept of "electrical potential", both from its most abstract form and from its visualization in power outlets and electrical equipment.

Once the problem has been identified, it should be noted that this study aims to create a strategy that allows a solid learning of the topic of electrical potential, through an analogy between this and the "gravitational potential". For this purpose, the use of low-cost materials is considered, since as cited in the governing documents of Brazilian education, in particular the BNCC (2018), with respect to science teaching in middle school, it is thought that:

> The area of Nature Sciences and its technologies proposes to deepen in the subjects Matter and Energy, Life, Evolution, Earth and Universe. The conceptual knowledge associated with these topics constitutes a basis that allows students to investigate, analyze and discuss problem-situations that emerge from different sociocultural contexts, in addition to understanding and interpreting laws, theories and models, applying

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them to the resolution of individual, social and environmental problems (p. 548).

In this sense, the use of low-cost materials for experimentation or as didactic resources in the teaching of physics, aims at the recycling and use of raw materials in order to enable different positions and behaviors of students towards the environment. In addition, it allows a different view of scientific teaching when other possibilities for teaching the subject are shown to extend scientific (physical) education to all social layers of this immense country.

In the midst of desertification, rising global temperatures, forest fires in the Amazon, the recent floods in Rio Grande do Sul and the successive neglect of the environment, we see an irrational and unsustainable behavior on the part of man. Thus, the evolution of changes in favor of a sustained improvement of life on Earth gains a solid basis in the teaching of scientific disciplines that, traditionally, have been adopted giving great weight to memoristic and repetitive learning of equations. Thus, it is necessary to highlight the fundamental role of the teaching of physics in this process of scientific inclusion of society. Physics opens doors to learning that starts from the creation of strategies that lead to critical thinking.

It is necessary to be aware that the traditional teaching of that science has created negative perceptions about it; mistakes about its own nature, echoing the complacency against inductive interpretations related to phenomena that happen around us. This is evident when it is limited to the resolution of exercise lists, when topics close to the daily life of students are not addressed or simply when they are not topics about which we usually do not stop to think critically. In this study, issues of a certain social impact are highlighted, which in many cases are discarded by teachers.

When considering the set of topics dealt with during middle school in the teaching of physics, the issue of electrical phenomena gains relevance, once the current humanity is constituted, in some way, dependent on such events. Whether in the use of electronic equipment and appliances, in companies and industries, theaters, cinemas, in the lighting of the house or the streets and avenues of our cities, such events are present. However, as such a subject is taught, opinions stand out in students that reveal a lack of understanding of phenomena of this nature. Difficulty that manifests itself in the interpretation that is offered to the voltage with which the equipments work at home. For example, the potential difference commonly found in 110 V or 220 V consumers is often called current. This shows a certain lack of knowledge on the part not only of the

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students, but also of ordinary people inside and outside academic institutions. In this sense, in the study by Dias et al. (2009), the author states that:

> It is possible to observe that some students claim that they did not understand the contents taught by the teacher, believing that there are various difficulties. Students consider that they have difficulties in interpreting the contents taught by the teacher, some even observe that the knowledge is very abstract, which makes it difficult for them to understand (p. 112).

Events such as the one mentioned above show that many students have difficulties in establishing clear relationships between the principles worked during the study of the electric field and their daily life. This perception is manifested when they are asked about aspects related to the subject. At that time, there are explicit negative weightings referring to the classes, where the latent difficulty in understanding and establishing relationships that show the application of such knowledge in the day to day is highlighted. So the concepts, at this level, abstract, are left without support with the reality of the students, as interpreted by Dias et al. (2009, p. 114), when referring to the answers offered in interview with the disciples.

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The lack of concrete representations has been displaced from the natural events that are studied in physics courses, to the point that this impacts on the non-concretization of competences and skills traced by the guiding documents of education in Brazil. What is not limited, as one might think, to topics of modern, contemporary and quantum physics, but also to topics that are addressed in classical physics. Classical physics stands out because even though the phenomena described in it constitute macroscopic events, the treatment offered does not cease to be abstract for the students. This lack of representation or modeling of the phenomena that are studied in secondary education also happens due to the lack of continuous and adequate training of physics teachers, who are responsible for teaching such knowledge in a solid way. This article aims to create a strategy that allows a solid learning of the topic of electrical potential, through an analogy between the electrical and gravitational potentials. This strategy has been built so that a meaningful learning of the issue that is addressed can be achieved.

Likewise, the research presented here conceives an experimental methodology, since it considers groping and direct contact with the low-cost materials proposed, a direct way for learning and interpretation with the event, as suggested by Piaget (1967). On the other hand, during the treatment offered to the theoretical foundations of the study, it is considered the

use of an approach with a historical perspective on the electric current, so that another of the current trends of the teaching of science (physics), is revealed. During the presentation of the results, a description is made considering the responses of the students to the questionnaire. Then, the conclusions show the considerations obtained as a result of the investigation.

Electricity from the teaching of physics

A treatment is proposed on topics related to the topic of electricity considering elements related to the teaching of physics in middle school. Traveling from historical elements, passing through definitions related to the subject in question, in search of that they are approached in a firmer way previously cited elements. In this way, it is intended to analyze those aspects related to the role of experimentation in the teaching of physics, once this would be the means by which, in this study, the idea of a more finished and profound understanding of the electrical potential is defended.

A brief historical electric current

Electric current is a concept that plays a fundamental role in our daily lives. Its rich history shows more systematic signs of its study by the 16th century and makes clear, even today, the contributions and discoveries made by several scientists who dedicated themselves to this field of physics. It is worth noting that until the 17th century little was known about electricity. The author cites that the knowledge collected more carefully and systematically on this matter was built by Cardano, when he was interested in the medicinal properties of amber. Although it is necessary to recognize that such properties were already known by the Greeks by 600 BC, when philosophers like Thales de Mileto already knew that, by causing friction between a piece of this material and a piece of wool or skin, amber attracted small pieces of straw, according to Oka (2000).

Knowing the existence of static electricity or as known, electrostatic electricity in the 17th century, scientists such as Otto von Guericke and Stephen Gray conducted experiments with electricity that demonstrated their ability to attract objects. Such discoveries and experiments laid the foundation for our current understanding of these events and served as the foundation for advances in studies in this area. Likewise, Benjamin Franklin's works stand out with his experiences on electricity in the 18th century, which contributed significantly to a better understanding of electrical principles. It is worth noting that in several texts, such

as the physics textbooks aimed at his teaching here in Brazil, narratives are used about the experiment in which this researcher employs a key tied to a kite by means of a damp silk thread and thrown into the air in the middle of an electrical storm. The objective was to verify if electricity was present in the clouds during the storm once it was from it that the rays that it managed to visualize sprouted. The fact of approaching the tip of the fingers and perceiving, consequently, that an electric spark was sprouting towards its fingers, demonstrated the presence of electricity in the clouds during the storm.

This episode may seem very simple in the eyes of people who are beginners in scientific subjects or whose daily activities are not directly related to this form of knowledge construction. Thus, it is likely that individuals will be left with a wrong perception about the construction of scientific knowledge and science in particular. It is a vision about physics that neglects the path by which men and women go around to construct such principles and statements, on which the operation of many of the technological devices with which we live is based. That is the risk that is run by introducing a brief history of science in physics classes in order to comply with what is disseminated in the documents that guide scientific education in Brazil. The idea that is pursued with this type of approach or tendency for the teaching of physics is to eliminate the tendency to idealize events and characters linked to the principles and laws that are studied in this subject. For this reason, this point is made once it is generally disregarded that scientists and their theories are permeated by philosophical conceptions and inserted in historical contexts that often have their driving forces in questions of a political, economic, social, cultural within other factors. Therefore, there should be no doubt that such aspects usually influence gnoseological constructions relating to the field of electricity. In this sense, Pimentel and Silva (2006) declare:

> That discovery did not happen suddenly after the realization of an experiment, in that case the experience of the papalote proposed in 1752, as the didactic books lead us to create. At various times, Franklin expressed his ideas about the electrical nature of lightning. This occurred well before he proposed the kite experiment, as may be noted in his correspondence (p. 5).

Franklin's experiment enabled a more elaborate explanation to be given to thunder and lightning, which were either seen as unexplained phenomena or attributed to the sovereign power of the gods. In his explanation of lightning, Franklin suggested that lightning constituted electric

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shocks that occurred due to the difference in potential that is established in a certain region, between clouds and Earth. Thunder, on the other hand, refers to a phenomenon of a mechanical nature and, therefore, is related to the propagation of the sound produced by the aforementioned electric shocks. In addition, this experiment allowed electricity to be understood as a natural phenomenon and not only as an event observed in laboratories.

And since experimentation is mentioned, alluding to laboratories, it is worth referring to the contributions of Michael Faraday, who left a legacy that endures to this day. His systematic studies, often the result of curiosity, led him to construct and introduce quite relevant concepts related to the electric and magnetic fields, in his theory. Conceptualizations that are widely linked to the directed and ordered movement of electric charges through a conductor: electric current, a subject on which Andrè Marie Ampère had already published his works since 1825. The understanding of the relationship between the electric and magnetic fields, which Faraday reached through experimentation, had as a direct consequence the discovery of the phenomenon of "electromagnetic induction", in 1831. Its social impacts are still visible today, as this discovery opened the way for the construction of electric current generating machines. It is worth noting that the first of these machines was built by Faraday himself and was known as a disk dynamo. In this way, he opened paths for the construction of power generating machines by man, which nowadays are used in hospitals, *shopping malls*, cinemas, thus showing a diverse range of applications.

In order to finish this historical journey on the electric current and being aware that what is described is nothing more than a fairly small summary, it is necessary that the contributions of James Clerk Maxwell are addressed. His great contribution to science is reflected in the fact that he managed to unify electrical and magnetic events in the same theory. Maxwell proposed that these two fields were interconnected and that changes in one of them may undergo influence or induce variations in the other. Maxwell thus formalizes in four differential equations the dynamic description of the electric and magnetic fields: the Gaussian law of the electric field, the Gaussian law of the magnetic field, the Faraday law of induction, and the Ampère–Maxwell law. These equations describe the behavior of electric charges and currents when they are influenced by the above-mentioned fields.

By analyzing historically and critically the course of scientific advances in this field of physics, the elaboration of principles and laws that govern the operation of electrical appliances or household appliances that

we have at home, we perceive that historical and philosophical foundations are present. The knowledge to which such scientists arrived is based on philosophical perceptions or paradigms that govern scientific thought in a certain context. Thoughts and ideas that respond to questions of a political, economic, social, cultural nature and that seek to solve a demand or problem of humanity at a specific time. Considering such elements it is possible to appreciate the importance of history and philosophy in the development of physics and the products of this science. It is a way to understand the influence and impacts of obycles faced by scientists when trying to assimilate and respond to a certain social demand. Difficulties that do not remain in the scope of their technological applications, but weigh heavily on the resistance or opposition that we often make to change our way of thinking about a certain event. This is discernible in physics classes when we continue to manifest the power of the common census in our interpretations of day-to-day electrical phenomena. In a very significant way, how do we decode the knowledge related to the difference of electric potential or as popularly known: the voltage.

The difference in electrical potential from a science, technology and society approach

The perspective of science, technology and society (STS) is a way that allows significant approaches regarding the difference in potential, as a focus of our study. According to Pinheiro et al. (2007), the relevance of the STS strategy in the context of secondary education enables contextualized views of the knowledge taught in physics classes, in particular. Its impact extrapolates the classrooms and classes of this subject, from the moment in which the application of such knowledge is recognized in the cultural, social, political and economic context of any current population. The STS approach in the teaching of science, has as its axis in the dissemination and scientific literacy (CA) of individuals. Literacy has at its core the goal of forming critical, thoughtful citizens who are positioned in the face of the various situations that affect life on the planet.

The non-understanding of the concept of potential difference, such as the electrical energy difference between two or more points of a conductor at which moving (current) electric charges pass, by much of the lay public in science and even by those within the academy, can be reflected in accidents that happen with some frequency. Fires caused by energy imbalances in the lines that conduct the fluid; burning of cables; appliances that are lost due to misuse or failure to understand the labels

that describe how the consumption and manipulation of them should be. The frequent fact of not knowing how to interpret what the voltage with which a certain appliance works, be it 110 V or 220 V, and frequently calling such magnitudes as "current", makes clear the scientific illiteracy to which it was previously alluded. In this sense, the development of the STS approach is important in the current proposals of science teaching. There is an urgent need to prepare trained teachers to develop up-to-date visions in the teaching of physics. Visions that contemplate the technology, so widely used and disseminated in our days, so that it is placed within the reach of people, the possibility of thinking critically about the impact that some of these have on the environment and society.

Likewise, there must be a conscious distancing from the repetitive teaching of "formulas", which do not represent or do not translate into something beneficial and meaningful for students. According to Chassot (2006), scientific literacy—including the STS approach here—is a powerful tool for any country seeking research education. As well as a scientific education that has the intention of forming citizens who do not limit themselves to repeating what they hear, or give absolute veracity to the knowledge coming from the common environment.

The role of abstraction in the topic of electric current: difficulties

Students' difficulty in understanding concepts related to electrical potential difference, as well as other topics related to electricity and linking them to everyday life, can be due to a number of complex factors. Within these, abstraction can be cited as one of the main challenges, since it seems that it is inherent to these concepts. Note that electricity conceives phenomena that are not visually perceptible, once it deals with moving electrons, variable electric fields and electric charges, to the point that the student is required a certain level of abstraction, which will allow him to understand the content taught by the teacher. The lack of concrete representations can make it difficult for students to visualize and therefore understand these abstract concepts (*cf*. Dias et al. 2009, p. 112).

Many students show difficulties in establishing clear connections between the principles of electricity, proportional relationships between magnitudes that appear in Ohm's law, and their applications in daily life. Generally, when asked about the negative aspects of the approach given to the subject by the teacher, in their answers emerges the difficulty of establishing relationships between abstract concepts and the reality in which they are inserted (Dias et al. 2009, p. 114). The lack of these con-

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nections may result in disinterest in the subject, reinforcing attitudes that go against the educational foundations established in the BNCC for the training of the Brazilian citizen of the 21st century. The latter is reflected in Santos and Dickman (2019):

> The teaching of physics should stop focusing on the simple memorization of formulas or the automated repetition of procedures, in artificial or excessively abstract situations, thus contributing to the classes being uninteresting for the student, resulting in a low performance (p. 34).

The complexity of the mathematical calculations involved in the electricity issue can also be a major obstacle. As reported by Dias et al. (2009) scholars observed in student surveys that difficulty interpreting texts and solving mathematical problems are mentioned as factors that represent learning challenges. Ohm's law, for example, relating voltage, current, and resistance, requires advanced mathematical skills, which students often do not develop due to the lack of preparation of some professionals who act in the area of physics teaching, because they lack a degree in this discipline. This can lead to a sense of insurmountable challenge, frustration on the part of students in understanding electricity as an everyday event, leading to conflicts, repulsive states about the subject and of physics itself.

Another problem to be considered is the lack of opportunities for experimentation in the teaching processes of science, in particular physics. Electricity as a scientific or study topic is an area in which experimentation is a fundamental element for constructing knowledge, as seen in the previous subtopic, regarding the discovery of Faraday. However, many schools may not have adequate resources to conduct experiments, limiting students' ability to visualize and apply electricity concepts in practice.

The fear of failure, the pressure that some teachers create on students with respect to this subject, thus manifesting their traditional conceptions of education; the devaluation of error in experimentation, as a possibility of transforming it into the construction of knowledge in middle school, are additional concerns observed in the teaching of physics. In particular, electricity as a subject of study is often perceived as a difficult topic and this perception can generate anxiety and insecurity among students, negatively affecting their motivation to study the subject.

In order to help students overcome these difficulties, it is important that educators adopt more practical, contextualized and interactive teaching approaches. In addition, it is essential to create an encouraging and supportive environment where students feel comfortable asking

questions and seeking help when needed. The combination of up-to-date teaching methods and practical resources can make a significant difference in understanding these.

From experimentation to critical thinking in the teaching of physics

When analyzing the Brazilian educational organization, it is possible to observe that it presents problems in different perspectives and approaches that impact on secondary education. These issues are reflected in the structures of public schools, in the content taught and in the group of teachers responsible for teaching the subject, since the continuous training of professionals is not a priority. This is seen in the reports and documents that reach the National Institute of Educational Studies and Research Anísio Teixeira (INEP) and the Ministry of Education and Culture (MEC). Likewise, the aforementioned statutes highlight that the educational system has presented, in recent years, inconsistencies and challenges, which must be difficult to solve in the medium term. These problems include problems such as lack of materials, poorly structured schools, educational institutions lacking laboratories and teachers unprepared to immerse experimentation in the teaching of physics with constructivist approaches.

It is worth noting that in the official documents cited above, reference is made to the lack of continuity in the preparation of Physics teachers when they state, in our interpretation, that:

> In Brazil, there is currently a very small number of teachers trained in the specific subject of physics and, according to the data collected, this number is not enough to meet the demand for teachers for this subject. We found problems related to the small number of first-year students and, of these, a small number of graduates, indicating that few teachers have been trained with specific qualifications to teach the subject of physics.

Still in the same direction, we find the ideas of (Pacca and Villani, 2018) who after conducting a study on the subject of training of Physics teachers, they declared that:

> The continuous training of the Physics teacher comes, even in our days, to show no effective procedures and no adequate results. The (continuous training) had its origins effectively in the 1960s when physicists from this country perceived that the teaching of that science was not being successful. Its objective was to train teachers to know how to use

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the physics teaching projects that were developed. Subsequently, it was perceived that this training should be understood as updating teachers, however, this still persists as a matter without final resolution. Moreover, it is now a problem which is only increasing (p. 1).

This means that the subject is taught by teachers who are not trained in the area, worsening the situation since the training of specialized teachers is essential to ensure the quality of the teaching of physics in schools. The absence of an adequate number of teachers with specific qualifications compromises student learning, harming the development of skills and understanding in this area of knowledge.

In this sense, both the educational system and teachers must provide training that opens space to the creativity of professionals and the welfare state of these. Also, must consider the hours of classes compatible with the demands and guidelines disclosed in the governing documents of secondary education in the country in the preparation and continuous training of professionals, in specialization courses, master's degrees and doctorates. All this while responding to the lack of equipment, teaching resources and materials for experimentation, necessary for developing didactic experiences that make increasingly significant the physical knowledge that is taught.

Hence, it is necessary to make explicit that, among the specific competences of the graduate in Physics, is that he is able to elaborate or adapt teaching materials to the different teaching situations. In this way, the teacher must identify the objects that contribute to a proper training of students, to strengthen the learning and scientific education of individuals, based on a participatory perception and with a critical view about their environment. In this regard, the National Council for Education (CNE/CES 1.304/2001, p. 3) reflects as one of its objectives to make students think critically, thus creating an environment for reflection on the daily life of each of them.

In support of such judgments Freire (1996) describes this process of methodological rigor and its distancing from banking knowledge:

The democratic educator cannot deny the duty, in his teaching practice, to reinforce the critical capacity of the student, his curiosity, his insubordination. One of the main tasks is to work with students on the methodical rigor with which they must "approach" knowable objects. And this methodical rigor has nothing to do with a "banking" discourse that is limited to transferring the profile of the object or content. It is precisely in this sense that teaching is not limited to the "treatment" of the object

or content, done superficially, but extends to the production of the conditions in which critical learning is possible. And these conditions involve or require the presence of creative, instigating, restless, rigorously curious, humble, and persistent educators and students (p. 13).

In this sense, Freire (1996) describes conditions that enable critical learning, considering that it is necessary that the teacher, in addition to possessing specific knowledge, can transmit it in an appropriate and coherent way with the context in which the student is involved. From this perspective, the renowned intellectual insists on the need for students to be active entities in the construction of their knowledge. Thus, we can say that the active participation of the student in the construction of their learning is fundamental, especially in the discipline of physics, where many concepts can be explored through practical activities, providing a more tangible and attractive understanding.

Therefore, although there are obstacles and precarious conditions in Brazilian education, it is necessary to continue looking for the possibility of offering decent and quality education for all. In reference to the latter, the Federal Constitution (Brazil, 1988) and the Law on Guidelines and Bases of National Education (Brazil, 1996) affirm that education is the duty of the State and the family, with a view to the integral development of the student. Therefore, to ensure full compliance with legal requirements and keep up with the technological advances of the 21st century, society needs to adapt to the new times and that is also the responsibility of scientific education.

Therefore, a path in which education is transmitted in a double way; the first of these is the one where the student learns with the mediation of the teacher; the other, in which the professional acquires knowledge through his performance in the classroom. Thus, the teacher, fundamentally the physics teacher, can use different resources to make the contents viable in order to ensure meaningful learning by the students. Fiasca (2021) emphasizes that "teaching is not transmitting knowledge, but creating the possibilities for its production or construction".

With the aim on this production and construction of knowledge, this work focuses on experimentation as a trend on which the teaching of physics is based to achieve more robust results in terms of learning. For such it is considered that this trend can be used to mediate difficulties in relation to certain specific topics of the discipline since they involve abstract content and little understanding (Araujo and Abib, 2003).

A content that is relevant for such an approach is the topic related to the Difference of Electric Potential, since it is an accessible topic from the point of view of its presence in the daily life of any subject. According to Piassi (1995) experimentation is fundamental to truly understand physical concepts, allowing students to discover the laws of nature and internalize fundamental principles. Thus, the aforementioned author emphasizes that "improvised devices and assemblies, made with the most modest laboratory resources, should be considered not as an emergency solution, but on the contrary, as a new desirable technique to develop the constructive and inventive capabilities of the student" (p. 6).

Highlighting the relevance of using improvised equipment and components in educational laboratories, this approach is considered not only a temporary or emergency solution, but also a desirable new technology. The central idea is to "encourage" students to develop their constructive and inventive skills using simple, improvised resources. This view holds that some educational institutions may have limited access to sophisticated instruments and well-equipped laboratories due to monetary or infrastructure restrictions, which unfortunately extend to all regions of the country.

Methodology

The proposed analogy between the difference in electric potential and the difference in gravitational potential is based on the idea that electricity can be understood by comparing events of a gravitational nature. This idea arises, as said at the beginning of the work, by the need for visual representation that the teaching of physics lacks. Regarding this research, it is considered that visual perception; experimentation; social interaction between subjects; recognition of previous knowledge in which the new knowledge is anchored to rise to higher stages, psychologically speaking, are elements, among others, that favor the understanding of content in the teaching of physics. Thus, this study starts from the idea that such aspects reinforce the processes of knowledge construction, as well as known epistemological theories (Piaget, 1967; Moreira, 2015; Vygotsky in Ledesma Ayora, 2014). To do this, we must consider the role that these theories offer us, the continuous training of physics teachers, with the intention of modeling the teaching-learning processes in a way that aims at obtaining increasingly encouraging results.

In this way, such aspects allow teachers to be able to establish relationships and analogies between the various contents taught. Therefore, just as the difference in height determines the gravitational potential energy of a system in vertical motion, in the subject of electricity the difference in potential is related to the electrical energy stored in a region of the system. On this basis, it is possible to establish a relationship with the fluidity of water within a hose and of electrons in a metal conductor, as Ewald George von Kleist did in 1745, by observing that electricity flowed from body to body like water in the stream of a river with wide flow. The analogy becomes physically possible, because as Aguiar, Faraco and Texeira (2022) point out, we have to:

> Although these forces have different natures, both laws describe interaction forces between particles that have common characteristics: they are related to the product of an intrinsic property of the particles involved in the process (charge in one case, mass in the other) and have a dependence that varies with the inverse of the square of the distance that separates them (p. 1).

In other words, the analogy becomes physically possible when we consider the fact that two forces are related to central interactions governed by the same law. Central forces are those that act along the line that joins two or more particles in a system and that also depend only on the distance between them.

In this perspective, a simple experimental activity was proposed, in which low-cost materials such as: hose, plastic wells, hot glue and water are used. The idea of using low-cost or alternative materials, in addition to being based on our belief that they enable a way to bring this experience to any educational context in which the subject is being treated, favors a vision of reuse and preservation of the environment. In this way, access to scientific knowledge is also made possible in a way that stimulates the active participation of students in the construction of knowledge related to the subject that is presented, taking into account the STS perspective, previously addressed.

This study considers the bibliographic research, once a review of articles and texts that deal with the difference of electric potential and the establishment of analogies with gravitational potential was carried out. Below, we selected a low-cost materials and the assembly of the experimental system using the cited materials, as represented below:

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Figure 1
Materials selected for the experiment
(personal collection)

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Population and sample

This article includes as a sample the students of the third year of secondary education of the educational programs and trainers "University for all" and "Pedagogical Residence" of the municipality of Itapetinga, in the southwestern region of the State of Bahia, in Brazil. In particular, reference will be made to a group of 22 volunteers from the school belonging to the state of Bahia: Alfredo Dultra, located in the city of Itapetinga.

The experimental assembly was commanded by the students, with the clear intention of promoting their active participation from the beginning of the activities. In this way, encouraged by the didactic perspective that points to research teaching, the students gathered both vessels through the limbs of the transparent hose. Once this connection was made through the side holes of the containers, hot glue was placed in order to fix the hose to the wells. Water was incorporated into the system, containing tiny pieces of polyfoam, representing the moving electrical charges within the fluid. Such polyfoam particles were previously colored red, in order to increase the visualization of these particles in the displacement described by the water fluid inside the transparent hose. In this

way, the latter symbolizes the electrical conductor through which moving electrons circulate (electric current):

Figure 2
Student-mounted experimental system
(personal collection)

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Figure shows the experimental system mounted by students in the classroom. During the assembly process we perceived that the students were more involved, curious and committed to the fact of working, and being able to activate the materials that were available.

For collecting the data, a questionnaire was used to diagnose the level of knowledge that the students had on the subject. Once this idea was conceived, such an instrument was applied in two different stages to the disciples. The first of these moments, prior to experimentation, while the second was applied *a posteriori*. The ten questions they formed for this technique were:

- What are the particles that make up an atom?
- What are the so-called free electrons?
- What does electrodynamics study?
- What is the cause of the electron movement?
- What is the difference in electrical potential?
- What is electric current?
- What is the unit of measurement of the electrical voltage?
- How to get the average electric current intensity?
- What is electrical resistance?
- Which devices cause the electrical potential difference?

The questionnaire as a data collection technique in a scientific research consists of the elaboration, by the interested parties, of a set of questions that are intended to understand, estimate or perceive ideas and opinions of the participants regarding a specific topic. As García says (2003) it is an instrument that must be prepared systematically and carefully, on the facts and aspects that interest in an investigation or evaluation, and that can be applied in various forms, among which stand out its administration to specific groups of people or its mailing to volunteers.

After this stage, a brainstorming was promoted, so that some questions were discussed in groups, allowing the exchange of experiences among them, thus favoring the socialization of knowledge.

This research conceives the empirical element and the action on objects as a fundamental element in the construction of scientific knowledge regarding the content that has been declared. In the application of this teaching perspective, the focus was the resolution of a problem related to the daily life of students, in a cooperative and participatory way. In this way, it was intended that the conceptual inconsistencies initially detected be clarified, at least at a first level, and that such a resolution be verified later through the application of the aforementioned instrument. Thus and as a conclusion of the activity, the same questionnaire was placed for the second time, so that the initial answers could be compared with those found at the end of the process. In this way, the validity of the proposal and the methodology used would be checked, under the conditions in which it was applied.

The data collected were analyzed in a qualitative and quantitative way, understanding that the qualitative research focuses on the study of the characteristics of the sample, according to Godoy (1995, p. 21). This type of scientific research occupies a recognized place among the various possibilities in which phenomena relating to human beings can be studied. In this way, the analysis derived from this type of methodology involves the interpretation of data and the search to understand the perceptions, opinions and experiences of the subjects that are part of the public object of the investigation.

For its part, quantitative research compares statistical data, equations, as well as the mathematical processing to understand the problem in question. This involves obtaining data from techniques and instruments that are closely related to this type of methodological perspective. They make up the aforementioned data: notes, scores in tests and/or evaluations, graphs that denote the temporal behavior of meteorological variables, for example, during a certain period.

As far as our work is concerned, the collection and analysis of these data can provide information on the performance of students against the activity that is proposed. For Galvão and Bastos (2007), using the quantitative approach:

> When you have numerical data there seems to be a correct and obvious answer, but there is another aspect that should be considered. Quantitative research only makes sense when there is a very well-defined problem, there is information and theory about the object of knowledge, understood here as the focus of research and/or that which is to be studied (p. 3).

In this case, the fact of using a methodology such as the proposal contributes to Godoy's (1995, p. 21), to the reflexive and critical analysis of a phenomenon that can be better understood in the context in which it occurs and of which it is part in the construction of that knowledge. An integrative perspective in which the performance of the students before and after the intervention is compared with the proposed teaching approach is important.

Results and discussion

During this study an approach was adopted in which the trends: "science, technology and society", "history and philosophy of science", "teaching by research" and "experimentation in science", constitute the didactic platform on which the proposal presented here was based. In essence, the fact of creating a strategy that allows a solid learning of the topic of electrical potential, through an analogy between the electrical and gravitational potentials, seeks in itself to potentialize the scientific literacy of students from that content. The graph below shows the behavior of the data that was collected in the classroom during the experimental activity that was proposed. It is worth noting that the first intervention of the questionnaire was carried out prior to the experimental assembly conducted by the students, while the second intervention was after the representation of the phenomenon.

The results show that there has been a greater performance of students taking into consideration the greater number of true answers in the second stage of the application of the questionnaire. The analysis of the collected data was developed through the frequency distribution of the responses, which enabled the data to be represented by means of a bar graph to better explain the results and thus visualize the behavior of

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the responses, according to Hernández (2012). In this way, it was possible to verify, in principle, that there was a certain understanding of the phenomenon studied during the proposal. It is worth noting that the questionnaire applied focused their questions on the electrodynamics of the particle, so that students could perceive the relationship of the subject related to the experimental assembly with the sequence of questions asked.

During the analysis of the responses, it was verified that out of the 22 students who composed the sample group, 16 did not know the concept of electric potential difference in the first stage of application. However, 11 (50%) of them responded better to that questionnaire question at the second stage. For those who remained at the same level, we can say, according to the analysis of the responses, that there were 4 students with this characteristic, a value that represents 18.1% of the participants. Of the total, 7 students, or 31.8%, were better off in the first stage than in the second:

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Figure 3
Frequency chart of students' responses
to the questionnaire

First application of the questionnaire
Second application of the questionnaire
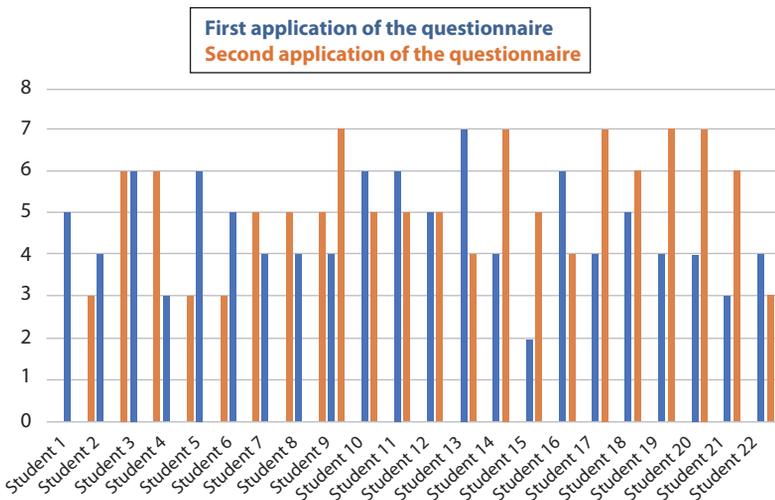
With this research it is possible to affirm that the students managed to better understand the concept of electric potential difference. In this sense, it must be mentioned the behavior of the answers for the seventh question in which 86.3% of the 22 participants, equivalent to 19 successful answers, achieved a better performance.

It should be explicit that by introducing this methodology during the study we perceive how enriching it was to see the active participation of the students in front of the proposal. They were interested, participatory, promoting a renewed learning environment and stimulating reflective and critical thoughts on the subject. In this way, it opened the way for strengthening a scientific literacy based on the integration of scientific concepts and the understanding of the world, in this case related to the electrical phenomena of the day to day. Through the strategy, students not only acquired theoretical knowledge, but also practical knowledge through experimental assembly. This provided them moments of exchange, so that they experienced, through the discussions, an opening for different positions and points of view on the subject. In this way, they were also able to relate the concepts treated under the lens of science, leaving delimited conceptions and scientific definitions of those elaborated through the common census.

Under these principles, this work coincides with the four pillars of education defined by UNESCO: *learn to know*, *learn to do*, *learn to live together* and *learn to be*. Within the scope of *learning to know,* it is highlighted that students gained a better understanding of scientific concepts, developed skills to evaluate the information provided in a critical and reflective way, thus strengthening their ability to integrate and apply scientific concepts to understand the world around them. With regard to *learning to do*, the disciples applied theoretical knowledge in practical situations and projects, they were also able to identify, analyze and solve problems that would have previously been seen as complex. In this way, they were able to understand the relevance and practical application of scientific concepts to everyday life. The *learning to coexist* is observed during experimental practice, where students developed the experience by putting teamwork into practice. During that time and afterwards, they were able to value cooperation and the exchange of ideas, a reality achieved thanks to a participatory learning environment, where respect and collaboration were fostered. The *learning to be* manifested when it is conceived that the activity promoted a greater confidence in themselves and encouraged them to learn as a result of the active participation in the process.

Conclusions

It is expected that this work will contribute to the opening of ideas for improving pedagogical practices in the teaching of science and physics

in a particular way. With respect to concepts related to the electric field, it was perceived that the application of the teaching strategy offered ways to deal with the subject, which is believed to be extended to issues with a certain level of complexity in the teaching of physics. In general, this strategy is an innovative, meaningful and accessible way for knowledge to be constructed in a way that transforms erroneous visions permeated by the common census.

Finally, taking into account the results obtained, it is necessary to mention that it was possible to verify how positive the teaching of this topic was through the analogy already mentioned. It is worth underlining that the methodology applied is effective once a greater number of certain answers are verified during the application of the second stage of the questionnaire. In this way, the reader interested in the subject can be invited to think about strategies like this that can be applied to other topics related to the teaching of this science, in order to promote more meaningful learning. Therefore, the invitation to use the proper contextualization of the topics studied, having as a focus the relevance of each content, so that it is possible to form more active and reflective human beings through the teaching of physics.

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The problem of the knowledge of the thinking substance in the Meditations and in the Objections and Replies of Rene Descartes

El problema del conocimiento de la sustancia pensante en las *Meditaciones* y en las *Objeciones y Respuestas* de René Descartes

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Abstract

In this article, the hypothesis that Descartes does not clearly articulate the knowledge of the thinking substance in the *Meditations on First Philosophy* and in *Objections and Replies is developed.* It is argued that such exposition is necessary for a comprehensive understanding of the status of Cartesian philosophy at the time of writing the Meditations, particularly to grasp Descartes' conception of the knowledge of the thinking substance in the years 1641 and 1642. As known, knowledge of the thinking substance is a fundamental element in Descartes' philosophy. Firstly, Descartes' two modes of presenting knowledge of the thinking substance in the Meditations are examined, highlighting the issues each entails. Secondly, drawing from the Objections and Replies—especially the fifth and seventh—criticisms from Pierre Gassendi and Pierre Bourdin regarding the knowledge of the thinking substance are presented. Both Gassendi and Bourdin emphasize that the text of the Meditations does not sufficiently clarify how the thinking substance is known. They question the possibility of such knowledge, pointing out the ambiguity and obscurity of Cartesian responses. It is concluded that in the Meditations, Descartes confronts an insurmountable gap between the ontology of substance and its knowledge, which prompts him to further develop and clarify his theory in later writings.

Keywords

Knowledge, metaphysics, thinking substance, mind, soul, René Descartes.

Resumen

En este artículo se desarrolla la hipótesis de que el conocimiento de la sustancia pensante en las *Meditaciones sobre la filosofía primera y en Objeciones y Respuestas* no es claramente explicitado por René Descartes. Se entiende que tal exposición es necesaria para una comprensión integral del estatus de la filosofía cartesiana en el momento de redactar las *Meditaciones* y, principalmente, para asimilar cómo concebía Descartes el conocimiento de la sustancia pensante en los años 1641 y 1642. El conocimiento de la sustancia pensante es, como se sabe, un elemento fundamental para toda la filosofía cartesiana. Para ello, se recurre, primeramente, a los dos modos en que Descartes presenta el conocimiento de la sustancia pensante en las *Meditaciones,* destacando los problemas que cada uno de estos conlleva. Posteriormente, a partir de las *Objeciones y Respuestas* —principalmente la quinta y la séptima— se presenta las críticas de Pierre Gassendi y Pierre Bourdin sobre el conocimiento de la sustancia pensante. Tanto Gassendi como Bourdin subrayan que el texto de *Meditaciones* no es suficiente para esclarecer de qué manera la sustancia pensante es conocida. En este sentido, Gassendi y Bourdin cuestionan la posibilidad de este conocimiento, destacando la ambigüedad y oscuridad de las respuestas cartesianas. Se concluye que en las *Meditaciones,* Descartes enfrenta una brecha insalvable entre la ontología de la sustancia y su conocimiento, lo que lo llevará a desarrollar y explicar mejor su teoría en escritos posteriores.

Palabras clave

Conocimiento, metafísica, sustancia pensante, mente, alma, René Descartes.

Introduction

This article analyzes how René Descartes (1596-1650) addresses the problem of knowledge of the thinking substance, focusing on two texts: *Meditations on the first philosophy* (2004)[1] and the compilation known as *Objections and Answers* (1904). It is not intended to discuss the process of discovering one's existence as a thinking thing in the meditative itinerary,

nor is the result of an intuition or a syllogistic process discovered. It is assumed that the process leading to the knowledge of one's existence is not problematic. The aim is to discuss, more specifically, an epistemological problem: how does Descartes explain the knowledge of the nature of what exists, how is it possible to know the essence of the self that performs the activity of thinking,[2] would the philosopher be able to explain the knowledge of the nature of the substance beyond its modes, qualities and attributes?

Initially (section 1), the hypothesis is that Descartes does not offer, in the text of the *Meditations*, a clear answer to the questions proposed above. This hypothesis is based on obscure and contradictory statements by the philosopher: (1.1) Descartes (2004) is unclear as to how the thinking substance might be apprehended by the intellect (pp. 49-63); (1.2) Descartes suggests that the self can be grasped by an ability to "perceive," yet it is unclear what the object of that ability is (p. 103); (1.3) Descartes seems to suggest, at least in one passage, that the apprehension of the thinking substance does not depend on knowledge of its modes (p. 169). An understanding that seems to conflict with other passages in the text of the *Meditations* (pp. 89, 91).

Next (paragraph 2), a hypothesis is presented that, in the text of the *Objections and Answers*, two questions proposed by Pièrre Gassendi (1592-1655) and Pièrre Bourdin (1595-1653) on the knowledge of the thinking substance in the meditative itinerary are not adequately answered (Descartes, 1904, pp. 266, 275, 328-331). First: (2.1) it is argued that the philosopher does not satisfactorily explain what this thinking substance is (Descartes, 1973, p. 256). It is believed that this difficulty can be identified, for example, from their contradictory statements in the text of the *Objections and Answers*, on what their objectives would be in the *Meditations*. In some cases, Descartes says that he does not intend to know the nature of the thinking substance, having merely demonstrated that its essence is not extensive (1973, p. 256). On other occasions, the philosopher states that this knowledge is possible from the consideration of its attribute (1904, pp. 487, 491, 518). Secondly: (2.2) it is argued that Descartes does not clarify how the thinking substance could be known clearly and distinctly (1973, p. 257; 1904, p. 518). The arguments put forward by the philosopher – for example, concerning the number of known properties of this substance (1973, p. 257) – appear not to satisfy the demands of his objectors in this regard.

Finally (section 3), it is proposed that the difficulties and ambiguities encountered in relation to the knowledge of the thinking substance in the itinerary of the *Meditations* occur because Descartes finds the un-

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bridgeable gap between being and knowledge. Epistemologically, knowledge of the substance is possible from modes and attributes. Ontologically, the substance appears as a thing that exists by itself and therefore only exists beyond human understanding, meaning that it cannot be known. Consequently, it is possible to explain in which domain knowledge of the thinking substance is feasible and to clarify some of the ambiguities present in *Meditations* and in *Objections and Answers*.

Knowledge of the thinking substance in the itinerary of the Meditations

A preliminary discussion of substances[3] begins in meditation II, whose own title, "On the Nature of the Human Mind: Which Is Better Known Than the Body" (Descartes, 2004, p. 41), suggests Descartes' positive epistemological commitment to the knowledge of the nature of that which carries out the activity of thought, which will then be defined as "substance".[4] From the radical doubt that ends the previous meditation, the first discoveries are made.[5]

First, Descartes (2004) states that the meditator is something that actually exists (pp. 43-45, 49). This something is a thinking thing (p. 49) which contains modes in itself (p. 51). Descartes, then, states that it is possible to know the thinking thing "in a way that is not only much truer, much more certain, but also much more distinct and evident" (p. 61) than anything extensive.

In meditation III, the philosopher intends to establish the knowledge of his existence by clarifying what he understands by that thinking thing. In his opinion, the thinking thing has within itself ways of thinking that are true (pp. 69-71). In addition, there is a clear and distinct perception that highlights the existence of the thinking thing (pp. 71, 85). This idea of thinking substance is known to have duration and number, as well as being something maximally different from extensive things (p. 89). Finally, in Meditation VI, Descartes acknowledges that the thinking thing is indivisible (pp. 183-185) and that thought is its essence (p. 169).[6]

From now on Descartes' way of explaining knowledge of the thinking substance is problematized.

The intellectual apprehension of the thinking substance

Descartes observes that the apprehension of substances is not sensitive or imaginative, but intellectual (Descartes, 2004, p. 63). This would be even

more evident when it comes to the knowledge of the thinking substance. However, this intellectual process is not clearly explained by the philosopher. There seems to be a more explicit effort on Descartes' part to explain how a large object, as in the example of the piece of wax, could be known intellectually (pp. 55–59). The same is not true of the mind. The thinking thing, not yet defined as substance during meditation II, is known by the consciousness of thought itself, the only attribute that cannot be separated from the meditator (p. 49). Supposedly, understanding as evident that this consciousness can only be made effective from the existence of a thing that thinks, the philosopher merely states, without explaining in detail, that because the extensive object can be known intellectually, it is reiterated that knowledge of the nature of the mind occurs in a similar way. In the author's words:

> If the perception of wax seemed more different to me, after having known it not only by sight or touch, but for many causes, *how much more clearly do I know it now, since all the reasons that can help the perception of wax or any other body also proves, and better, the nature of my mind?* (p. 61) (emphasis added).

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Although Descartes inferred that self-knowledge as a thinking thing was evident to his reader, this is not the case. It remains to be questioned whether to recognize intellectually the existence of thought is to know immediately and not problematically the subject of knowledge. More than that, it is necessary to investigate how the intellectual knowledge of the extensive thing can better demonstrate the knowledge of the thinking thing.

The ability to perceive

On more than one occasion, Descartes acknowledges that there is a faculty of "perceiving oneself," an ability to "turn the tip of the mind toward oneself." The philosopher states that:

> Only because He created me, must we believe, and much, that He made me in some way in His image and likeness and that I perceived this resemblance, in which is contained the idea of God, *by the same faculty by which I perceive myself, that is, that by turning the tip of my mind to myself I* do not simply understand that I am an imperfect thing, incomplete and dependent on something else, that aspires indefinitely to ever greater and better things (Descartes, 2004, p. 103) (italics added).

However, the Cartesian text does not clearly indicate what exactly the object of this capacity to perceive is. It is therefore necessary to as-

sume what that object would be. Two possible objects are conjectured here for this to be perceived. First, it is possible for this object to translate into the self as a thinking substance that is beyond its modes and attributes, that is, the self as a subject of mental operations. Second, the object can be understood as the self as a set of its particularities, that is, the self as the set of its modes, attributes, memories, tastes, principles, etc.

In the first case, the object of perception would be the thinking substance whose knowledge is acquired during the meditative itinerary—called by interpreters such as Martial Guéroult (1953, p. 58) "*pure intelligence*" (*pure intelligence*) or "pure self" (*moi pur*). The pure self would correspond to the abstracted substance of each and every predicate, mode, or attribute. If this case were to be admitted, it would have to be accepted that the substance is emancipated from its qualities. Thus, as Jean Laporte (1988) states, the thinking substance would be an indeterminate entity, accessible to the intellect only insofar as it is a structure that receives attributes and modes, i.e. a "subject of inheritance" (p. 178). If the object of perception is the pure self, the explanation of the knowledge of the thinking substance is indeed problematic. A substance thus understood would be "stripped of any property" (pp. 178-179) and, in principle, would be known to the intellect only as a verbal entity or mere abstraction.

In the second case, Descartes would have in mind the concrete self, that self acquired through the recognition of his ways of thinking, his essential attribute, memories, passions, etc. —called by Guéroult (1953) the "concrete personal self" (*moi personal concret*) or the "individual self" (*moi individuel*) (pp. 54, 58)[7]—. This self, apparently, could be identified with the personal identity that half a century later would be the subject of detailed study by authors such as, for example, John Locke (1632-1704). It should be noted, however, that to explain the origin of personal identity is not necessarily to explain the knowledge of the thinking substance, at least not as an entity that reveals itself beyond the knowledge of its qualities. The preservation of personal identity, at least from a Lockean perspective, independent of this substance that houses all its attributes, whether material or immaterial, simple or compound. As Locke explains (1694/1999), "it would not be two people, by temporary distance or alteration of substance, nor would a man be two men because today he wore different clothes than yesterday, regardless of whether he slept much or little" (pp. 444-445). If knowledge of the thinking substance occurs analogously to self-awareness, proposed by Locke, then it is necessary to admit that there would be no direct knowledge of the substance in Cartesian doctrine. One could only know particularities that, by determination of

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judgment—and not of comprehension—would be deliberate as constituting a subject.

Although it is not very clear how knowledge of the thinking substance would be produced in Lockean terms, analysis of the wax chunk present in meditation II can clarify this point (Descartes, 2004, pp. 55-63). The subsistence of wax, "the identity maintained as permanence through duration and its changes," explains Beyssade (1997, p. 20), is perceived by the meditator as constant in his understanding. Descartes states that despite all the physical and chemical changes that wax undergoes, "it must be confessed that [wax] remains, no one denies it, no one thinks otherwise" (Descartes, 2004, p. 55).

Considering that, like the thinking, wax will also be identified as a substance, it is possible to confer the same knowable procedure on both cases. Descartes (2004, p. 89) states that it is possible to translate the idea of substance into the extensive thing. Considering that the thinking substance is known only by its qualities—although the understanding recognizes that there is something that subsists before all variations—it can be concluded that the object of the faculty of perception is the concrete self. This self is known by identifying its constancy as a single entity beyond the modifications of its qualities. From this perspective, Descartes would not, it seems, explain how the nature of the thinking substance is known. It would be necessary, in fact, to argue against an understanding such as Lockean that it is not possible, based on knowledge of personal identity, to know the substance to which this particular self refers.

As a result, two distinct problems arise. First, Descartes, speaking of the capacity to perceive, does not clarify whether this act is directed at the pure self or the concrete self, thus existing at least two possible objects to perceive. Second, at least initially, neither object would offer a direct, intelligible knowledge of the thinking substance. It is therefore believed that the faculty of perception would not resolve the epistemological question concerning knowledge of the thinking substance in the text of the *Meditations*.

Knowledge of modes and attributes
and knowledge of the thinking substance

Finally, it is necessary to point out some contradictory passages about the role of knowledge of modes and attributes for the knowledge of the thinking substance in *Meditations*. Initially, we observed textual evidence suggesting that knowledge of the thinking substance would depend on

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consciousness[8] of its modes. In this sense, Descartes (2004) affirms that "other [thoughts], in truth, have, in addition, certain other forms, such as when I want, fear, affirm, deny, and in them [in the modes of substance] *I always learn something as a subject of my thought*" (p. 75) (italics added). This passage seems to reveal that Descartes understands that each of the mental operations—each mode of thought—is accompanied by knowledge of what operates it, i.e of the subject of the thought activity. Another passage seems to indicate the same understanding by stating that the modes are the suits through which the substance appears:

> However, the other things that go into the formation of the ideas of corporeal things, namely extension, figure, situation, and movement, are not formally contained in me, because I am but a thinking thing. But, as they are only certain modes of substance and *as suits with which the substance appears to us and I,* I am, nevertheless, substance, it seems that they may be contained eminently in me (p. 91) (italics added).

While in this passage Descartes refers to the modes of the extensive substance, it does not seem problematic to assume that the same can be said of the thinking substance: its operations are the suits through which it might be known.

However, there are at least two passages in the text of the *Meditations* that directly contradict the reading presented above. First, in meditation III, Descartes (2004) expressly identifies substance as "a thing capable of existing by itself" (p. 89) and states that it, as a thinking thing, is also a substance. Later, in Meditation VI, the philosopher states that:

> Furthermore, I find in myself faculties such as those of imagining and feeling, *whose ways of thinking are special, and I can understand myself, without them, clearly and distinctly as a whole*, but, conversely, I cannot understand these faculties without me, that is, without the intelligent substance in which they reside (p. 169) (italics added).

The excerpts cited are explicit about the possibility of knowing oneself, regardless of the attributes and ways in which the thinking substance would appear.

The ambivalence of the notion of substance in the text of the *Meditations*, therefore, hinders the intellectual explanation of the knowledge of the thinking substance. To guide the debate, it is beneficial to invoke interpretations such as those of Ethel Rocha (2006), Beyssade (1997) and Pierre Aubenque (1999). These authors, in general, understand that the knowledge of the thinking substance is produced from an inferential pro-

cess, namely, the thinking substance would be inferred from the knowledge of its attribute and/or its modes. Rocha argues that the Cartesian substance cannot be known as a subject of inheritance, that is, a subject devoid of properties in which these are inherent, but not constitutive" (2006, p. 103). For the author, since substance and essential attribute present only a distinction of reason, knowledge of the thinking substance is given by knowledge of its essential attribute: thought (pp. 91-95). Similarly, Beyssade argues that Descartes "posits the independence of substance from other things in nature and states that the attribute of thinking is not, for the self, a mode separable from its substantiality" (1997, p. 16). Therefore, like Rocha, Beyssade believes that the cognoscented subject is only perceived by his qualities, modes and attributes (p. 24). Aubenque (1999, p. 91), in turn, affirms that what can be clearly and distinctly known about the thinking substance is its attribute.

The position of Rocha, Beyssade and Aubenque that the substance is only known through its attribute is in accordance with the definition V offered by Descartes in the "Geometric Exposition" present in the "Second Answers". There Descartes (1973) states that "we have no other idea of substance taken precisely, except that it is a thing in which there exists formally or eminently, that which we conceive or that which is objectively in some of our ideas" (p. 235). However, this reading poses at least three major difficulties. First, the thinking substance would not be independent, but would need the essential attribute to subsist.[9] Then, it is necessary to clarify how knowledge of the essence implies knowledge of existence. Finally, if the substance is fully identified with its attribute, it is necessary to answer why Descartes felt the need to extrapolate what he really knows and invoke a merely logical or verbal entity. Even Aubenque (1999, p. 87) recognizes that it would not be possible to resort to the notion of intuition as a source of knowledge of the substance in this case, since intuition focuses on the properties of the substance and not on it itself. It follows that the substance cannot be known objectively by itself, but only by its attribute.

In opposition to these interpreters is the reading of those who argue that Descartes believed in the existence of a substantial entity beyond the conception of a "subject of attribution", as is the case with the interpretations of David S. Scarrow (1972), Laporte (1988) and Marco Antônio Valentim (2009). Scarrow's reading is based on the assumption that, within Cartesian philosophy, knowledge of the self would be only indirect, through its modes and attributes, not direct. According to Scarrow, "Descartes repeatedly suggests that substance is something we do

not perceive and that it hides behind the attributes and properties we perceive," for such a reason, "that attributes and properties belong to a substance is something we infer, not something we perceive" (1972, p. 20). In the same sense, Laporte argues that neglecting the distinction between substance and attribute is also neglecting the ways of being, taking away from the substance what guarantees its substantiality, i.e. the possibility of existing independently. The essential attribute, in this sense, although it represents the thing for the understanding, only reveals the essence of the substance, not its existence. Existence is a property that can only be objectively out of understanding and, for this reason, for Laporte, the existence of substance in Cartesian philosophy always remains extra *intellectum*, including the notion of thinking substance (1988, p. 191). While it is possible to know the essence of the thinking substance from its main attribute, the existence of the thinking substance is always outside the limits of human knowledge due to the finitude of human nature. Similarly, Valentim (2009) states that if:

> On the one hand, Descartes is perhaps the first philosopher to recognize objectivity as a way of being, on the other, this recognition is always accompanied in his metaphysics by the awareness that the objective being is distinguished precisely by its ontological relativity to be substantial (p. 215).

In other words, while the thinking substance appears as the epistemological justification of all Cartesian doctrine, its objective knowledge is not possible given the finitude of human understanding, which cannot go beyond clear and distinct knowledge of the substance's essence, bearing in mind that essence and existence are not equivalent.

The reading that proposes that the thinking substance is distinct from its modes and attributes also has at least three difficulties. First, to justify this disquisition, interpreters do not appeal to the main text of the *Meditations*, selecting instead passages from the *Principles of Philosophy* and *Objections and Answers* (Laporte, 1988; Scarrow, 1972; Valentim, 2009), which is consistent with our reading that the text of the *Meditations* is not clear about it. Secondly, this interpretation fails to clarify how knowledge of the objectively given substance is possible, in view of knowledge of its modes and attributes, since there is no identification between substance, mode, and attribute. Finally, Descartes (2004, pp. 35-107) follows the meditative itinerary in which reason itself is threatened by the hypothesis of the supreme deceiver. Reason can infer, from the premise that thought requires a thinker, that the individual who thinks

exists. However, the deceiver makes this belief unworkable, since his power is so great that he is able to deceive even in very simple reasoning activities, such as adding up small amounts[10] (pp. 73–75). In this sense, the judgment of a substance that is beyond the knowledge of its modes could also be a misleading judgment, projected by a completely powerful and evil entity. Consequently, Descartes could only assert knowledge of the substance after the end of meditation III, in which the hypothesis of the Evil Genius is refuted by the existence of the true God (pp. 103–105).

If the hypothesis pointed out by Laporte (1988), Valentim (2009) and Scarrow (1972) were correct, then there is a possible explanation for the difficulty encountered by Descartes in revealing what he conceived as knowledge of the thinking substance, since knowledge would only occur in an essential and non-existential field. On the other hand, it would be necessary to clarify the above difficulties and, more than that, explain why Descartes insists that knowledge of the thinking substance occurs in existential terms and, consequently, provides the basis of intelligibility for his entire epistemology.

The hypothesis raised in this section states, therefore, that the text of the *Meditations* does not make clear how the meditator is able to know the nature of the thinking substance. Some interpretative possibilities were presented and, apparently, all of them can be problematized.

The attacks of Gassendi and Bourdin

From now on, the problematization of Descartes' epistemological understandings of the thinking substance will continue. For this purpose, the *Objections and Answers* will be used. Some of Gassendi and Bourdin's more incisive criticisms focus precisely on Descartes' lack of clarity in explaining what the thinking substance would be and how it might be known. This section concludes by arguing that such objections are justified and that Descartes does not legitimately respond to them in his rebuttals.

What is the thinking substance?

Let us begin with some of Gassendi's considerations, which focus on the supposed Cartesian discovery of the thinking substance. When questioning the theses of meditation II, the objector points out, first of all, that Descartes would not explain what the activity of thinking carries out, although this is the main purpose of meditation II (Descartes, 1904, p. 265). Later, Gassendi states that saying "a thing that thinks" does not

clarify what is that something that performs the activity of thinking (p. 266). Given this, Gassendi concludes that the only positive result of meditation II would be to prove the meditator's own existence (p. 275). Gasendi adds, since no one questioned its existence, this discovery would be useless (p. 275).

The epicenter of Gassendi's objections is Descartes' inability to explain the nature of the thinking substance. In his reply, Descartes (1973, p. 255) seems to adopt the strategy of not responding directly to criticism, which is common in written responses to his most hostile and staunch empiricist critics, such as Gassendi and Bourdin. Instead, Descartes chooses to reiterate his position of meditation II, stating that when a large object is known, the thought itself is primarily known:

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> I am amazed that you confess that all the things I consider wax prove that I know clearly that I am, but not in what way I am or what my nature is, for one cannot be proved without the other. And I do not see what more you can ask about it, unless I tell you what is the smell and taste of the human spirit, or what salt, sulfur and mercury are composed of (p. 256).

Now, this response of Descartes seeks to emphasize that the knowledge of *thinking substance* as a thinking thing is not given by the senses, but by the intellect.[11] Gassendi, as an empiricist, has difficulty conceiving this idea. Descartes, in this way, continues his explanation to Gassendi by stating that "as for me, I never thought that to make a substance manifest, it would take more than to discover its various attributes; so that, the more attributes we know of a substance, the more perfectly we know its nature as well" (p. 257).

Descartes thus admits that substances are known by their modes and attributes. Just as wax is best known based on its different modes and attributes (Descartes, 2004, p. 61), there are many attributes and modes in the spirit that allow one to know the thinking substance. Descartes, aiming to make his position clear to his objector, lists such attributes:

> One has the virtue of knowing the whiteness of the wax; another has the virtue of knowing its hardness; another, one can know the modification of that hardness or liquefaction, etc. […]. From here it is clearly seen that there is nothing of which we know as many attributes as those of our spirit, for to the extent that we know them in other things, we can count as many in the spirit, due to the fact that it knows them; and therefore its nature is better known than that of anything else (Descartes, 1973, p. 257).

The above passage reinforces the interpretation that the substance is known based on its attributes. More specifically, Descartes makes it clear that the thinking substance is known from each of his acts of knowledge: not just himself, but anything else. In this sense, when Descartes lists how the piece of wax is known, it is also possible to know better the same mind that knows the piece of wax. It follows that the thinking substance is better known than any other substance, for whenever we know something, we know more perfectly the thinking substance that allows us to know that substance.

From these responses offered by Descartes to Gassendi, it is convenient to consider that Descartes understands the substance as a subject of inherence, i.e. a mere support of modes and accidents, as suggested by Beyssade (1997), Rocha (2006) and Aubenque (1999). The modes and attributes of this subject can be known and this would be appropriate to know the substance. This reading, however, raises numerous problems, as has been suggested in this article. The main one is that Descartes never addresses the question that knowing how to know the attributes is also knowing the substance. If we only knew the properties of a substance, would it really be possible to know the thing itself?

Some of Bourdin's objections also develop from the problem of knowing what the thinking substance really is. According to the objector, Descartes does not prove the nature of the thinking substance, having merely assumed—without proof—that the thinking substance is not extensive (Descartes, 1904, pp. 486–487). In this sense, Bourdin continues, Descartes would have assumed, without proof, that thought is a property of a non-extensive thing, and then supposedly discover that the thinking substance is an inextensive thing (p. 490). Bourdin, in this way, accuses Descartes of failing to demonstrate that thought is an exclusive attribute of the thinking substance (p. 490). More generally, Bourdin accuses Descartes of not demonstrating anything, because the meditator has always known what is fundamental, having merely affirmed what is already known (p. 501). Bourdin's objections, therefore, center on the difficulty *of finding clear explanations in the text of the Meditations* about what the thinking substance is and how it would be possible to know it. For Bourdin, Descartes does not construct a sound argument on these questions, but only makes baseless presuppositions about the incorporeal quality of the thinking substance and establishes the existence of thought banally.

In his responses, Descartes initially seems not to take Bourdin's criticism seriously. Indeed, the philosopher simply reaffirms, without presenting any argument, what was supposedly discovered in Meditation II

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(p. 487). His stance, however, seems to change in relation to later critiques who insist that the text of the *Meditations* does not make clear what the thinking substance is. Descartes reiterates—echoing his response to Gassendi—that his goal is not to establish that he, the meditator, is a mind, nor to say that he is a soul.[12] These notions were certainly rejected by the doubt of meditation I and, in this sense, it would not be appropriate to confer undefined terminologies such as mind or soul on the thinking thing (p. 491). The intention, says Descartes, would be simply to establish that the substance that performs the activity of thinking is "a thing that thinks" (p. 491).

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Descartes' response to Bourdin is therefore not sufficient to clarify how the thinking substance can be known, just as it does not explain what the thinking substance is. Identifying the thinking substance with a thinking thing says nothing about the nature of what you think. Gassendi, in his objections, already notes the difficulty of the word *res*, cosa, in defining what the meditator is:

> And so you lead us to your main result, that you are a thing that thinks, i.e. a thing that doubts, affirms, etc. To say in the first place that it is a thing, there is nothing known to say. This is a vague general word that applies to you only to anything in the whole world that is simply nothing. You are a "thing"; i.e. you are nothing, or, what is the same, you are something. But a stone is something and nothing, like a fly and everything else (p. 276).

Gassendi does not seem to understand that Descartes seeks to identify precisely an indeterminate entity by *thing*, since at the time of meditation II he still does not have sufficient resources and knowledge to identify such a thing as a substance, let alone as a mind or soul. (Descartes 2004, p. 51). Thought, the only characteristic of the thing, on the other hand, manages to reveal its nature. According to Descartes, it is a "thinking thing", i.e. "a thing that doubts, understands, affirms, denies, wants, does not want, that also imagines and feels" and this would not be "certainly little [knowledge] if these things together belong to me" (p. 51). Likewise, it is the extension that determines an extensive entity and not the fact that it is a thing (pp. 169-171).

Thus, says Descartes, someone who has not traveled the itinerary of meditation I, who has not eliminated prejudices previously admitted as true, may not be able to recognize, with clarity and distinction, what he thinks (Descartes, 1904, p. 518). However, going through the stages of the meditative itinerary, on its own, although it allows us to understand the

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meditator's own existence in the context of the hypothesis of the supreme deceiver,[13] does not seem sufficient to lead to the complete knowledge of the thinking substance. The thinking substance is known to exist, but is the nature of what is known? If this is known, how does this knowledge arise? From the answers given to Gassendi and Bourdin, as presented in this section, it is evident that Descartes is unable to propose solutions to these questions (pp. 276, 491). The knowledge of the thinking substance remains a dark part of the itinerary of the *Meditations*, although the philosopher thinks that it is not so.

How can knowledge of the mind be clear and distinct?

Gassendi confesses surprise at the Cartesian thesis that the mind would be clearer and more distinctly known than extensive objects, since Descartes would not have explained what he thinks (Descartes, 1904, p. 267). In the example of the piece of wax, in Gassendi's opinion, the thinking substance would remain unknown (p. 275). Similarly, Bourdin, in an objection acknowledged by himself as his main critic, points out the strangeness in the abrupt transition of the knowledge of one's existence as a thinking thing to the acquisition of a clear and distinct knowledge of it (p. 504). The origin of clear and distinct knowledge of a thinking thing is not explained, says Bourdin, although the explanation of what he thinks is Descartes' main objective (p. 504). How can this concept be clear and distinct? (504–505).

The text of the *Meditations* does not present—at least explicitly—the explanation demanded by both objectors. Descartes, however, in his response to Gassendi, seems to have difficulty substantiating his understanding. What would make the mind better known than extensive bodies would be precisely the fact that it is possible to know more modes of the thinking substance than of the extensive substance. Furthermore, all known modes of the extended substance would also result in the knowledge of more modes of the thinking substance, which effect such knowledge:

> Where it is clearly seen that there is nothing of which we know as many attributes as those of our spirit, because to the extent that we know them in other things, we can count as many in the spirit, by the fact that it knows them [*cf.* Descartes, 1973, p. 275], therefore, their nature is better known than that of anything else (Descartes, 1973, p. 257).

In response to Bourdin, specifically to the accusation that he would not explain the origin of the clear and distinct concept of the thinking thing (1904, p. 518), Descartes responds—continuing what was said to

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Gassendi—that between the reason of knowing the thinking thing and its clear and distinct knowledge:

> I listed all the properties of the thinking thing, namely that it comprises, desires, imagines, remembers, feels, etc.; as well as all other commonly known properties, which do not belong to its conception, to distinguish one from the other, which could only be desired after eliminating prejudices (p. 518).

The question of knowledge of modes and their relationship to knowledge of the substance will be discussed in more detail in the next section. For now, it is necessary to question the understanding of Descartes presented in the above passages. It is not clear how knowledge of a greater number of modes can make knowledge of substance clearer and more distinct,[14] nor is it clear how the philosopher can state with certainty that he knows all the attributes of his mind (Descartes, 1973, p. 257; 1904, pp. 491, 518).

To illustrate the difficulty of Descartes' assertions, we appeal to the history of philosophy, more specifically, to the reflections of Nicolas Malebranche (1638-1715), presented in *De la Recherche de la vérité* (2004),[15] a philosopher widely influenced by Cartesianism (Solis Sotomayor, 2014, p. 63). One of the main Malebrechian theses in this regard states that modes are all that the subject can know about his spirit.[16] However, even this knowledge is precarious. Two reasons for this epistemologically negative view apparently refer precisely to points mentioned by Descartes in the above-cited passages. On the one hand, for Malebranche, human beings ignore which modes belong or do not belong to their spirits. Much of humanity assumes that the sensitive qualities—colors, smells, flavors, etc.—are in extensive things, when in reality such sensations would be but modes of the thinking substance. Therefore, the spirit would be blind about itself. In the words of Malebranche (2004), "the soul is therefore so blind that it does not know itself and does not see that its own sensations belong to it" (p. 136). On the other hand, Malebranche (2004) considers it impossible for the human being to be able to know all the forms of what his spirit is capable of:

> It is necessary […] to agree that the capacity of the soul to receive different modifications is as great as its capacity to conceive. I mean that, just as the spirit cannot exhaust, nor comprehend all the ways that matter is capable, nor can it comprehend all the different modifications that the powerful hand of God can produce in the soul, even though it knew as clearly its capacity as that of matter (p. 163).

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Knowledge of the spirit, therefore, can only encompass the smallest part of what it is, since "it is not enough, therefore, to know perfectly the soul, to know what we know of it by the inner sensation, since the consciousness we have of ourselves, perhaps, *shows us only the smallest part of our being*" (p. 207) (italics added).

In his responses to Bourdin, Descartes accuses him of facing a ghost, as if his attacks could not be directed at the theses of the *Meditations* (1904, pp. 511–512). Descartes states that the problems to which Bourdin refers do not appear in the text of his work, but arise from a misunderstanding on the part of his reader (p. 512). It is believed, however, that this accusation by Descartes would not be entirely legitimate. Bourdin and Gassendi seem to identify a real difficulty in the meditative itinerary (pp. 276, 386-490, 501). It is difficult to understand how Descartes could respond to the objection concerning clear and distinct knowledge of the thinking substance if, in the text of the *Meditations*, there are at least two contradictory explanations for this problem, neither of which eliminates the difficulties concerning knowledge of the thinking substance, as explained in the previous sections of this work. Would Descartes believe that substance is an entity independent of anything else and that it can exist on its own, or is it an entity that can only be known through its modes and attributes and that therefore depends on them?

The section concludes by pointing out that if, in fact, Descartes does not clarify how the thinking substance can be known in *Meditations*, objections such as those pointed out by Gassendi and Bourdin should be seriously considered. These are believed to be legitimate questions, given that Descartes' reflections on the nature of the thinking substance appear to lack clarity. At times where the itinerary would provide a systematic explanation for this, as in Meditation II, Descartes (2004, pp. 49–51) quickly addresses the subject. Descartes' attitude is to affirm as evident something that poses great interpretative difficulties, even after the process of cleansing the spirit of doubts (p. 49).

The relationship between the knowledge of modes and the knowledge of the thinking substance

This section focuses on the role of knowledge of modes and attributes for the knowledge of the thinking substance, from this quotation mentioned in the previous section:

> As for me, I never thought that in order to manifest a substance, it was necessary to discover its various attributes [*nihil unquam aliud requiri putavi ad manifestandam substantiam, praeter varia ejus atributa*]; so that, the more attributes we know of a substance, the more perfectly we know its nature as well (Descartes, 1973, p. 257).

Descartes makes it clear that knowing a substance would be enough to know its attributes. According to the philosopher, the manifestation of the knowledge of substance would occur precisely through the apprehension of its various attributes. It would not be necessary to know anything beyond the attributes, for the substance is revealed in themselves, being nothing, beyond them. Likewise, in the "Fifth Answers", Descartes explains to Gassendi that the concept of substance cannot be abstracted from the concept of its accidents:

> Here, as is often the case elsewhere, you only show that you do not understand what you are trying to reprimand; because I did not abstract the concept [*abstraxi conceptum*] of the wax from the concept of its accidents [*accidentum conceptu*], but I wanted to show how its substance manifests itself by accidents and to what extent its perception, when it is clear and distinct [*reflexa et distinct*] and when an exact reflection made it manifest to us, it differs from the vulgar and confusing perception (p. 256).

It is important to mention that Descartes has in mind the extensive substance in that passage. However, it is believed that this extract can be used, without difficulty, to think about the case of knowledge of the thinking substance, since as noted above, when talking about substance, Descartes believes that its properties—at least as a substance—can be used invariably and, thus, it is possible to translate what is said about the extensive substance into the thinking substance (Descartes, 2004, pp. 89-91).

On the one hand, the passage cited above is important because it clarifies that the concept of substance is not abstracted from accidents (Descartes, 1973, p. 256). On the other hand, there are some suggestions in the passage that are not so clear. It is unclear whether accidents reveal the substance, as when Descartes states that "their substance is manifested by accidents" (p. 256) or whether, from accidents, there is a "reflexive and distinct perception" of the substance. In other words, to what extent can the attributes of a substance really reveal what that substance is, what is the status of knowledge of the substance that its attributes allow?

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If "substance is manifested by accident" (Descartes, 1973, p. 256), as the first suggestion states, then how is it possible to know substance from its attributes? Is substance its attributes? If so, how can this conception be reconciled with the definition of substance as "something capable of existing on its own"? (Descartes, 2004, p. 89). Would not relying on an attribute (or attributes) make the substance a dependent entity? If a mode or attribute is, in itself, distinct and can exist by itself, why would Descartes need to invoke the notion of substance? Reflection on modes and attributes, therefore, does not seem sufficient—at least not without an explicit explanation—to elucidate the knowledge of the thinking substance.

The second suggestion, which emerges from accidents as a reflexive and distinct perception of substance (Descartes, 1973, 256), deserves further consideration. Descartes adds in this passage, without explaining, the notion of "reflective perception." What kind of thoughtful act does the philosopher refer to? It is believed that he may have been considering one of two possibilities. The first refers to a rational act of reflection, for example, that of inferring, from modes and attributes, the existence of something in which they exist. The second refers to a reflexive perception—in the case of the thinking substance—that accompanies each particular act of thought that allows one to know oneself. This last possibility of interpretation, in which it is established that any act of thought necessarily implies the knowledge of oneself, seems consistent with what was said in a passage of meditation III cited in the first section of the article, when the meditator says that in every mental operation "I always grasp something as a subject of my thought" (Descartes, 2004, p. 75).

Once again, the history of philosophy is invoked as an attempt to understand this mental process by which, according to Descartes, it would be possible to know the mental substance through reflection. In the chapter "On Identity and Diversity," Locke observes that every mental act is accompanied by self-awareness:

> It will be difficult for us to determine the extent to which consciousness is linked to an individual agent in such a way that another probably cannot have it until we know what kind of action it is that cannot be performed without the company of *a reflex act of perception* and the way they are concretized by the thinking substances, which cannot think without being aware of it (Locke, 1694/1999, pp. 446-447) (italics added).

In this way, Locke manages to determine that the condition of self-knowledge is precisely the awareness of particular mental states (pp. 442–443). By perceiving an idea, the self knows itself through this act, so that

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mental operations cannot be performed without the presence of what Locke calls "the reflexive act of perception" (pp. 446–447). It is important to note, however, that the English philosopher does not have in mind the knowledge of the thinking substance, but of the person. In the currently proposed reading possibility, Descartes, in turn, would have the thinking substance itself in mind.

Looking back to the above passage (Descartes, 1973, 256), it can be understood that the condition of the knowledge of the thinking substance would be the awareness of particular mental states, i.e. the knowledge of their modes and attributes. While one thinks, it is impossible not to grasp the thinking substance. Therefore, attributes could reveal it. In this way, the thinking substance could be known through modes and attributes. However, as mentioned above, it is critical to answer whether knowing the modes and attributes would actually be knowing the substance. Consequently, it is necessary to clarify whether, in the Cartesian conception, *the substance is determined by its properties*—its modes and attributes—or whether it *is a subject of inheritance, devoid of properties, and which is beyond its modes and attributes*. The problem discussed in this article arises exactly at this point, since none of the solutions manage to clarify how the thinking substance can actually be known.

In the case where we infer existence from modes and attributes, as Descartes states in the "Seventh Objections" (1904, p. 518), we have the reading suggested by Rocha (2006), Aubenque (1999) and Beyssade (1997), which was analyzed in the first section ("Knowledge of modes and attributes and knowledge of the thinking substance"). This reading suggests that the substance could only exist based on its modes and attributes. However, this implies that the substance depends on its modes and attributes, just as these depend on a subject to exist. Afterwards, it would not be clear how the thinking substance would be known based on its modes and attributes: either it is something beyond its properties, and for such a reason it would not be possible to know it in fact; or it is its modes and attributes, and thus it is not clear why Descartes would have resorted to another notion to classify this entity. To support such an interpretation, his followers must, without delay, resort to different explanations that Descartes provides in later writings, such as the *Principles of Philosophy* (1644) and the *Notae in programma* (1648). In these writings, Descartes explains the difference between the real, modal and reason distinctions, further stating that all substances are composed of a single essential attribute, which is responsible for fully determining the nature of the substance (Descartes, 1905, pp. 26-32, 342-369). It is neces-

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sary to emphasize that these clarifications are not found in the text of the *Meditations* or in the set of *Objections and Answers*. For this reason, it is not possible to argue, based on them, that Descartes understood that clear and distinct knowledge of the thinking substance was possible, or that the philosopher explained how such knowledge would occur. Assuming this position, clear and distinct knowledge of substance is always forbidden: either because it is the result of judgment or inference—which occurs before the supreme deceiver hypothesis is suppressed—or because there would indeed be no substance beyond the modes and attributes that are clearly understood.

The second case, that a reflective perception accompanies each act of thought and allows self-knowledge, also causes problems. The main thing is that the thinking substance, known as something that accompanies each of the modes of thought, is an entity that cannot be objectively known. However, this position seems better founded because it does not appeal to the identification between attributes (and/or modes) and substance, something that Descartes apparently does not support. Laporte (1988) is probably the most notable proponent of this interpretation. In the interpreter's eyes, Descartes understands that knowledge of the essence of the thinking substance is, in fact, clear and distinct. Their paths and attributes are known. Thought, as the essence of substance, exists and is clearly perceived through intellectual intuition. It is also possible to distinguish clearly what constitutes the thinking substance from what does not constitute its essence. From this certain and evident knowledge, it becomes possible to have the idea of an entity that keeps in itself such properties (pp. 178-179, 190). However, accepting this interpretation, we must accept that the thinking substance is not clear or different for the human spirit, as understood by Laporte himself:

> The substance, in its intrinsic reality, always remains *extra intellectum*. What! Even the thinking substance? — Apparently, Descartes's formulas do not allow exceptions. —But does *Cogito ergo sum* "immediately" reveal the substance of thought to us? Yes, in a sense, but not entirely reducible to thought. If the two terms were exactly the same, why would Descartes insist so much on maintaining, to designate the soul, the expression he thinks? And does the necessary connection that ergo makes between the two terms not have as a counterpart the distinction between them based on an *in re* basis? Let us not forget that Cogito brings into play not only thought, but a reflection on thought (p. 191).

Given this conception, substance cannot be fully identified with its attributes and modes. On the contrary, substance is an entity beyond

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its properties and can exist by itself. However, all that the human intellect can perceive clearly and distinctly are the attributes and modes of a substance. The substance falls outside the realm of human knowledge (pp. 191–192). In other words, Laporte argues that there is access to the thinking substance to the extent that it is revealed to our epistemological capacity, although it does not exist objectively and effectively in its attribute—even if we understand thought as the essential and principal attribute of this substance. Therefore, objective existence could only occur outside of comprehension.

As meditation VI reveals to us, the faculty of knowledge that exists in the human being is finite and limited.[17] Descartes makes it clear that "man being a limited thing, he has only limited perfection" and, therefore, the human being cannot know everything (Descartes, 2004, p. 181). Thus, while meditation II explains that knowledge of thought and its modalities is within the reach of understanding (p. 51), as well as the ideas that represent the world (p. 177-179), objective realities—things—are not known. We grasp ideas and not things (p. 179). Only then does thought come to the thing. And what is the thinking substance? One thing he thinks, *res cogitans* (p. 51).

As much as Descartes attempts to unite the domains of being and knowledge, there is an insurmountable gap between the thing itself and thought. Consequently, knowledge of the thinking substance is not clearly explained in the *Meditations*, precisely because Descartes deals with this gap. Sometimes it refers to the knowledge of the substance, sometimes to its ontological status. Faced with this ambiguity in the treatment of substance, it is possible to better understand why Descartes reveals himself pressured by the questions that arise around the knowledge of the thinking substance: it is possible to attain a clear and distinct knowledge of the substance's essence, but not of its existence. Knowing and being are not the same, despite being similar. In *Meditations* and *Objections and Answers*, however, Descartes is unable to explain this distinction clearly and, therefore, philosophical discussion ends up guided by the difficulty of his empiricist critics in recognizing the distance between the evidence of thought and the evidence and the ontological treatment of the thinking substance.

The difficulties and confusion of his readers probably led Descartes to more explicitly configure the doctrine of knowledge of the thinking substance in later writings. Given this, we were also able to explain the preference of interpreters to consider the *Principles of Philosophy* as a key text to address this issue. The *Meditations* clearly reveal dark and confusing passages, which become even more confused when we address the answers formulated to their critics.[18]

Conclusions

Considering the doctrine of the *Meditations* and the explanations offered by Descartes to Gassendi and Bourdin *about the knowledge of the thinking substance, we can conclude that, in the text of 1641, Descartes fails to explain clearly how the knowledge of the res cogitans* occurs. The ambiguity arising from the comparison of extracts on the thinking substance occurs because Descartes does not clearly demarcate the epistemological and ontological scope. In trying to determine that knowledge of the thinking substance confers intelligibility to his entire epistemological project, the philosopher neglects the insurmountable explanation between essence and existence.

Substance, ontologically speaking, is independent and can exist by itself. It is precisely existence that distinguishes substance from its attributes (Laporte, 1988, p. 189). Finite substances are capable of existing independently of other substances and, consequently, of any mode, attribute, or property. Therefore, taking an Aristotelian position that the substance has its nature determined by its attributes and modes is incompatible with the ontological independence of the substance (Laporte, 1988, pp. 177–178; Glouberman, 1978). However, when it comes to the knowledge of substance, another element comes into play: human understanding. Given the finitude of understanding, it is not possible to extrapolate what is in thought and, therefore, epistemologically speaking, what can be known about the substance are its modes and attributes, whose knowledge is clear and distinct, revealing also the existence of a substance, even if it is not fully known.

From a Platonic conception, we can understand that Descartes believes that it is entirely possible to attain thought, but not that which exists in itself. Let us return here to one of the answers offered to Gassendi regarding the knowledge of the thinking substance:

> I wanted to show how its substance manifests itself by accidents and to what extent its perception, when it is clear and distinct [*reflexa et distincta*] and when an exact reflection has made it manifest to us, differs from the vulgar and confusing perception (Descartes, 1973, p. 256) (italics added).

In that passage, Descartes explains that it is the attributes of the substance that can make it manifest to the human spirit and that is his intention. Going beyond this knowledge is impossible for understanding, however, given the clarity and distinction with which we know such

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attributes; it is possible to find good reasons to accept the existence of the thinking substance. Margaret Wilson (2005, p. 88) considers that the conclusion that the mind is not transparent in itself would be to recognize that there is a certain deception of the mind itself. However, that is not the case. If Descartes says that everything in his mind is transparent, we emphasize that what is transparent is what is in the mind (Descartes, 1904, p. 107)—such as ideas, thoughts, etc.—and not the existence of the thinking substance. Descartes' theory suggests that the mind cannot be known as a concrete substance, i.e. as a complete existence. The essence of the mind remains intelligible to itself.

This distance between being and knowledge, far from being a problem for Cartesian philosophy, is constantly highlighted. In the "Second Answers," for example, Descartes makes clear that the certainty present in the *Meditations* refers to human certainty, which confers a firm persuasion that cannot be suppressed (1973, pp. 222-223). For Descartes, the thinking substance, being something concrete, real—and not a mere abstraction made of its attributes—cannot be known ontologically by the intellect. Therefore, we believe that in *Meditations*—and in all Cartesian philosophy—the knowledge of the thinking substance is obscure: it cannot occur in ontological terms.

Notes

1   Originally published in 1641. The passages quoted here belong to the bilingual edition of the *Meditations* translated into Portuguese by Fausto Castilho.
2   Throughout the manuscript, the terms *res cogitans*, thinking substance, soul, mind, and I, are used interchangeably. These words are intended to designate what performs the activity of thinking and has thought as an essential attribute.
3   The clearest definition of substance is presented in the third meditation (Descartes, 2004, p. 89). While God is the infinite substance "that exists by itself," the mind and body are finite substances that are only "capable of existing by themselves." In the *Geometric Exposition* accompanying the responses to the second objections, Descartes (1973) presents his definition of substance: "Everything in which he resides immediately as in his subject, or by which there is something we conceive, i.e. any property, quality or attribute, of that which we have in us as a real idea, is called *Substance*. We have no other idea of substance taken with precision, except that it is a thing in which there is formally or eminently what we conceive, or what is objectively in some of our ideas, since natural light teaches us that nothing can have no real attribute" (p. 235). For an introduction to the subject of substance in *Meditations*, we suggest the works of Vere Chappell (2008, pp. 252-253, 257-259) and Jorge Secada (2006). For more critical works on the subject, we suggest the texts of Jean-Marie Beyssade (1997) and Anat Schechtman (2016), which address the problem of the coherence of the uses of the term "substance" in Cartesian works.

4   As an introduction to the discussion on the discovery of the thinking substance and its nature in the meditative itinerary, the classical work of Martial Guéroult (1953, pp. 53-62, 63-67) is suggested.

5   Regarding the discoveries made in the second meditation, the introductory work of Marleen Rozemond (2006, pp. 49-54) is suggested.

6   Note here the existence of a discussion, in secondary literature, on what stage of the meditative itinerary Descartes effectively demonstrated that thought is the essence. As to why this discovery is possible only in sixth meditation, Stephen Schiffer's article is suggested, especially the third and fourth sections (Schiffer, 1976, pp. 31-43).

7   Locke presents his theory of personal identity in the chapter "On identity and diversity" of the second edition of the *Essay on Human Understanding* (1694/1999). For the philosopher, consciousness produces personal identity. It is precisely in this return to oneself permitted by conscience, according to the philosopher, that a person discovers his identity (p. 443). A person discovers his own continuous existence, as "the same person," through the faculty of consciousness. Olaya *et al.* (2018) present an interesting discussion on how to know one's mind in Lockean philosophy.

8   In the meditative itinerary, Descartes relies on the activities of consciousness that are understood as true. In fact, the meditator develops the course of *Meditations* based on assumptions such as, for example, "I am aware of what I think", "I am aware of doubting" and "I am aware of perceiving clear and different ideas". To be conscious is to know something about one's own mental phenomena. For a detailed study of the notion of consciousness in Descartes, we suggest reading the work of Emmanuel Faye (2012).

9   This difficulty contains, in itself, another problem: while Descartes (2004) actually states in the second meditation that thought is an attribute of the soul and that "he alone cannot be separated from me" (p. 49), nowhere in *Meditations* thought is defined as an essential attribute of the thinking substance. This thesis will only be established in the *Principles*. Therefore, in the *Meditations* it is not clear that thought determines the nature of the substance and thus appears as a necessary and sufficient condition for a thing to exist and be known. In this sense, to make the doctrine of *Meditations* intelligible, these interpreters need to resort to other texts of the Cartesian *corpus*. Consequently, even if this reading thesis is supported, it would not yet eliminate the hypothesis that is raised in this article: in the Descartes *Meditations* it does not clarify to what extent we know the thinking substance.

10 It is recognized, however, that the question of the extent of the Cartesian doubt is subject to discussion. Are all the operations—for example, the senses, memory, and reason—and all the contents—for example, mathematical truths—of the mind at the end of the first meditation? Some argue that Descartes maintains confidence in the operations of reason and mathematical truths in the second meditation, merely questioning the reliability of the senses and memory (*cf.* Kennington 1971, p. 442; Grene 1999, p. 561; Larmore 2006; 2014, p. 54).

11 Still grappling with questions about the thinking substance, Descartes (1973) responds to Gassendi by stating that "I did not add that the spirit was not extensive to explain what it is like and to make its nature known, but to warn that those who think it is extensive are deceived" (p. 282). This passage, however, does not purport to indicate that Descartes' goal is not to explain what the thinking substance is, but only to emphasize that its essence is not composed of extension, which is indispensable for Descartes' dualistic doctrine to be established successfully. In this regard, the work of Rocha (2006) is suggested.

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12 Bourdin, in his objections, distinguishes between the notions of mind and soul. This distinction is not thought to be relevant to the topic covered in this article.

13 Vinícius Freitas (2021, pp. 406-408) argues, in another article, that Descartes' procedure regarding the first discovery—the very existence of the meditator as a thinking thing—is consistent from an epistemological point of view.

14 It can be conjectured, based on rule VIII of *Rules for the Guidance of the Spirit*, that Descartes (1999) here intends to argue that "no knowledge can precede that of understanding, for upon it depends the knowledge of all else, and not the other way round" (p. 51) and not that the number of known attributes corresponds to a greater understanding of the substance. Regarding Gassendi's objection that knowledge of extensive objects could not lead to knowledge of the mind and Descartes' response, we recommend the works of Margaret Wilson (2005, pp. 81–88) and Ted Schmaltz (1992).

15 Originally published in 1674 (books I, II and III) and 1675 (books IV, V and VI). We use Plínio Smith's (2004) Portuguese translation of selected parts of the *Recherche*.

16 Knowledge of the modes of the thinking substance is produced by a mental process called by the philosopher "consciousness" (*conscience*) or "inner sensation" (*sentiment intérieur*). In his opinion, mental phenomena could only be felt, therefore, the intellectual apprehension of the self would not be possible. Malebranche repeatedly reinforces his epistemologically negative perspective on this knowledge. In this regard, we suggest reading the works of Jacques Paliard (1941), Tad M. Schmaltz (1992; 1996) and Stephan Nadler (2011).

17 Ana Sousa (2023) argues, in another article, that this conception is present in all the works written by Descartes, which would determine the entire Cartesian philosophical project.

18 Such darkness is truly contrary to the Cartesian spirit and its pedagogical doctrine (*cf*. Gutiérrez Pozo, 2023).

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PHENOMENOLOGY OF AUDIOVISUAL NARRATIVE FOR AN ETHICAL FORMATION EMPLOYING "ANIME"

Fenomenología de la narración audiovisual para la formación ética empleando el "anime"

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Abstract

Ethic formation faces the challenge of being understandable for students, but, above all, of being expressed in their own ways of understanding and discussing their lives, in order to be relevant. One especially attractive form among children and young people is audiovisual communication, whose formative potential has been usually understood in instrumental terms, when not absolutely denied. This article presents a phenomenological proposal to dialogically elaborate in the classroom the problematization of duty centered ethics, as it is dramatized in two Japanese animation productions ("anime"). In first place, it discusses phenomenologically how to understand the formative potential of the experience of watching an animated narrative. In second place, it claims that the phenomenological reinterpretation of the categorical imperative can overcome its disconnection from the affective dimension of the ethical subject and its factual contexts of action to focus on the caring of the human condition of vulnerability. In third place, it shows how the previous discussions are elaborated in two "anime", which allow students to experientially involve themselves in these ethical interpellations and offer teachers the opportunity to embrace their student's insights in a dialogical learning experience understood narratively. It concludes summarizing the opportunities and challenges presented to teachers from this perspective of the meaning of audiovisual creations in the education activity.

Keywords

Education, phenomenology, ethics, aesthetics, animation, vulnerability.

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Resumen

La formación ética enfrenta el reto de ser comprensible para los estudiantes, pero, sobre todo, de formularse desde las formas de comprender y discutir sus propias vidas, para que les sea relevante. Una de esas formas especialmente atractiva entre niños y jóvenes es la comunicación audiovisual, cuyo potencial formativo ha sido comprendido usualmente en términos instrumentales, cuando no negado absolutamente. Este artículo presenta una propuesta fenomenológica para trabajar dialógicamente en el aula la problematización de una ética centrada en el deber, tal como es puesta en escena en dos productos de animación japonesa ("anime"). En primer lugar, discute fenomenológicamente cómo comprender el potencial formativo de la experiencia de ver una narración animada. En segundo lugar, argumenta cómo la reinterpretación fenomenológica del imperativo categórico puede superar su desconexión de la dimensión afectiva del sujeto ético y sus contextos fácticos de acción para centrarse en el cuidado de la condición humana de vulnerabilidad. En tercer lugar, muestra cómo las discusiones anteriores son elaboradas en dos "animes" que permiten que los estudiantes se involucren vivencialmente en estas interpelaciones éticas y que los docentes puedan acoger sus vivencias en una experiencia dialógica de aprendizaje comprendida narrativamente. Concluye recapitulando las oportunidades y exigencias planteadas a los docentes desde esta clave de lectura del sentido de las creaciones audiovisuales en la actividad educativa.

Palabras clave

Educación, fenomenología, ética, estética, animación, vulnerabilidad.

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Introduction

The topic discussed in this article is the ethically formative potential of narratives, considering the different forms it assumes in a given cultural community. The specific object of study is an audiovisual narrative increasingly popular among Latin American audiences and globally: Japanese animation or "anime". It aims to offer an updated understanding of the ethical potential of this form of cultural consumption, oriented by the pretension of aesthetic enjoyment to strengthen the attractiveness and practical relevance of the formative activities in the classroom.

The research intends to update and strengthen ethical training as one of the most urgent challenges in contemporary societies. It is known in educational institutions that this training is not limited to achieving the understanding of concepts and ethical criteria, but aims to move daily certainties, promote critical dialogs and move to renewed solidarity action (Nava Preciado, 2022). This pretense presupposes that ethical challenges and discussions are already present in that daily life and that one of the roots of the problem is not to notice them. For this reason, Husserl's phenomenology has been selected as a perspective for this discussion, whose understanding of the relationship between life and ethical reflection will clarify how the aspiration to articulate in a unitary narrative the avatars of personal history can be fed and oriented by immersing oneself

in contemporary audiovisual narratives, such as those considered in the proposed topic.

The main idea to defend is that a pertinent understanding of meaningful narratives for students allows better attuning to how they live their current ethical challenges, making it possible to generate dialogs that allow sharing, enriching and orienting those experiences with the help of the teacher. The importance of the subject is not limited to an opportunistic use of the conjunctural popularity of the consumption of "anime", but it responds to the attempt to fully understand – both teachers and students – the value of the innovative aesthetic and narrative quality that has reached in productions where relevant aspects of the human experience are captured, while continuing to constitute entertainment products.

In this sense, the current issue is that it is articulated with the broader attempt to pedagogically take advantage of the universe of aesthetic creations – whether audiovisual, literary or scenic – that has fed humanist education in recent centuries and that can continue to do so today, provided that it is understood, along with contemporary creations, from an ethical and aesthetic sensitivity in a dialogic key.

To this end, the descriptive-interpretive methodology of Husserl's phenomenology has been chosen, because it allows to notice the specificity of, on the one hand, the ethical potential in the experience of seeing these "animes" and, on the other, the formative dialog that can be generated within its narrative articulation. As explained in the following section, the phenomenological perspective places the researcher in the point of view of the subject who lives an experience to describe its structures and dynamics, in which the particular sense of what is experienced is constituted. The aim is to analyze the experience of seeing an animated narrative to specify how it relates to the experience of pretending to give a sense to one's existence, giving reason to it narratively. The results of the analysis constitute, at the same time, resources for this pretense of ethical maturation: the descriptions and interpretations produced pretend that the experimenting subject recognizes himself in them and can, thus, become more responsible for them. In this sense, as Husserl expressly formulates (2002), phenomenology is understood philosophically as a project of educational and cultural renewal that seeks to incorporate in its critical and creative dialog to ever wider sectors of the human community. Likewise, this article offers, as part of its results, the basic analysis of two "animes", as a replicable model for the ethical interpretation and discussion of cultural creations. As model examples, they can and need to be enriched by teachers according to the vital contexts

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– phenomenologically discernible, as discussed below – in which they develop their activity.

This effort to make ethical training more meaningful by appealing to popular audiovisual narratives faces some starting objections. First, it could be pointed out that it confuses a didactic problem with a properly ethical discussion: it would only be proposing examples closer to the students and, far from recovering the value of narratives, it would be instrumentalizing them. Second, if indeed the questioning and reorientation of life involves an inescapable narrative dimension, it would seem that it compromises the claim of universality of ethical duty and reduces it to the conditionality of practical prescriptions according to the situation. Third, instead of promoting critical thinking, it (mis)treats adolescents and young people condescensively by offering them a simplified ethic that they could consume from the hegemonic media.

The structure of the argument responds, from phenomenology, to these possible objections to show how they can help generate and guide formative ethical dialogs from the discussion of two "animes". First, it will show the need for a renewed understanding of the relationship between contemporary audiovisual narratives and their audiences. It will phenomenologically base this understanding by exposing how it is rooted in the ability of aesthetic experience to renew the process of formation originating from the personal self and its community integration, committing it ethically. In a second moment, this ethical perspective will be based on the phenomenological interpretation of rationality and the categorical imperative, where the irreplaceable role of affectivity and attention to the factual contexts of action for ethical maturation is recovered. It will clarify how this ethical growth of the self maintains the relevance of duty within the greater horizon of caring for human vulnerability. In a third moment, it will show, through the discussion of two "animes", how the concepts, criteria and orientations clarified in the previous sections can be worked dialogically in the classroom taking advantage of the narrative space they open. In conclusion, it will summarize what this proposal requires of teachers in the effort to ethically train their students.

The ethical potential in the aesthetic experience of watching animation

This section starts from problematizing a current understanding of the experience of audiovisual narratives in mass media, to clarify, from a

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phenomenological perspective, how it is not limited to a passive reception, but it requires the active participation of its viewers to make sense. After specifying the specific form of participation required by animated storytelling, it will show how the aesthetic character of this experience, by reupdating the ability to learn to perceive the world with meaning, offers an opportunity for personal renewal and, with it, for ethical growth. From this perspective, it is proposed that the relationship between academic research of audiovisual narratives and their training pretensions requires deepening their understanding of ethics.

Research on the power of audiovisual media has produced in the last century illuminating perspectives to better understand the phenomenon of its consumption and its possible influence on the public. A dramatic reference in this research was the propagandistic use of media such as that suffered by members of the Frankfurt school with the rise of Nazi totalitarianism. The attempt to reduce the public to a single ideologized mass was shown, however, as a complex phenomenon. Even before the cultural studies conducted by the Birmingham school highlighted the ability of audiences to resignify the hegemonic communication flow. Authors such as Walter Benjamin (1989) knew how to warn in new audiovisual media unprecedented possibilities for their viewers to generate their own dynamics of recognition and awareness.

Nevertheless, a vulgarization of critical theory persists to this day in a kind of "hypodermic needle theory" that assumes a direct causal relationship between the mass reach of audiovisual media and the behavior of the individual viewer. Researchers who initially started from the idea of causation, such as Harold Laswell or Paul Lazarsfeld, concluded by theoretically and empirically refuting their main assumptions (Otero, 1999). Three of them are especially relevant: that a decodable message can be uniquely identified by the receiver in the same terms as it was coded by the sender; that by studying a presumed effect one can distinguish the media influence from other influences of the environment; and that the viewer's experience is strictly individual, alien to mediations such as family, local community and other groups of belonging. Despite these clarifications, research is still being read and published today that identifies the consumption of film, television or video games as a direct cause of sexist, racist and, in general, violent behavior. Problematizing this prejudice does not mean denying that there is any influence, but it does mean questioning determinism in its individualistic and passive conception of the viewer. This theoretical and empirical discussion in the communication sciences can be enriched with the phenomenological discussion of the

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fundamentals of the experience of seeing an audiovisual narrative and, specifically, of an animation.

Phenomenological methodology requires putting in brackets (*epoje*) the assumptions of theories and beliefs about this experience, placing the researcher in the perspective of the first person who is living it (reduction), to clarify how his object appears and how he apprehends it (Zahavi and Gallagher, 2013). This attention to the appearance (phenomenon) allows us to confirm that the subject of the experience does not seek or care for any supposed message, but is guided by a specific intention to immerse himself in that animated narrative. In phenomenological terms: it is not oriented by a cognitive intentionality, but by an aesthetic intentionality that subordinates it (Casallo, 2021). In this aesthetic attitude, the intention is not directed to the *what* appears but to the *how* it appears sensitively captivating and immersing him in that imaginary world. Other possible attitudes, such as natural-scientific, also address how to appear, but mathematically objectify it, while the aesthetic attitude serves no further interest: it concentrates and surrenders on the enjoyment of appearing sensitive by itself. The aesthetic attitude is then configured around an affective-valuative intentionality, although it also integrates the cognitive and practical.

This configuration takes different forms, depending on whether one listens to an oral story, reads a novel, etc. (Ong, 1996). For the experience of seeing an animation, phenomenological analysis seeks to identify the specificity, both of the appearance of the audiovisual narrative, and the correlative dispositions and capabilities that it activates in the viewer. It is assumed that although we talk about waching an animation, it is a different experience than the daily perception of the objects that surround us. Remaining in mere perception, a photograph could be described as a paper covered with irregular spots, or an animation as pixels whose brightness and color change continuously on the screen; and, however, in the photographic image the portrayed family itself is recognized and in the animated image it is possible to immerse itself in a *cyberpunk* drama. Something is noticeably absent in the picture. Husserl (1980) distinguishes perceptual consciousness from image consciousness, where the latter is directed at the articulation of three objects: the image thing (the photographic paper, the screen), the image itself, and the existing or fictitious referent that the image brings into presence. However, the experience of the photographic image and the animated one assume specifically different forms. Despite being a still image, the photograph of a raging sea or a dancer jumping allows to experience the movement because

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visual perception does not involve only the eye activity but the integrity of the living body of the subject. This living corporeality is not only sensitively receptive but capable of movement in relation to the surrounding world. To perceive is to attune bodily to that surrounding world (Abram, 1996) and, in particular, to the portion of the world that is present in the image. If in photography movement occurs in a potential form, in animation the images move effectively and the subject learns to recognize and enjoy three-dimensional scenarios, characters and actions brought to the two-dimensionally presence. He also learns to understand and follow the spatial-temporal continuity articulated through the richness of audiovisual language (angles, planes, camera movements, etc.) with its own narrative possibilities (ellipsis, prolepsis, analepsis, etc. executed through editing) and aesthetics (lighting, photography, actor direction, makeup, characterization, etc.). Unlike other forms of audiovisual storytelling, animation opens from drawing that serves as a material basis for the image thing, world possibilities inaccessible to *live action* productions. Just as one can recognize human characters living through a shocking drama even though their bodies are drawn only with schematic strokes, one can also accept expressions, athletic feats, and deformations – when, say, a stone crushes and flattens a character who then stands up and walks – as plausible, even though they would be impossible in the everyday world.

As Dufrenne (1989) points out, the aesthetic object is given as a world or, rather, as an atmosphere of a world whose incompleteness must be supplemented by the active participation of the spectator. This task, far from taxing the experience, makes it more provocative and enjoyable. In fact, the expressiveness of animation, the more it tends to be schematic and does not care about detail, demands from its participants a greater participation (McCloud, 1994). Although the experience of all audiovisual narration presupposes the entertainment with all the corporality and affectivity (Sobchack, 1992), this participation can be even more intense in certain narratives focused on the body and the action, compared to *live action* productions (Ortega Brena, 2009). A phenomenology of the experience of the animated image escapes the objective of this work, but this brief sketch allows us to warn that the subject is not a mere spectator, but actively participates in the emergence of the animated image in which he immerses himself affectively and valuatively. The subject can learn to immerse himself in these alternative worlds of experience because by participating in his constitution of meaning he recovers and reupdates his own process of personal self-constitution in which the everyday world began to appear to him with meaning.

The subject can experience the world with meaning because in his early childhood he was able to learn to perceive it thanks to others with whom he interacted, even before learning to speak. This pre-linguistic intercomprehension is the shared openness to the world, as receptive and creative affectivity that makes possible all forms of experience and knowledge (Gazmuri, 2022). In the strict sense, the newborn is only gradually becoming able to recognize himself as a self as his surrounding world becomes meaningful in its experiential life thanks to the mediation of others. This gradual discovery is not, in this first stage of life, a theoretical task; rather it has a fundamentally valuative and practical sense. The infant discovers desirable, sharp, bitter, bright, unreachable objects, etc. Although he cannot name them as such, he lives them from that feeling that constitutes in him a skill. This capacity of the self presupposes his bodily self-identification: he not only has a body, but is living corporeality (Husserl, 1997). This self-identification is based on bodily interaction with other personal selves. Those who cared for him by cleaning, sheltering and, above all, caressing him, allowed him to differentiate the experiences of being touched and touch, constituting his bodily experience as that of a personal self that waits, grabs, desires, enjoys, fears, etc. in relation to others with whom he shares a world. Learning to experience that world is only possible, from its inception, on an intersubjective horizon.

If in its early childhood the self constitutes itself in its coming out of itself mediated by the others that is discovering a world with meaning, its subsequent personal growth extends this movement of self-decentralization. The surprises, conflicts and failures he encounters in his daily life reveal an increasingly wide and differentiated world that challenges to a lesser or greater extent his self-understanding as a personal self. Thus, the actions and the increasingly complex projects that he can articulate only make sense from an often implicit pretense about who he would like to be and how he would like to live (with). Maturing ethically implies the possibility of giving an integral sense to the history of one's life (Husserl, 2002). This possibility of assuming the whole of what has been lived can be formulated through philosophical discourse or, more usually, captured narratively (Čapek, 2017). On a daily basis, the subject gives reason of himself before others narrating himself; thus, he also occasionally faces situations that question him personally by destabilizing that claim about who he aspires to be. Although one can live by giving scattered answers, it is also possible to mature personally by striving with one's actions to articulate a coherent narrative of one's life—where there can be so much renewed constancy, gradual nuances, or radical changes—in which the

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self can recognize itself. To be increasingly able to give an informed account of that narrative is to be able to respond—in actions and words—to oneself and to others for one's life; i.e. to be ethically responsible. Hence the importance of aesthetic experiences in which the self is captivated by other narratives that are confronted with theirs because the ability to live with meaning in the world is put at stake in both.

Likewise, Nussbaum (2010) highlights the importance of the learning experience in the arts and humanities as an ethical culture of leaving oneself to other ways of feeling and understanding the world, without trying to reduce them to a single discourse. He explains, from Winnicott's psychoanalytic perspective, how aesthetic experience updates the childish capacity to constitute a transitional space where the harshness of reality and the desires of the ego can be symbolically mediated. Literature and, in particular, the classical Greek tragedy would be the paradigm of the space where the challenges of human freedom and vulnerability can be contemplated and assumed. Although the audiovisual narratives are not considered by Nussbaum nor by some more recent readings of his proposal (Gazmuri, 2022), the communication dynamics that it generates do offer their own possibilities to address these same challenges.

Literature, like other arts, generates dialogs where the empathic exercise of leaving oneself highlighted by Nussbaum is prolonged. Today, those who enjoy animations communicate more and more intensively thanks to the development of digital media in recent decades. In addition to reviews, recommendations, critiques and discussions, this communication materializes in images, either reproduced or created from the original animation. Thus, the drawings of characters and scenes extend from animation to screensavers, posters, notebook covers, backpacks, etc. In an even more radical sense, *cosplay* is not limited to "disguising" a character, but takes on the challenge of effectively embodying it and showing itself this way to others. As in this bodily entertainment between fiction and everyday life, digital and face-to-face interaction are articulated in meetings such as conventions, fairs or shopping centers where it is found that the consumption of animation, like that of other cultural products, exceeds the merely economic. Research on cultural consumption shows how it is guided by expectations of identity fulfillment and recognition, often because these are not met in the immediate surrounding world (Huber, 2002). Thus, the community of fans of an "anime" can offer an experience of closeness and more satisfactory recognition than *physically closer spaces such as family, neighborhood or school.* The personal participation required by the experience of seeing an animation is socially concrete in

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a shared capacity of resignification that is only understood in relation to the local context and, in particular, with its possibilities or limitations for its recognition. On this intersubjective horizon, one can appreciate the relevance of animated adaptations of classics of European or Asian cultural traditions that are now enjoyed by audiences who may not yet have approached their texts (Rosain, 2021). Ristola (2021) shows, on the other hand, how the graphic articulation of certain "animes" of science fiction allows the participation of the public in a critical deconstruction of their narratives. The phenomenological clarification of these possibilities of specific criticism and resignification of the intersubjective nature of the experience of seeing an animation serves as a basis for its research from the communication sciences and, in particular, for its dialog with education, in order to take advantage of its formative potential.

Unfortunately, the suspicion or purely instrumental assessment of the audiovisual narratives persists. The reason is not a purely theoretical deficiency. In the last century, Umberto Eco (2006) found in the approach of European academic institutions to the entertainment products of cultural industries a poorly disguised attitude of superiority, both in those who tear their clothes in the face of the degradation of the "true" culture, and in those who, at the opposite extreme, celebrate its dissolution in the rise of popular culture. In reality, by discarding *a priori* the resignification capacity, the public shows that in order to self-affirm their cultural authority, they need to presuppose their position of epistemic and ethical advantage compared to a public presumably unable to clarify themselves about the meaning of their practices (Nugent, 2016). In contrast, research such as Martín Barbero's (1987) on Latin American soup operas shows the importance of understanding the meaning in which audiences live their experience. From this phenomenological perspective, soup operas do not appear as simplistic products designed to fit an under-educated audience trapped in romantic, macho, racist ideologies, etc. It allows us to appreciate how their narratives offered shared themes and categories to millions of migrants when they needed to establish links of communication and recognition, no longer in their traditional cultural communities, but in large cities. As Nugent (2010) points out:

> The mass media have allowed the dissolution of traditional monopolies of knowledge and the legitimization of public opinion. The possibilities for mass participation and the importance gained by persuasion at the expense of obedience have taken place in a context of broadening the coverage of public education services and audiovisual media (p. 60).

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Understanding the experience of "anime" requires considering how the theoretical approaches of the researcher or, more specifically the educator, are placed in relation to the ability of the audience to give meaning to their experience, because their understanding of the ethical is also configured to form ethically.

This first section has shown, from a phenomenology of seeing an animation, that animated narratives not only have an instrumental value for training, but, as aesthetic objects, offer the possibility of enriching the experience of the world and the subject as a personal self called to grow ethically. Taking advantage of this training potential requires showing how this ethical perspective can maintain its normative dimension, although it is rooted in the particularity of personal experience.

Phenomenological recovery of affectivity and practical contexts

This section delves into the phenomenological understanding of rationality and the ethics used above, to show how it allows a reinterpretation of the categorical imperative that, by incorporating the affective dimension and the relevance of the factual possibilities of action, endows the formal duty with guiding content, moving it to its concrete realization. This concretization takes the form of the care of vulnerability, as a founding condition of the ideal self and *telos* of a human ethical community.

The previous section exposed how the personal self is only constituted as such by its gradual integration into an intersubjective community inhabiting a shared world. That world is not, then, a transcendent externality that the subjective consciousness must attain by building knowledge, but the horizon that makes possible every object of experience. To that world of life corresponds then, a subject whose *rationality "admits no differentiation between 'theoretical', 'practical' and 'aesthetic'" (Husserl, 2008, p. 308).* This phenomenological understanding of rationality founds its idea of philosophy as science; i.e. as a recovery of the Western project of a life founded on the evidence of reason. The crisis of the sciences that Husserl discusses in the eponymous text consists in abandoning the question for its foundation and meaning to concentrate on the mathematical formalization for pragmatic purposes. To recover for philosophy, which also assumed that reductionist self-understanding, the breadth of the life of reason allows us to clarify how we can understand the possibility of an authentically ethical life. From now on, the un-

derstanding of rationality, ethics and community life exposed by Husserl (2002) in his articles for the Japanese magazine *Kaizou* ("Renewal") will be taken as a basis. These are gestated within a long process of reflection that began with the clarification of the rational character of ethics as a normative discourse, continued to specify its concretion in the response to a personal call for ethical maturation in the realization of the common good, and culminated in an ethics of openness and self-donation in the absolute values of love (Melle, 2005).

In *Kaizou*, a rational life is a life in shared self-responsibility in an ethical community that is realized in a growing self-decentralization committed to the common good. To be rational is to constantly strive to be more rational. This self-decentralization is only done authentically when it is opened to others as others, instead of reducing them to mere egocentric or ethnocentric projections. Phenomenological ethics presupposes the care of otherness whose mediation allows one to recognize oneself and be surprised in the encounter with others. In this sense, the personal good as an ethical growth is understood on the horizon of the common good, as a possibility that the others can be realized in the effort to be more authentically who they aspire to be. The idea of the ethical person is thus correlated with that of an ethical community. From this phenomenological perspective, two discussions can be raised that allow us to understand the fecundity of the Husserlian reinterpretation of the categorical imperative for ethical formation.

First, Husserl objects to the understanding of duty implicit in the Kantian version of the categorical imperative. Kant (2012) could not admit an affective dimension in the determination of duty, because the particularity of the affections would compromise the unconditionality proper to the moral, only guaranteed by the universality of reason. Husserl (2020) objects that moral concepts such as duty, good and, in general, practical reason only take on meaning from the affective life: action is moved and oriented by a value founded on affections. This objection can maintain the normative force of duty because it clarifies the structure *a priori* in affective life; thus, it is understood that affections are the origin of moral concepts, but that norms are not simply an induction of factual affective regularities (Crespo, 2017). Husserl shows that just as thought can be judged by its logical correctness, affective life entails a normativity of its own that organizes the sedimentation of habits in the self as its personal ways of letting itself be affected by the world. This *a priori* character can be formulated in terms of axiological laws; for example, when the value of one good is added to the value of another (a job is well paid and is personally

satisfying) or when the value of the former is absorbed by the value of the latter (although it does not pay well, it performs the person professionally). Likewise, in contrast to logical laws, there is no contradiction in wanting one good and wanting another simultaneously (two professional options), or in suffering the will and not wanting the same object (because it is pleasurable, but damages health). This *a priori* character of the affectivity that animates practical life presupposes, therefore, not only a desire that triggers and guides action, but also a creatively striving in its deployment to achieve what is desired: to act is to seek a good, attending at every moment what must be done, how and with what resources. A causal relationship is established between the world of goods and the activity of the agent which Husserl (1997) prefers to call motivation, to distinguish it from the causality of physical phenomena. That world is also integrated by the actions of others and the events that occur independently of any human action, conditioning while enabling their skills. As Husserl explains (2013): "My life is nothing to itself, however, it is united with the lives of others, it is part of the unity of community life and reaches, above it, the life of humanity" (p. 302) (the translation is mine).

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Secondly, Husserl (2020) argues that it is only possible to perform the duty—and not to remain only in the formal recognition of its obligatorship—if one understands what its fulfillment may consist of, which presupposes knowing how to discern ethically the factual possibilities of action in which the agent finds himself: "In it [the preference made sentimentally in the will], one is not aware of one of the practical possibilities only as a practical good, as well as for the others, but as the best practically and eventually as the due" (p. 235).

In this sense, the axiological material content of the will not only drives the action, but guides it to seek the best possible, given the practical context that is inhabited. This content does not confine ethics to the repertoire of goods or actions legitimized by a particular community because the normative dimension of the axiological sphere requires it to open itself to an increasingly universal horizon. Thus, ethical living is not limited to formal recognition of duty, but also to its timely fulfillment:

> But [the Kantian categorical imperative that is the same for all] for each one receives its particular content through material motivational situations, which confer to the acts of the will not only the rationality that is based on the motivation for authentic values and those respectively better, but also the categorical rationality that comes from the categorical "you" that places the will in the universal context of this individual life

and subordinates it to a founder "I want to do good" that encompasses this whole life (p. 255).

For this reason, the person needs to prove his own conception of a good life as the most valuable in the face of questions arising from the practical difficulties for its realization, the objections of others or self-criticism.

The Husserlian reformulation of the categorical imperative of Kant and Brentano in the form of "Do the best in all your practical sphere of influence!" (Husserl, 1988, p. 142, in Cabrera, 2017, p. 32), then involves the responsibility to be permanently clear about the axiologically best and about the best way to realize it. In this sense, phenomenological ethics does not rule out any concern for practical rationality as merely instrumental to emphasize the importance of affective openness to reality, as certain hermeneutic approaches seem to suggest (Gazmuri, 2022). Taking responsibility for action is, simultaneously, committing to personal self-knowledge to grow in self-responsibility. As already noted, this growth has as a condition the openness to criticism, confirmations or novel contributions of others.

This communicational accreditation of rationality is not limited to the need for communication as an instrument of socialization or the other as a mere interlocutor. The very process of self-constitution originating from the self takes the form of a self-decentralization in the other, as one who awakens and orients his incipient skills. In that sense, the other who welcomes and cares is, strictly speaking, the first self (Hart, 1992). That care is experienced by the self in emergency as a grace, in the sense that it does not get it with its effort nor can it yet recognize what it needs. Their skills, in particular cognition, will be built up from the opening of their affective and volitional life to care. As Hart explains (1992): "Because the Other is the first person, the infant knows and is guided by in his capacity as a person, the Other and the measure of the Other is the standard of his value" (p. 200) (the translation is mine).

The recognition of the otherness of the other is not limited, then, to the identification of another subject, but is carried out as the affective entertainment with whom it is possible to live. In this sense, the grace of care has as correlate respect for the other; i.e. not only its irreducibility to the desires of the emerging self, but its model value as that which makes it possible to recognize itself, guiding the growth of its being and act in the world (Drummond, 2006). This feeling of respect for the other as a model that appears for the first time in the caregiver establishes the possibility of respect for the person in general; i.e. the possibility of appreciating

the dignity of human otherness and its ability to be and act authentically, even when it does not always do so and damages itself and others.

This respect for the dignity of the other, then, is understood in reference to the concrete world where their violation is practically and not only as a possibility. In that world, the self appears to others in its human condition of vulnerability, not only in its early childhood but, throughout its life, in the effort to live a full life with them: "It is an asset to make ourselves vulnerable that will allow us to recover the world of life as a peaceful interpersonal world" (Quepons, 2020, p. 9) (the translation is mine). In this sense, the common good is not only a pantry of shared properties, but the life of an ethical community whose origin is love and *telos* (Hart, 1992). Husserl ethically understands love as the personal self-decentralization that grows to be capable of the self-donation that once welcomed him into care. This surrender of oneself so that others can be more and more authentically moves the ethically mature person even when ethical theory cannot formulate more reasons. Husserl (2013) discusses this resolution of ethical life by proposing the image of a mother who, knowing that the destruction of the world is imminent, is committed to take care of her child. Caring for the other in love, when one's own vulnerability suffers in all its radicality, makes visible the absolute value of ethical life not as superhuman omnipotence, but as a solidarity service open to all suffering. Husserl (1987) refers this ethical realization in love to the model of Christ. From there he was able to recognize during the rise of Nazi totalitarianism the value of the struggle of genuinely ethical people. A century later, we must seek, share and formatively develop our own understandable, questioning and mobilizing models for these new generations.

Drummond (2006) points out that respect for the other as a model of ethical person is not limited to the factually existing neighbors. There may be already deceased people whose presence is still lived in the family or community tradition as a mobilizing inspiration. Moreover, fictional characters can also incarnate these models when the subject, by immersing himself in his alternate worlds, reupdates his ability to learn to perceive his everyday world, as discussed in the first section. Aesthetic objects such as audiovisual narratives and, specifically, animation, involve this ethical dimension that families and teachers can now better understand to take advantage of it formatively:

> Public access to an animated fiction offers viewers, who may not know each other, shared ways of narrating themselves: models of person(s), aspirations, adventures, values, etc. It thus helps them to understand and imagine each other who they are and who they would like to be, not be-

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cause everyone says or does the same, but because they share a common sense of narrative that allows them to recognize themselves (Casallo, 2023, p. 47).

The "anime", in particular, thematizes in its plots some of these ethical discussions and the formative pretension itself.

This section has shown how the phenomenological understanding of affectivity and contexts of action underpins a reformulation of the categorical imperative that does not weaken ethical duty, but radicalizes it in love as the requirement of concrete care of human vulnerability. The importance of respect and model figures, even fictitious, in this process of ethical growth allows us to take advantage of the discussions developed in the previous section on the aesthetic experience of animated narratives to show how they offer a scenario and keys to work formatively on these topics with students.

An essay of formative ethical dialog based on two "animes"

This section articulates the preceding phenomenological discussions on ethical living with previous interpretation of formative potential in the aesthetic experience of animated narratives. This articulation will be applied to two "animes" that stage some of the ethical issues addressed in those discussions, to show how a narrative understanding of the educational experience allows teachers to open formative dialogs with students about vulnerability and care.

It is proposed to watch and work in the classroom with: *Psycho-Pass* (Dr. Katsuyuki Motohiro and Naoyoshi Shiotani, 2012-2013, 22 episodes) and *Death Parade* (Dr. Yuzuru Tachikawa, 2015, 12 episodes). Both are accessible in Latin America through paid and free *streaming* services. The issue of accessibility can motivate a preparatory dialog where students share their audiovisual consumption habits—what they see, how often, what they like best, etc.—in contrast to their teachers. This share will show, for example, if they know the proposed "animes". Intentionally, the most internationally watched ones have not been selected, precisely to encourage participants to generate an original speech. However, those who do not know them are likely to quickly inform themselves online about the plot, criticisms, etc. The teacher does not need to avoid this hermeneutic situation that today involves all subjects—students can quickly find resources on the Internet to complete, question or supplement the

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contents and activities worked in the classroom—but to insert themselves into it to show with their questions that the dialog begins with the willingness to learn from others.

Both "animes" transport the viewer to the future. In *Psycho-Pass* we attend a society managed and planned by the Sybil system, an artificial intelligence capable of evaluating in real time the violent potential of each citizen to determine if it is still acceptable for social life or if it is necessary to undergo therapy, jail or eliminate it. Sybil determines this coefficient with scientific objectivity, analyzing each person's brain activity and dispensing with any consideration of their previous history or particular situation that could affect their impartiality. *Death Parade* takes place in another form of the future: a bar where people who have just died appear to participate in games that must bring out their true moral personality. Players are unaware that they have died and that the referee of the games will decide whether they will reincarnate or disappear in a vacuum; otherwise, they would lose interest in the game. According to the same logic, the impartiality of the referees is guaranteed because they cannot die, feel emotions or exempt themselves from judging. Next, it is explained, as a guide for the teacher to motivate the discussion, how each "anime" problematizes the ethical certainty that implicitly sustains its narrative.

Psycho-Pass puts on screen the inevitability of systematic violence when it is intended to suppress all violence. The society managed by Sibyl is not only administratively efficient, but places citizens in a job according to their abilities and expectations, so that at the end of the day they enjoy their private life. While order guarantees peace and security, consumption offers happiness. Sibyl is not a machine, but a system: a set of protocols capable of calculating changes in the forces of the environment to better self-modify and respond. It judges every citizen by what he does, but also by what he might do, even before he decides. For this reason, it also evaluates the victim of a crime, in case the affective *shock* raised his coefficient of violence so much that he should be executed immediately. In Japan, which thrives economically when the rest of the world suffers political and social anarchy, each one deals only with his own affairs and tries to keep the coefficient of violence at sufficiently low levels.

The narrative places the spectators—teachers and students—in a Ministry of Welfare team tasked with intervening in the (possible) crime outbreaks detected by Sibyl's sensors. Inspectors lead the team's interventions and make the necessary arrests or executions. They are assisted by executioners, former inspectors who lost their freedom when their coefficient of violence exceeded the permissible. The conflict begins when

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a criminal undetectable by the system appears and develops following how Sibyl would respond to this anomaly. This response revolves around Akane, a young inspector who, while scrupulously following the rules, tends to see people beyond them, including his fellow executors and (potential) criminals. Akane's perplexities transform the police adventure into a *thriller* that reveals the true nature of Sibyl: a network of interconnected human brains capable of processing and resolving conflicts by confronting their different points of view in a strictly logical process. The system is programmed to adapt to the unpredictability of human actions, but can only formalize it in terms of an inadequacy in its analysis perspective. Hence, the only solution is to increase its internal diversity with radically different points of view from the system: to incorporate the brains of the most violent criminals, extracted secretly before their official execution. When Inspector Akane discovers the truth, his confrontation with Sybil narratively embodies the debate between the inhumanity of a duty ethic cut out according to the model of scientific objectivity and the relevance of the agent's particularity and his vital situation. The system has well-defined rules, but the generality of that definition needs to exclude reference to specific cases. This centrality of the standard reduces its application to a secondary problem that, in the narrative, is technically solved with the algorithm that Inspectors obey when they release, arrest, or execute someone. When Akane demands from the network of brains what order and what society he has built, he is recovering a question about the sense of ethics that, in that imagined world, as in the real world, seems to have no space anymore. Although *Psycho-Pass* stages many other ethical issues in its secondary plots and subsequent seasons, it does not aim to reach a definitive refutation of the pretensions of a deontological ethics. It offers, instead, a narrative horizon from which the teacher can appreciate and welcome the questions and comments of the students, helping them to warn the ethical discussions in which they have taken position by immersing themselves in that "anime". They can be related, for example, to daily positions on the growth of violence in Latin America, dissatisfaction with state responses, the limits prescribed by law for the use of force, and, finally, the willingness to accept measures that go beyond that legal framework.

Death Parade deconstructs, on the other hand, the modern notion of ethical subject and the possibility of judging him. Like Nietzsche, he questions the idea of this unitary and stable subject, as a reassuring construction that presupposes the self-transparency of consciousness, at the cost of suppressing the vital and tumultuous force that animates his

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self (Parmeggiani, 1998). Morality and the truth that justifies it would be central tools for such repression. For that reason, in *Death Parade*, the judgment of the referees is necessary: it is assumed that someone's moral personality is more complex than accounting for his good and bad deeds in life. This complexity would only come to light in extreme situations such as games where decisions inescapably involve one's own and others' suffering. Each game is configured according to its participants: whether they win or lose at each stage, they will symbolically and bodily relive the strongest moments of their lives. The conflict begins when a mysterious young human girl appears in the bar of the referee Decim, although she was not on the list to be judged. They will soon begin to question whether games can reveal true personal identity or only violently force one more response, because perhaps there is no immutable central self that underlies all of their acts. The doubt is expressed narratively; for example, in a woman who, despite the mistreatment of her husband during the game when it is revealed that he was unfaithful to her, harms her own score so that she is condemned to the void and he can be reincarnated. When Decim notices the possible error in his judgment, he wonders if every human should not deserve his respect, because it seems to always be an open possibility.

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As in *Psycho-Pass*, an intrigue moves *Death Parade*. Decim's boss wanted to prove the correctness of her referees' judgments; so, she made him able to take an interest in human emotions and assigned him to Chiyuki, the mysterious young woman. She poses the final question to the system of games and judges when she finally remembers who she was: a successful ice skater who, after an accident that destroyed her career, could not withstand depression and killed herself. When Decim allows her to see how her family continues to miss her and offers her the chance to revive—in exchange for some other stranger dying—Chiyuki remembers those who tried and declines the offer. Instead of accepting the logic of the games and trying to save herself, she chooses to make peace with herself and her decisions, regardless of her ultimate fate. Decim and her boss know that it is impossible to stop judging—or it would be impossible to orient oneself in acting—but wonder in disbelief if it is not more important, before and after the trial, to understand the person in his reality that he can almost never fully control. *Death Parade* does not abandon itself, then, to the postmodern disenchantment with ethics as normative discourse or to the total dissolution of the modern ideal of an autonomous subject since its self-transparency (Bauman, 2005). Ethical question and judgment remain, even if always interpretable, because

they embody concern about the undeniable *factum* of suffering. Ethics can make sense when it is done, in theory and practice, to care for the suffering human vulnerability.

Although "animes" like *Psycho-Pass* and *Death Parade* do not exhaust the ethical issues they put on the scene, their educational value is not reduced to being an instrument to illustrate them. They demonstrate the ethical importance of human vulnerability in – and not in spite of – their particular circumstances and their expectation of being taken care. This expectation is expressed from the vulnerable body and shared linguistically in the narratives of one's life, waiting for our response. This sense of welcome and elaboration in dialog is what can be aspired to create in the classroom, as part of the greater horizon of encounters with the other in which the ethical person is maturing. To welcome and share vulnerability through the narrative of one's own life, claimed by narratives such as those of these "animes" that can open space to trust from the vulnerable being in this shared world:

> Perhaps the most important dimension of human vulnerability based on other senses of being or feeling is precisely this dimension of becoming vulnerable in trust. While we experience bodily vulnerability as weakness and fragility, dependent on external circumstances or chance, vulnerability in trust is not only recognition, but an active commitment to becoming vulnerable, an act of opening myself to others (Quepons, 2020, p. 8) (the translation is mine).

This openness in trust from vulnerability is not concretized, as Arendt (1998) points out, in the silent force that is imposed on others, but in the power that can welcome in dialog those who are different.

From this phenomenological perspective, ethically training children, adolescents and young people in the ideal of a life in self-responsibility must begin by reflexively recovering their life experiences, without abstracting them from their original condition of vulnerability, to critically enrich them and, above all, take care of them—heal them, as far as possible—through dialog:

> Given the right environmental conditions and appropriate interventions, the severity of trauma symptoms can reduce […], and when teachers fully understand their students' needs, they can provide them with the physical and emotional space that underpins what researchers call neuroplasticity—or the brain's ability to rewire itself, forming new neural connections. Thus, although trauma has negative effects on learning,

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learning can also undo trauma (Salvatore and Crain De Galarce in Darragh and Petrie, 2022, p. 268) (translation is mine).

These experiences of greater or lesser trauma are collected in narratives where each one can be recognized and aspires to be recognized by others. In this sense, the cultivation of dialog in the classroom aims to articulate these development processes in a common narrative, where the word of the other allows to reimagine the word itself. As Borbar and López (2020) point out:

> That thread of voice [generated by sharing life stories] points to that passage between singular and common thinking, which is crossed by those cultural postulates chosen to promote this internal, individual and collective movement, which invites to rethink and re-feel those ideas built previously and that brings new echoes to the conversation, opening itself to the novelty of the dialogued creation (pp. 235-236).

This narrative understanding of the educational experience requires teachers to have a listening ability that is hermeneutically formed by learning to perceive, through the explicit word of the student, the implicit understanding that animates it (Joaqui and Ortiz, 2019). This listening as a welcome is characterized by García and Lewis (2014) as an attitude of phenomenological attention that, instead of concentrating teacher training on the fixation of beliefs or rules, guides the development of a sensitivity that allows tuning into the dialog in class to motivate it, question it and offer possible orientations. Thus, they understand the teacher as:

> A tactful practitioner, sensitive and open to the mood of the class, rather than a critical and self-reflective practitioner concerned with appropriate beliefs and practices, [which] means that phenomenology fundamentally challenges the model of excellence endorsed by cognitive psychologists (p. 161) (translation is mine).

As mentioned, this sensitivity can be formed in the cultivation of the arts and humanities, as well as audiovisual narratives. In that sense, to share with the students that culture, for example, watching with them an "anime" in the classroom and then discussing it from how it resonated in each one is to teach performatively that training is a shared activity. Moreover, it demonstrates that ethical training does not require subtracting oneself from a space of artificial learning, but only takes distance from everyday life to deepen it, warning and discussing its present or future crossroads. The presentation in class of the words of the philosophers

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of tradition must be able to prove their meaning within that discussion; otherwise, these will only be inert ideas that will most likely be forgotten at the end of the course. As Arendt (2006) points out, "[n]o philosophy, analysis or aphorism, however profound, can be compared in intensity and richness of meaning with a well-told story" (p. 32). In fact, all the knowledge, practices and attitudes that are offered in the learning activities, are made their own by the student when he integrates them into the personal story that he can make depending on his skills to take care of the world in an increasingly lucid and responsible way. There is no human formation without listening, dialog and appropriation in one's own word.

The preceding discussions about *Psycho-Pass* and *Death Parade* are just one possibility to take advantage of these animations from the perspective of the first two sections of this text. Cuevas (2020) proposes categories and instruments—basically the reading of meaning (the inner sense of the fictional world) and the motivations of the characters (pp. 176-177)—to encourage discussion about film that are compatible with that perspective. The dialog with each particular group will also generate its own questions: why do these "animes" have titles in English, why the bodies of most characters are slender, why happiness in *Psycho-Pass* society consists in no longer having much but being able to consume a lot, how the recent pandemic has made students and teachers think more—or not—about death, etc. Openness to these contributions can open dialog to other worlds of experience that captivate students and in which they actively participate: Korean *pop* music and dance, soap operas from that country, comics from other continents*,* the youth novel sagas, *fan* clubs shaped around these cultural products, etc. The challenge is to connect them with the training activities in the classroom. There you can share, with knowledge and enthusiasm, the richness that comes from the canonical tradition collected in the official curricula. *Psycho-Pass* allows to easily connect the discussion with novels such as *Un mundo feliz* of Aldous Huxley (2016), the warnings of Kant (1985) about the cost of *La paz perpetua* that seeks to eliminate all conflict or, even, the advances in the development of artificial intelligences. *Death Parade* and its reimagining of death as a revealing situation can pave the way to appreciate the relevance of Heidegger's existential reading (2005) in *Being and Time*, the sense of psychological accompaniment or, much further back, with the pedagogy of Hellenistic schools. Today, training is required to enable teachers to admire and learn more about this tradition, as well as to admire each other with the students who captivate them so that they can incorporate it narratively into their educational experience:

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These fundamental questions (questions that reach the true being of teaching, its meaning, its nature as an official practice) are what will sustain the admiration necessary to make education more than the development of skills or to make teaching more than just a job (Garcia & Lewis, 2014, p. 164) (the translation is mine).

This section has shown how the phenomenological understanding of seeing an animation and of ethical life allows to pose meaningful dialogs within the narrative of two "animes", without trivializing the importance of ethical discussion or treating students childish.

Conclusions

The phenomenological discussion shows that the value of audiovisual narratives such as "anime" is not only instrumental, but is based on the potential of aesthetic experience to renew the process of growth of the personal self and its action in the world. Understanding this process is ethically relevant because it allows a stronger foundation of ethical duty when considering its affective dimension and the factual possibilities of action. Thus, duty is radicalized as love in the concrete care of the vulnerability of human life in community. Education participates in this ethical community life by cultivating the formative dialog in which its new members can grow. It has been proposed, as a guide for teaching, how a phenomenological discussion informed within the narrative spaces opened by two "animes" makes possible this form of formative dialogs on relevant ethical issues because it tunes into the questions, intuitions and aspirations of the students.

Assuming these dialogs as a fundamental axis of education is to recognize that its objective is not to reach the silence of a definitive conclusion, but to extend throughout life the interest to continue interrogating and imagining answers to discuss them (Contreras *et al.*, 2019). This task requires academic rigor and admiration, both for the knowledge, experiences and sensitivities that are sought to share and for those that captivate students today. An educational community that shows how this passion for dialog in admiration and rigor presents will respond to the crisis of the current moment, because it is embodying the idea of an ethical community that can renew life in common.

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Miscellaneous / *Misceláneos*

Philosophical foundations for a pedagogy of culture

Fundamentos filosóficos para una pedagogía de la cultura

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Abstract

The general objective of this paper is to elaborate a pedagogical reading of Ernst Cassirer's *Philosophy of Symbolic Forms*, focusing on the *Phenomenology of Knowledge* where the author details that the foundations adduced by Paul Natorp, in *Introduction to Psychology* constitute a critical view of psychology as the foundation of intellectual operations. In general, there are three results: first, this recovery of the Natorpian vision allows Cassirer to maintain that all cultural activity (language, mythology, art, science, etc.) has as its foundation the psychological activities of the subject, which implies that all symbolic formation is both an intellectual product of the individual and a cultural activity. Second, that part of the development of a critical psychology, in accordance with Natorp's general plan, is the need for a theory of formation that explains how the cultural environment shapes the intellectual activities of the subject, a general thesis assumed by Cassirer for developing his theory of the symbol. Finally, the cultural formative agents considered by Natorp for the formation of the individual (state, art and religion, mainly) constitute the theoretical bases of culture on which the student will later develop his theory of language, myth/religion, art and science as cultural formations.

Keywords

Natorp, Cassirer, philosophy, pedagogy, culture, formation.

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Resumen

El objetivo general del presente trabajo es elaborar una lectura pedagógica de *Filosofía de las formas simbólicas*, de Ernst Cassirer, centrando la atención en el volumen *Fenomenología del conocimiento*, donde el autor detalla que los fundamentos aducidos por Paul Natorp, en *Introducción a la psicología* constituyen una visión crítica de la psicología como fundamento de las operaciones intelectuales. En general, son tres los resultados a mostrar: primero, que esta recuperación de la visión natorpiana permite a Cassirer sostener que toda actividad cultural (el lenguaje, la mitología, el arte, la ciencia, etc.) tiene como fundamento las actividades psicológicas del sujeto, lo que implica que toda formación simbólica es, tanto un producto intelectual del individuo como una actividad cultural; segundo, que para el desarrollo de una psicología crítica, de acuerdo con al plan general de Natorp, es necesaria una teoría de la formación que explique cómo el entorno cultural conforma las actividades intelectuales del sujeto, tesis general asumida por Cassirer para el desarrollo de su teoría del símbolo; finalmente, que los agentes formativos culturales considerados por Natorp para la formación del individuo (Estado, arte y religión, principalmente) constituyen las bases teóricas de la cultura, en las que posteriormente el alumno desarrollará su teoría del lenguaje, mito/religión, arte y ciencia como formaciones culturales.

Palabras clave

Natorp, Cassirer, filosofía, pedagogía, cultura, formación.

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Introduction

The aim of this paper is to elaborate a pedagogical reading of the *Philosophy of Symbolic Forms* (*PSF*) (Cassirer, 1998a and c), mainly of the volume dedicated to the phenomenology of knowledge (Cassirer, 1998c).[1] Among the philosophical antecedents to which the author resorts to elaborate this project, the use of the general philosophy of Paul Natorp (2015) stands out, of which the author openly comments:

> Natorp [argues] that not only in the knowledge of the nature of the individual is referred to the universality of the law, and is taken and valued only as a "case" of that law, but that the same mode of determination also applies to any ethical or aesthetic consideration (Cassirer 1998c, p. 73).

Although Cassirer summarizes the general philosophical proposal developed by his teacher, it does not include the "pedagogical perspective" widely developed by Natorp (1905). However, the formative reminiscences can be appreciated in his work to such an extent that the philosopher of Wrocław considered that a theory of knowledge should undertake a "phenomenological" route in the sense proposed by Hegel (Cassirer, 1998c, pp. 8-9).[2] The omission of the student when considering the pedagogical theory of his teacher deserves greater attention for a better understanding of the theory of the symbol.

According to the new philosophical assessments of the impact of Cassirer's work, psychological theory occupies a fundamental place in the project proposed by him, to such an extent that it would be possible to understand his theory of the symbol by deleting from this vision a description of the neurological and biological processes that sustain the human being's ability to construct symbols (Andersch, 2015). However, in the same way, it is possible to sustain the importance of a theory of formation that explains how the cultural formations adduced by the author in his *magnum opus* are preserved, transmitted and structured to become educational processes for the new members of the communities.

A possible explanation of why a theory of formation cannot be found in Cassirer implies the philo-sophical development offered by the symbol "history", presenting it as the system by which it is possible to understand the human being "no longer as a being with nature, but as a being with history" (Cassirer, 2012, p. 253). This theory conceives the becoming of the human being as a process of change and continuous conformation whose origin and explanation depend on a gen-eral form of the historical becoming. But even with this, and according to Natorp, any theory of formation must refer to a pedagogy of culture to explain how different cultural forms (state, art, religion) contribute to the shaping of an idea of the human being.

The general thesis that will be argued is that the gradual theoretical foundation of each of the tasks proposed by Cassirer requires a peda-gogical justification to explain how the symbols de-scribed by the author are developed and shaped in the cultural aspect, and for this it would be necessary to undertake a re-reading of the training project of his teacher Paul Natorp. It is evident that the "critique of culture" (Cassirer, 1998a, pp. 18-21) did not contemplate the pedagogical de-velopment as one of its fundamental moments, but it does, instead, recognize in the "movement" (*Bewegung*) that every symbolic form travels towards its progress the path through which each symbolic form is manifested and reaches its ideal representation (*Abbildung*); however, it is pre-cisely in this phenomeno-logical transit that it implies an authentic formative process (*Bildung*) that allows both symbols (myth, language, art, etc.) and the human being to form an authentic world of culture. This is what the author says towards the end of his life when he notes: "In [every symbolic form, the human be-ing] discovers and tests a new power, that of building a world of his own, an ideal world. Philosophy [and pedagogy] cannot give up the search for a fundamental unity in this ideal world" (Cassirer, 2012, p. 334).

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The second section describes the logical and epistemological foundations proposed by Natorp and used by Cassirer, although they were not presented under this structure. The third section will explain the pedagogical foundations that can be included in the development of a theory of symbolic formations.

Logical and epistemological foundations of pedagogy

One of the most important results offered by the philosopher of Wrocław in the third volume of his *magnum opus* corresponds to the confirmation that:

> It is not only true factors and formal motives (of knowledge) that prevail in shaping the scientific image of the world, but also those that already exist in shaping the "natural image of the world" (*natürlichen Weltbildes*), the image (*Weltbildes*) of perception and intuition (Cassirer, 1998c, p. 7).

With this, the author expanded his knowledge reference by accepting that science, although it was the most important model to consider, could have found epistemic references in primitive and intermediate modalities such as myth, art or language.

In different sections of the treatises *The Language* (1998a, pp. 159-259) and *The Mythical Thought* (1998b, pp. 197-285), it is shown how the organization of the first communities and the aboriginal communities known until before 1920, mainly in Africa and Oceania, acquired their language and worldview from behavior patterns and linguistic models fully developed within the community. The description of these ethnological findings presented by the Neokantian was intended to show, precisely, that both linguistic thought and its epistemological-mythical foundations, despite not being located within a scientific model, responded to the demands of the environment under semantic patterns —for the case of language— as cult-ritualistic —for the case of myth—.

In *Phenomenology of knowledge* the author noted that the new model of "concept"—i.e. the process by which these communities manifested their "knowledge"—should be considered as a valid epistemological process, even if in these configurations and explanations of the world it was not possible to find a model identical to that proposed by the natural sciences. With this proposal, the author did not propose to destroy the classical model of science, but to study the general act of knowing what occurred in communities whose organization did not follow the statutes

of academic institutions. As a general argument, for the author, it was possible to find thought structures that could justify valid modes of action for the community and that, in addition, could explain the phenomena of nature:

> The justification and critical foundation of knowledge consists on recognizing itself as mediator, as a spiritual "organon" that has a certain place in the total structure of the spiritual universe and that performs a certain function (Cassirer, 1998c, p. 17).

In this sense, the philosophy of symbolic forms, as a research methodology, sought to understand and define the role that each symbol fulfilled individually, without losing sight of its belonging to the system of culture. As seen, the search consisted in delineating between the role of an individual form and the general function that it had to fulfill within a system.

For his part, Paul Natorp (1905), prior to the development of his student's ideas, proposed a new foundation of pedagogy to justify that any process of formation achieved by the individual depended, necessarily, on a cultural interaction and could never be presented as an activity isolated from the subject. Although Cassirer (1998, pp. 61-75) takes advantage of and studies the logical and psychological treatises of Natorp (1974; 2015), we find no mention of the pedagogical treatises in any of the three volumes of the *PSF*, however, as seen in the title of this *magnum opus*, every symbol depends on a "formative" process.

Cassirer refers to the general psychology of Natorp (1905), in whose presentation he understands this science as the study of individual consciousness and the way in which it is linked to the community and the environment. But in that same treatise, he presents pedagogy with the study of growth and formation within the community and the social environment of the human being, so, in Natorp's words, it would be about complementary knowledge. Particularly in his studies on human formation, this author differentiates between the natural model of development and the cultural model with which to form the human being: "The term education [*Erziehen*] is based on the analogy of raising [*Aufziehens*] plants or animals. It means achieving proper growth through proper treatment or care. He points out the difference and the interrelation between nature and culture [*Natur und Kultur*]" (Natorp, 1905, p. 1). The central thesis is that, while human development may encounter "natural" development, deviation from a "cultural" model makes it difficult to appropriate established community resources to determine an ideal mode of action. This aspect will be fundamental to the theory of symbolic forms.

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However, although we do not have more details about the displacement or omission of the pedagogical by Cassirer, we do find an analogical exercise in *The Myth of the State* (Cassirer, 1968). In this treatise, its author questions the emergence of the ideas that allowed the development of Nazism and fascism, as well as emphasizing that philosophy serves as a guardian of a relevant social development of each symbol, in this case that of myth and politics. The central idea states that the deviation of a form from its cultural unit leads to its degradation despite the fact that it operates technically effectively; the general sense proposed, therefore, is to promote that each form develops operationally according to a general criterion. In this sense, the *PSF* aims to define the work that each symbol has to fulfill, to determine the relevance of any particular action based on these proposed principles. This is what Cassirer (1998a) calls the "internal form" of each symbol: "This form [means] the law that conditions its structuring" (p. 21)

The relevance of this critical function is to determine and evaluate the internal shape of the symbols as part of their pedagogical character. Natorp (1905) had performed a philosophical exercise similar to that of Cassirer, but applied to the general process of human formation: "The word formation [*Bildung*], which is perhaps even more appropriate to describe the whole pedagogical task, points more clearly to form, i.e. to the inner law of the formation [*Gesetzlichkeit der Gestaltung*] of the human being in the human being" (p. 2). The interest of this author is to define that the formative process is constituted both by a general criterion of relation or idea (*Idee*) and its daily experience or nature (*Natur*), because only in the cultural action is it possible to determine logically that a process is a pedagogical act.

For Natorp (1905), the logical criterion that defines pedagogy implies the acceptance of an internal law or general form to which the pedagogical aspires act, which allows to guide and evaluate the educational process (*Erziehung*) to determine if the development of the human being is an ideal formation (*Bildung*). For his part, Cassirer (1998c) recognizes for each symbolic form an ideal mode from which it is possible to evaluate the function that each symbol fulfills within the cultural framework. The author himself proposes this task: "The *Philosophy of symbolic forms* is nothing more than the attempt to assign to each of them the determined index of refraction that specifically and peculiarly corresponds to them" (p. 12). Therefore, the critical research that it undertakes seeks more than to delimit what a cultural symbol is, since it also proposes to determine

whether that symbolic form (*Symbolischen Formen*) corresponds to an ideal form (*Bildung*).

In this way, a pedagogical modality is observed in the *Phenomenology of knowledge*. This process postulates that in the permanent act of constructing (*Aufbau*) each symbolic formation considers the internal form of the corresponding symbol, but not with isolated or heterogeneous criteria, but from a general function (*Grundfunktion*):

> There is a unitary coherence that goes from the mere expressive value of perception and from the representative character of representation […]. The type of coherence can only be specified and known following its construction [*Aufbau*], and it is discovered how all its phases, though heterogeneous and contradictory, are dominated and directed by the same basic function [*Grundfunktion*] (Cassirer, 1998, p. 57).

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Three key outcomes can be highlighted with this quote. First, it can be argued that Cassirer's goal is to show that all human activity, however diverse it may seem, responds to a common spiritual function whose manifestation is the unity of culture. With this, the Neokantian does not pretend to manifest an equality between the modalities, for example, myth and science, but between both underlies a same general process that allows describing its process of spiritual construction. The second result allows us to affirm that Cassirer, the holder of the third volume of *PSF* as "phenomenology of knowledge" (*Phänomenologie der Erkenntnis*), seeks to confirm the existence of a basic function in every process of cognition (*Erkenntnis*) as the most important finding to highlight of the general theory of symbol formation (*Symbolischen Formen*). Finally, the third result shows that if all symbolic formation depends on a basic logical function, then this process of formation cannot be only a purely critical cognitive activity (*Erkennenkritik*), but must also involve a psychological and pedagogical dimension that explains the process of cognition (*Erkennen*) and training (*Formen*).

The same principle is found in Natorp (1905) when defining pedagogy as the science that aims at human training. Like his student, we find the need to integrate the multiple training tasks related to growth and human development as a common foundation that allows cohesive educational act around an ideal purpose.

> The task [*Aufgabe*] of formation is the harmonious development of man's soul in all its *essential directions; but this harmony demands both a relative independence of the connected components and their common relationship with a final center: the idea [Idee]* (Natorp, 1905, p. 4).

Although Cassirer's effort was aimed at investigating the "internal form" of symbols and in Natorp the "ideal form" of education, three general common criteria in both studies are observed:

- The delimitation of an internal form.
- The delimitation of a deductive logic scheme.
- The conformation of a criterion to determine the operational relevance of both the symbols and the training process.

Accordingly, each author sets a basis for measuring the viability of individual actions, as well as their overall process of formation (*Bildung*), all from a general idea or foundation (*Idee*). In the gradual achievement of each of the objectives, each author justifies the need to recognize an ideal model from which to determine an ideal model of their own, both training and knowledge. This basis, as we will see below, is decisive to define two questions: the first of a metaphysical nature, what is pedagogy, in the case of Natorp, and what is science, in the case of Cassirer; the second of a methodological nature, how to teach through knowledge?

Methodological foundations of pedagogy

For Natorp (1905), the source of pedagogy lies in two major fields, the first in three objective philosophical disciplines, namely: "Logic, Ethics and Aesthetics" (p. 5). According to the author, the aim of philosophy is to show the path through which educational activity can be transformed into a formative activity, which can achieve human ideals, all this through an investigation of "pure objective knowledge" (*rein objecktive Erkenntnis*). The second field corresponds to the systematic investigation of subjectivity through psychology, which contributes to:

> The foundation of pedagogy will also refer to the individualization of educational activity. It is true that the individual is connected with the general in a continuous sequence of stages […] Only psychology is able to give indications on how to proceed, not in the general course of education, but in the given individual case (Natorp, 1905, p. 7).

Thus, the author proposes an integral investigation of the educational process, since he considers that only the unity of philosophical objectivity and psychological orientation in particular cases, from general criteria, establishes a safe path of formation.[3] Natorp (1905, p. 8) wonders if this division of the foundations justifies the pedagogical activity, since

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every educational action implies the act of forming the individual subject; before this he recognizes that in education (*Erziehung*), by involving a natural and subjective process, therefore psychological, the ideal would be to develop a physiological investigation to determine the biological evolution of each student and with controlled psychological experiments to define the specific activities of each stage and how they favor each student. The same author acknowledges that this way of studying would imply a type of specialized and unrealistic intervention, since it is a pedagogical process that neglects the general reality of the student. It reiterates the importance of a balance between the philosophical-objective foundations to establish general driving regulations that allow the universal training of students, therefore, rather than determining specific cases for the individual, it is necessary to elaborate general actions that allow solving particular situations within the general training process.

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The importance of unity in the foundations has as its final redoubt in the selection of the contents. The question, until now, was to determine the general methodological framework from which to frame the pedagogical principles, which are fixed at the philosophical and psychological poles. Thus, the new central question is to define the thematic contents: "Consideration of the content necessarily precedes the scientific structure of pedagogy. […] the structure and unity of the content of the formation (*Bildungsinhalts*) must be studied in relation to the structure and unity of the content of the culture (*Kulturinhalts*)" (Natorp, 1905, p. 9). This question is crucial for understanding the general logical criteria to be considered to unify all content and to determine the type of specific knowledge to be promoted.

In this sense, Natorp (1905) accepts that the work of didactics is fundamental for fulfilling this task (the harmony of knowledge and the type of orientation that must be given to each of them in particular). However, he insists on the unification of the educational contents taking into account two aspects: theoretically the contents must be delimited by a philosophy of culture and practically following a logic proper to each knowledge (*i.e.* mathematics, chemistry, history, arts, etc.). The purpose of this is to recognize that each field obeys a model of construction of own knowledge, but that collectively manifests the totality of culture. This unit of criteria is called "human training system (*Bildung System*)" (p. 11), technically known as didactics.

As seen in Natorp (1905), there are three central results to understand pedagogy:

- The *foundations*, namely: philosophy (study of objective principles) and psychology (study of subjective principles).
- The *selection* of content (all cultural manifestations).
- A method of *organizing* the contents (through a thematic or didactic logic).

For his part, Cassirer accepts the general thesis of his teacher by incorporating the harmonious development of culture as the purpose of philosophical activity:

> The philosophy of symbolic forms starts from the assumption that, if there is any definition of the nature or essence of the human being, it must be understood as a *functional* and not substantial definition […]. The outstanding and distinctive characteristic of the human being (is) his *work* […]. A philosophy of the human being would therefore be a philosophy that would provide us with the vision of the fundamental structure of each of these human activities and that, at the same time, would allow us to understand them as an organic whole (Cassirer, 2012, p. 108).

As seen, Cassirer's postulates, at first glance, deviate from the previously stated conception of pedagogy. However, in the recognition of the *PSF* as a research methodology that is not only interested in identifying the foundations of the human being, but also in studying culture as the normative system where human development will be promoted, it gives a new meaning to the philosophy that is much closer to what Natorp proposed (1905). In order to show the pedagogical value of the Cassirerian proposal, it is reviewed in the light of the triple structure defined above: theoretical and practical foundations, selection, and thematic organization of training contents.

Regarding the *foundations* we find in *PSF* the distinction between the constitution of "objective knowledge" and the "subjective conditions" that make it possible (Cassirer, 1998c, pp. 61-127). With his teacher, the Wrocław philosopher agrees that the constitution of a general system of knowledge depends on the differentiation between knowledge (*Erkenntnis*) and perception (*Wahrnehmung*). In his research, it is clarified that although in *Mythic Thought* it had been established that the mythical perception of the world (*i.e.* ancient accounts the narratives of the aboriginal tribes, and even, the first cognitive manifestations of the infants during their growth process) is a valid mode of thought, none of them is based on the pure act of apprehending, but on the functional coordination of what is perceived subjectively with a predefined worldview (Cassirer,

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1998b, pp. 105-194). Its pedagogical relevance is found in the description and delimitation of the process.

It is not possible to dwell on the abundant details and examples that Cassirer offers to argue how individual consciousness, from the incorporation of universal categories, gradually differentiates between the world of isolated impression in which the subject lives and the system of socially accepted conceptions. This adoption of the belief system is described by the Neokantian as a continual confrontation of individual consciousness with the community worldview (Cassirer, 1998b, pp. 220–270). An important function given to certain members of the community, such as the priest, the politician or the teacher, is precisely the protection and orientation of the appropriation process of those schemes of thought by the new generations. In this sense, it can be seen how the duality "subjectivity" and "objectivity" continue to be maintained as the dialectical poles of the process of knowledge construction, but instead of conceiving as rigid schemes that are learned only by being perceived, the author states that the learning of such a system responds to a dialectic that confronts the consciousness of the subject with the natural world and the ideas constituted by the community:

> In the early stages of evolution […] the *feeling of self* is still directly fused with a certain mythical-religious *communal feeling*. The self feels and knows itself to the extent that it is apprehended as a member of a community, to the extent that it is grouped together with others in the unity of a family, a tribe or a social organism (Cassirer, 1998b, p. 220).

The same principle of training is found in language acquisition. According to the author, the gradual distinction between corporality and the personal space world acquires a universal dimension to the extent that the individual adopts the linguistic schemes offered by the community. The general process of speech development depends on the subject's ability to recognize a general system of meaning constituted by a social referent that guides and forms it (Cassirer, 1998a, pp. 159-259). The most illustrative example offered by the author is the analysis of the testimony of Hellen Keller (1954, pp. 36-37) who narrates how she was able to incorporate a sign language system developed by a certain community, whose main function allowed her to communicate her individual experiences. The best-known case is when she relates the discovery of how the first words learned in sign language "water" and "doll" became the first material objects in the world to be transformed into spiritual objects that possessed a linguistic coding, but at the same time offered a similar look

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to the rest of the world's objects; with this experience a new path of recognition began.[4]

From these results, Cassirer (1998b, pp. 268-270) will argue that it is precisely for this formative character that the existence of a modality of knowledge in prelogical or non-scientific forms must be postulated. The importance of this finding is fundamental for Pedagogy because it implies that "pure knowledge" is not only constituted in the shaping of the object, but in all phases of the process. This novelty proposed by the student is better understood when remembering that for Natorp (1905, pp. 11-13) "pure knowledge" is the result of a systematic epistemological construction that depended, precisely, on a logical and epistemological analysis to incorporate a perceived phenomenon within a general system of meaning. According to this, the task of pedagogy was determined by the fulfillment of the training ideals duly defined at the beginning of the process, and only to the extent that these were achieved when it would have been possible to describe a content as learning and as knowledge.

Sebastian Luft (2011, pp. 241-244) has highlighted this aspect of Natorp's philosophy—and of Marburg's neo-Kantianism in general—stating that, for them, the constitution of the object implies a constructive process in which the objectification process involves a reference model with which to validate the "objectivity" of what is perceived, a role that corresponds to science. According to Luft (2011, pp. 254-259), however, Cassirer's Neo-Kantian project contemplated science as its culminating moment, but only as a final phase of the general process, establishing the need to resort to a symbolic form (which may be myth, language, art, etc.). This clarification by Luft is important because it details the importance of the general process in the process of symbolic formations, rather than placing a specific moment as the founding moment, as proposed by Natorp (2015).

Already the Neokantian, in the general presentation of his project, stressed the importance of looking at the process that fulfills each form in culture, instead of looking at a specific manifestation as the general sense from which it was necessary to understand the totality:

> Criticism of reason thus becomes criticism of culture. It seeks to understand and show how all content of culture, insofar as it is more than mere isolated content, insofar as it is founded on a universal formal principle, presupposes an act originating from the spirit (Cassirer, 1998a, p. 20).

Hence, the *PSF* cannot be understood solely as a justification of the coherent unity of the symbols that gather around an idea that compiles

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them, but also as a description of the general process of how the human spirit creates resources to know its cultural environment.

Thus, it is determined that the criterion of "selection of contents" is the same one that Natorp (1905) had proposed when establishing that it was a pedagogical duty to target the totality of cultural manifestations. In *Philosophical Anthropology*, Cassirer (2012) clearly states that it is only in the functional unity of all symbols that it will be possible to study the human being, since the fragmentation of knowledge or the selection of one form over another implied the segmentation of the contents that could guarantee a broad and deep vision of the human being: "It seems to be recognized in general that self-knowledge constitutes the supreme purpose of philosophical inquiry […]. Self-knowledge [is] the requirement of realization that connects us to the outside world to enjoy our true freedom" (Cassirer, 2012, p. 15).

For the philosopher of Wrocław, the study of symbols is the way and way for the human being to develop all his faculties. But it does not rest on the psychological act of knowing (in cognition) the basis of this task, but it includes a formative value in the dialectical process of knowing, in the act of confronting the community, with its forms, with its conceptions, the most important moment of all this critical development. Thus, when designing the totality of the modalities of culture as the selection of the contents, the author establishes a selection that implies, at the same time, a form of study, because only in the authentic encounter with culture is how the human being realizes himself: "Human culture, taken as a whole, can be described as the process of the progressive self-liberation of the human being" (Cassirer, 2012, p. 333). This is so because it implies a genuine openness and search for the individuality that we are, but above all, for the general sense proposed and learned communally.

Finally, regarding the "organization of contents", Cassirer offers a hierarchy route divided into three parts. With Natorp (1905), he accepts that this phase of formation depends on a deduction of the general principles defined and delimited by a philosophy of culture, but instead of assuming an action guided solely by a scientific model, in the *PSF* we find that the general process unfolds in three general functions: expressive, representative and significant. With the distinction of these moments, as mentioned, the main pedagogical novelty that is introduced is to recognize that in each phase of training we already find a valid way of knowledge and, therefore, of learning. By recognizing new logical modes of knowledge in myth, language and science, the general thesis of understanding each moment as a moment of differentiated learning is introduced.

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Thus, the organization of the contents now depends, both on the educational purpose, and on the general structure of each section, of each subject or theme that is being taught. Each sphere of the process acquires its own and independent value, since it is the manifestation within a general function of the spirit: the cultural form "does not mean only the sum or subsequent compendium of the particular phenomena [and contents] of this field, but the law that conditions its structuring" (Cassirer, 1998a, p. 21). Only in the recognition of the harmonic unity of each symbol as a general content that must be taught from its internal logic, but also, from the general function that unifies the different symbolic forms is how it will be possible to elaborate a pedagogical project whose purpose is the harmonic unity of all cultural manifestations.

With all this we can define what Natorp (1905) and Cassirer (1998c) understand by pedagogical methodology. Three are the basic questions to take into account: the *philosophical and psychological foundations* with which we set the educational ideals towards which we want to guide training, the *selection of content* that will allow full compliance with these ideals and a *method of organization* of the particular content. The basis of the latter finds important differences between both authors. For Natorp (1905), science is the general reference model that defines the way of proceeding, so it is understandable that it is a developmental physiology or an experimental psychology that determines the appropriate training procedures. By contrast, for Cassirer (1998c), each symbolic form fulfills a particular function and thus operates according to its own methodology, without dissociating itself from a common cultural function. The pedagogical proposal that derives from this is a critical evaluation of the different symbols to determine the degree of relationship that each maintains with the general system developed by the community.

Cultural foundations of pedagogy

In the foundation that Natorp (1905) offers of the pedagogical task, it establishes three major reference blocks: the *training* of the subject, the *cultural means* of training and the field or *conditions* of the training process. Each is then reviewed separately.

Regarding the *formation* of the subject, the author proposes attention to two faculties: the intellect and the will. The first establishes as an objective resource reference to "science" (*Wissenschaft*) as the system to be taken into account in the shaping and delimitation of training content. The

purpose of this resource is to differentiate between the world of simple impressions of the scientifically configured world of sense. The purpose is to ensure that the teaching program is supported in objective ways:

> The same basic law also regulates the general development of theoretical knowledge [necessarily extends] to the development of humanity […]. And so, from this fundamental law, from the natural division of each individual act of the communication of knowledge […] it is also, in general, the organization of the content of education, i.e. the methodology of teaching as a whole and in each different part (Natorp, 1905, p. 14).

As seen, a plan of formative contents is achieved for the structuring of the teaching plan, with which a criterion of didactic formation is established; the formation of the intellect not only implies the compilation of knowledge, but also contributes to the hierarchization, structuring and thematic organization of the scientific results for the articulation of a teaching and learning plan. For Natorp (1905), in this way, two important objectives are met: to guarantee the objectivity of knowledge by relying on scientific advances, and the assurance of a critical teaching model, since the content is ordered to the scientific logic of the subject.

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Thus, it is necessary to set the criteria for the formation of the will to establish the formation program of the intellect. The specific problem for this faculty is the theoretical framework from which to make decisions, therefore, for the author, the configuration of the contents from the results of science would allow the delimitation of a training plan towards which to drive decisions: "The law of development, i.e. also of the formation of understanding [*der Bildung des Verstandes*], is transferred at the same time to development, i.e. to the formation of the will [*der Bildung des Willens*] (Natorp, 1905, p. 18). With this, the general program is linked and correlated: intellect and will are formed unitarily from the delimitation of contents defined by the progress and advancement of science.

Regarding the *cultural means* of training, Natorp (1905) proposes the formation of a multiplicity of resources that accompany the training process. The first of them corresponds to "art and aesthetic training" (*Die Kunst und die äesthetische Bildung*); regarding the first, it is a philosophically organized program to define the creative act that the student must reach. While the free creation of the spirit must be encouraged, this must be allowed to the extent that artistic content – defined by the techniques and objectives of the art– is achieved (Natorp, 1905, pp. 18-20).

The second cultural medium refers to "religious formation" (*Die religiöse Bildung*), whose purpose is threefold:

- Teach the foundations of the life of the individual human being (I) and the relationship that it keeps with a divine conception (the other).
- To express the importance of molding one's will to dogmatic designs and convictions.
- The formation of a spiritual consciousness.

The author recognizes and accepts the complexity of teaching like this, within the school environment, as it aims to achieve the same objective of training in freedom but avoiding all dogmatic content. The central argument of the philosopher is to state that every act of spiritual liberation comes from the conception of a supreme reality in which every human being acts according to his nature. The most important recommendation is to choose religion as a content, but without conflict with any proposal (Natorp, 1905, pp. 20-23).

As seen, cultural media complement the program of educational content from the sciences, allowing the school system a triple source of leadership:

- Intelligence and will are objectively oriented through the results of the sciences.
- Art allows the free creation of the student, but it is ordered to an artistic technique and production.
- The promotion of a religious practice favors the order of the intellect to a dogmatic program and the regulation of the will from a system of beliefs that drive the search and experience of freedom (Natorp, 1905, pp. 23-26).

Finally, regarding the field or *conditions of the training process*, the author considers: "All educational activity develops in the community" (Natorp 1905, p. 23), this implies that it is with the interaction with other individuals that these contents are learned. In this sense, the determination of the contents is not made by individual choice of the teacher but recognizes in the scientific community a consensus of results that must be transmitted. The same happens in art in terms of the formation of the free imagination, the determination of creative limits, as well as the choice of the best resources for its expression, which are delimited by the artistic community; the same for religious formation; in all cases it is the community that delimits the best interaction processes.

The role of the teacher is therefore oriented to the synthesis of the diverse and to the conduct of the students in those cultural contents

accepted in the community. The didactic process is composed of three important moments: first uses the stabilization of the contents through repetition or memory; the second step follows the same procedure as deduction or syllogistic induction, having memorized the contents, there is no more than reasoning the scientific contents following their logical pattern, finally; the third involves a synthesis and incorporation of new contents following the same previous pattern (Natorp, 1905, pp. 26-28).

This didactic description, as said, although it is driven by the teacher in his capacity as an individual, is not subject to individual free decision, but must be guided by the social life of the community. But the latter, in turn, must be ordered to a regulatory principle that allows the organized and full management of all the abilities of individuals, since it is not possible to attend to each student thinking about his uniqueness, but about what constitutes him as a community member. Therefore, for Natorp (1905), the most important quality of the pedagogical is in its structuring within a political system that allows it to regulate particular actions to be nourished by scientific, artistic and religious development, with which to lead all students equally: "This, however, presupposes a deep education that permeates all social life and whose orderly development is, therefore, the last and highest requirement of an efficient social life" (p. 29).

This restructuring of social organization from the state follows its own logical pattern of organization, which for Natorp (1905), focus on three groups of formative activities:

- The orientation and education of material behaviors is ordered by economics.
- The organization of public actions and community life responds to legal-political regulation.
- The cultivation of social reason responds to formal education.

A large part of the specific actions can be formed only within the small institutionally recognized societies, i.e. the home, the school and the public associations; each one of them must give the tools for the promotion of a coexistence between the members of each of these institutions, but also within the community life. The general objective is to promote productive life both in terms of the will and interest to do so, and to develop the skills and teaching of the tools necessary to carry out a professional activity with public benefit (Natorp, 1905, pp. 30-31). These are the foundations and pedagogical vision of the author.

In the case of Cassirer (1998c) the same treatment of these questions is observed but is placed in a different dimension: the knowledge of the singular and its relations with the universal. For this author, his teacher's proposal elucidated how it was possible to determine the logical and, it can be added pedagogical relevance when assessing a subjective activity as objectively valid. The solution proposed in the *PSF* established to recognize in each symbol a modality of own and unique understanding from which to structure a culturally valid orientation path. With this, the general task of the formative process would be, in the first instance, to define the nature of each symbol, and then to promote it according to its ideal conditions.

For Natorp (1905), defining the conditions of the formative process allowed observing that it was the work of sciences such as economics, politics or law which determined the normative situation that parents, teachers or those responsible for public institutions should promote within the home, school or in any social sphere of work. Cassirer, for his part, would develop the same task by detailing the role that symbols such as myth, language or science fulfilled within the process of shaping cultural reality. This same author, in *Phenomenology of knowledge*, argues that:

> We can only grasp [the] reality in the peculiarity of [the] forms […]. The function of thought must not be reduced to "expressing" the self […]. thought feels capable of facing reality; it harbors the conviction and believes that it can exhaust its content. Here there must not and cannot remain any insurmountable barrier, since the thought and the object to which the first is directed are one and the same thing (Cassirer, 1998c, p. 12).

In this way, the universal is articulated as an intellectual relational product, an act in which different rules and psychological tasks are fulfilled that allow meeting the general with the particular through functional relations. The pedagogical value of this statement corresponds to the need to locate *the ideal foundations through which the "expression of the being" is possible, because otherwise, philosophy itself could not refer to any reality in a consistent way.* Much of the phenomenological descriptions of each of the *PSF* volumes intend to provide empirical evidence of the overall process of cultural knowledge formation.

In this sense, it can be said that for this author the most important pedagogical principle—since all subsequent activity derives from it—is the establishment of a "law" that determines the criterion for qualifying individual cases as culturally ideal actions and the only viable way to

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achieve it is by delimiting the role and functions of each symbolic form: "This is possible by creating fixed and universally valid correlation rules between [the singular data], subjecting to certain laws the coexistence in space and the succession in time" (Cassirer, 1998c, p. 370). Accordingly, the constitution of general norms that regulate the process of knowledge construction finds in the various cultural symbols—and not exclusively in science—independent, but interconnected, forms of validation. Thus, the one and the unity will appear as dialectical interaction within the framework of a cultural system that progresses phenomenologically in each of its particular forms of knowledge.

The general sense imprinted by Cassirer (1998c) to his project began with the perception of the natural world and the infinity of its singularities until reaching the development and establishment of the physical-mathematical sciences as its highest goal. The description of this path, although it resorts to philosophical categories to constitute itself, cannot be understood otherwise than from a formative development of culture and, therefore, under a pedagogical vision (Calvo, 2023). It should be remembered that the primary requirement driving this phenomenological path is knowledge, which can only be reached to the extent that the simple impression of the world appropriates the intellectual resources of culture, and for this only the path of cultural formation remains, a path described in detail by his teacher Paul Natorp (1905).

Towards a pedagogy of culture from Natorp and Cassirer

Among the many references to which we can refer to find a common ground of both authors, it is necessary to understand that they have as a common point the Kantian vision of pedagogy. In the opening of his treatise, we already find the following statement: "The human being is the only creature to be educated. Understanding by education care [sustenance, maintenance], discipline and instruction, together with education. According to this, the human being is a small child, educating and a student" (Kant, 1983, p. 29). According to Ortiz Soriano (2023), this Kantian proposal can be fully implemented to the extent that social agents intervene for developing the skills and tools essential to achieve an appropriation of the ideals constituted by the community; in that sense, it is the role of the State to promote and guide these actions:

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The role of the State in education is to cultivate and educate men, the people, and realize that if the necessary areas for integral education (discipline, culturization, civilization and moralization) are not covered, this will have a negative impact on moving away from the perfection of humanity (p. 167).

This vision, in the author's words, must be translated into the formation of a curricular proposal that allows the configuration of a formative framework that makes effective the tasks of the State in the formation of this formative vision. This Kantian proposal, as seen, not only offers a vision of the ideal foundations that must regulate education, but also establishes a specific activity in the conformation of these ideals. In contrast to this Kantian vision that covers all the edges, in the case of the so-called Neokantians, there is a more theoretical vision regarding their pedagogical proposal, but it also offers practical analyses of the educational processes as presented at the end of this section.

Taking up the work of Natorp (1905), it is important to mention that after the first edition, he offered a second expanded *Course of social pedagogy* (Natorp 1975), whose central thesis is that pedagogy, as a science of education, must guide its formative activity from an objective and a subjective sphere. The objective would be constituted by the philosophical disciplines: logic (theory of principles), aesthetics (theory of perception and good technique) and ethics (theory of moral behavior); the subjective dimension, on the other hand, would be constituted by a critical study of the psychological conditions that allow to orient the will (Natorp, 1975, pp. 106-109). With this structure, the author's purpose is to define both the theoretical framework and the methodology by which it is necessary to guide the educational process.

The ultimate purpose of these subjective and objective spheres, according to this author, is to delimit the contents of education, which are defined as follows: "We use the word 'culture' for 'formation' in an objective sense, for the formation of objective worlds […] the content of education, presented objectively, confuses with the content of culture: it is one and the same" (Natorp, 1975, p. 110). As can be seen, for the author, the formative process is based on logic, aesthetics and ethics, guided by psychology in terms of the development of the will, but delimited by the development of cultural content. In addition to this, he adds that "cultural contents" are to be understood: "Scientific culture, morality and aesthetics" (Natorp, 1975, p. 110).

These delimitations are important, because they show that the pedagogical work is not only focused on the description of the conditions in

which the learner learns and develops new skills, but implies the understanding of the knowledge produced culturally and that must be taught to the new generations. In this sense, the concept of pedagogy, in Natorp (1975), implies a vision that favors the integration of the manifestations of human life, since it is in the totality of social actions that we can delimit the educational contents to be transmitted. In addition to this, the author adds: "All educational activity is carried out on the basis of the community. The isolated human individual is a mere abstraction, like the atom of Physics […] therefore, every content of human education is in itself communal" (Natorp, 1975, p. 118).

Hence, the natorphan concept of pedagogy is intimately linked to cultural development and progress, in that sense, it can be argued that any historical event that favors human advancement becomes a properly educational content. In this point it is important to reiterate that the pedagogical proposal of the author is linked to his own conception of philosophy, which is conceived as a theory of being whose research methodology implies the construction of the logical foundations that allow to define and delimit the epistemological contents of the sciences (Natorp, 2015, pp. 198-199). According to this author's conception, the content of the exact sciences (mathematics, physics, chemistry, biology, etc.) constituted a true conceptual framework in which the human being could rely on to define an affirmation as "knowledge". In that sense, then, knowing meant demonstrating the belonging of a content to a science whose methodology justified the validity of a postulate. Thus, pedagogy emerged as the "science of training [*Bildung*], i.e. the theoretical foundation for distinguishing questions concerning education [*Erziehung*] and teaching [*Unterricht*]" (Natorp, 1975, p. 105). With this delimitation, what the author proposed was the constitution of the logical principles with which to evaluate to what extent the act of growth and development of new skills in students could be considered as training or education, and to what extent it should be considered an act of adaptation.

Thus, Natorp's general proposal (1905; 1975), in his two treatises on pedagogy aims to systematize a science (*Wissenschaften*) with which it was possible to study both the identity of education and the general framework of development in which it was to be inserted. Therefore, by stating that it was an activity whose center is culture, it established both its foundation and its purpose, because only in the interaction of the human being with his history and the community, it is possible to measure the degree and development of the education process.

As mentioned above, unlike Natorp, in Cassirer it is not possible to find a pedagogical treatise or study on the process of education. However, in his various anthropological treatises we find the theoretical elements to construct a theory of formation. The best-known work to which we can refer is *An essay on man, An Introduction to a Philosophy of Culture*, translated as *Philosophical Anthropology: an introduction to the philosophy of culture*, whose central thesis is that the human being, through history, although it has been defined as a "rational animal" (restricting its abilities to its cognitive abilities) instead, can be defined as a "symbolic animal" (Cassirer, 2012, p. 49). This new definition of the human being based on the symbol, in the words of this author, offers a broader and varied vision of options from which to understand the authentic reality in which the human being moves and develops. With this new approach it is necessary to reconsider the interpretative framework of human life, because now, it is no longer a question of studying the subject as an isolated being or an individual reality, but rather it must assume the totality of expressions and manifestations of his active life in society:

> The outstanding and distinctive characteristic of the human being is not a metaphysical or physical nature, but his work. It is this work, the system of human activities, that defines and determines the circle of humanity […]. A philosophical anthropology would therefore be a philosophy that would provide us with the vision of the fundamental structure of each of human activities and that, at the same time, would allow us to understand them as an organic whole (Cassirer, 2012, p. 108).

With this proposal, what the author proposes is a unitary conception of the essence of the human being. Instead of assuming the subject as a singular and isolated being, it assumes culture as the center and unit in which any action, however isolated it may seem, makes sense in the cultural aspect. This is significant because it is only in the accompaniment and guidance of the new members that an action can be interpreted and achieve a specific meaning. An example of this claim is proposed by the author in his essay entitled "The Shape of Concept in Mythical Thought", in which he explains how in Australian Aboriginal tribes the conception of the world depended on two issues: first, on the tribe to which the members of the community belonged and, second, on the geographical space that that tribe occupied in the environment. What is relevant about this example is that, as reported by the Neokantian, this division occurred by virtue of an authentic cultural process, since the territorial delimitation occurred as the result of "putting a cane on the ground, in exactly this

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direction. Such a staff divided the whole space into two halves, upper and lower, north and south, one of which designated as the place of the krok-itch group, and the other as the gamutch group" (Cassirer, 1975, p. 31).

While the example highlights the ethnographic traits (as it de-scribes the processes of social organization of Australian Aboriginal groups), it also highlights the general logical conditions of the education-al contents of this group. Each community was responsible for transmit-ting to the new generations the spatial limits defined between the repre-sentatives of each group, and related to each space, the tasks, functions and customs of each group. Each tribe responded to a unique religious worldview, associated with its own totemic and ritualistic system that had to be respected and promoted among the new generations, making each group responsible for promoting its own way of life and linked to the vi-sion of each geographical region (Cassirer, 1975, pp. 31-33).

This case, proposed by Cassirer (1975), manifests in a practical way the pedagogical vision to which Natorp (1975, p. 110) referred when he said that every educational act was, in essence, a cultural activity. There is no activity that can be maintained and considered as a representative expres-sion of a community without enjoying a formative process that describes its teaching process and appropriation by the community. For Cassirer (1975), cases such as that of the Australian tribe mentioned above, state that in these aboriginal groups: "Everything is fixed by the myth-sociological structure of the image of the universe in such a precise way that it is not only equated to written prescriptions and laws, but in terms of immediate obligatory force it far exceeds" (p. 35). As can be seen in this previous quote, the general worldview constituted by the community, even under mythical modalities, is translated into the base and mold through which all actions of social, political, religious, artistic and pedagogical structuring are regu-lated, since any way of proceeding is subject to an overview of the world.

We see these same ideas expanded and deepened in the second volume of the *PSF* dedicated to *Mythic Thought*, where the author es-tablished the following: "Mythic-religious consciousness does not simply result from the factual state of the social form, but is one of the conditions of social structure, one of the most important factors of feeling and com-munity life" (Cassirer, 1998b, p. 222). With this, it is again observed that every social structure is linked to a symbolic form that, given its cultural character, permeates every aspect of public life conditioned by the forma-tive processes. This same principle extends to the rest of the symbolic formations, making language, history, art or science possible to develop by virtue of a structure of social interaction.

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The pedagogical implication of this vision cannot be other than the conception of formation as a social process that is conditioned by the general form of the prevailing symbol. In this sense, following *Phenomenology of knowledge* (Cassirer, 1998c), it is possible to argue that the generation of all epistemological content depends on the own forms constituted by the community. This implies that to ensure the generation of new behaviors it is necessary that all new content promotes in the student a learning system consistent with the system itself that is to be promoted. For example, the learning of art must favor the development of artistic skills by promoting artistic practice itself; if it were the teaching of history, it is necessary to favor practices that favor the experience of historical events; and the same for the rest of the symbolic formations. In this sense, the formative process becomes an eminently practical action, but recognizing the importance of the cultural structures and forms in which each form develops. As the author argued in his treatise on *Philosophical Anthropology*: in symbolic forms "the human being discovers and tests a new power, that of building a world of his own, an ideal world. [Each symbol] is completed and complemented, but each opens a new horizon and shows a new aspect of the human" (Cassirer, 2012 p. 334).

A theoretical complement can be seen in both pedagogical visions. While in Paul Natorp (1905; 1975) we find the general theoretical framework in which the process of education is developed, in Cassirer (1975; 1998c; 2012) we find the anthropological conditions in which such an educational act occurs. By pointing out that the human being is a "symbolic animal" (Cassirer, 2012, p. 49) we notice a nature that requires being trained and educated, with objective and subjective resources, such as those offered by the "science of formation" (Natorp, 1975, p. 105).

Conclusions

This article proposed a pedagogical reading of Cassirer's *PSF*, especially of his volume *Phenomenology of knowledge*. It was shown that one of the central foundations considered by the author was the critical psychology of his teacher Paul Natorp (1905). Throughout the work, however, the thematic and methodological coincidences developed in the treatise on the *General Pedagogy* of the second were shown. While no details were given as to why the philosopher of Wrocław did not include in his studies the symbol the natorphan theory of formation, it was possible to show how the critique of culture proposed fully in *Philosophical Anthropology*

contains essential foundations for the development of a Pedagogical Culture, presented and articulated by the teacher.

Particularly noted was Natorp's pedagogical conception (1905). The following was emphasized: pedagogy is science whose object is two-fold: education (as a natural process of growth) and training (as to the ideal determination of the end of education). For the foundation of its principles, two sources are distinguished: philosophy to determine the objective principles and general laws that guide the intervention and psychology to determine the subjective operating principles. For him, the educational contents must derive from the development of science and be organized within the school environment for a better structuring and hierarchization of the contents. This does not imply that other environments such as home life or community life cannot participate, on the contrary; in the first specific skills must be developed such as the appropriation of a language, rules of coexistence, and some practical skills; in public life skills must be formed linked to the respect and monitoring of legal standards. Complementary activities for the promotion of a pedagogical culture come from a continuous artistic and religious formation.

Cassirer's proposal (1998c), on the other hand, proposes a scheme similar to that of his teacher, but with special emphasis on the phenomenological development of symbolic formations. For the author, each symbol fulfills a particular function (expression, representation or significance) giving meaning to particular units. But the general sense of each symbol, however disparate or alien it may be to each other (*i. e.* myth and science, language and history, art and economics) in all of them establishes a common form of progress involving a general mode of development. Although for the Neokantian this advance of the spirit is constituted by a historical evolution, in the report and details that he offers in his *magnum opus* it is seen how the myth, language and science are articulated around a general function that determines its progression and evolution only to the extent that the members of the community interact, appropriate the general rules and incorporate them in their continuous way of acting. In this sense, it is a modality of cultural action that depends on a formative process that allows each symbol to operate according to its own peculiarity, but ordered to a cultural ideal that guides it to its full realization.

In this way, a pedagogical background can be observed in the development of symbolic forms, since like the theory of the formation of Natorp (1905), which proposed to educate ideal behaviors in the students, in the case of Cassirer (1998c) the deviation or disarticulation with respect to its general form invokes from philosophy the responsibility of

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redirecting the deviation to its functional unit and, therefore, to a general form of culture, a clearly pedagogical action, as stated by Natorp (1905).

Notes

1   The works of both authors have been consulted in German and Spanish, but only the Spanish edition is cited in the case of Cassirer and the original edition in the case of Natorp. All translations are mine, unless otherwise stated in the bibliography.

2   It is important to underline that when Cassirer refers to Hegel he does so, particularly, to the *Phenomenology of the spirit*, so that such clarification implies a purely philosophical and not pedagogical interest (Luft, 2011); however, it is interesting the clarification of Arsenio Ginzo (2015, pp. 13-17) on the difficulty of separating pedagogy from philosophy in Hegel, since for him such a division is not blunt. This work does not allow to deepen in these questions for what remains for a future work to expand them.

3   Something that is evident in the whole of this third section is that when Natorp speaks of psychology as the science of "subjectivity" he does not eliminate its scientific character, he only says that it oversees the study of the reality of the human being and his emotional, volitional and cognitive conditions in the individual. Therefore, it considers that this is about the contents of the "subject" (subjectivity), without being separated from experimental study procedures and systematic observations of behaviors. An additional important issue to consider is to recognize that in Natorp we find an independence between philosophical science (logical study of the foundations of reality) and psychological science (logical study of the foundations of the human being and his behaviors). The development and detail of the importance of the latter remains for another time.

4   The testimony of H. Keller (1954) is quite illustrative in this regard: "We walked down the path to the well-house, attracted by the fragrance of the honeysuckle with which it was covered. Someone was drawing water and my teacher placed my hand under the spout. As the cool stream gushed over one hand, she spelled into the other the word water, first slowly, then rapidly. I stood still, my whole attention fixed upon the motions of her fingers. Suddenly I felt a mystery consciousness as of something forgotten a thrill of returning thought; and somehow the mystery of language was revealed to me. I knew then that "w-a-t-e-r" meant the wonderful cool something that was flowing over my hand. That living word awakened my soul, gave it light, hope, joy, set it free! There were barriers still, it is true, but barriers that could in time he swept away" (p. 36).

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Philosophy as a continuation through the educational task

La filosofía como una continuación por medio de la tarea educativa

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Abstract

The article addresses the current state of the Philosophy of Education, which seeks to understand the nature and foundations of education to improve its effectiveness. It identifies a significant gap between the theoretical and practical problems of education, as they are perceived and responded to on the public agenda. This separation limits the explanatory capacity of the discipline and reduces its relevance for educational actors. Given this panorama, the article proposes to explore how to integrate educational theory and practice. The methodology of the article involves a critical analysis of Wittgenstein's point of view, enriched with the perspectives of Williams and Medina. It examines how these philosophers address the relationship between philosophical theory and educational practice, especially in terms of how beliefs and instructional processes are interrelated and can be understood from an integrated perspective. The main results suggest that integrating philosophical theory with educational practice allows not only a deeper understanding of the foundations of education, but also an improvement in the effectiveness of educational strategies. In addition, final considerations are raised about the current state of philosophical research in education, highlighting the importance of continuing to explore these connections to move towards a more comprehensive and practical approach in the Philosophy of Education.

Keywords

Philosophy of education, learning, teaching, role of education, human action, pragmatics.

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Resumen

El artículo aborda el estado actual de la filosofía de la educación, que busca comprender la naturaleza y los fundamentos de la educación para mejorar su efectividad. Identifica una brecha significativa entre los problemas teóricos y prácticos de la educación, tal como se perciben y responden en la agenda pública. Esta separación limita la capacidad explicativa de la disciplina y reduce su relevancia para los actores educativos. Ante este panorama, el artículo propone explorar cómo integrar teoría y práctica educativa. La metodología del artículo implica un análisis crítico del punto de vista de Wittgenstein, enriquecido con las perspectivas de Williams y Medina. Se examina cómo estos filósofos abordan la relación entre la teoría filosófica y la práctica educativa, especialmente en términos de cómo las creencias y los procesos de instrucción se interrelacionan y se pueden entender desde una perspectiva integrada. Los principales resultados sugieren que integrar la teoría filosófica con la práctica educativa permite no solo una comprensión más profunda de los fundamentos de la educación, sino también una mejora en la efectividad de las estrategias educativas. Además, se plantean consideraciones finales sobre el estado actual de la investigación filosófica en educación, destacando la importancia de continuar explorando estas conexiones para avanzar hacia un enfoque más integral y práctico en la filosofía de la educación.

Palabras clave

Filosofía de la educación, aprendizaje, enseñanza, rol de la educación, acción humana, pragmática.

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Introduction

In his brilliant 1911 essay "The Handle", Simmel argued that the handle of a vase bridges two worlds, the utilitarian, and the non-utilitarian. A vessel, according to Simmel, "unlike a painting or statue, is not intended to be insulated and untouchable but is meant to fulfil a purpose—if only symbolically. For it is held in the hand and drawn into the movement of practical life. Wittgenstein's Handles, C. Benfey, The New York Review of Books, 2016.

Wittgenstein's references to education are not only frequent, but also reveal his deep interest in early learning processes. In his later phase, Wittgenstein shifts away from philosophically conventional problems to focus on everyday issues and mundane practices, such as language and human interactions. This shift in focus reflects his conviction that understanding how children learn and develop language skills is critical to understanding the very nature of language and human knowledge.

In his later work, Wittgenstein employs methods of description, exemplification, and explanation to illustrate these processes of early learning. He does not limit himself to theorizing about these issues, but addresses them in a concrete and contextualized way, stressing the importance of observing and understanding how children acquire language skills and social practices. This meticulous attention to the mundane and the practical underscores his focus on education as a phenomenon

that not only shapes the individual, but also reveals fundamental aspects about the nature of human knowledge and communication.

Consequently, Wittgenstein's worldly concerns in his late work on education and early learning reflect his commitment to a philosophy that is not limited to the abstract or theoretical but seeks to understand daily life and human interactions as keys to unraveling the mysteries of language and mind. His focus on how children learn and develop language skills highlights the importance of these processes to better understand the social and cultural dynamics that underpin the understanding of the world.

Wittgenstein's frequent allusion to education and early learning has been the subject of analysis among scholars of analytic philosophy. Some focus on the general conception of philosophy attributed to Wittgenstein, exploring how these themes are integrated into his broader philosophical view (Monk, 1990; Moyal-Sharrock, 2017). Wittgenstein, known for his focus on language and meaning, was also deeply interested in how children acquire linguistic and conceptual competencies through social and cultural interaction (McGinn, 1997). Other researchers explore a possible shift in focus in the second stage of their intellectual work, especially from *Philosophical Investigations*, where a shift towards more practical and everyday concerns is observed.

This shift in focus towards more practical aspects is seen as a natural evolution within analytic philosophy, where attention shifts from abstract problems to the concrete phenomena of daily life (Glock, 1996). These hermeneutic approaches seek to shed light on the richness and variety of reflections of the Austro-English philosopher in relation to the education and development of child thought, highlighting how these ideas intertwine with his philosophy of language and mind (Bolaños Vivas, 2017).

Although the task of exegesis has been carried out by numerous scholars with varied and significant results from the philosophical point of view, this work aims to move in a slightly different direction. The aim is to explore the extent to which these considerations of Wittgenstein allow to reinterpret the themes of educational theory in a broad sense, or at least to explore a different perspective. The term "moving forward" implies a specific movement towards what appears to be the general problem of an educational theory, as addressed by Amy Gutmann in her work *Democratic Education* (1987):

> Why should deliberation be considered primary, even for public education, when the opportunity for most citizens to live a good life requires far more basic skills and virtues, such as arithmetic, literacy, and non-

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violence? Deliberation is not a single skill or virtue. It requires literacy, numeracy, and critical thinking skills, as well as contextual knowledge, understanding, and appreciation of other people's perspectives. The virtues of deliberation include truthfulness, nonviolence, practical judgment, civic integrity, and magnanimity. By cultivating these and other deliberative skills and virtues, a democratic society helps to ensure both the basic opportunity of individuals and their collective ability to do justice (p. XIII) (author's translation).

The citation raises the primacy of deliberation in public education, arguing that, despite the need for basic skills such as arithmetic and literacy, deliberation should not be discarded. Rather, it is argued that deliberation goes beyond a simple technical skill, encompassing multiple cognitive abilities and ethical virtues fundamental to a democratic society. Deliberation requires not only skills such as literacy and arithmetic, but also critical thinking skills and the ability to understand and value different perspectives. In addition, it involves the practice of virtues such as truthfulness, non-violence, practical judgment, civic integrity and magnanimity, which are essential for democratic life and social justice (Fenichel Pitkin, 1984).

In the educational context, cultivating these deliberative skills and virtues not only prepares individuals to participate actively in democratic life, but also strengthens society's collective capacity to address problems fairly and equitably. Public education, by prioritizing deliberation along with basic skills, promotes an environment where citizens can not only develop their individual capabilities, but also learn to collaborate and resolve conflicts constructively (Honneth, 2013). This approach not only seeks to ensure the basic opportunity for all individuals to live a good life, but also contributes to the formation of informed and ethically committed citizens, fundamental to the healthy functioning of a robust and participatory democracy (Biest, 2013).

The analysis of the development and evolution of the philosophy of education, although a debatable term, reveals a field of study that, while theoretically rich, often shows significant shortcomings in terms of effective practical applications. This situation is notably evident in contexts such as Chilean, where advanced educational theories rarely translate into substantial improvements in educational practice. However, this phenomenon is not unique to Chile, it is also observed in other educational contexts worldwide. An example of this theoretical-practical debate can be found in *A Companion to Wittgenstein on Education: Pedagogical Investigations* by Peters and Stickney (2017) (Santoro, 2020).

Peters and Stickney explore how Wittgenstein's ideas about education can illuminate contemporary problems in educational practice. Wittgenstein, known for his focus on language and practice, offers a perspective that challenges traditional conceptions of the philosophy of education, centered on normative theory and abstract models of teaching and learning. His approach emphasizes the importance of understanding educational practices in their cultural and social context, stressing that educational effectiveness is not limited to the implementation of abstract theories, but crucially depends on how these theories are integrated and applied in specific educational environments (Peters & Stickney, 2017).

Thus, the critique of the philosophy of contemporary education, as presented by Peters and Stickney, not only points to the practical limitations of abstract educational theories, but also proposes a more contextualized and sensitive approach to local educational realities. This perspective invites reflection on how philosophical theories can be translated into effective pedagogical practices that impact positively the education and development of students in diverse cultures and educational contexts (Van Manen, 2010).

It is not simply a question of the lack of versatility of research topics in the philosophy of education, as evidenced by the diversity of pedagogical and educational issues dealt with in the aforementioned text. Rather, the problem is that pedagogical research with philosophical roots often contains too much philosophy and too little pedagogy, understood as the latter is illustrated in public debate, both in Chile and internationally, about the need for education for development, the relevance of education for employment, and the importance of education in reducing inequality and the full exercise of citizenship. These are just some of the issues that emerge when looking at the landscape of the contents of the so-called "public educational agenda" (Atria, 2015).

Due to the importance of the educational problem, philosophy cannot remain on the sidelines; on the contrary, it must investigate, using its methods, the nature of the problems of the educational system to understand them. The method used in this work is what is traditionally understood as "conceptual analysis". This involves identifying the concepts that structure the grammar of learning to give them a new meaning, derived from understanding their integration into practice and their relationships within a broader conceptual scheme.

Even more notable is the deep gap between the problems of pedagogy, when viewed from the public agenda, and the issues raised by extending philosophical reflections, such as those of Wittgenstein, for ex-

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ample. I suspect that this gap also extends to other philosophical interests that, at first glance, fail to fully penetrate the most urgent educational debates, which are conditioned by public opinion and the needs of the population in multiple aspects. In other words, a philosophical environment does not turn out to be the most fertile to address the demands experienced by education systems. Some might argue that this is due to the domination of an ideological agenda in Chilean education policy; this conclusion seems to point to the important problems of the agenda.

The importance of this view is not to be underestimated. However, I believe that it should be the starting point for starting the philosophical discussion, not the conclusion that closes the way to philosophically motivated reflection. After all, the relationships between power and truth have long been the subject of profound philosophical consideration. Perhaps, then, the appropriate philosophical strand consists precisely in reflecting on the ideological mechanisms and hegemonic control of the public agenda.

The ideas outline a context that lays the groundwork for exploring the intersection between education and philosophy, using Wittgenstein's philosophy as a frame of reference. It is proposed that philosophy can be seen as a continuation of education through alternative methods, echoing the famous phrase attributed to Bismarck. This perspective suggests that both the practical needs of education systems and philosophical reflections can be addressed in a complementary way. The difference between both approaches is equated to the distinction between the raw and the cooked: while education deals directly with practical and applied problems in the school context, philosophy seeks to address these same problems from a more theoretical and reflective perspective, often questioning the fundamental assumptions and conceptual frameworks that underlie educational practice (Peters & Stickney, 2017).

From this perspective, Wittgenstein's philosophy provides conceptual tools to critically examine the foundations of contemporary educational thought. His focus on language practice and the use of language in specific contexts invites deep reflection on how educational concepts, such as teaching, learning and evaluation, intertwine with broader notions of meaning and action. This analysis not only helps to clarify the practical problems faced by educators, but also offers perspectives to reformulate and enrich educational practices in more coherent and contextually relevant terms (Peters & Stickney, 2017).

In conclusion, the integration between education and philosophy, particularly in the context of Wittgenstein's work, suggests a relationship

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of continuity and complementarity. By considering both fields as part of the same *continuum* of reflection and action, it opens the possibility of enriching both educational theory and pedagogical practices, promoting an important dialog between philosophical theory and the practical realities of contemporary education.

It is crucial to examine the meaning of the terms "continue by other means," "raw and cooked," which is essentially a reference to the fundamental distinction between "practical problem and theoretical problem." These expressions attempt to capture various dimensions emerging from Wittgenstein's thinking, as will be seen below. These dimensions address how Wittgenstein suggests that we should address the problem of the difference between theory and practice by emphasizing the need to adopt a perspective that does not force us to opt for one of the alternatives in play, reformulating the original positions and, metaphorically speaking, leaving things as they are.

The text that follows a clear and defined structure seeks to explore the intersection between education and philosophy through the Wittgensteinian view. A series of well-delineated stages are deployed that guide the analysis towards a deeper understanding of the problems and perspectives involved. First, the characterization of the central problem is presented in a precise way, highlighting its relevance both in educational and philosophical terms. This initial step sets out the basis on which the whole subsequent argument is based, underscoring the importance of addressing critically and thoughtfully the issues arising in these interconnected fields.

Secondly, it explores in detail how Wittgenstein uses the distinction between empirical and conceptual propositions as a central tool in his analysis. This distinction not only facilitates clarification of language and thought structures, but also provides a conceptual framework for understanding how different types of statements relate to knowledge and educational practice. This phase of the analysis reveals the philosophical depth and practical applicability of Wittgensteinian concepts in the contemporary educational context.

Thirdly, following the line of Williams (1994, 1999), a Wittgensteinian "resolution" or "dissolution" of the distinction between empirical and conceptual propositions is proposed. This movement does not seek to eliminate distinction absolutely, but rather to overcome the limitations it imposes on educational thought and practice. It emphasizes how this approach can open new perspectives to address educational challenges from a more inclusive and holistic perspective, allowing a better under-

standing of the interrelationships between theory and practice in the educational field.

Finally, it concludes with reflections that underline the importance of this relationship between education and philosophy. It highlights how understanding this connection can enrich both educational theory and practice, offering conceptual and methodological tools to face the fundamental dilemmas and objectives in the formation of critical and reflective individuals and citizens. This synthesis between education and philosophy not only seeks to solve specific problems, but also to promote a more comprehensive and humanistic approach to learning and teaching in the 21st century.

Form and content: about the determination of what we learn by the way we learn it

This article focuses on a "core idea" that can be summarized as follows: how we learn something determines what we learn. This statement is defended by Williams (1994, 1999) in several of his texts. In the last of them Williams (1999) states:

> Finally, I will argue that learning plays a constitutive role. The way we learn concepts constitutes what we learn. This view runs counter to the idea that the relationship between learning and its product can only be contingent, and thus a matter of "mere history." The objection would go like this: the way we acquire beliefs either by explicit instructions, by taking some appropriate pill, by "osmosis" or by accident, is irrelevant to the content of these beliefs. There may be many ways to believe, but the content is the same. If the way we learn constitutes what we learn, then the intuitive appeal of this objection must be countered (pp. 189-190) (author's translation).

The aforementioned "core idea" is suggestive and invites consideration of at least two issues. First, it raises the need to reflect on whether the difference between "how" we learn and "what" we learn is relevant, especially in philosophical terms, or whether there is some other context where we can make this distinction plausible. In other words, it is crucial to determine whether this difference really marks a significant difference, because if it does, it would require justification and making sense of it, promising to open a heuristic path with broad theoretical and empirical consequences.

Secondly, depending on the answer to the central question, it involves reflecting on the process of belief formation, i.e. on learning and, therefore, on education understood as an empirical process that is part

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of a theoretical body with practical relevance. In relation to the latter, it is proposed to explore the possibility of an approach to the philosophy of education in the following way: any attempt to interpret Wittgenstein's allusions to educational practice must be subordinate to his understanding of learning as the process that constitutes the content of our beliefs.

This brings us back to the initial statement: the way we learn determines what we learn, and consequently makes this question the central issue of every philosophy of education, or mention in another way, every educational theory. Considering both possibilities, both the one that derives from the first and the second question, both result in the idea of "continuing the educational task with the means of philosophy".

From a doctrinal perspective, it is a question of assessing whether it makes sense to call Wittgenstein's point of view a "sociogenetic approach" (Williams, 1994; Medina, 2004). According to this approach, the natural history of human modes of speaking and acting would explain the special normative role that certain propositions play in human practices; a role that provides order to our actions and discourses. This last point brings the proposed reflection to the heart of the questions addressed by Wittgenstein in his so-called "third period" of thought, initiated with *Philosophical Investigations II* and *On Certainty*. Wittgenstein (1969) notes:

§144. The child learns to believe a lot of things. Hence, learns to act according to these beliefs. Gradually, beliefs form a system, and in that system some things remain unwaveringly firm, and some are more or less susceptible to change. What stands firm is held not because it is intrinsically obvious or compelling; it is held, rather, by what is around it (author's translation).

Let us look closely at the various expressive strategies that Wittgenstein employs to make sense of the central idea of this paragraph. First, it starts from the fundamental premise that the child not only acquires theoretical knowledge, but simultaneously learns to act according to that knowledge. This natural integration between action and belief implies that what the child does (his visible acting) coincides with what he believes (his invisible beliefs), thus suggesting that the conventional distinction between the visible and the invisible loses relevance. From this perspective, the coherence between the two aspects implies that using separate terms to describe the same act is superfluous.

Wittgenstein questions the very necessity of maintaining this dualistic distinction in the description of cognitive and behavioral processes. He argues that, if beliefs and actions converge and reinforce each other

in the child's everyday practice, then conceptual differentiation between them becomes artificial and possibly unnecessary. This critique points to the idea that our understanding of learning and human behavior can be benefited from a more inclusive approach that recognizes the interdependence between what one believes and how one acts.

Wittgenstein's proposal invites us to reflect on how this natural integration between belief and action could reshape our educational and epistemological conceptions. By underscoring the concordance between what is believed and what is done, it opens the door to a more holistic and unified understanding of learning, where theory and practice are not separate entities, but intrinsic components of a continuous process of human development. This view challenges traditional conceptions that radically separate theoretical knowledge from its practical application, suggesting instead a more fluid and coherent perspective of knowledge acquisition and behavior.

Beliefs are organized into a system gradually, shaping a mode of action. Within this system—a lattice of beliefs—some parts are stable, and others are modifiable. What is firm is not in itself, but because it is part of the surrounding system, i.e. the framework that functions as a balanced scaffolding that allows both the fixation and movement of the parts. The dynamics of the system do not clearly distinguish between moving and fixed parts; rather, everything forms an intertwined totality in constant interaction between what moves and what remains static.

It can be read §144, in continuity with §152:

> I do not explicitly learn the propositions that remain firm for me. I can discover them later as the axis around which a body rotates. This axis is not fixed in the sense that something holds it steady, but the movement around it determines its immobility (Wittgenstein, 1969) (author's translation).

Firm propositions are not explicitly learned. Suddenly, quickly and imperceptibly they are there, like an axis around which a body rotates. The shaft is not static, it remains firm, but its stability depends on the movement around it. However, there is no cause-and-effect relationship here: it is not that movement produces firmness, nor that firmness produces movement. Rather, it is that movement and firmness occur simultaneously, at the same time.

In the discussion of the relationship between cause and effect, the idea is raised that both are intrinsically linked, functioning as a handle that connects two different dimensions. This metaphor suggests that the connection between immobility and mobility of a door reflects a fundamental relationship between two seemingly opposite but interdepen-

dent planes. This image not only illustrates the dynamics between the static and the dynamic, but also underscores how conceptual distinctions, such as the difference between how we learn and what we learn, find their meaning in the inherent interaction between these elements.

However, this representation also poses a significant epistemological challenge. It suggests that conceptual differences do not have an independent existence "in the facts," but arise as constructs derived from the very nature of observed phenomena. This perspective questions the idea of a clear and absolute separation between processes, arguing that any distinction arises more as an interpretation or modeling than as an objective and fixed reality. Thus, we are invited to reconsider how we understand and categorize complex phenomena such as learning, where the interrelations between different aspects can be more fluid and intertwined than has traditionally been thought.

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Ultimately, this reflection suggests that a deep understanding of educational and cognitive processes cannot be reduced to simple dichotomous categories. Instead of seeking rigid divisions, a more inclusive vision is promoted, which recognizes the complexity and inherent interconnectedness between various aspects of learning and human experience. This perspective invites us to explore how perceptions of cause and effect, as well as other conceptual distinctions, can be reconceptualized to better capture the dynamic complexity of educational and cognitive activity.

The relationship between form and content is inseparable and dynamic. By stating that both "go together", it is emphasized that there is no linear sequence where the form precedes the content or vice versa. Rather, their simultaneous emergence implies that the traditional dichotomy between form and content cannot be strictly maintained. This perspective challenges the notion that one can exist without the other independently, proposing instead an integrative vision where formal configuration and content constitute each other.

From this perspective, the deep understanding of any phenomenon, including educational processes, requires recognizing how form and content interact and influence each other. In the educational field, for example, this implies that educational structures and methodologies not only determine the content being taught but are also shaped by the nature and meaning of such content. This dynamic interaction underscores the importance of adopting pedagogical approaches that not only convey information, but also foster a deep understanding of how the form of teaching and content of learning intertwine to build meanings and competencies in students.

Empirical and conceptual

If it were necessary to make a historical journey, it should be mentioned that the aforementioned "central idea" pointed out leads directly to the distinction between empirical propositions and conceptual propositions. "Directly" because it is a distinction whose historical but also systematic merits are difficult to assess fairly. Its merits, in any case, are considerable. The way in which this remission of the problem relates here to the distinction between the empirical and the conceptual is presented here.

If it is stated that there is a difference between the learning process and the result of that process, between the formation of a belief and the content of the belief, then it must also be accepted that what can be said about the process is different from what can be said about the result, i.e. while the process—learning—must be considered contingent, synthetic, or *a posteriori*; the result—belief—must be regarded as necessary, analytical, a *priori*, or grammatical, if Wittgenstein's terminology is to be employed. In relation to the scope of the distinction, Quine (1985) can be summoned who, in his unrivaled manner, serves as authority:

> The Kantian distinction between analytic truths and synthetic truths was anticipated by Hume's distinction between relations of ideas and questions of fact, and by the Leibnician distinction between truths of reason and truths of fact. As for the truths of reason, Leibniz said that these are true in all possible worlds. Leaving aside that picturesque, what I meant was that the truths of reason are those that cannot be false […]. The two notions are the face and the cross of the same problematic coin (pp. 49-50).

Quine's critique of the Kantian distinction between analytical truths and synthetic truths has a significant historical reach by contextualizing it within the previous philosophical framework. Quine argues that this distinction, fundamental in Kantian philosophy, finds precursors in the distinctions made by philosophers such as Hume and Leibniz. Hume distinguished between relationships of ideas, which are necessary and true by definition, and matters of fact, which are contingent and dependent on empirical experience. This distinction sets a key precedent for Kant, who developed the notion of analytic truths as those whose denial implies contradiction, in contrast to synthetic truths, whose denial is possible without contradiction.

On the other hand, Leibniz introduced the distinction between truths of reason and truths of fact, where the former are true in all possible worlds due to their logical necessity, while the latter are true only in

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our current empirical world. Quine (1985) criticizes these distinctions by arguing that both categories, both analytical and synthetic truths, are interdependent and involved in the same central philosophical problem. For Quine (1985), the critique of this dualistic distinction aims to show that the criterion of truth and the epistemological foundation of analytic truths cannot be sustained in isolation from synthetic truths, since both are intertwined in the network of empirical and conceptual knowledge.

However, it is intended more than simply to recall the undoubted historical value of the conceptual distinction. It seeks to establish a parallel between the empirical/analytical distinction and the process/result. This is because the intelligibility and plausibility of this idea were fundamental to enable an approach to education without committing to a dichotomy that, both theoretically and practically, has been a significant limitation. This dichotomy has required elaborating an extensive critical apparatus to sustain the value of the distinction between theory and practice, even in contexts where maintaining it does not seem to bring any benefit. In fact, sometimes maintaining this distinction has forced us to abandon important consequences derived precisely from not sustaining this difference. To a large extent, these are the pragmatic consequences that Quine obtains without committing to a new ontology, or even committing to any ontology.

For this purpose, it is useful to consider Garavaso's interpretation of Quine's "web of beliefs" (1985) and Wittgenstein's "riverbed" analogy (1969, §§ 96-99). Garavaso (1998, p. 252) seeks to defend what considers the more general and plausible version of Wittgenstein's idea, in contrast to Quine's more popular and well-known version. From the summary of Garavaso's comments on this matter, what is especially relevant for the present purpose is his second observation: "There is no clear 'categorical' distinction between logical and mathematical propositions on the one hand, and empirical propositions on the other, but only a degree distinction between the different roles that propositions play in a system" (p. 260) (author's translation).

Garavaso's perspective accepts the existence of differences between propositions. However, the author adds that it is necessary to clarify the nature of these differences. Garavaso interprets that, according to Wittgenstein, the difference is not "categorical" (of quality), but a difference of "degree" (quantitative). This means that the difference arises from the fact that propositions play different roles within a system. In other words, these different roles distinguish one type of proposition from another. The question, therefore, is that, accepting the existence of this difference,

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how to maintain it depends on the interpretation of the limit that distinguishes some propositions from others: either as a border limit that divides or separates two realities, or as a limit that unites two areas of the same reality. In the first case, there are two separate realities; in the second, there is only one reality with two distinct domains.

Moyal-Sharrock pronounces in this sense. Recognizing the difficulty of finding a convincing solution to the rationale for the distinction between types of propositions, Moyal-Sharrock (2000) responds critically, stating that to say that there is no "categorical distinction" between propositions does not imply that there is no clear difference between them, but that "the limit is permeable" (p. 54). Moyal-Sharrock's idea seems to be that in order to understand the nature of difference, one must observe the "boundary" that separates both sides of the distinction. This boundary is "permeable," suggesting that the idea of distinction should not be abandoned. By contrast, for the difference to be clear, it is sufficient that the boundary separating the two sides be permeable.

This is a singular solution: the distinction not only exists but exists as a difference in a distinct but porous reality. This means highlighting the porosity of the border that separates, thus allowing both sides of the dilemma to be maintained. It is like taking the bull by the horns and saying, in Moore's style, "Here's a horn" and then "Here's the other horn."

The controversy over the distinction between the empirical and the conceptual accurately, but indirectly, implies a fundamental question: philosophy, in a relevant sense, is a normative task. This means that philosophy is a conceptual enterprise, not an empirical one, and deals with problems of a theoretical order, since this is the kind of propositions with which it works. The same, in my opinion, applies to the sense of a philosophy of education and its relationship to the "public agenda."

If the distinction is held as a difference of degree—according to Garavaso—the philosophical idea remains solid; but if the distinction is held as it is—according to Moyal-Sharrock—the distinction dissolves and with it philosophy. This reasoning can be applied to educational questions: if there is no way to connect how we learn with what we learn, to link the process of belief formation with the content of the beliefs that are its result, then there is nothing philosophically relevant to say about education. Consequently, whatever education is, it would be covered by purely empirical research, about which philosophy as a discipline or theory in general would have little or nothing to contribute.

Since the analysis of the distinction was important for understanding the difference between the empirical and the conceptual, as a way of

representing the distinction between the way of acquiring a belief and its content, it should be borne in mind that, in Wittgenstein's case, the intelligibility of the distinction depended precisely on understanding learning.

This leads to examining why Williams alludes to the role of learning. The move from asking "what is learning?" to asking "what role does learning play?" is equivalent to the initial approach:

> What is the meaning of a word? Let us address this question by asking, first, what is an explanation of the meaning of a word; what does the explanation of a word look like? How this question is analogous to how the question "how do we measure a length?" helps us understand the problem "What is length?" The questions "What is length?", "What does it mean?", "What is number one?" etc., produce in us a mental cramp. We feel that we cannot point to anything in response to them, and yet we must point to something. (We face one of the great sources of philosophical bewilderment: a noun makes us look for something that corresponds to it) (Wittgenstein, 1958, p. 1) (author's translation).

The "central idea" put forward is precisely what Wittgenstein (1958) suggests when he changes one question for another in the *Blue and Brown Notebooks*. In doing so, he not only guides the answer in a different direction, but by stating that the new question is "analogous" to the original one, he represents the problem differently. The new question introduces a new problem, albeit one that is "analogous" to the previous one.

So, are we facing a different problem or is it the same? It is neither other nor the same: they are analogous. We could say that the analogy allows us to continue doing the same thing, but in a different way. This is similar to how philosophy approaches education: it continues the educational task using different approaches. Philosophy formulates questions that are analogous to questions that arise directly in the field of education; it reformulates these questions to continue doing the same, but in a theoretical context. However, it remains the same in the sense that it is "analogically the same."

The roles of learning

In Wittgenstein's work, the question of "training" in language arises in contexts where normativity is debated, i.e. in situations where it is crucial to determine how to distinguish substantially between correct and incorrect uses of words (Williams, 1999, p. 189, no. 1). Williams proposes to explore this process through an analysis of the roles played by learning;

in order to illustrate the approach he seeks and, according to Williams, reveals the conclusions that Wittgenstein intended to highlight.

First, consider the "causally foundational" role. In relation to this, the problem lies in the distinction between teaching and ostensive definition (Williams, 1999, pp. 192-194). As recalled, Wittgenstein questions the idea that ostensive definition can explain how a learner acquires language, since, according to him, this procedure involves regression. His critique of ostensive definition, which involves identifying members of a class by ostension, reveals crucial aspects about language and its acquisition (p. 191).

Wittgenstein, by introducing the concept of "ostensive training" (Wittgenstein, 1988, §6), not only seeks to overcome the difficulty of infinite regression in definitions, but also reveals his active commitment to the philosophical task of offering constructive answers. This perspective contrasts with the mere criticism or pointing out of paradoxes, evidencing their attempt to move towards a deeper and more practical understanding of the functioning of language.

This explains how Wittgenstein addresses a crucial philosophical problem related to the definition of terms in language. Traditionally, "ostensive definition" (giving concrete examples to define something) addresses the problem of infinite regression: each example needs to be defined ostensibly, generating an endless string of examples. Wittgenstein proposes "ostensive training" as an alternative. This idea involves a learning process where terms are not defined individually by examples, but rather a practical use of language is acquired through interaction and contextual practice.

By adopting "ostensive training," Wittgenstein shows an active commitment to the philosophy of language. Rather than simply criticizing the limitations of traditional definitions, it seeks to provide constructive solutions that allow us to understand how meanings actually operate in human communication. This perspective contrasts with approaches that merely point out paradoxes without offering practical alternatives.

Wittgenstein's notion of "ostensive training" is similar to the behavioral concept of "conditioning", which will be explored later. The student, however, does not start out as a *tabula rasa*: for ostensive training to be effective, certain perceptual and behavioral skills are required without which it could fail. However, this does not suggest that higher cognitive abilities simply emerge from more basic abilities. Rather, the learner is adjusting their behavior according to norms, where language proficiency plays a crucial role in this process. The term "normative" here refers specifically to

actions, both verbal and nonverbal, that can be evaluated as correct or incorrect, and that are individualized by norms, standards, examples, or rules (Williams, 1999, p. 193). Both aspects are important because they suggest that there is no difference between belief and action, nor between action and norms. All of this ultimately manifests itself as action.

In summary, we discuss how competence is acquired and demonstrated through practice and social context. Competence manifests itself not only as a skill in itself, but as the ability to apply that skill within a framework of rules or norms that guide specific practice. Hence, competition is demonstrated by effective action within a given context, where rules are fundamental to defining and evaluating such competition.

The difference between the learner and the teacher is crucial in this process. While the learner is in the process of acquiring competence, the teacher already possesses and can guide due to his previous experience in practice. The teacher acts as the possessor of the contextual and cultural knowledge accumulated over time, providing a background that the learner does not yet possess. This knowledge of the teacher is actively transmitted through his actions and teachings, serving as a model for the learner to acquire and demonstrate the desired competence.

This process of teaching and learning is not limited to the transmission of static information, it implies a form of "action". Here, the learner not only internalizes abstract rules, but actively integrates them into their daily practice. By imitating the teacher's actions and learning from them, the learner demonstrates his or her competence by applying the rules effectively in specific situations. This notion of "action" connects knowledge with practical action, highlighting how competence manifests itself not only in theoretical understanding, but in the demonstrated ability to apply rules in real contexts of social and cultural interaction.

Second, the "methodological role" of learning reveals the source of normativity by distinguishing between the contexts of the learner and the expert. The main challenge lies in how a beginner follows a rule, i.e. how an initially linguistically incompetent person becomes competent. There is a strong case for the idea that the "performance" demanded of the learner should be public and social (Williams, 1999, pp. 197–198). Wittgenstein's social conception of meaning plays a crucial role, given that the action is publicly presented for evaluation and correction by expert teachers in practice. In this way, learning is socialized through practice, which inherently includes the rules that constitute it as such. Based on these observations, it should be pointed out (Medina, 2002).

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The "methodological role" of learning and normativity focuses on how the norms and rules that guide language behavior are established and maintained within specific practices or contexts. This approach seeks to understand how norms emerge dynamically through interaction and participation in linguistic and cultural communities. The rules are not static or imposed from outside but evolve in the context of everyday practices and social relations, thus defining linguistic competence within a community.

The differentiation between the learner and the expert focuses on how a beginner, initially without linguistic competence, acquires skills and knowledge over time under the guidance of more experienced individuals. This process involves not only the acquisition of technical skills, but also the internalization of shared norms and practices that define language competence within a community. Learning is therefore understood as a process rooted in social and cultural relationships that influence how language skills are acquired and applied.

The public and social nature of the learner's performance underscores that effective learning requires that the learner's performance be publicly visible and evaluated. Social interactions and corrections by teachers or other experts are essential to guide and improve learning. This approach recognizes that the development of language skills does not occur isolated but is strengthened through participation in contexts where language and social norms are constantly applied and negotiated.

A crucial implication is the imperative need for initial training. According to Quine (1985), the social and learned nature of meaning are two inseparable aspects of the same reality. If meaning is intrinsically social, then both the individualistic perspective of cognitivism and natural teleology fail to provide satisfactory explanations of what they attempt to address. The first approach fails because of an incorrect interpretation of the concepts of "rule" and "representation," while the second lacks the conceptual resources to understand the normativity inherent in action (Williams, 1999, p. 198).

In both cases, the problem arises as a consequence of the incompleteness of the initial explanation, about how individual learning integrates into the social environment of execution and how the correct action generates beyond a mere mechanical repetition of actions in a temporal sequence, without a "unity of consciousness" according to Kant's classical formulation.

The above addresses the fundamental importance of initial training in the acquisition of meaning and knowledge from the perspective of the philosopher Willard Van Orman Quine. For Quine, meaning is not

an entity that is innately owned; rather, it is something that is acquired through social interaction and learning. The social and learned nature of meaning are two inseparable aspects of the same reality. This conception deeply challenges the explanations provided by both the individualistic perspective of cognitivism and natural teleology. Individualist cognitivism holds that the mind and internal processes of the individual are sufficient to explain knowledge and meaning. However, according to the criticism presented in the paragraph, this approach fails because it misinterprets the concepts of "rule" and "representation".

These are fundamental ideas in the philosophy of language and mind, related to how we understand and follow rules and how we mentally represent the world around us. Natural teleology, on the other hand, seeks explanations in terms of natural purposes. However, this approach lacks the conceptual resources needed to understand the normativity inherent in action. Normativity refers to the norms and standards that guide and justify our actions, which is crucial to understanding why we act in certain ways in specific social contexts.

Criticism of both approaches reveals a deeper problem: both are insufficient to explain how individual learning is integrated into a social environment of execution. In other words, due to the incompleteness of their initial explanations, neither individualistic cognitivism nor natural teleology can elucidate how individual learning is incorporated and manifested in a social context. Moreover, they fail to explain how the correct action occurs in a meaningful way, i.e. beyond a mere mechanical repetition of actions in a temporal sequence. The latter connects with the idea of the "unity of consciousness" according to Kant's classical formulation, which emphasizes the coherence and continuity of conscious experience.

The importance of initial training lies in its ability to integrate individual learning into a social context and generate correct actions that are not merely repetitive but are imbued with meaning and normativity. This underscores the interdependence between individual learning and social dynamics, as well as the need for a deep understanding of normativity and the unity of consciousness to explain how we act and understand the world in a meaningful way.

Finally, we find the concept of the "constitutive role", which implies that the way we learn concepts is essential to define what we really learn (Williams, 1999, pp. 189-190). This perspective directly opposes the idea that the relationship between the learning process and the result of that learning is simply contingent, i.e. a mere matter of "history." In clearer terms, this stance rejects the notion that describing how we acquire our

beliefs – whether through explicit instruction, by ingestion of some substance, by osmosis, or even by accident – is irrelevant to the content of those beliefs. If we accept that the way we learn is constitutive of what we learn, then we could counter the intuitive objection that the learning process is unimportant. This is because the learning process plays an essential and necessary role in understanding the beliefs we ultimately hold.

The central idea of the "constitutive role" is that we cannot separate the way we learn from what we actually learn. According to this perspective, the method and context of learning are inseparable from the content of the acquired knowledge. This means that the way concepts are acquired is not a mere historical circumstance with no relevance to the content but is an essential component of that content.

In contrast to the notion of contingency—which suggests that the details of how we arrive at our beliefs have no bearing on the value or nature of those beliefs—the constitutive role states that these details are crucial. For example, if a person acquires a scientific belief through a rigorous process of experimentation and validation, that belief is intrinsically linked to the process by which it was acquired. It would not be the same as acquiring it by accident or from an unreliable source. The context and method of learning profoundly influence the nature and validity of belief.

Furthermore, this perspective questions the idea that beliefs can be understood and evaluated from their acquisition process. If the way a concept is learned is constitutive of that concept, then any analysis or evaluation of belief must consider the learning process. This implies that, to fully understand a belief, it is not enough to look only at its content; it is equally important to understand how it was learned.

The constitutive role proposes that the learning process is an indispensable element to understand the beliefs and knowledge that we possess. It rejects the notion that the relationship between learning and its outcome is merely contingent and holds that the method and context of learning are integral parts of the content of acquired knowledge. This leads to a deeper and nuanced understanding of how our beliefs are formed and validated, highlighting the importance of the learning process in shaping what we really know and believe.

Sustaining the inseparability of both—the unity of what we learn and how we learn it—solves the problem of determining which of the two is most relevant. Rather than trying to discern whether the learning content or learning process is more meaningful, this perspective regards them as equally necessary and interdependent components. This integrated view reflects a more holistic understanding of the human way

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of learning, where each element influences and defines the other. The importance of this approach lies in its ability to offer a more complete and nuanced explanation of human learning, avoiding simplifications that may arise from separating these aspects.

This "constitutive" sense of the function of learning provides a solid foundation for understanding how the human way of being is established or instituted. Rather than viewing learning as a series of isolated events leading to knowledge acquisition, this perspective understands it as a continuous and dynamic process, where method and content are intrinsically intertwined. Thus, the way we learn is not simply a vehicle for arriving at predetermined knowledge, but it shapes and defines knowledge itself. This approach reveals the depth and complexity of human learning, highlighting the need to consider both aspects to truly understand how people acquire and apply their knowledge.

Recognizing the inseparability between aspects of human learning opens the door to new challenges that need to be addressed in an independent and differentiated way. Once overcoming the tendency to divide simplistically, problems arise that require specific, contextualized approaches. For example, the integration of different learning methods in different cultural or technological contexts could pose significant challenges. Each cultural or technological environment can uniquely influence how knowledge is learned and applied, requiring flexible and adaptive educational strategies that consider these variations without reducing the learning process to binary categories.

In this sense, addressing the specific challenges related to the diversity of learning methods and contexts involves recognizing and managing the complexity inherent in the human educational process. The variety of approaches and learning environments should not be perceived as an obstacle, but as an opportunity to enrich our educational strategies, making them more inclusive and effective. Each cultural, technological or socioeconomic context influences how it is taught and learned, requiring adaptations and educational methods that respect and exploit these differences.

It is essential to avoid falling into the trap of simplistic dichotomies, such as the dichotomy between traditional and technological methods, or between face-to-face and virtual teaching. These divisions may limit our ability to fully understand the complexity of contemporary educational practices and to adequately respond to their challenges. Rather than seeking universal answers or unique solutions, it is crucial to adopt an attitude of flexibility and adaptability. This means being open to experimentation with different pedagogical approaches, leveraging

emerging technologies creatively, and promoting intercultural and multidisciplinary dialog in education.

Likewise, the recognition of the interconnection between individual learning and social context underscores the need to develop educational policies that are sensitive to the various local and global realities. Promoting educational equity involves not only providing equal access to educational resources and opportunities, but also recognizing and valuing the multiple forms of knowledge and experience that enrich the educational process. In this sense, learning becomes a dynamic and collaborative process where the diversity of perspectives and practices is not only tolerated but celebrated as a fundamental asset for 21st century education.

Final considerations

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Wittgenstein's discussion of language learning highlights that there are certain aspects of this process that behavioral and cognitivist approaches cannot explain. Essentially, these approaches fail to explain how learner behavior becomes structured by norms or standards of correctness underlying language use. According to Wittgenstein, language learning is not reduced to the accumulation of well-confirmed verbal provisions or hypotheses; rather, it involves the internalization of normative standards for word application, which he describes as a "usage technique."

Understood in this way, language learning involves a normative structuring process of behaviors that transcends mere "conditioning" (Wittgenstein, 1988, §6). It is a process of socialization or enculturation. From Wittgenstein's observations, two central aspects of this learning enculturation perspective can be reaffirmed.

Learning a language is fundamentally a social process, as it is mediated and structured by the social environment that imposes norms regulating the correct use of words (Wittgenstein, 1988, §257). These norms dictate not only how words should be used, but also how they should be interpreted and understood in various contexts. Through interaction with other members of the community, individuals internalize these norms and develop the ability to use language autonomously and appropriately. In this sense, learning a language is not limited to acquiring an isolated cognitive ability, it is a process of integration into normative practices that govern communication and social behavior. Language, therefore, becomes a fundamental tool for human interaction, structuring the way we relate to the world and to others.

In addition, language facilitates a unique entanglement between actions and beliefs, becoming an essential realm of human actions. Through language, we not only express thoughts and feelings, but also coordinate actions, establish relationships and build shared meanings. This ability to intertwine actions and beliefs through language underscores its radical explanatory importance. It allows us to understand and predict behaviors, as well as form cohesive communities based on mutual understanding. Thus, language transcends its function as a mere communication tool to become the foundation of social and cultural life, evidencing its crucial role in the configuration of human reality.

Second, enculturation, or the incorporation of learners into language, is not based solely on passive observation, but requires active action. Wittgenstein proposes a "participatory view of learning", emphasizing that learners must actively engage in language practices to master it. This approach suggests that learning is not simply a process of internalizing rules by observing others, but it involves direct participation in linguistic and social activities. Through participation, learners not only imitate behaviors, but also develop a deeper, contextual understanding of how language is used in different situations.

From this perspective, mastering the practices of a language is a process of learning by doing. Learners should be involved in real communicative situations where the use of language is necessary and meaningful. This participation allows learners to experience first-hand the regularities and rules that govern the use of language. Medina (2004) emphasizes that this process not only establishes behavior patterns in learners, but also instills a normative attitude about how they should proceed in their language interactions. Participation in the use of language helps learners internalize the social rules and expectations associated with language practices.

Furthermore, this participatory approach to learning implies that learners develop a normative attitude towards the use of language, as Medina (2004) and Gottschalk (2017) point out. This means that learners not only acquire language skills, but also adopt the norms and values that govern proper communicative behavior in their community. Normative attitude refers to the understanding and acceptance of what is considered right or wrong in the use of language, which is essential for effective and appropriate communication. In summary, the perspective of learning by participation highlights the importance of action and interaction in the enculturation process, stressing that learning a language is both an act of doing and of understanding, and that it implies the internalization of norms and attitudes that guide linguistic behavior.

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Through this training process, shared practices and techniques become a "second nature," as Medina describes it, thus acquiring a normative force: when training succeeds, learning procedures and techniques not only causally determines our actions, but also explains why we do what we do and how we do it. Wittgenstein emphasizes that, although there is a genuine distinction between reasons and causes, there is no autonomous space of reasons separate from causal determinations.

According to Wittgenstein, there is no radical separation, but a *continuum* between deliberate acts motivated by automatic reasons and behaviors determined by causal laws (Medina, 2004, p. 84). The affirmation of this *continuum* fulfills the same function as Moyal-Sharrock's idea of gradual differentiation, allowing one to accept difference without needing to completely separate realities. So, there is no clear separation between areas, but rather a gradual differentiation.

How does this *continuum* progress? How does our behavior become structured by regulation? The progress of this *continuum*, from causally determined behavior to normatively structured behavior, can be understood as a process in which the actions of individuals begin to be increasingly guided by social norms and rules. Initially, the behavior may be predominantly influenced by causal factors, such as instincts or automatic reactions. However, as individuals interact with their social environment and undergo processes of enculturation and learning, these actions begin to be structured in a normative way. This means that actions are not only responses to stimuli, but are regulated by shared expectations, conventions, and rules that define what is appropriate or inappropriate in a given context. Medina (2004) and Toulmin (1958) emphasize that, although there is a distinction between these types of behavior, it is not absolute; rather, it is a continuum where both coexist and interrelate.

Recognizing the conceptual difference between causally determined and normatively structured behavior does not mean that one excludes the other. Like the distinction between a jungle and a garden, where both represent forms of nature organization, but with different degrees of intervention and structure, human behavior can range from being more causally determined or more normatively structured depending on the context and enculturation level of the individual. In a jungle, vegetation grows wild and without human intervention, while in a garden, plants are grown and cared for following certain aesthetic and practical rules. Similarly, in human behavior, actions can originate in instinctive and automatic responses, but through socialization and learning they can be guided by norms and rules that reflect society's practices and values.

This continuous and dynamic process shows how individuals move along this spectrum, gradually integrating normativity into their actions while continuing to respond to causal influences.

Thus, in considering how the contrast between causally determined behavior and normatively structured actions is progressively established throughout individual life, the learning process plays a crucial role. In his later works, Wittgenstein highlights how learning radically transforms our behavior. For Wittgenstein, the dividing line is established between what is learned and what is not learned: the presence of learning processes ensures the adoption of a behavior that can be evaluated normatively. This seems to be the result of his discussion of chimpanzee behavior in *Observations on the Foundations of Mathematics* (Wittgenstein, 1978).

Moreover, frequent references to "our natural history" are meant to blur the distinction between nature and culture, between the raw and the cooked. In fact, human beings, as humans, develop in an area where nature and culture converge to create a previously unimaginable standard of living. This challenges the usual dichotomies that we divide into our thoughts, both in terms of various types and on various levels.

This version clarifies how learning, according to Wittgenstein, transforms our behavior and how references to natural history and culture help to understand the complexity of human development in his writings.

The reference to "natural history" in the *Observations on the Psychology of Philosophy* (Wittgenstein, 1997) provides a theoretical framework for overcoming rigid dichotomies between nature and culture. In these observations, Ludwig Wittgenstein proposes that human beings cannot be fully understood through a vision that separates them in purely natural or cultural terms. Instead, it suggests an integrated view in which nature and culture are deeply intertwined. This means that human actions and behaviors cannot be properly explained if they are considered solely as biological phenomena or exclusively as cultural constructs. "Natural history" provides a context in which both aspects are seen as parts of a unified whole.

In this theoretical framework, human beings are considered inhabitants of an environment that is inseparably cultural and natural. Wittgenstein uses multiple mentions of "natural history" to illustrate how our intentional activities, such as thinking, waiting, and measuring, are rooted in both our biology and cultural practices. For example, the act of thinking (1997, II, §18) cannot be understood only as a brain process; it also involves the use of language and concepts that are the product of culture. Similarly, waiting (1997, II, §15) is not only an instinctive reaction, but an

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action charged with cultural significance, influenced by social expectations and previous experiences.

In addition, activities such as measuring (1997, I, §109) demonstrate how natural history sheds light on our intentional practices. Measuring is not just a physical action but involves the use of tools and methods that have been developed culturally. Wittgenstein mentions these activities (1997, II, §77) to show that our daily actions are always in a context that is both natural and cultural. By recognizing the inseparability of these aspects, we can gain a more complete and nuanced understanding of human psychology, which transcends the limitations of traditional dichotomies and allows us to see human beings as integrated into an environment where nature and culture are continually intertwined.

The understanding of intentional phenomena in terms of their natural history is explored in depth in the first part of the *Philosophical Investigations* (Wittgenstein, 1988). In this work it is argued that intentions and intentional activities can only be properly understood when placed within their proper context. This means that it is not enough to analyze intentions in the abstract or in isolation; it is crucial to consider them within the situations, customs and human institutions in which they manifest. By placing intentions within these contexts, the interdependence between individual action and the cultural and natural framework in which it occurs is revealed.

Wittgenstein emphasizes that human situations, where intentions are inserted, encompass both cultural and natural aspects. This is exemplified in his assertion that activities such as ordering, asking, telling, and chatting are part of our natural history in the same way as walking, eating, drinking, and playing (Wittgenstein, 1988, §25). This inclusion of cultural and biological activities in the same framework underscores that our communicative and social practices are as rooted in our nature as our physical needs and behaviors. In other words, the ability to interact through language and other forms of communication is as fundamental to our humanity as our basic biological functions.

By considering intentions in this integrated context, Wittgenstein offers a holistic view of human action. This approach allows us to understand how cultural customs and institutions provide the necessary background for intentions to make sense and be interpreted. Intentions do not exist isolated but they are shaped and directed by the norms, values and practices of the community in which they develop. In this way, Wittgenstein invites us to see human actions not only as expressions of individual wills, but as phenomena deeply rooted in the fabric of social and natural

life. This enriched perspective provides us with a fuller understanding of human psychology, recognizing the inseparability of the cultural and the natural in shaping our intentions and actions.

In addition, Wittgenstein makes observations on "the facts of natural history" as a significant method of contrast. This approach makes it possible to highlight that certain characteristics may be part of human natural history but not necessarily present in the natural history of other species (1997, II, §18). This distinction is crucial to identify the specific aspects that distinguish humans from other animals and to characterize actions that are typically performed by intentional agents in contrast to those that are not. Wittgenstein uses this contrast to highlight how our cognitive and cultural abilities uniquely intertwine in our natural history, reflecting not only our biology, but also our social and symbolic practices.

From a philosophical perspective, this differentiation takes on relevance by suggesting that differences between human beings and other animals are not based on absolute *a priori* categories but emerge as a result of a contingent process of natural evolution (1997, II, §24; 1997, I, §78). Wittgenstein argues that our linguistic abilities and behavioral forms cannot be understood simply as extensions of basic animal skills, but as products of complex development incorporating biological, cultural, and historical factors. This integrated view challenges simplistic conceptions that neatly separate the human from the animal, suggesting instead a complex and dynamic continuity that recognizes both our biological roots and the distinctive features of our cultural and social history.

The historical and naturalistic elucidation of intentional actions raises two significant concerns. One of them is that these elucidations seem to suggest some kind of foundationalism. Is not the reference to "natural history" a subtly foundationalist tactic that attempts to integrate grammar within the confines of nature? This concern lies in the risk of reducing the complexity of linguistic and grammatical practice to mere natural foundations. Another concern is that by introducing considerations about "natural history," Wittgenstein's philosophy could slip toward "scientism." Does not this naturalistic perspective imply that philosophy collapses into science, abandoning its distinctively philosophical character? Wittgenstein himself echoes these concerns in his works. If conceptual formations can be justified on the basis of natural, psychological, and physical facts, does not the description of our conceptual formations then become a sort of covert natural science? Also, should not we focus on what naturally underlies grammar rather than grammar itself? (1997, I, §46).

Wittgenstein, however, answers both questions negatively. On the one hand, it presents the facts of natural history as contingent preconditions for human intentional activities. These facts are not absolute determinations that can play a special explanatory or justifying role. On the other hand, Wittgenstein insists that his philosophical investigations should not be confused with scientific investigations on the natural history of the human being. While these investigations depend on our natural history, they are not an inherent part of it.

This distinction is crucial for Wittgenstein: while he recognizes the influence of natural foundations on our conceptual practices and formations, he argues that the task of philosophy is to elucidate the grammar of human language and practices from a perspective that is not reduced to mere scientific explanations, but that preserves the complexity and normative character of human activities.

Wittgenstein's research focuses deeply on normativity, but it is not conceived as a separate or autonomous domain outside of our linguistic and action practices. From the Wittgensteinian perspective, normativity is not something that exists independently as an order of abstract reasons that substantiate or guarantee our ways of speaking and acting. Instead, Wittgenstein argues that the ways of speaking and acting are in themselves the ones that establish and maintain norms and practices within a linguistic and cultural community. This view implies that norms are not external principles that dictate our behavior from the outside but emerge from our interactions and practical agreements in concrete contexts.

Wittgenstein does not attempt to dissolve or eliminate normativity, but rather to provide a sociogenetic approach to it (Medina, 2004, p. 89). This means that normativity arises and develops through social and cultural processes in which individuals participate actively. Wittgenstein does not seek to reduce norms to mere arbitrary conventions, but to understand how they are formed and maintained over the course of a community's linguistic and practical life. Thus, normativity acquires its meaning and validity in the context of shared practices and ways of life that characterize a particular community.

Thus, Wittgenstein offers a dynamic and contextualized perspective of normativity, in which it arises as a result of our interactions and practical agreements, rather than being imposed from outside as a set of universal and immovable rules. This sociogenetic view not only enriches our understanding of how norms work in practice, but also underscores the importance of considering the cultural and social context in the interpretation and application of norms in everyday life.

Wittgenstein's approach is clearly illustrated in *On Certainty* (1969), where he develops a sociogenetic perspective of the norms that guide our linguistic and research practices. In this text, Wittgenstein argues that the normative role of certain fundamental propositions, known as hinge propositions, cannot be understood separately from the history and context of our communicative and behavioral practices (1969, §144, §152). Hinge propositions are those that we consider to be true and that serve as foundations for our everyday actions and beliefs, such as trust in our sensory perceptions or in the existence of the external world.

According to Wittgenstein, these norms do not exist in an isolated way, but are maintained and validated through our discursive interactions and practices within specific contexts. Hence, hinge propositions acquire their meaning and normative authority through their integration into our daily lives and into the shared ways of life within a community. This implies that certainty and trust in these propositions cannot be separated from the social and linguistic practices that support them. Thus, Wittgenstein suggests that understanding norms and certainties involves understanding how they emerge and sustain themselves in the course of our everyday, discursive activities.

Wittgenstein's sociogenetic approach challenges traditional conceptions that might consider norms to be abstract or universal principles that exist independently of concrete human practices. Instead, it emphasizes the importance of contextualizing the rules within the social and linguistic practices in which they arise and are applied. This dynamic and contextualized perspective offers a richer and more nuanced understanding of how norms and certainties operate in human life, underscoring their intrinsic connection with our ways of interacting, communicating and making sense of the world around us.

Wittgenstein argues that understanding standards in this way is critical to recognizing that our language and action practices not only passively conform to them but play an active role in their constant maintenance and recreation. According to their approach, norms are not static rules imposed from outside, but emerge and are validated through our everyday interactions with the environment and with other individuals. For example, rules governing the use of language or social practices are reinforced and evolve as people use and negotiate them in specific contexts. This dynamic process implies that norms not only guide our actions, but are also shaped by them, in a continuous cycle of practice and reflection that defines our ways of life.

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Wittgenstein's contextualized approach challenges traditional conceptions that could see norms as abstract or universal entities. Instead, it stresses the importance of understanding them as emerging products of concrete social and linguistic interactions. This dynamic perspective suggests that norms are not only applied mechanically but are continually reinterpreted and reaffirmed through our daily actions and communications. Wittgenstein invites us to consider standards not as external constraints, but as an integral part of our social and linguistic practices, which actively contribute to shaping our shared experience of the world.

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Character education based on the values and norms of the Indonesian philosophical system

La educación del carácter fundamentada en los valores y normas del sistema filosófico de Indonesia

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Abstract

This article will demonstrate how nationalism affects students' attitudes and behaviors, shaped by the norms and values of Pancasila, a philosophical system. The methodology employed for data collection involves a systematic review (meta-synthesis) of digital sources, encompassing an analysis of meta-ethnographic studies. The meta-ethnographic model functions as an interpretive tool, enabling a comprehensive examination of pivotal studies and their relationship to character education in nationalism within the Pancasila framework. One must first obtain "iterative" (spiral) data to enter the realm of interpretive studies. A comprehensive understanding of Pancasila's philosophy necessitates breaking down the data into its constituent parts, namely the ontological, epistemological, and axiological dimensions of Pancasila's philosophy. The interpretive approach employed by the author allows for the chronicling of progress in character education, with a particular focus on fostering students' sense of nationalism. This approach is grounded in the values and appreciation of norms encapsulated in Pancasila, which have not yet manifested in the school context. Furthermore, the author extends the fundamental study by meticulously analyzing the concept of Pancasila within an intricate web of philosophical interpretations. This intricate analysis endeavors to elucidate the essence of existence that students must embrace aspirations in their lives. The goal is that students can find the values of life norms that are by the spirit of Pancasila.

Keywords

Pancasila, philosophical system, character education, values, nation ideology, students

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Resumen

Este artículo demostrará cómo el nacionalismo afecta a las actitudes y comportamientos de los estudiantes, moldeados por las normas y valores de Pancasila, un sistema filosófico. La metodología empleada para la recopilación de datos consiste en una revisión sistemática (metasíntesis) de fuentes digitales, que abarca un análisis de estudios metaetnográficos. El modelo meta-etnográfico funciona como herramienta interpretativa, permitiendo un examen exhaustivo de estudios fundamentales y su relación con la educación del carácter en el nacionalismo dentro del marco de Pancasila. Primero hay que obtener datos "iterativos" (en espiral) para entrar en el ámbito de los estudios interpretativos. Una comprensión exhaustiva de la filosofía de Pancasila requiere desglosar los datos en sus partes constituyentes, a saber, las dimensiones ontológica, epistemológica y axiológica de la filosofía de Pancasila. El enfoque interpretativo empleado por el autor permite hacer una crónica de los avances en la educación del carácter, con especial atención al fomento del sentido nacionalista de los alumnos. Este enfoque se fundamenta en los valores y la apreciación de las normas encapsuladas en Pancasila, que aún no se han manifestado en el contexto escolar. Además, el autor amplía el estudio fundamental analizando meticulosamente el concepto de Pancasila dentro de una intrincada red de interpretaciones filosóficas. Este intrincado análisis trata de dilucidar la esencia de la existencia que los estudiantes deben abrazar como aspiración en sus vidas. El objetivo es que los estudiantes puedan encontrar los valores de las normas de vida que están en el espíritu de Pancasila.

Palabras clave

Pancasila, sistema filosófico, educación del carácter, valores, ideología nacional, estudiantes

Introduction

This research focuses on answering the following research questions based on the problems of students' character education in schools.

1. How to improve the nationalistic character by applying the core values of Pancasila in school?
2. What is the meaning of Pancasila as a system of philosophy?
3. How can character be strengthened by interpreting the precepts of Pancasila?

The purpose of this study is to describe and analyze strategies to enhance the nationalist character of students through the integration of Pancasila values within academic institutions. Additionally, the study will endeavor to elucidate the theoretical and philosophical underpinnings of Pancasila and its applicability to character development in educational environments. Furthermore, to know and describe the practical steps of strengthening character through the meaning of the Precepts of Pancasila.

On the other hand, the research conducted by Rosida et al. (2022) further underscores that Pancasila, as the bedrock of the state and the nation's life philosophy, should not solely emphasize dogmatic values but also establish methods accessible to all societal strata. This addresses the

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weaknesses identified in supporting character strengthening based on Pancasila's values in schools. Arafat's study (2021) suggests that Pancasila education seeks to shape students' character in alignment with social norms, fostering belief, conduct, and action. Aryani et al. (2022) stress the meaningfulness of personality development rooted in Pancasila's values, promoting attitudes of religiosity, social responsibility, independence, nationalism, democracy, and tolerance for cultural diversity. Al Inu and Dewi's research (2021) highlights the objective of character education: to guide Indonesian citizens in embracing Pancasila's fundamental values.

Other research indicates that the formation of personality based on Pancasila values will be meaningful learning when personality development is oriented towards the formation of attitudes that are religious, social, independent, nationalist, democratic, and tolerant, with respect for differences (Aryani et al., 2022). The Pancasila education system is designed to cultivate the character of students who are faithful and moral and conduct themselves by the norms of community life. Additionally, the program aims to cultivate Indonesian citizens who can exemplify the values espoused by Pancasila (Arafat, 2021; Al Inu & Dewi, 2021). These ideas are crucial for advancing the field of character education, which is currently experiencing a significant disconnect between its conceptualization and its practical implementation. Consequently, in response to the suboptimal implementation of character education strengthening programs based on the values and norms of Pancasila, this study aims to describe the ideas of developing philosophical aspects that include the ontological, epistemological, and axiological dimensions of Pancasila as the basis for the formation of students' nationalist character in schools. Consequently, the fundamental principles of Pancasila encompass ideas about the relationship between humans and God, themselves, and all citizens.

The importance of the topic lies in the need to understand the meaning, significance, and implications of the Indonesian education program. In response to the less-than-optimal execution of the character education program based on Pancasila's values and norms, and building on prior research findings, this study delves into the philosophical dimensions of Pancasila. It explores its ontological, epistemological, and axiological aspects internalized in Pancasila's values and norms, serving as the bedrock for nurturing students' nationalist character within schools. Thus, at the school level, rejuvenating awareness regarding the values of nationalism is crucial. This entails fostering thought patterns, behavior, and actions that embody obedience, sensitivity, and recognition of linguistic, moral, cultural, economic, and political dimensions. It also

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involves positioning the nation and the state as central considerations for common interests. Sub-studies on the nationalist ethos involve appreciating local cultural wisdom, preserving local cultural values and norms, embodying a sacrificial spirit, cultivating high-quality personalities, nurturing a deep love for the homeland, demonstrating environmental stewardship, adhering to laws, maintaining order, and valuing cultural, tribal, and religious diversity (Effendi, 2020; Rahman & Suharno, 2020).

Consequently, discussing Pancasila as a philosophical system reveals the concepts of Pancasila truth that is not limited to the Indonesian nation but extends to humanity in general. The rationale for this assertion is that Pancasila is essentially a value system or crystallization of the noble values of Indonesian culture throughout history. This perspective serves as the foundation for ethical and moral actions and deeds. The values of Pancasila serve as the primary source of the formation of the state life of all citizens. These values include a) fundamental, universal, absolute, and eternal values from God Almighty, which are reflected in the core of the similarity of religious teachings in the holy book, and b) collective nationalism, which is the essence of the noble values of community culture (the core of the unity of good customs) spread throughout the archipelago.

This research methodology is based on the process of synthesizing the findings of previous qualitative research in a meta-synthesis. The data collection process employs a systematic review method (meta-synthesis) derived from digital data through data searches that focus on meta-ethnographic analysis of the meaning of Pancasila values in shaping student character. The meta-ethnographic method has evolved in response to the need for a more nuanced approach to interpretive study analysis. It has involved a more detailed examination of primary studies. This process allows for in-depth analysis of studies that examine the nationalist character values inherent in the study of Pancasila as a philosophical system. Further data exploration through the interpretive study process will reveal the practical values of Pancasila, including its ontological, epistemological, and axiological dimensions.

Furthermore, the article's discussion in detail includes the following sections: 1) Introduction, 2)Theoretical Background, 3) Material and research methods for data collection and analysis, 4) Enhancing Nationalist Character Through the Core Values of Pancasila, 5) Pancasila as a Philosophical System, 6) Characteristics of Pancasila in the context of philosophical systems, 7) Ontological, epistemological, and axiological

dimensions of Pancasila, 8) Character Strengthening through the Interpretation of the Silas of Pancasila, 9) Conclusions.

Theoretical Background

This section addresses the philosophical implications of Pancasila as a guiding principle of state life and the Indonesian national education system, which adheres to Pancasila values. The subsequent discussion will proceed as follows:

The Meaning of Pancasila as a Philosophy of State Life

Pancasila is the basic view of the life of the Indonesian people, which contains five fundamentals whose contents are the identity of the Indonesian nation. The precepts in Pancasila describe the guidelines for living as a nation and state for all Indonesian people. Pancasila is the philosophy and ideology of the Indonesian nation to emphasize the statement of philosophiche grounfslag or Weltanschauung (Notonagoro. 1974). Pancasila Philosophy represents a profound and rational framework for reasoning that enables the discovery of the truth of Pancasila values. Furthermore, Pancasila is a philosophical system encompassing thoughts about humans in their relationship with God, themselves, each other, and society as a nation. As a philosophical system, Pancasila possesses characteristics that distinguish it from other philosophical systems. Pancasila is a philosophical system encompassing the ontological, epistemological, and axiological aspects. Pancasila philosophy is a view of life, principles, and guidelines that underlie all aspects of the nation's life, including education (Al Inu & Dewi, 2021).

The Indonesian national education system is reflective of the tenets of Pancasila. Pancasila is a philosophy that serves as a guide to behavior for the Indonesian people by the cultural norms of the Indonesian people. Character education should be based on the values of Pancasila to create Indonesian people who are intelligent, well-behaved, able to live individually and socially, fulfill their rights and obligations as good citizens, and have faith and devotion to God Almighty. The philosophy of Pancasila education encompasses three key characteristics: integral, ethical, and religious. These three characteristics facilitate a more favorable quality of life for citizens, namely those who are able and willing to apply the values of Pancasila in their lives as citizens.

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Indonesia's National Education System Based on Pancasila Values

The discourse on the education system predicated on Pancasila values centers on the impact of education on the formation of students' character as citizens.

The objective of the study of Pancasila as a philosophical system is to ascertain the fundamental nature of the Pancasila precepts. Arafat (2021) posits that the ontological essence of Pancasila is fundamentally human, as humans are the subjects of Pancasila law. Moreover, the nature of humans encompasses the full spectrum of living beings, both as individual entities and as social units. The objective of this discussion is to examine the values of Pancasila as a philosophical system. In particular, we will focus on the values of justice and civility, the unity of Indonesia, the populist society guided by wisdom in deliberation and representation, and social justice towards fellow human beings.

It thus becomes necessary to examine the values of Pancasila as a system of philosophy within the context of the national education system in Indonesia. In addition to serving as a conduit for the transfer of knowledge, education also serves as a vehicle for transmitting the nation's ideology to future generations (Yunita & Suryadi, 2018). Consequently, Pancasila must be the animating principle of Indonesia's nation-building education system. This rationale justifies the assertion that Pancasila values provide the philosophical foundation for character education in Indonesia.

According to Semadi (2019), character education based on the values of Pancasila as a philosophical system implies the following characteristics. a) Integral humanity, where, through education, each individual can recognize the inherent dignity of all human beings. b) Ethical behavior, whereby education fosters the realization of moral conduct in maintaining the spirit of unity, tolerance, and nationalism. c) Religious life, where through education, each lives the meaning of the first Precept of Pancasila, which affirms freedom of religion and forms a person who recognizes God as the creator and bearer of peace in living together in a pluralist society.

Weaknesses in implementing character education based on Pancasila values

The Ministry of Education has initiated national education programs aimed at fortifying character. This initiative follows the Program for Strengthening Character through Education launched in 2010. The Ministry's

reinstatement of the National Education Programme, as specified in Government Regulation No. 87 of 2017, reaffirms the significance of character education. It defines character education as a pedagogical endeavor that integrates heart, mind, senses, and body. The objective of character education within the Indonesian education system is to instil in students a set of values that are both culturally Indonesian and morally upright. The goal is to cultivate a generation of moral individuals, those who are religious and globally aware. This approach involves collaboration among the school's internal components, parents, society, and the National Mental Revolution Movement, which promotes mental development.

Despite the Indonesian government's revival of the national education policy, the actual implementation of this policy within schools remains suboptimal. Several factors contribute to the lack of character education activities in schools. Firstly, the definition of character education lacks clarity due to the universal nature of character values. While these values stem from national cultural norms, they do not specifically concentrate on fostering nationalist character, which is deeply rooted in the ethos and philosophy of Pancasila (Effendi, 2020; Arafat, 2021). Hence, the alignment of cultural unity with Pancasila's values and norms (Kleden, 1987; Effendi, 2021) is crucial. This underscores the relevance of promoting national cultural values in character education to fulfill the vision of nurturing the Pancasila spirit. The pedagogical direction should emphasize understanding and embodying Pancasila's spirit and the 1945 Constitution's clauses in daily life, promoting civic responsibility (Aryani et al., 2022; Rosida et al., 2022).

Secondly, school principals have not identified a suitable approach pattern to optimize the character-strengthening education program (Effendi & Sahertian, 2022). This results in ambiguity in planning, implementation, and assessment. Schools lack guidelines for executing the character enhancement education program based on Pancasila's values and norms. Additionally, inconsistencies persist in preparing learning materials and measures that teachers employ to cultivate students' character with a nationalist perspective.

Material And Method

The study supporting this research utilized a systematic review approach, which involved synthesizing and consolidating each research finding into comprehensive qualitative descriptive data (Perry & Hammond, 2002).

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This method aimed to elucidate the philosophical assimilation of Pancasila mentality, which contributes to shaping the nationalist character of participants within the school context. The study's methodology was rooted in processing outcomes from previous qualitative research foundations within the realm of meta-synthesis. The approach of meta-synthesis involves integrating data to derive a broader and more holistic understanding of the development and outcomes of concepts (Perry & Hammond, 2002), particularly pertaining to Pancasila's philosophically valuable and pedagogically meaningful study of character.

Data collection was executed through a systematic review (meta-synthesis) methodology, involving digital data acquisition via a targeted data search with an emphasis on meta-ethnographic expression. The methodology delved into metaphysical approaches, aiming to locate "interpretive" studies within an in-depth analysis of primary studies, with a specific focus on nationalism character values in the context of Pancasila as a philosophical system. Employing techniques conveyed through an "iterative" (spiral) study design, the process facilitated further data exploration through an interpretive study approach. The interactive analysis of Pancasila's philosophical assimilation accentuated the presentation of its practical values across ontological, epistemological, and axiological dimensions.

Research studies based on the synthesis approach underwent several stages: 1) Identification of primary studies laying the foundation for nationalism values driving character reinforcement based on Pancasila's values and norms, with an emphasis on the ontological, epistemological, and axiological dimensions. 2) Comparative examination of prior research findings against thematic content in individual articles, enhancing the outcomes by drawing from other articles that underscored the internalization of Pancasila's values within learning, subsequently manifesting through practical actions in daily life behavior. 3) Development of novel concepts based on empirical absorption of the digestion process concerning the resurgence of nationalism values for character formation. This occurred through the educational process rooted in the spirit and essence of Pancasila. 4) Construction of a fresh framework for the integration of nationalism values and Pancasila as a unified philosophical system, shaping students' character. 5) Reinterpretation of primary data findings, aligning them with the practical application of Pancasila's values and norms in shaping students' nationalist character (David et al., 2017).

Based on inductive interpretative analysis, the author crafted a new depiction of character application and reinforcement through education. This was grounded in Pancasila's Value and Norm, explored philosophi-

cally across ontological, epistemological, and axiological dimensions within the context of primary studies.

Results and discussion

Enhancing nationalist character through the core values of Pancasila

The comprehensive assimilation of education underscores the pedagogical maxim once articulated by the philosopher Seneca in the third century BC: "non scholae sed vitae discimus," meaning that learning within the confines of a school is not solely about acquiring knowledge, but about comprehending the essence and purpose of life itself (Hartoko, 1989). This adage contends that education represents a conscious and essential endeavor aimed at shaping life values through stages of self-transformation. In this context, the aspiration for educated individuals to possess values aligned with life's essence necessitates the presence of a character attuned to life's complexities. This character development is not only a product of the educational process but must also be engendered through creative engagement within ongoing educational pursuits (Semadi, 2019).

This requirement is foundational and in harmony with the essence of education. Educational pursuits aim not merely to cultivate intelligence, but to foster a profound self-transformation that cultivates a sturdy and resilient character (Ortiz-Soriano, Agustina, 2023). This notion echoes the sentiments of socio-religious reformist Martin Luther King (Agboola & Tsai, 2015): education's significance lies in nurturing open-mindedness and critical thinking. Thus, intelligence, though valuable, requires complementing with the development of one's character, encapsulating the true purpose of education. Dewantara (1977) concurred, asserting that if educational objectives prioritize intellectual formation and knowledge expansion alone, there will be a conspicuous void in life's significance, as character development and enhanced social awareness receive insufficient attention. When schools exclusively focus on knowledge acquisition, the "personal" dimension remains unattended, leading to an impoverished character cultivation and the underdevelopment of social empathy.

Educational design must pivot to redefine the significance of character education. This new paradigm of national education transforms character education programs, accentuating the concrete integration of elements aligned with the nationalist spirit. This spirit is intertwined with the

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historical values and norms encapsulated within Pancasila. The objective is to instill in students the awareness, role, and responsibility as citizens, guiding them in the practical embodiment of Pancasila's values in their interactions and contributions to society. This shift prepares and fortifies students' identity, enabling them to interpret challenges and devise innovative solutions for personal and societal advancement. This is achieved within a framework rooted in the sovereign philosophy of Pancasila.

Furthermore, the paradigm shift towards the application of nationalist values in education aspires to nurture students' mental disposition to embody religious, humanistic, and patriotic values (Koesoema, 2015; Bellomo, Santiago Tomás, 2023). It seeks to bolster the character of civil society, fostering a profound grasp of democratic ideals, multicultural appreciation, and dignity, all anchored in the ethos of Pancasila. This paradigm promotes constructive dialogues in the intricate realm of both internal and external societal dynamics. Ultimately, it cultivates citizens capable of contributing to their nation's growth and progress, operating effectively at local, national, and international levels.

Pancasila as a Philosophical System

The following are discussed in detail and related to the study of Pancasila as a philosophical system.

Definition of philosophy

In the book "Philosophy of Education" (Pring, 2005), the etymological origins of the term "philosophy" are elucidated. The term "philosophy" finds its roots in the Greek word "philosophia," which emerges from the fusion of two components: 'phileo/philos/philia,' connoting love, and 'Sophi,' representing wisdom. Hence, the essence of philosophy lies in the love for wisdom. In the context of attachment, love implies a desire to possess. Here, wisdom transcends mere knowledge mastery, for one can possess knowledge without necessarily being wise. Consequently, wisdom entails "the capacity to interpret and make decisions that exhibit coherence and sound judgment, owing to one's accumulation of experience and knowledge."

Wisdom involves the application of acquired knowledge to formulate decisions that are morally sound, fair, democratic, and people-centered. It is a deliberate pursuit—individuals consciously gather knowledge to attain wisdom (Marcel, 1949). Thus, the study of philosophy serves as a quest for human identity, delving into the essence and worth

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of life. This exploration yields practical concepts that contribute to the advancement of human civilization, both in the present and the future. At this level of inquiry, philosophy aids human comprehension, imbuing wisdom into the subjects studied and explored within the fabric of the universe. This, in turn, has implications for individuals and the broader collective existence.

Philosophy of Pancasila

Deconstructing Pancasila within a philosophical framework involves delving into the epistemological concepts of its historical context. This pursuit extends beyond the exploration of the Indonesian nation's nature to encompass the broader significance of human historical existence. Another perspective is that the philosophical examination of Pancasila's historical context entails dissecting its ontology, axiology, and epistemology—essential components that illuminate the ideology's foundational content. In this light, the truth inherent in Pancasila functions as a guiding force for real-life praxis, grounded in the historical trajectory of Indonesia's struggle (Junaedi, 2018).

At the praxis level, the philosophical contemplation of Pancasila underscores its integral unity of five principles, rooted in profound ontological values that underpin Indonesia's diverse, multicultural, multi-religious, and multi-ethnic society. This unity fosters the principle of "Unity in Diversity" that forms the bedrock of the nation. Thus, the fundamental essence of philosophy lies in the dissection of both tangible material existence (humans, animals, nature) and the abstract-metaphysical realm (life values, the evolution of thought, moral conduct, and perspectives supporting human existence).

When seeking the essence of national identity, Pancasila, as a philosophical system, confers significance upon Indonesia's identity. This significance stems from Pancasila's emergence as a result of critical contemplation of the founding fathers' spirit, a reflection explicitly enshrined within the philosophical framework of the state's existence. This culmination, along with the tenets of the 1945 Constitution, was officially pronounced by the Preparatory Committee for Indonesian Independence (PCII) on 18 August 1945, embodying the pinnacle of Indonesia's Basic Philosophy.

In practical implementation, the philosophy of Pancasila serves as a guiding compass for citizens to embody Pancasila's values as the foundation and outlook of state life. This philosophy represents a reflective and epistemological exploration of Pancasila's power as an inspirational

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state ideology and a repository of national cultural wisdom. This exploration aims to critically engage with the multifaceted views, values, and meanings encapsulated within Pancasila's diversity.

In essence, the philosophical study of Pancasila stems from rigorous, profound contemplation regarding Indonesia's historical struggle. This contemplation is substantiated through meticulous research, interpreted as an empirical reality, and translated into the practice of correct norms and values. These aspects span the ontological, epistemological, and axiological dimensions, aligning with the direction of Indonesia's multidimensional national identity. Pancasila, an authentic Indonesian philosophical framework, emerges from the synthesis of indigenous cultural wisdom and traditions, intertwined with influences from Indian (Hindu-Buddhist), Western (Christian), and Arabic (Islamic) cultures. This perspective resonates with Notonegoro's thoughts (1974), positioning Pancasila as the state's foundational philosophy.

The philosophical essence of Pancasila reiterates its role as the state's cornerstone, encapsulated within the holistic fabric of its five principles (Dewantara, 1977). These principles encompass notions of divine derivation, human values, the ideal pursuit grounded in unity's spirit amid life's diversity, democratic populism, and justice that upholds rights and responsibilities. The five principles of Pancasila underpin all applicable laws and regulations. As a pragmatic philosophical study, Pancasila finds its roots in Indonesia's rich human experience, providing a guiding direction for thought and action in resolving life's myriad challenges.

Characteristics of Pancasila in the historicity of philosophical systems

Pancasila, encapsulated within its five principles (silas), fundamentally constitutes an exploration of the historical essence of philosophical systems. This system elucidates the core of interconnected components collaborating to achieve specific objectives and create a comprehensive unity amid diversity. The attributes of Pancasila, as delineated within the rational framework of the philosophical system, are unraveled and interpreted through both deductive and inductive approaches. Deductive thinking involves seeking the fundamental essence of Pancasila, systematically analyzing and arranging it within a holistic perspective. On the other hand, the inductive approach involves observing societal symptoms within the socio-cultural sphere, critically reflecting upon them, and deriving the ultimate meaning of community life's manifestations.

In a comprehensive review of the philosophical system, the silas in Pancasila represent an organic societal unity. This signifies that the core principles of Pancasila are inherently interconnected, contributing to and even validating one another. As such, the existence of silas within Pancasila's philosophical framework embodies order, interrelation, collaboration, and a shared objective, functioning as a cohesive and integrated system. Consequently, Pancasila as a philosophical system possesses distinct and unique attributes compared to other philosophical currents (Suryatni, 2016).

Logically, if the integrity and unity between silas are compromised or disjointed, the intrinsic value of Pancasila no longer radiates its intended content. The structured hierarchy that configures Pancasila's silas interprets its existence as a multilevel progression, where each sila holds an equally valuable and enduring position in terms of meaning. A robust connection prevails among the silas, denoting a robust link between each element. This cohesiveness facilitates cooperation, whereby one sila harmoniously complements another, avoiding contradiction. If the meaning and position of one sila diminish, the others consequently lose their significance, status, and function. The aim of interpreting the silas of Pancasila as the foundational pillars of the state within philosophical studies is to embody the spirit of nationalism, as similarly encompassed in the preamble of the 1945 Constitution.

Furthermore, Pancasila, represented by its encompassing and integrated five silas, must be founded upon a sturdy philosophical dimension encompassing ontological, epistemological, and axiological aspects. These three philosophical dimensions collectively bolster the profoundness of meaning within the values of Pancasila.

Ontological dimension of Pancasila

The ontological dimension of Pancasila delves into the philosophical exploration of its existence, causes, and underlying nature. It seeks to understand why Pancasila exists, what its essential nature is, and how it can be understood in the context of being and existence. This dimension draws from the field of metaphysics and the study of the nature of being.

Aristotle's theory of causality is a useful framework for analyzing the ontological dimension of Pancasila. According to Aristotle, there are four causes that can explain the existence and nature of something: a) Material Cause, this cause refers to the physical components that constitute a thing. In the case of Pancasila, its material cause can be traced

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back to the historical and cultural roots of the Indonesian people. It arises from the collective customs, traditions, and values that have shaped the identity of the nation. b) Formal cause, the formal cause is concerned with the structure and essence of a thing. For Pancasila, its formal cause lies in its formulation and philosophical framework. It encompasses the ideas, principles, and ethical foundation that define Pancasila's essence. c) Efficient cause, this cause pertains to the processes and actions that lead to the creation or existence of something. In the context of Pancasila, its efficient cause involves the collaborative efforts and discussions of key figures such as Sukarno, Yamin, Soepomo, and committees that contributed to the formulation and recognition of Pancasila. d) Final cause, the final cause concerns the purpose or telos of something's existence. In the case of Pancasila, its final cause is to serve as a guiding philosophy and ethical framework for the Indonesian nation. It aims to foster unity, social justice, democracy, and belief in God as fundamental principles for a just and harmonious society.

Additionally, the concept of "Tri Prakara" enhances the ontological understanding of Pancasila: a) Cultural heritage, this principle emphasizes that Pancasila's existence is rooted in the cultural heritage and historical evolution of Indonesia. It reflects the amalgamation of cultural values, norms, and traditions that have contributed to the nation's identity. b) Religion, the principle of religion recognizes the role of religious values within Pancasila. It aims to unite the teachings of different religions in a spirit of tolerance and cooperation, reflecting the diverse religious landscape of Indonesia. c) Citizenship, this principle signifies the formalization of Pancasila within the governance of the state. It underscores the commitment to unity and cooperation among citizens in a diverse Indonesian society.

Through this ontological analysis, Pancasila's existence is dissected in terms of its historical roots, formulation process, and underlying purpose. This exploration helps to deepen the understanding of Pancasila as not only a set of principles but also an ontological reality that shapes the identity, values, and aspirations of the Indonesian nation.

The ontological concept of Pancasila is further elucidated through the framework of the "Tri Prakara," which comprises three essential principles: cultural heritage, religion, and citizenship. These principles reinforce the ontological dimension of Pancasila and contribute to its understanding as a foundational concept for the nation and state. a) Living: through cultural heritage. This principle recognizes that Pancasila's existence is deeply rooted in the cultural heritage of Indonesia. It has

evolved through the acculturation of life based on existing values, norms, customs, and traditions. Pancasila emerges as a reflection of the collective identity and historical evolution of the Indonesian people. It draws upon the wisdom and ethos of the culture, contributing to its ontological foundation. b) Principle of religion, the second principle emphasizes the recognition of religious values within Pancasila. It aims to unite the teachings of various religions, fostering a spirit of religious tolerance and cooperation. This recognition and inclusion of religious values contribute to the ontological richness of Pancasila, reflecting the diverse religious landscape of Indonesia while promoting harmonious coexistence. c) Principle of citizenship, the third principle declares Pancasila's existence through its formulation during the meetings of the Investigation Committee for Preparatory Efforts for Independence and the Indonesian Independence Preparatory Committee. This principle highlights the importance of Pancasila as a fundamental concept that shapes the actions and behavior of every citizen. It underscores the ontological connection between Pancasila and the identity of the Indonesian people.

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Pancasila is presented as a reality with a distinct ontological status. Its basis for existence is deeply rooted in human nature and truth. It is not an isolated or independent principle but rather possesses a fundamental unity with an ontological dimension. In its physical essence, Pancasila exists as a concrete reality that embodies a comprehensive set of values and principles. It is empirical in nature, evident through its practical implementation as the foundation of the state.

Moreover, Pancasila is characterized as a universal reality. It contains enduring elements that remain constant over time. These elements form the core values that guide the nation and society. The universal nature of Pancasila implies that its essence transcends individual circumstances, and its principles are applicable to diverse contexts and periods.

The essence of Pancasila is deeply intertwined with the spirit and soul of the Indonesian nation. It has successfully united various dimensions of values within Indonesian society, harmonizing different aspects of national identity. The journey of Pancasila's evolution is in alignment with the historical struggles and aspirations of the Indonesian nation. Its essence is manifested existentially, reflecting the ongoing effort to realize the values it embodies in the pursuit of a just, harmonious, and prosperous nation.

In essence, the ontological dimension of Pancasila underscores its profound significance as a foundational concept that shapes the identity, values, and actions of the Indonesian people. It draws from cultural heri-

tage, religious values, and the principle of citizenship, making Pancasila an integral part of the nation's existence and development.

The journey of the Indonesian nation's history is characterized by a unique perspective on independence. Unlike pursuing individual interests or benefits from colonial powers, Indonesia's struggle for independence was rooted in the idea of national consciousness. This perspective aimed to foster awareness of an independent life that embraces religious diversity, humanity with autonomy, unity in diversity, cooperation, and justice. This embodies the ontological essence of Pancasila, which is integral to the humanity of its citizens.

The implementation of Pancasila's ontological framework in character education within schools is a deliberate effort to guide students in understanding the core values of each sila. The words that begin and end with "ke-" and "-an" (sila I, II, IV, and V) and "per-" and "-an" (sila III) signify the importance of understanding these values as integral parts of a comprehensive whole. This approach interprets human nature as both personal and social, as well as religious, which underscores the hierarchical relationship of the first sila of God Almighty underlying the other four silas.

In the ontological sense, the first sila examines the existence of God not merely as an object, but as the essence of the universe – the "causa prima." Character education in schools focuses on understanding and dissecting the presence of God, emphasizing the importance of leading a religious life according to individual beliefs. Religious experience is seen as a deeply personal and spiritual connection that reflects the core of human life's search for meaning.

The second sila accentuates the state's responsibility to protect and respect human dignity, positioning character education as a means to develop awareness among students to recognize, protect, and respect others' dignity. This value is enacted through equal treatment, mutual help based on love, and a commitment to justice, reflecting the embodiment of humanism and socialism in the second sila. This spirit of unity is grounded in recognizing the religious and humanistic values inherent in every individual, and it guides decision-making policies in the administration of the state.

The third sila emphasizes the "existence of the State" as a reconciler of human nature's paradoxical aspects – autonomy and togetherness. It underscores the essence of togetherness and unity among citizens, where individual lives unite to form a harmonious whole. This sila reflects the relational concept of subjects and affirms unity in diversity. The state's responsibility to fulfill common welfare and promote unity, safety, and harmony within a diverse society is a key aspect.

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The fourth sila's ontological meaning in character education is rooted in recognizing the dual nature of citizens as autonomous individuals and social beings. This sila encourages the development of policies through democratic consensus, ensuring a balance between rights and responsibilities and reinforcing the role of the state as essential to, by, and for the people.

Finally, the fifth sila focuses on fair treatment for all Indonesian people, manifesting the affirmation of humanity in the nation and state. It represents the unity between the state's role in facilitating interests and citizens' role in forming a cohesive society. This sila underscores the causal relationship between the state's support of interests and citizens' values, such as godliness, humanity, unity, populism, justice, and equality.

In summary, the ontological dimensions of Pancasila's silas provide a comprehensive framework for understanding the philosophical underpinnings of the Indonesian nation's values. The integration of these values into character education in schools aims to instill a deep appreciation for religious, humanistic, democratic, and just ideals, fostering a harmonious and prosperous society. This ontological interpretation reinforces the unique historical journey of Indonesia's struggle for independence and its subsequent commitment to building a diverse, united, and just nation.

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Figure 1
Causality Relationship of Ontological Aspects of Pancasila
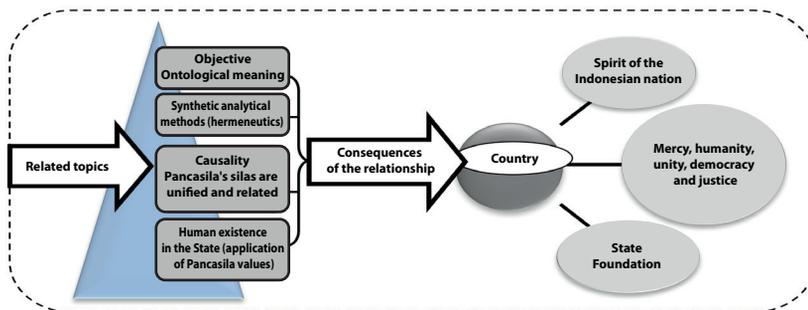
Epistemological dimension of Pancasila

Epistemology, derived from the Greek words "episteme" (knowledge) and "logos" (word/thought), is a branch of philosophy concerned with the study of knowledge, its nature, sources, and validity (Agboola & Tsai, 2015). In essence, it is often referred to as the "theory of knowledge." Epistemology delves into fundamental questions such as what constitutes truth and

how we can acquire and validate knowledge. This field encompasses both the content of knowledge and the processes of thinking.

In the context of Pancasila, its epistemology revolves around examining the reliability and validity of knowledge related to Pancasila itself. It seeks to understand how we come to know about Pancasila, the sources of this knowledge, and its truthfulness. Pancasila's epistemological investigation is an endeavor to reveal the nature of Pancasila as a knowledge system. It recognizes Pancasila as the foundational source of knowledge that underpins the formation of the Indonesian nation. Within this context, Pancasila's epistemological rationality extends across socio-historical, socio-cultural, nationalist, humanistic, and ideological domains. The epistemological basis of Pancasila is closely intertwined with its ontological foundation. In other words, how Pancasila is known is inherently connected to its understanding of human nature. The source of knowledge for Pancasila is the inherent values of the Indonesian people themselves, serving as the material cause of Pancasila.

Each of Pancasila's silas carries an epistemological significance when it comes to character education in schools: The first sila, emphasizing religious tolerance and mutual respect among diverse religious communities, draws knowledge from the intuition and revelations derived from the experiences of Indonesia's religious life. The recognition of religious diversity as a strength rather than a conflict is a key aspect of its epistemological importance. The second sila, centered around the liberation from colonial oppression and the restoration of human dignity, is based on the epistemological understanding that freedom is a fundamental right for all citizens, irrespective of any discrimination. The third sila, which promotes unity in diversity, seeks to maintain the shared integrity of Indonesian society. Its epistemological significance lies in emphasizing the need for a peaceful and caring society as a prerequisite for building solidarity, justice, and peace. The fourth sila, emphasizing deliberation and consensus-building, reflects Indonesia's culture and democratic values. Its epistemological importance is in cultivating a spirit of democracy in policy-making processes. The fifth sila, rooted in the spirit of cooperation (gotong royong), underscores the interconnectedness of all things and the importance of justice for the common good. Its epistemological significance lies in the recognition that justice and cooperation are essential for achieving social welfare and economic prosperity.

In summary, Pancasila's epistemology is concerned with understanding how knowledge about Pancasila is acquired, validated, and ap-

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plied. Each sila contributes to the broader understanding of Pancasila's values and their practical implications for character education and society.

Dimensions of Pancasila axiology

Pancasila holds both intrinsic and instrumental values that are significant to the Indonesian people. These values encompass various aspects, contributing to the ethical, cultural, and societal fabric of the nation.

Intrinsic Values: 1) Pancasila's intrinsic values derive from a combination of original Indonesian cultural values, influences from external cultures through historical acculturation, and the intellectual contributions of scholars and thinkers. These intrinsic values are deeply integrated into the fabric of Indonesian society, and they underline various aspects of life: 2) Religious Norms: Pancasila emphasizes the importance of religious norms, acknowledging the spiritual dimension of human existence and the sacredness of life. This recognition of spiritual values forms the foundation of ethical behavior and guides individuals in leading meaningful lives. 3) Humanitarianism: The intrinsic value of humanitarianism is embedded in Pancasila, promoting compassion, empathy, and care for fellow human beings. This value reflects the essence of treating others with kindness and understanding, fostering a sense of interconnectedness within society. 3) Unity in Diversity: Pancasila's emphasis on unity in diversity acknowledges the rich tapestry of Indonesian society, which comprises various ethnicities, cultures, religions, and languages. This intrinsic value celebrates differences and underscores the importance of mutual respect and harmony among diverse groups. 4) Populism and Democracy: The intrinsic value of populism, within the context of democracy, promotes participation, inclusivity, and representation. Pancasila recognizes the significance of allowing citizens to have a voice in the decision-making processes that affect their lives. 5) Justice: Justice is an essential intrinsic value that Pancasila upholds. This value underscores the importance of fairness, equality, and care in societal interactions. Pancasila's vision of justice is aligned with the spirit of cooperation (gotong royong) and emphasizes the well-being of all members of society.

Instrumental Values: 1) The instrumental values of Pancasila guide its practical application in realizing the nation's ideals. These values serve as guiding principles for creating a just and harmonious society: 2) Religious Nature: Pancasila's religious nature is instrumental in fostering a society that values spiritual well-being. This value encourages individuals to live in accordance with their religious beliefs while respecting the

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beliefs of others. 2) Human Dignity: The instrumental value of upholding human dignity promotes the recognition and protection of individual rights and autonomy. Pancasila recognizes each person's intrinsic worth and advocates for the liberation of human dignity from oppression. 3) Unity: The instrumental value of unity underscores the importance of solidarity among citizens. Pancasila's emphasis on unity serves as a driving force for cooperation and collaboration, enabling the collective pursuit of common goals. 4) Democratic Principles: Pancasila's instrumental value of democratic principles stresses the significance of open dialogue, deliberation, and consensus-building in decision-making processes. This value empowers citizens to actively participate in shaping their society's future. 5) Justice and Cooperation: The instrumental value of justice and cooperation encourages the establishment of a just and cooperative society. Pancasila envisions a harmonious environment where individuals work together to achieve shared prosperity and well-being.

In summary, Pancasila's axiological foundation is rooted in both intrinsic and instrumental values. These values contribute to the ethical, cultural, and societal framework of Indonesia, guiding individuals and the nation as a whole toward a just, harmonious, and prosperous future.

Character Strengthening through t he Interpretation of the Silas of Pancasila

The meaning of Pancasila, as framed within its five principles (Silas), represents a manifestation of unified purpose as follows: Primarily, the significance of each Pancasila Sila is structured in a hierarchical pyramidal arrangement. This hierarchical structure organizes the Pancasila Silas in a tiered manner to strengthen the essence of each subsequent Sila. The first Sila reinforces the application of the second Sila; the second Sila enriches the unity of human beings united by the third Sila's essence; the third Sila reinforces human unity amid differences and diversity through democratic deliberation for consensus, which embodies the fourth Sila's meaning; and the fourth Sila fortifies unity in the pursuit of social justice as an embodiment of the fifth Sila's essence.

Mathematically, this pyramidal structure signifies the dialogical relationship between the hierarchical meanings of Pancasila's Silas, enhancing the sequence and position of each Sila that precedes it. This implementation signifies that the first Sila acts as the foundational pillar, fostering a humanistic spirit, unity in embracing Indonesia's diversity, and a democratic fabric to ensure equitable social treatment. Thus, the divine aspect

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within this unity manifests in humane behavior, preserving and valuing differences within Indonesia's unity, and populism, encapsulated in democratic principles to achieve consensus and equality for societal well-being.

The diffusion of the meaning within each Sila signifies the correlation of Indonesian identity within the order of the other Silas. The internalization of the ontological interpretation of each Sila in Pancasila elucidates God as the primal cause of human existence. Each Sila's application is clarified by the understanding that human existence emanates from a divine source. This foundation establishes human beings as the fundamental subjects upholding the state's existence, as the state is an extension of human existence institutionalized within community groups.

Instrumentally, the state's existence emerges from human unity in groups, forging alliances, coexisting amidst diversity, and institutionalized within the framework of citizenship. Citizens, alongside territory and governmental structure, constitute core dimensions of the state. Institutionalized human existence mandates fair treatment to achieve the collective objective of justice and welfare—a goal embedded in the essence of living collectively, the state. Moreover, the interconnected relationship of Pancasila Silas complements and enriches a pyramid of hierarchical associations. Each Sila's strength is determined by its support for affirming the other four Silas.

The first sila, belief in one God, embodies the essence of God within the depths of the human spiritual soul. This essence is expressed through humane, just, and civilized treatment of others. It unites Indonesian diversity and is rooted in a populist consensus that seeks wise decisions, ultimately guiding equitable treatment for the welfare of the Indonesian people.

The second sila, humanity practiced with just and civilized attitudes, captures the essence of being human. It stems from a consciousness that requires mutual respect as fellow creatures and partners with God. Faith in God Almighty strengthens diversity, fostering unity within the nation's life. This unity is built through a populist existence that seeks wisdom via democratic deliberation and representation, aiming to achieve justice in the lives of Indonesian citizens.

The third sila, unity amidst Indonesia's diversity, affirms the importance of respecting differences. It embodies unity as fellow creations of the Almighty and strives for a humane community. Rooted in justice and civility, it also embraces a populist spirit within the state, uniting thoughts through democratic attitudes to reach wise agreements. These agreements guide just lives by defining the rights and responsibilities of all Indonesian citizens.

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The fourth sila, populism in the spirit of democracy, leads to collective decisions full of wisdom through joint deliberation. It acknowledges the value of mutual respect for fellow beings created by God Almighty. The purpose of this unity is to uphold just and civilized lives, uniting all differences within the framework of Indonesian society. It expects equal and socially just treatment for all citizens.

The fifth sila, social justice for the benefit of all citizens, manifests awareness of the importance of fair treatment. It recognizes all as God's creatures through faith and belief in God Almighty. This principle upholds the aspects of humanity and civilized living. It embraces populism to bridge differences, generating wisdom through democratic deliberation and representation.

Together, the five silas of Pancasila form a unified and solid whole. a) Pancasila is a compound and singular dimension, an organic unity characterized by:

1. United and integrated parts, avoiding separation.
2. Autonomous function and position of each part.
3. Diversity in differences that complements rather than contradicts.
4. Unification to create a humane, fair, and civilized life.
5. A unifying element that integrates the parts.

Absence of negation or shifts in the meaning of each precept, resulting in a unified whole. b) Structured hierarchically pyramidal (multi-level unity): The First Sila encompasses the meaning of the Second, Third, Fourth, and Fifth Silas. The Second Sila is inspired by and informed by the First Sila and encompasses the Third, Fourth, and Fifth Silas. The Third Sila draws inspiration from the spirit of the First and Second Silas while incorporating the Fourth and Fifth Silas. The Fourth Sila is inspired by the First, Second, and Third Silas and incorporates the Fifth Sila. The Fifth Sila, supported and inspired by all the Silas, forms an integral part of the whole.

The concept of the state based on Pancasila and the 1945 Constitution initiates an understanding of the Indonesian state through various aspects:

a. Social-religious humanism
b. Intact kinship and togetherness
c. Unity in diversity
d. Deliberation in the spirit of democracy to find dimensions of wisdom and discretion
e. Strive for social justice for the common good

The main idea of the nation and state's endeavors can be examined through the balanced dimensions of Pancasila's precepts, including:

a. Tolerant balance in addressing the interests of religious (Islamic) and nationalist groups.
b. Balance in perceiving and understanding human existence as autonomous and socially paradoxical beings (mono dualism).
c. Balance between the ideas of Indonesia's founding and the blending of outside cultures through assimilation, acculturation, and inculturation of the state (cultural dialectics).

The integralistic ideology, the foundation of the unitary state, is strengthened through cultivating fundamental values to foster a familial atmosphere:

a. Strong unity in building a safe and harmonious community life.
b. Determined and united will to strive for a life with a national perspective of freedom, independence, unity, sovereignty, justice, and prosperity.
c. Cultivation of love for the homeland and nation through a spirit of togetherness.
d. People's sovereignty based on democratic and tolerant attitudes.
e. Promotion of social solidarity, justice, and non-discrimination.
f. Pursuit of social justice to achieve coexistence, ensuring equal welfare and balanced rights and duties.
g. Reinforcement of Indonesia's place within global diversity in a competitive world order.
h. Respect for the dignity of human beings as creatures made in the image of God (Junaedi, 2018).

Conclusions

In light of the complex dynamics of multidimensional human life across political and ideological spheres, spanning local, national, and global levels, it becomes imperative to underscore the significance of interpreting Pancasila, a philosophical system, for bolstering the cultivation of nationalism among students. The escalating intricacy, fragmentation, and disintegration within Indonesian society underscore the mounting lack of clarity and direction in both national and local political orders and structures. Hence, an urgent imperative emerges: to scrutinize the essence of Pancasila as a philosophical system. Such an endeavor seeks to

alleviate these concerns, reinforcing and engaging with the epistemological dimensions of Pancasila. Notably, this engagement extends beyond the bounds of Indonesia, encompassing the global realm as a manifestation of the value of global diversity. To further elaborate, an additional assertion can be made: Pancasila, functioning as a philosophical system, encapsulates viewpoints, values, and ideas that inherently constitute and shape the pursuits of the nation and the state.

This signifies that the epistemic veracity of Pancasila, when subjected to philosophical reflection, operates as a guiding principle for the conduct of Indonesian citizens in their daily lives. Consequently, the fundamental inference drawn from the initiative to integrate Pancasila as a philosophical system, bolstering the nurturing of nationalistic attributes within students, is that Pancasila must be reinstated and repositioned to fulfill its intrinsic role and stance as the bedrock of the state.

On a pragmatic plane, the philosophical contemplation of Pancasila reiterates that it stands as the embodiment of the Indonesian nation's philosophy. This assertion finds its roots in the profound soul-searching of the nation's founding figures, their contemplative introspection coalescing into a structured system. Pancasila's construction is inherently intertwined with the Indonesian populace, imbued with an air of mysticism. This mysticism, in turn, is embraced as a pillar of inspiration to grapple with life's challenges, as well as those of the nation and the state.

In summary, the intricate dynamics prevailing across various dimensions of human existence necessitate a comprehensive interpretation of Pancasila as a philosophical system. Such an interpretation holds the potential to invigorate the cultivation of nationalism among students. The evolving complexities and uncertainties in Indonesian society underscore the urgency of this endeavor, emphasizing Pancasila's epistemological dimensions that resonate globally. The upshot is a call to reinstate Pancasila's pivotal role as the cornerstone of the state, founded in deep contemplation and embraced as a source of national inspiration.

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Development of socio-emotional skills in the training of educators in today'society

Desarrollo de habilidades socioemocionales en la formación de educadores en la sociedad actual

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Abstract

Socio-emotional skills comprise a set of habits, thoughts, and emotions that facilitate interpersonal relationships through the appropriate expression of emotions and consideration of their impact on others. Backed by neurology, these skills are crucial for learning and for educators' contributions to new generations. This essay aims to reflect on the socio-emotional skills of future education professionals, exploring their influence on teaching and their contribution to society. Given the pandemic situation, it is proposed to present the role of socio-emotional education in the university curricular activities of teacher trainers in Chile, using the critical-interpretative method and hermeneutic phenomenology. The discussion is based on experience, dialogue with groups of students and teachers, identifying key points for the inclusion of emotional skills in teacher training. The process involved the active participation of the teacher, who took on the initial role in the intervention by providing instructions and guidelines for developing socio-emotional skills related to ethics and education in various contexts. This was carried out virtually at a higher education institution in Chile. The conclusion emphasizes the urgency and need to integrate socio-emotional education into the curriculum for university education professionals. The alignment between Goleman, Bisquerra, and Morin, theorists who have delved into the subject, is highlighted, although it is observed the persistence of orthodox educational models that exclude emotions, focusing excessively on intellectual capacities and overlooking the need for comprehensive emotional training to face contemporary societal challenges.

Keywords

Emotional competencies, learning, education, professional development, curricular integration, educational practices.

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Resumen

Las habilidades socioemocionales es el conjunto de hábitos, pensamientos y emociones que facilitan las relaciones interpersonales mediante la expresión adecuada de las emociones y la consideración de su impacto en los demás. Respaldadas por la neurología, estas habilidades son cruciales para el aprendizaje y la contribución de los docentes a las nuevas generaciones. El ensayo tiene como objetivo reflexionar sobre las habilidades socioemocionales de los futuros profesionales de la educación, explorando su influencia en la enseñanza y su contribución a la sociedad. Dada la situación de la pandemia, se propone presentar el papel de la educación socioemocional en las actividades curriculares universitarias de formadores de docentes en Chile, utilizando el método crítico-interpretativo y la fenomenología hermenéutica. La discusión se basa en la experiencia, el diálogo con grupos de alumnos y profesores, identificando puntos clave para la inclusión de habilidades emocionales en la formación docente. El proceso involucró la participación activa del docente, quien asumió el rol inicial en la intervención mediante la entrega de instrucciones y guías para el desarrollo de las habilidades socioemocionales sobre ética y educación en sus diversos contextos, realizada de manera virtual en un centro de educación superior de Chile. La conclusión subraya la urgencia y necesidad de integrar la educación socioemocional en el currículo de formación de profesionales de la educación universitaria. Se destaca la coincidencia entre Goleman, Bisquerra y Morin, teóricos que han profundizado la temática, aunque se señala la persistencia de modelos educativos ortodoxos que excluyen las emociones, enfocándose excesivamente en las capacidades intelectuales y pasando por alto la necesidad de una formación emocional integral para afrontar los desafíos contemporáneos de la sociedad.

Palabras clave

Competencias emocionales, aprendizaje, educación, formación profesional, integración curricular, prácticas educativas.

Introduction

Historically, education has witnessed various transformations and approaches focused on the acquisition of knowledge. However, the growing recognition of the importance of socio-emotional skills has led to rethink the educational paradigm. The phrase "know yourself," attributed to Socrates in Ancient Greece, resurfaces today with a new perspective: it is about socio-emotional skills as a path to self-awareness and transformation.

This shift in focus presents as a response to the emotional and social complexities that students face today. Hence, the topic addressed in this document fits the perception of the development of socio-emotional skills in teacher training, exploring its importance in the current educational context. The main objective is to deepen the concept of socio-emotional ability, explore its characteristics from a socio-formative perspective and recognize the importance of implementing strategies for its development in educational practices.

Historically, it is known that the problem of education is that it has maintained a constant separation between cognitive, emotional and social aspects, restricting its focus mainly to the search and acquisition of

knowledge. This fissure poses challenges for the overall development of students and seeks the urgency of integrating socio-emotional skills into education. Therefore, the central idea to defend is that socio-emotional skills are fundamental for the integral progress of students and the creation of an educational environment conducive to the development of positive relationships.

The importance of addressing socio-emotional skills in the training of future education professionals is broadened by recognizing the complexity of contemporary challenges in the educational environment. By training these professionals with specific tools to understand and manage the emotional dimensions of students, educators are essentially being prepared to be agents of change and facilitators of an enriching educational environment.

First, by providing tools to address risky behaviors, it directly contributes to the creation of a safe environment. The ability of educators to identify and manage challenging situations related to student behavior and emotions is essential to ensure a conducive learning environment. This not only benefits the physical safety of students, it also creates an emotionally safe space where they can express themselves and learn more effectively.

Second, the focus on students' emotional development is very important to their overall well-being. Future education professionals, by understanding the emotional complexities of their students, can play a vital role in supporting mental and emotional health. This not only translates into better academic performance, but also contributes to the development of coping and resilience skills in students, preparing them to face the challenges of life.

Additionally, the inclusion of socio-emotional skills in educator training aligns with the evolution of education towards more holistic and student-centered approaches. Educators should have the tools needed to understand the diversity of students' emotional needs and adapt their pedagogical approaches accordingly. This not only improves the quality of teaching, but also fosters a deeper connection between educators and students, contributing to positive and trusting relationships.

The most remarkable thing about the issue today lies in the transition from the post-COVID-19 pandemic and, more broadly, in an ever-changing world. Socio-emotional skills are essential to prepare students not only in the academic arena, but also to face challenges and adapt to a continually evolving environment. The COVID-19 pandemic invites us to consider the importance of these skills in education, as students have

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experienced significant changes in their daily lives, from social distancing to transitioning to online learning environments.

Therefore, educators face the crucial task of helping students recover emotionally from the impacts generated by the pandemic. Uncertainty, isolation and anxiety have affected many students' mental health and socio-emotional skills have become critical to cultivating resilience and supporting their emotional well-being. Teaching socio-emotional skills is presented as a key tool to address learning gaps that may have arisen during the period of disruptions in education. By focusing on issues such as empathy, self-regulation and decision-making, educators can contribute to creating an inclusive and responsive learning environment, allowing students to engage more effectively in the educational process.

It is in this post-pandemic context that resilience and adaptability are essential. Socio-emotional skills prepare students for life beyond the classroom. The ability to manage stress, work as a team, solve problems and maintain healthy relationships has become even more crucial in a world facing social, economic and environmental challenges. In addition, the topicality of the issue is reflected in the growing demand for socio-emotional skills by employers and society. Companies look for professionals with strong interpersonal and emotional skills, recognizing that these skills are as important as technical knowledge.

Thus, the integration of socio-emotional skills in education not only prepares students for academic success, but also for their meaningful participation in society, in the workplace and in their daily lives. This issue is important given the rapidly changing world and unprecedented challenges ahead. Attention to these skills is crucial not only in the post-pandemic context, but also to prepare students for a future that demands adaptability, resilience, and strong emotional competencies.

In the methodological aspect, this work arises from a review of theories on socio-emotional development. The main theories that explain how socio-emotional skills develop and their impact on students' learning and behavior are analyzed. Pedagogical elements are considered, i.e. the various pedagogical approaches that have proven to be effective in teaching and developing socio-emotional skills in different educational contexts. On the other hand, practical strategies for the implementation and development of these skills in the classroom are explored, including curricular programs, extracurricular activities and teacher training. The process involved the active participation of the teacher, who assumed the initial role in the intervention through the delivery of instructions and guides for developing socio-emotional skills in a curricular activity on

ethics and its applications in various contexts, carried out virtually in a higher education center in Chile

This study is structured in four sections. The first has to do with the key of socio-emotional skills; in this part, socio-emotional skills will be introduced, defining them and highlighting their importance in the integral development of students. In a second moment there are the characteristics of socio-emotional skills, here we analyze the specific traits of socio-emotional skills, including empathy, self-awareness, self-regulation, relationship skills and responsible decision-making. Thirdly, considering the impact on the educational field, a list of activities to develop socio-emotional skills applied to higher education students in Chile is presented. Finally, we consider the correlation between mental health and socio-emotional skills in teachers and how these help to improve their application in educational contexts.

The Key to Socio-Emotional Skills

Socio-emotional skills represent the intricate amalgam of core competencies that span from understanding and effectively expressing emotions to promoting empathy, social skills and sound decision-making (Ospina *et al.*, 2022, p. 55). This comprehensive approach not only impacts individual emotional well-being, but also establishes itself as a cornerstone for establishing healthy interpersonal relationships and the ability to successfully cope with the challenges of life.

Despite the clarity and relevance of these skills in the integral development of individuals, there is an educational paradigm rooted in orthodox methods that, instead of promoting socio-emotional development, clings to disciplinary principles, fear and rigor. This approach, reflecting an anachronistic methodology focused on the mere transmission of knowledge (Carbonell, 2015; Delors, 1996), poses a significant challenge for the effective integration of socio-emotional skills in the contemporary educational environment. Hence, to channel these elements in the best way:

- *Discrepancy between theory and practice*: Although theory supports the importance of socio-emotional skills, implementation in educational practice faces obstacles. Resistance to changing traditional methods, lack of adequate training, and pressure to cover an extensive academic curriculum are factors that perpetuate this mismatch. This discrepancy needs to be urgently addressed to ensure that education truly reflects students' current needs.

- *The role of educators as agents of change*: educators, in this context, must be the protagonists and fundamental agents of change. The need for continuous training that encompasses the socio-emotional dimensions becomes inescapable. Teachers, by taking an active role in promoting and teaching socio-emotional skills, can play a transformative role in the education system, transcending conventional models into a paradigm that celebrates the diversity of skills and talents of each student.
- *The challenge of a Copernican twist*: the entrenched educational paradigm is, in many ways, inertial. Performing a Copernican turn of this inertia requires a profound reassessment of educational goals, recognizing that the development of socio-emotional skills is not only complementary, but essential for success and adaptability in today's society.

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It is necessary to explore educational strategies and models that effectively integrate socio-emotional skills as an urgent need. Chernyshenko *et al*. (2018) mention that for the Organization for Economic Cooperation and Development (OECD), socio-emotional skills are important elements for the development of adaptive competences in the context of each human history. This leads to overcoming the challenges inherent in educational transformation towards a more holistic and student-centered approach, essential to cultivating generations prepared to face the complex challenges of the 21st century.

In the current educational context, future education professionals are confronted with a series of dynamic and multifaceted challenges in the classroom. These challenges go beyond the mere transmission of knowledge and require a deeper understanding of the complexities surrounding the teaching-learning process. Thus, heterogeneity in classrooms, both in terms of academic skills and socio-emotional contexts, presents a significant challenge. Future educators must be able to adapt their methods to meet the individual needs of students.

Thus, proper discernment involves recognizing the importance of socio-emotional skills. Educators of the future must be able to cultivate an emotionally safe environment, which promotes the well-being of students and their ability to manage emotions, as Garassini and Aldana indicate (2022).

Socio-emotional skills contain a very important influence on the experiences and benefits in the spheres of human life. Given this, the question arises: "Why focus on these skills?" Currently, we use the concept

"socio-emotional skills" to refer to the skills developed in the educational context, connecting with the theories of Howard Gardner (2004) on multiple intelligences. Gardner identified intrapersonal intelligence, related to self-knowledge, and interpersonal intelligence, linked to the ability to understand others. Talking about socio-emotional skills becomes fundamental to understanding and empowering integral development, establishing connections between Gardner's theory and current perspectives on these key skills.

Gardner (2004) suggests exploring interpersonal intelligence more deeply, highlighting its relationship to the ability to differentiate between subjects in the environment and manifest different moods. Daniel Goleman (1995), based on the works of Gardner, introduced the concept of "emotional intelligence", which refers to the process of feeling, understanding, controlling and changing moods whether these are personal or social. Maturana (1997) adds that emotion defines action, being dynamic body dispositions that specify behavior, while Morin (1999) emphasizes that understanding oneself and the other requires empathy and generosity. These perspectives support how essential socio-emotional skills are to the education of our times.

Characteristics of socio-emotional skills from a socio-formative perspective

According to Bisquerra (2008), socio-emotional skills form a set of habits, thoughts and emotions that facilitate satisfactory interpersonal relationships through the proper expression of emotions and consideration of their impact on others. These skills, as Goleman (1995) points out, are essential for effective and responsible citizenship, contributing to interpersonal well-being.

People who are skilled in emotional intelligence are perceived as "popular" and "charming," as their emotional abilities generate well-being in those who interact with them. This focus on socio-emotional skills is critical to problem-solving ability and the pursuit of decisive human goals, including the path to happiness, according to Bisquerra (2008).

According to Carbonell (2015), practical application of socio-emotional skills, when impacting individuals, also contributes to reducing negative emotions, such as irritation, distrust or desolation, which can lead to risky behaviors or conflicting relationships. This author highlights the interdependence of these skills and their connection with other intel-

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ligences, such as creative and emotional ones, underscoring their importance for good mental health.

Learning how to manage these emotions is essential to consolidate good mental health and thus foster student success. According to Gardner (1995), people supported by socio-emotional skills feel more engaged and competent, making them more likely to contribute constructively to society.

At present, socio-emotional skills are being incorporated into the curriculum design of educational institutions, recognizing that the ultimate purpose of education is to enable subjects to live full and harmonious lives with others and the environment (Moreno *et al.*, 2020, p. 13). This approach reflects a shift toward comprehensive education that recognizes the importance of cultivating skills beyond mere knowledge acquisition.

However, according to the classification proposed by Bisquerra (2008), these skills are five and are developed below.

Emotional awareness

Socio-emotional skills, especially emotional awareness, are critical to human development. Céspedes (2010) highlights emotional education as central and essential to have clarity and certainty in freedom, respecting it in an unrestricted way. In this context, emotional awareness implies the ability to be fully aware of both our own emotions and those of others.

"Think high" and "feel deep" are interrelated dimensions of this ability. High thinking refers to the cognitive sphere and the ability to understand and build meaning from what is learned. On the other hand, Milicic (2010) emphasizes that feeling deep implies an emotional contact with what is experienced, showing empathy and resonance with the emotions of others. This process involves recognizing our own emotions, assigning names to these emotions and, fundamentally, understanding and perceiving the emotions of others, considering the situational and expressive, verbal and non-verbal signals (Maturana, 1997).

Emotional management

Emotional ordination, according to Maturana (1997), is crucial to living in harmony and dignity, dissolving emotional contradictions. It is about the ability to manipulate and order emotions properly, establishing a connection between the cognitive part and behaviors. Cespedes (2010) highlights the importance of self-esteem in this dimension, indicating that it is related to the ability to achieve changes with a high look at oneself and others. Milicic and López (2009) add that positive self-esteem is

linked to feeling loved, valued, accompanied and important for others and for oneself.

Emotional ordering requires flexibility, a moderate modulation look at emotional processes. To achieve this ability, it is essential to be aware of our emotions, identify those that wish to intervene and have the clear will to perform it. It also involves time, training, and trials with potential errors, as well as a significant dose of emotional self-efficacy. Hence, emotional regulation is essential to adapt to both the interpersonal and intrapersonal environment. This skill involves understanding and valuing the feelings, developing critical thinking and carefully selecting information, and, in addition, organizing and regulating both our own emotions and those of others in the various interpersonal and intrapersonal contexts.

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Harmony and emotional autonomy

In the field of harmony and emotional autonomy, the trust that the individual places in his own capacities is addressed. Milicic and López (2009) emphasize that this confidence is observed in the ability to act quickly, safely and resisting failures, demonstrating a remarkable tolerance for frustrations. In this context, emotional autonomy is defined as the ability to generate one's own emotions and face negative ones.

Céspedes (2010) contributes that this phenomenon has essentially biological roots, but its genesis is indivisibly intertwined with psychological factors and social experience. Harmony and emotional autonomy, according to Céspedes (2010), are manifested through fundamental feelings such as existential joy, motivation and serenity. These feelings trigger a phenomenon of mental openness, empowerment for positive changes and a kind of life training. In addition, they act as a kind of "drafts", eliminating negative emotions and allowing to deal more effectively with the difficulties of life. More specifically, emotional self-determination involves knowing how to fully understand feeling, thinking and decision-making independently, reflecting self-confidence and taking responsibility for the consequences of actions (Milicic and López, 2009).

Céspedes (2010) says that emotional harmony presents as the visible result of an ontogenetic script that is built on a biological platform, but is shaped by social experience. In this process, the individual develops an emotional autonomy based on his own referential authority. This autonomy is characterized by the ability to manage one's own emotions, providing security in decision-making and personal competencies. This

concept encompasses a variety of characteristics linked to personal self-management, i.e. to self-perception of knowing oneself, being conscious, accepting oneself, having confidence in oneself, being a generator of personal motivations, taking all this as an authentic action before life, therefore, also to be more self-critical about social norms and the ability to seek help and resources. According to Bisquerra (2008), emotional freedom emerges as a crucial element for subjective well-being.

Emotional autonomy, therefore, not only involves the formulation of a personal theory about emotions, but also requires demonstrating emotional self-efficacy aligned with moral values. This ability grants the ability to consciously decide the emotions that are experienced, especially in challenging situations or in the face of negative emotions. Its applicability extends to various areas of life, highlighting its relevance in potentially risky situations such as the influence towards substance use, violence, *bullying*, among others. In such contexts, emotional autonomy facilitates resistance to group pressure. The task, as Carbonell (2015) points out, lies in educating all the intelligences of the students, impregnating each educational process with values and virtues, turning both the educational center and the community into a project of strong ethical commitment. In this context, educational innovation focuses on avoiding isolation and promoting the articulation of diverse capacities.

Social competence

Social competence, considered a cornerstone of emotional education (Bisquerra, 2008), refers to the ability to foster healthy relationships, involving respect for others, effective communication and conflict resolution. These competencies, developed throughout the different stages of life, are applied in interpersonal situations and are intrinsically linked to the ability to interact at various times and environments.

According to Maturana (1997), human beings exist in a relational domain that constitutes their psychic space, this being the operational area in which all their biological life and physiology acquires meaning as a way of living human. In this context, social competence becomes a set of skills aimed at emitting effective behaviors in interpersonal situations with the aim of obtaining rewarding responses from others.

The relevance of social competence lies in its contribution to effective interaction in various moments of life. The ability to establish positive relationships, communicate effectively and resolve conflicts is presented as a crucial element for human well-being. This competence is integrated

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in a coherent way with the need to educate all the intelligences of the individual, to infuse values and virtues in each teaching and learning process, turning the educational center and the community into a solid ethical project (Carbonell, 2015). In this way, harmony and emotional autonomy, such as social competence, are essential dimensions of emotional education, contributing to the well-being and integral development of the individual in his interaction with the environment (Ander-Egg, 2006).

Among the most important emotional skills of social competence may be the following:

- *Acquisition of socio-emotional skills through learning*: what is important is the learning for the development of socio-emotional skills that Piaget proposes in his theory of cognitive development through the following: observing, imitating and obtaining important information (Feldman, 2015, p. 160).
- *Verbal and non-verbal behaviors*: highlights the value of communicating with and without the use of the word. The focus is on social interactions with specific and discrete verbal and non-verbal behaviors, which are proposed by Mehrabian (2009).
- *Initiatives, creativity and effective responses*: Mihaly Csikszentmihalyi (2000) explores the connection between creativity, enjoyment and effective performance in activities.
- *Social and cultural reinforcement*: here the role of the social and cultural environment for the management of skills and behaviors in the Vygotsky model is emphasized (Ledesma Ayora, 2014). In other words, they expand social reinforcement through positive responses from the social and cultural environment.
- *Reciprocity in social relations*: here the importance of affective relations and reciprocity in emotional development is highlighted by John Bowlby (2009) and his theory of attachment.
- *Influence of environmental factors on social behavior:* Pope Francis (2015) calls to take care of the common house that is the Earth and states that development is achieved by all caring for environments, i.e. having good social behavior for a good ecology. Thus, seeking reciprocity towards nature and that this is an effective and appropriate correspondence, i.e. these social skills are linked to interpersonal intelligence, focused on maintaining positive relationships with others.

It is essential to have a mastery of these skills, especially in effective communication, respecting others and sharing emotions, highlighting

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the relevance of symmetrical reciprocity. In addition, they include pro-social attitudes that foster cooperation in groups, such as empathy, dialog leading to the prevention of social conflicts and the ability to identify problems to make constructive decisions for the benefit of all.

The development of these competencies is essential for achieving positive mental health. Therefore, the World Health Organization defines it as "a state of well-being in which the individual is aware of his or her own abilities, can face the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (OMS, 2013). These socio-emotional competencies not only improve academic performance, but also prevent risky behaviors, as an important element in citizenship education, that aligned with citizen competencies will seek a well-being in life. What Aristotle would say (2005, p. 58): the search for happiness, because this is always chosen by itself and never by anything else.

Life Skills and Wellness

This dimension refers to the ability to acquire skills and behaviors to effectively face life projects, whether these are personal, family, or professional. Thus, it seeks daily individual and social well-being, setting realistic goals, taking responsibility for its own decisions and seeking support when necessary (Bisquerra, 2008).

These skills, considered as subcompetencies, range from the recognition of one's own emotional state to the ability to discern the emotions of others, allowing empathy. It seeks to reflect and accept that the personal emotions of our inner body may not coincide with the outward manifestation, requiring self-control strategies to face negative emotions. Awareness helps to establish reciprocity in relationships, generating greater emotional self-efficacy and acceptance of one's own emotional experience (Bisquerra, 2008).

This skill is essential to address today's societal challenges, such as violence, harassment, addictions and discrimination. The comprehensive training of students, together with the construction of an ethical life project, contributes to achieve meaningful learning both personally and socially and environmentally. In this context, socio-emotional skills play a crucial role in the development of students as a resource to achieve well-being.

Although education is in crisis and students face various social, economic and emotional problems, the implementation of appropriate

strategies by the teacher can provide students with tools to face the uncertainty of life. The development of socio-emotional skills involves a gradual, not instantaneous, process that requires continuous stimulation until the expected level of development is reached. Its importance lies in the influence of emotions and social relationships in the learning process. Positive emotions contribute to meaningful learning and the design of the ethical life project, while negative emotions can interfere and be a key factor in school failure (Milicic, 2010).

In this context, the role of the teacher is crucial. Although education professionals are not oblivious to the problems of their students, the constant training of the teacher is fundamental to integrate strategies that help the student's formative development, allowing him to develop, relate, express his feelings with a positive sense about his life. Achieving this goal will positively impact mental health, personal well-being, empathy, solidarity, prevention of risky behaviors and, above all, increase motivation towards learning by students.

Strategies that promote the development of socio-emotional skills

To promote the development of socio-emotional skills it is necessary to understand a curricular integration, in which the design of curricula incorporates specific activities for developing socio-emotional skills in all subjects. It should also be promoted in educational practices, inclusion, diversity, empathy and understanding among students. On the other hand, teacher training must have continuity, i.e. must offer training and professional development programs so that educators acquire the necessary tools and with them can address the socio-emotional skills in the classroom.

Another important aspect is to implement methodologies that involve practical experiences and real-life situations to cultivate skills such as decision-making and problem solving. According to González López (2020), the strategies guide teachers to understand the teaching process and the development of socio-emotional skills contributing to the integral life of students and the personal and social well-being of the school community and its environment.

To carry out this activity, a qualitative research design was adopted, aimed at exploring deeply the perceptions of teacher trainers. Under the perspective of Stake (1995 in Balcázar *et al.*, 2013), qualitative research is oriented towards understanding, focusing on the exploration of facts and

the subjective role played by the researcher from the beginning, with the aim of achieving a dense description and an experiential understanding of multiple realities.

The process was carried out with the participation of the teacher, who assumed the initial role in the intervention through the delivery of instructions and guides for the development of socio-emotional skills on ethics and education in their various contexts (virtually or remotely). This initiative was carried out in a higher education center in Chile, with the purpose that students or future education professionals acquire, recognize and identify socio-emotional skills to apply in future interactions with their own students.

To do this, the following guide is organized:

Table 1
Table of activities for socio-emotional skills

Guide 1	Description	Dynamics	Conversation Questions
Generate motivation and stimulate attention	The teacher seeks to capture the attention and motivate students, proposing ideas and questions related to socio-emotional skills.	Stimulation of attention and motivation through socio-emotional skills. *Objective*: Identify and understand socio-emotional skills in the students' personal context, generating attention and motivation towards learning.	N/A
Activity 1: Breaking the shell-recognizing our emotions	Students share a current emotion and explain its cause, creating an environment of trust.		What emotions influence your daily life? How do those emotions stand out in your ability to be attentive in class? What could be the emotions of your peers that affect the learning environment?
Activity 2: Role-sharing-empathy in action	The students, divided into teams, perform scenes involving emotions in problematic situations and then discuss their feelings.	Suggested topics: - Fight between childhood friends. - New nervous partner. - Forgetful and ashamed companion.	What was your feeling and how did you feel about playing your role on stage? What kind of actions would you take to help someone who is experiencing those emotions? Do you think and feel that empathy can improve the relationship between classmates?

Guide 1	Description	Dynamics	Conversation Questions
Activity 3: The quest to solve problems-overcoming obstacles	Students face a challenge that requires team resolution, such as a puzzle or a block building activity.		What was the first feeling of facing this challenge? Did you manage to work as a team to find a solution? What are the socio-emotional skills that you consider most important to achieving this obstacle?
Activity 4: Personal analysis-linking with our strengths	Students write and share a personal strength related to the socio-emotional environment in a climate of respect.		Why do you feel it is important to recognize our personal strengths? What new elements do these strengths give us to help us overcome challenges in the classroom and in life? According to you, is it possible that we can support each other in developing and using our strengths?

Conclusion of activities:
It clarifies the importance of socio-emotional skills during the learning process and the ability to work together to support personal and academic growth. It seeks to reinforce the motivation of students to continue developing these skills both inside and outside the classroom.

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Table 2
Table of advantages and disadvantages over the activities carried out

Appearance	Advantages	Disadvantages
Participation	The activities encourage the active participation of students in conversations and role plays, improving their involvement in the learning process.	Some students may show resistance or lack of interest in participating in activities focused on socio-emotional skills, as they may not be used to this type of approach and deal with personal and intimate issues.
Emotional development	They help students identify and understand their own emotions and those of others, which contributes to the development of socio-emotional skills such as empathy and problem solving.	For these activities to be effective, a safe and supportive classroom environment is needed. If the environment is not conducive, activities may fail to achieve their goals. That is the problem of online classes.
Supportive environment	Personal reflection and the exchange of strengths promote an environment of mutual support, making students feel valued and understood.	The preparation and execution of these activities require additional time on the part of the teacher, both for planning and for the realization in the classroom and subsequent discussions. Especially when they are remote.

Appearance	Advantages	Disadvantages
Adaptability	Activities can be easily adapted to different groups and contexts, making them versatile and applicable in various educational settings.	Assessing the development of socio-emotional skills can be challenging, as these skills are harder to quantify than traditional academic knowledge, requiring a holistic and qualitative approach to measuring progress.

This proposal has several advantages, such as the promotion of socio-emotional development and student participation. However, it also poses challenges related to planning time, classroom environment (whether in-person or online, resistance or lack of interest in students), and assessment methods. Despite these challenges, with careful planning and a commitment to students' emotional well-being, these activities can be critical to comprehensive learning.

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Table 3
Table of socio-emotional activities

Activity	Description	Questions	Responses
Activity 1: Breaking the shell-recognizing our emotions	Students share a current emotion and explain its cause, creating an environment of trust.	What or what emotions influence your daily life?	*Fear:* "Every day the TV shows violence and fear". *Stress:* "The truth that exhausts living like this, thinking that you have proof and can not even sleep". *Joy:* Having fun with friends. *Sadness:* A loved one's illness or problems between peers and family members. *Learning-related emotions:* Anxiety, motivation, frustration, confidence, and curiosity.
		How do those emotions stand out in your ability to be attentive in class?	*Anxiety makes it hard to focus:* "When I'm too anxious, I can't focus on what the teacher says." *Motivation increases focus:* "When I am motivated and attracted to a topic of my interest, I pay more attention and participate very actively in classes" Sadness "when I have problems"
		What could be the emotions of your peers that affect the learning environment?	Test anxiety. Enthusiasm for projects. Boredom with reading texts. Frustration at not understanding a concept: "It's a lot of reading, it is tiring, and I waste time for other things... what are the concepts necessary for?

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Activity	Description	Questions	Responses
Activity 2: Role-sharing-empathy in action	Students, divided into teams perform scenes involving emotions in troubled situations and then discuss their feelings	What was your feeling and how did you feel about playing your role on stage?	*Anger:* "I was angry to play the role of a friend who was fighting with another." *Nervousness:* "I felt a lot of nerves as I developed as the new student." *Shame:* "I was ashamed to play the forgetful student in front of the group."
		What kind of actions would you take to help someone who is experiencing those emotions?	Listen actively. Provide emotional support. Validate and accept feelings. Look for practical solutions. Show empathy and accompany them: "I would dialog with them to understand their perspective and offer my support." "I would look for ways to make him feel welcome and help all the other classmates come forward."
		Do you think and feel that empathy can improve the relationship between classmates?	"In a personal conversation, I would show the forgetful student that we all make mistakes and offer help catching up on homework."
			Yes: "I believe that if we strive to accept and understand the feelings of other classmates, we can build strong and supportive relationships." I'm not sure, it depends a lot on the situation. Yes, but it's not always easy to practice being empathetic: "Empathy is very essential to overcome conflicts and improve communication between peers."
Activity 3: The quest to solve problems-overcoming obstacles	Students face a challenge that requires team resolution, such as a puzzle or a block building activity.	What was the feeling of facing this challenge?	*Overwhelming:* "At first I felt a little overwhelmed because it seemed complicated." *Exciting:* "I was excited about solving the problem together as a team." *Frustrating:* "It was frustrating when we couldn't find the solution."
		Did you manage to work as a team to find a solution?	Yes: "We all got engaged and shared ideas." No: "We had difficulty communicating." Yes, but: "it took time to coordinate." No: "Some colleagues did not actively participate."
		What are the socio-emotional skills you think were important to achieving this obstacle?	Effective communication. Teamwork. Empathy. Patience. Tolerance of frustration. Problem solving. Perseverance: "Communication was key to sharing ideas and listening to the suggestions of others." "Having patience was important when we faced difficulties." "Empathy made it easier for us to understand and understand different points of view."

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Activity	Description	Questions	Responses
Activity 4: Personal analysis-linking with our strengths	Students write and share a personal strength related to the socio-emotional environment in a climate of respect.	Why do you feel it is important to recognize our personal strengths?	It helps to have self-confidence. We can leverage all our talents. It promotes a positive attitude towards oneself. It facilitates personal and professional development.
			It fosters self-acceptance and self-esteem: "Valuing our strengths helps us realize what we are capable of achieving." "It helps us focus on our skills and strengths rather than our weaknesses."
		What new elements do these strengths give us to help us overcome challenges in the classroom and in life?	Sense of direction and purpose. They generate motivation and perseverance. They promote resilience to adversity. They help improve the ability to solve problems. They strengthen interpersonal relationships: "Creativity can help us find innovative solutions to problems that occur in the classroom." "Communication capacity can facilitate conflict resolution and cooperation with others."
		Is it possible that we can support each other in developing and using our strengths?	Yes: "Helping and recognizing the strengths of others can create an environment of support and motivation." Yes, working together to identify and utilize each other's strengths strengthens the team and improves overall performance: "We can cooperate on projects where everyone feels they can leverage their capabilities to achieve a common goal." "We have to help with positive feedback and encouragement when we see someone using their strengths."

Finally, the development of these skills in the lives of people and especially future education professional generates an impact on their quality of life and with it the action of good interpersonal relationships, in addition to a personal and social well-being. Therefore, the minimum required is the delivery of tools managing these skills and causing future education professionals to work with schoolchildren and the educational community.

Educational teachers play a fundamental role in educational institutions, recognizing the importance of emotions as drivers for changes in socio-emotional skills. Goleman (1995) emphasizes that emotions are impulses that lead to action and that emotional intelligence involves connecting and understanding others emotionally. This approach involves not only the enrichment of teaching, but also the strengthening of the

teacher's ability to guide students in the effective management of emotions and relationships in the social environment.

The acquisition of values and norms is a continuous process, shaped by personal experiences and the influence of the social environment, be these family members, groups of friends, social media or social networks. Gazmuri (2022) highlights empathy as the most important thing for genuine dialog and the revelation of shared valuations through emotions. However, despite progress in including these elements in the curriculum, teaching strategies are often not implemented systematically. In addition, the emotional health of teachers, marked by stress, psychic fatigue and burnout syndrome, highlights the need for tools to cope with pressure in the classroom and manage relationships, using positive emotions to influence emotional well-being and promote cognitive and behavioral changes. This approach will not only reduce tension and increase motivation and self-esteem, but also improve relationships in the educational environment.

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The relevance of socio-emotional skills in the mental health of education professionals

It is very important that education professionals consider the development of socio-emotional skills, therefore, three aspects must be considered: first analyze and detect how they affect their activities; then, seek the prevention of that reality; finally, generate intervention programs to strengthen socio-emotional skills (Jiménez Macías *et al.*, 2023). Precisely one of the main reasons is the management of stress that can arise in the classroom environment. Everyday problems in the classroom can lead to situations of intense stress and, in extreme cases, to severe depressions, evidencing a deterioration of the teaching emotional state. This lack of well-being can, in some cases, force teachers to abandon their work. On the other hand, when teachers are stressed or depressed, their relationships with students and colleagues can be negatively affected. Treatment—influenced by hardship and lack of empathy—can lead to conflict and deteriorate the educational environment.

For these reasons, it is essential that teachers receive training in socio-emotional skills to improve their personal and professional well-being, as well as to foster a positive and supportive learning environment.

Therefore, it is necessary for teachers to receive training in socio-emotional skills:

There is a constant fatigue and stress in many professionals of education, this has to do with the little recognition by society, not feeling valued in what they do for their students as part of their profession. On the other hand, many feel that there is a social discrediting of their work and the little contribution to society, as well as the low wages. To this we can finally add another factor that, in recent times, has been gestating in the new generations no longer interested in following the career of Pedagogy. This has to do with a professional fatigue or attrition that is known as *burnout*, in this term of attrition the deterioration is noted. Which is nothing but professional wear and tear, where the process has to do with the loss of commitment and personal tasks performed by the education professional (Rodríguez and Rivas, 2011).

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From this reality, there are many professionals in education who abandon teaching and dedicate themselves to other professional activities, different from those they chose, to be able to develop personally. For Bisquerra and Pérez (2012), these job losses occur due to the different problems that arise in their professional work and that are the product of emotional imbalances. In some situations they may resort to the use of medications to overcome conflicts, but this only highlights the importance of having solid emotional control to achieve a balance that promotes well-being.

Freire (2006) indicates that society knows and agrees that teachers or education professionals should be the ones who help in the most autonomous learning processes, characterized by love, creativity and scientific skills. In our view, education professionals should be trained in skills and abilities beyond simply teaching master classes and passing on knowledge. They must seek effective intervention strategies adapted to new scenarios and contemporary contexts. To achieve innovative teaching, it is necessary that they possess well-developed cognitive, communicative and psychological skills in their lives.

The pedagogical act of the educational professional must transcend the transmission of curricular contents, since it implies the manifestation of emotions, since its impact is experienced in the day to day with the students. The learning-teaching process is influenced by the way in which the educator manages his emotions and feelings in relation to himself, his discipline and his conception of the educational act. Emotions, being impulses for action, prepare the organism for different types of responses and each emotion triggers a unique response. Therefore, it is essential to learn how to manage, through self-control, the emotions and responses they generate in various everyday situations and in the classroom environment.

As stated by Touriñán (2022, p. 48), through the common activity provided in the educational field, we make individuals reach acceptance among

feelings and values, which are delivered through education as something necessary to know and apply in teaching. It is about educating so that the relationship is effective and with quality, and that education is understood as a common activity, taken to the full sense of what the concept of education means.

In this sense, some challenges for present life can be mentioned:

- *Adapting to new technologies*: the world is increasingly digitized, education professionals of the future must incorporate new technologies into all their pedagogical work, i.e. innovate new forms of virtual teaching. So this can mean more stress and challenges for some, as they will need a change in their traditional way of teaching and communicating with new generations. Marc Prensky (2011) worked on the concept of "digital natives" and "digital immigrants", exploring the link between new technologies and the education process in our times.
- *Ability to cope with stress*: education professionals of the future should be able to manage stress and seek to balance their good mental health with work and personal life. Boyatzis (2002) worked on the issue of the progress of emotional intelligence and how it affects emotional resonance, key aspects of managing stress.
- *Generate positive communication*: education professionals of the future must have the ability to communicate positively with new school generations, from diversity and interculturality. For Goleman (1995), applying emotional intelligence within the realm of education has crucial relevance for effective communication. Thus, they must consciously consider cultural and communicational linguistic differences, so that they can adapt them reach all students with positive teaching and communication.
- *The ability to foster empathy*: education professionals must be empathetic and generate in their students the search for their emotional needs, listen and provide emotional support when it is necessary. López (2016, p. 290) —following Mary Gordon— defends emotional and social education, especially through programs that promote empathy in children and young people.

Conclusions

The main objective of this study is to highlight the importance of exploring and cultivating tools that strengthen the ability to understand and regulate emotions, both in the field of educational training of futu-

re teaching professionals and in daily life. Empathy, positive relationship building, assertive decision making, and achieving personal goals are key aspects driven by the development of these skills.

Several significant conclusions can be drawn from this analysis. First, the development of socio-emotional skills is a constant process that must be stimulated and taught from childhood, stressing the importance of intervening in these skills from an early age. Second, autonomy in the development of socio-emotional skills is critical. An ethical project of personal life gives meaning to emotional management and the construction of positive social relationships, promoting self-reflection, self-acceptance and self-care, as well as positive relationships with the environment and others. Third, the role of the education professional is crucial in this process. Continuous teacher training in these areas is imperative, as they are in constant contact with students and must address the problems they face. And finally, in today's society, emotions play a leading role. Cognitive, technical, and emotional intelligence must work hand in hand, and classroom education must evolve to embrace this comprehensive approach. The development of socio-emotional skills positively influences self-esteem and cognitive skills, promoting effective learning and contributing to critical thinking, problem solving and the generation of new options. In this sense, educating in emotions is revealed as a key factor for proper learning and the integral development of individuals.

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Learning processes and repercussions from handicrafts for social and popular education

Procesos de aprendizaje y repercusiones desde el artesanado para la educación social y popular

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Abstract

This research incorporates the experiences of a group of artisans from Azuay and Cañar in Ecuador with the aim to reflect on the professional practices of artisan collectives and their relationship with formal educational processes from a pedagogical approach focused on social and popular education. The study applies qualitative methodology with ethnographic focus. The results not only highlight that the spaces occupied by craftsmanship in the social imaginary are marked by obstacles and restrictions in professional practice, but also demonstrate that the knowledge they possess is conditioned by ethnic and sociocultural dimensions. Despite having experiences and knowledge that are not far from the curriculum taught in the educational system, these are excluded and considered of lesser value. The research concludes that recognizing artisanal methods and procedures can be used as powerful formative elements to strengthen identity, democratic participation, dialogue of knowledge, social justice, and true intercultural education. Consequently, social and popular education can help promote the active participation of artisans and other collectives and contribute to the transformation and change of unequal structures from a socio-educational perspective.

Keywords

Handicrafts, intercultural education, social education, ethnology, educational systems, local knowledge.

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Resumen

La investigación incorpora las experiencias de un grupo de personas artesanas de las provincias de Azuay y Cañar, en Ecuador. Tiene como objetivo reflexionar, desde un enfoque pedagógico centrado en la educación social y popular, sobre las prácticas profesionales de los colectivos artesanales y su relación con los procesos escolarizados de enseñanza y aprendizaje. El estudio aplica la metodología cualitativa con enfoque etnográfico. Los resultados no solo visibilizan que los espacios que ocupa el artesanado en el imaginario social están marcados por bloqueos y restricciones en el ejercicio profesional, también dan cuenta que los saberes que portan están condicionados por dimensiones étnicas y socioculturales, y que pese a contar con experiencias y conocimientos que no distan de los contenidos curriculares con los que se forma en el sistema educativo, son excluidos y considerados de menor valía. La investigación concluye que los métodos y procedimientos artesanales pueden ser utilizados como elementos formativos potentes para fortalecer la identidad, la participación democrática, el diálogo de saberes, la justicia social y una verdadera educación intercultural. En consecuencia, la educación social y popular puede ayudar a promover la participación activa de artesanos y otros colectivos, y de esa manera contribuir con la transformación y cambio de las estructuras desiguales desde una filosofía socioeducativa.

Palabras clave

Artesanía, educación intercultural, educación social, etnología, sistema educativo, saberes locales.

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Introduction

The article addresses the learning processes and the effects from the craft sector with a view to strengthening social and popular education. Likewise, transdisciplinarity is considered as a method that enables the dialog of knowledge in the educational context. In this scenario, the objective is to reflect, from a pedagogical approach focused on social and popular education, the professional practices of the craft collectives and their relationship with the school processes of teaching and learning. The collaborators of the studio are artisans dedicated to various trades, based in squares, streets or markets in the urban and tourist area of the city of Cuenca (historic center), Ecuador.

On the one hand, the study reviews the work and social trajectories of the participants from an intercultural and transdisciplinary perspective. On the other hand, it incorporates theoretical-methodological foundations to rethink a model of education that conceives the characteristics of certain social groups that integrates other knowledge outside the conventional ones, such as the artisan. In this way it integrates other voices, other mechanisms of participation and new epistemological devices useful in the construction of skillful knowledge in the exercise of daily life. The above is based on the proposal of a democratic education, less elitist and discriminatory that overcomes prejudices (Freire, 2014) and that recognizes the need to involve diverse collective voices and knowledge

present in cities and their cultures. Similarly, Freire (1996) argues that education is present in the citizens (fields, mountains, valleys and rivers) providing different means to learn, teach, create and dream.

The problem of the study inquires if the artisanal knowledge represents a social, liberating and innovative formative structure that reveals new ways of learning and teaching in the complex scenarios of education. It also analyzes whether the knowledge that intertwines the artisans meets the pedagogical, theoretical, didactic and methodological components of current education.

It is held that craftsmanship and its trades are dialogic tools of participation for social transformation (Alfonso Murcia, 2022), intertwine and exchange knowledge, meanings, messages, skills and talents, capable of influencing the construction and strengthening the knowledge rebuilt outside the school. However, these have not managed to be inserted into the formal education system, although they are part of the curricular structure with which people learn in popular education (Freire, 1993).

The topic presented is transcendent and current since education is inserted in a process of redefinitions to respond to the problems related to the environment, economy, health, hygiene, work, politics, etc., that preoccupy the human being. Innovative theoretical and methodological proposals such as those from the field of technology and neuroscience, as well as others related to teaching and learning models (Saharrea, 2022) that incorporate transformative views for education, such as those derived from culture and art, both in formal and non-formal scenarios, are continuously found. Especially in non-formal spaces (those outside the school) artistic and social training processes emerge that promote learning, creation and experimentation of aesthetic sensibilities according to the meanings of reality. The links between artisans and their trades reflect the close relationship with the culture they are part of (Boysen and Larsen, 2019), and the imprint they mark as makers of socio-cultural goods and capital.

In this artisanal network we find other creative processes that arise from reading and writing. These, in addition to their instructional use in school, also involve drawing, painting, sculpting and building (Hernández, 2015). For reasons such as the above, craftsmen in addition to schooling dialog, write and read from other proposals extracted from their cultural manifestations overcoming the disciplinary barriers that make up the standardized curriculum. Consequently, reading and writing open new doors to share with others. For example, writing creates bonds and experiences, sensations, feelings, and thoughts that are characteristic of human sensibility, while reading allows one to read social substantivity

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and the elements that surround it. But, in addition, other authors, realities and collective experiences can be known through speeches, writings and oralities (Cassany, 2019).

The mechanisms of critical reading and writing are part of the proposal of emerging literacies. Its evolution implies a way to use them within the framework of a specific and critical social purpose, focusing the "sociocultural" gaze on the practice and uses of reading and writing (Andrade, 2017). This complex understanding is understood from the philosophy of transdisciplinary education, since "the technification of society requires a meditated study on the way of life of human beings, their customs, traditions, values, ethical, moral behaviors, among others; such a study is possible to carry it out from the transdisciplinarity of knowledge" (Aguilar Gordón, 2022, p. 72).

The transdisciplinary dimension of the philosophy of education makes it possible to understand the subject in an integral way. Understanding that it is a social being, therefore, is at a crossroads of various elements that make up all social interaction. In this sense, it has been necessary to establish dialogical relationships in which emotions, beliefs, valuations and worldviews converge, making it possible to constantly think about new forms of relationship that are effective to conceive the world from different realities (Estrada García, 2020).

Transdisciplinarity in this article is conceived as a method that allows the convergence of a multiplicity of scientific and non-scientific knowledge. It transcends disciplinary logic and creates a complex space in which knowledge is discussed without formalizing hierarchies (Nicolescu, 1996). Morin (1984) affirmed that "science would never have been science if it had not been transdisciplinary" (p. 312), a fundamental characteristic in the understanding of current techno-scientific advances. In this sense, transdisciplinarity constitutes a methodical philosophy in the understanding of artificial languages established continuously in education, since the continuous social revolution demands the integration of diverse knowledge, therefore the incessant need to bring to the academy knowledge from the crafts, as well as from other practical experiences of the human being.

The article was developed using qualitative methodology, supported by ethnographic tools: semi-structured interview and participant observation. The interview was semi-structured for the interviewees to have freedom of expression and offer their point of view without limitations. On the other hand, the observation was participant because it was carried out through field work, with the objective of collecting data and contributing from experiences that give social meaning to the facts presented in the results of this research.

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Artistic education and interculturality

Education is not only the preparation for life, but also life itself (Dewey, 1995). Therefore, this disciplinary field requires articulating mechanisms in the social fabric that allow people (regardless of their craft and school level) to train and acquire skills with which they can defend themselves: reading, writing, questioning and understanding the world they inhabit. With these skills, education reaches its goal of affecting the life of the human being and making him acquire useful competences throughout life.

In addition to the above, critical pedagogy (Freire, 2014), popular education, social education, artistic education or the same philosophy and sociology of education (Acaso, 2009; Dewey, 1995; Durkheim, 1979; Ortiz and Joaqui, 2017; Carrasco Bahamonde, 2023) are added, which provide theoretical and methodological budgets to make possible innovative meaningful learning experiences, strengthened by diversity and cultural background. The convergence of these foundations between heterogeneous institutions allows to co-construct a model with a transdisciplinary approach that promotes dialog from different languages, knowledge, positions and scenarios. At the same time, it transcends the logic of technical instruction towards a love for knowledge and the exchange of knowledge without cultural, economic or social class asymmetries.

These pedagogical and artistic proposals have in common another approach that is intercultural; in this one the valuation of the richness of the diversity, the collaborative work and the erasures of the cultural asymmetries is promoted. Values such as respect, sensitivity and social justice, as well as the well-being and care of knowledge, intellect, body and aesthetics are part of the intercultural perspective. For Acaso (2009), art, education and culture are forms of knowledge and intellect associated with mental processes that allow learning with the hands and with the head (the intellect).

In the field of the artistic dimension, the importance of craftsmanship is recovered and placed at the same time as art (Sennett, 2008; Tolstoy 2019). Craftsmanship as a craft and practice is the trigger for a dialog of knowledge, which proposes a model of intercultural training, which is not exhausted in craft contexts, but transcends into institutionalized training contexts, from where collaborative processes inherent to the essence of the human being can be learned and which fall into the field of values, sensibilities and the aesthetics of art. For this reason, the artistic and artisanal perspective could be considered as a key strategy for the training of teachers and students, whether in formal or non-formal con-

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texts (Loureiro Sanjuán, 2020). To achieve this, it is necessary that artistic and craft education is no longer considered a cluster of manual, fun, marginal and peripheral experiences or as wild or residual subjects that do not constitute useful knowledge (Acaso, 2009; Hernández, 2010).

For its part, interculturality as an educational and social project is a challenge that, in addition to sharing experiences, situations, memories or desires (Tubino, 2022), involves situations and exercises that "lead to a dialog between subjects who talk about their memories and plans, their needs and desires, their failures and dreams, i.e. the real state of their human condition" (Fornet Betancourt, 2006, p. 34). Intercultural education develops and incorporates new and broader objectives, especially those that have to do with other capabilities, skills, values and attitudes that are not new, however, these have been relegated to the peripheral space of the school as a social institution. In this regard, Fornet Betancourt (2006) challenges the educational model that precedes social and reflects on the role of artists and educators, mystical-ancestral knowledge, rationalities and human dimensions as the feelings and emotions that go through education and are present in the evolutionary development of people.

Intercultural is blurred as a socio-educational approach that enhances the cultural traits that subjects have to identify, speak, say, express themselves verbally, bodily and socially (Aguado and Mata, 2017) in a diverse and different society, validating the knowledge that each person has and shaping a great social structure. Diversity, in that sense, represents a source of enrichment that builds bridges between the *self* and the *other*.

This education requires work, consensus and dialog from the intersubjectivities of human beings because it positions the formative work as a process of creation, exchange, production of knowledge, innovation, closely related to artistic education and the craft (Alliud, 2017) in its most elementary practices. Consequently, educational programs could consider conceptions such as those mentioned above and integrate approaches that organize training (González *et al.*, 2021) linked to the development of human capabilities and their invention-reinvention (Freire, 1993).

Methodology

It is a qualitative study that allows to investigate the phenomena related to the social and human field (Bautista, 2022). The tools are ethnographic: semi-structured interview and participant observation.

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Ethnography involved the collection of information, understanding of interactions and relationships, beliefs and values (Angrosino, 2012) of a community located in the Ecuadorian context. The semi-structured interview allowed the interviewees to have freedom of expression and to offer their point of view without limitations. These actors played an active role in obtaining information through their memories and experiences (Sautu, 2004). Finally, participant observation was carried out through fieldwork with the objective of collecting data and contributions that are derived from experiences that give social meaning to the facts.

Table 1
Data of participants

Names	Craft/profession	Age	Origin and ethnic self-identification	Type of education
Angela	Artisan in Andean jewelry	42	Cuenca -Mestizo	High school
Narcissa	Weaver in straw toquilla	50	Azogues-Cañari	Basic
White	Weaver in straw toquilla	55	Azogues-Cañari	Basic
Jaime	Imaginero (wood sculptor)	55	Cuenca-indigenous	Basic
Camila	Wood sculptor	18	Cuenca-Mestizo	Bachelor-degree in Arts
Javier	Artisan musician	39	Cuenca-mestizo	University-pursuing master's degree
Manuel	Artisan and musician	34	Cuenca-mestizo	University-bachelor's degree
Peter	Goldsmith	32	Cuenca-mestizo	University-bachelor's degree
Janeth	Jeweler and painter	36	Cuenca-mestizo	University-bachelor's degree
Bertha	Weaver in straw toquilla	58	Cuenca-indigenous	Basic
Saul	Luther	57	Cuenca-indigenous	University-bachelor's degree
Ana María	Artisan in Andean jewelry	45	Loja-saraguro	University-degree in Educational Psychology
Maria	Otavalan textile weaver	60%	Otavalo-kichwa	Basic
Maruja	Embroidery	55	Otavalo-kichwa	Basic
Gustavo	Painter	70	Cuenca-mestizo	University-bachelor's degree
Hilda	Artisan seamstress	75	Gualaquiza-indigenous	Basic
Juan	Tinsmith	65%	Cuenca-indigenous	Basic
Mónica	Ceramicist	23	Cuenca-Mestizo	High school
Christian	Ceramicist	20	Cuenca-mestizo	High school

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The research involved 19 people (10 women and 9 men) from the provinces of Azuay and Cañar. The sample was defined on the basis of an individual dialog with each of the partners. The names used are real (first names) and were authorized by the participants.

It is worth mentioning that in the first instance it was intended to achieve a rapprochement with the craft guilds of the city of Cuenca through state institutions, but this body demanded a partial authorship of the investigation. However, this was not possible because the project was part of a non-profit educational institution that fully funded the research.

The approach to the context and the interlocutors resorted to an ethical and honest commitment, fully respecting the textual and oral contributions that were voluntarily propitiated. Participants were provided with the topics and guides covered by the interview and observation. Meetings to implement the instruments were scheduled at times that were convenient for both parties.

Analysis and discussion of results

The established relations between education and craftsmanship highlight the need to abandon the moderating roles of teachers, and recognize the mediating capacity, the assessment of the subjectivity of each person to achieve an emancipatory —autonomous— praxis of the human condition (Dos Santos *et al.*, 2019). Education, in this professional field, influences the social debate, as well as the construction of identities and survival mechanisms at the personal and work level. In addition, it determines the spaces from which artisans individually and collectively enunciate themselves.

Talking about education, as well as its relationship with the craftsmen, explores ethnic, cultural, social class and gender dimensions that highlight the importance of knowledge in the construction of an inclusive and socially fair society, adapted and reformulated according to the social context.

The results of the research reveal the devices with which artisans were trained throughout their lives, when they had the opportunity to access formal or regularized education centers (Ecuadorian national education system-Ministry of Education) or in the scenarios of non-schooling training (what is outside the educational system), in which the elements of social training do not manage to permeate the official curriculum, leaving knowledge on the school margins, isolated from any pedagogical act.

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The craftsman

The World Bank (BM, 2016) shows that the situation of poverty and the stumbling block in Latin America in which the Andean and indigenous populations live is alarming, compromising the quality of life in terms of health, education, food, housing and employment. Indigenous communities represent 8 per cent of the population, comprising 14 per cent of the poor population in Ecuador. In addition, more than 17 percent of the Latin American population lives on less than $2.5 a day.

Aboriginal people live on less than $1.25 a day, and real capital income growth is less than 40%. These indicators result in preventing these groups from achieving better conditions and opportunities. For reasons such as the above, any intervention or investment in these terms must be based on a contextual analysis of real needs to create adherent strategies for the Andean peoples and to demonstrate positive impacts on the spiral of life (Marriaga and Mercado, 2022).

In Ecuador, the mestizo population is 17 200 000 inhabitants (IW-GIA, 2019), while the indigenous population is 1.1 million people. This population is historically the backbone of a large proportion of the artisanal population that comes from the Sierra and Amazon regions of the country.

What is explained in the previous paragraphs shows that the craftsmanship has a complex history since its beginnings in the Inca era, before the years of the colony. Artisanal crafts have their origin as articles that facilitated domestic tasks (kitchen and household utensils) for the clothing and technification of work tools (Guamán Poma de Ayala, 1932). Once the period of the colony begins, these trades and skills take on another meaning and are adapted according to the needs of the conquerors (Zambrano, 2020). Some of these folk arts were preserved intact and others were introduced and fused into complementary trades, such as shoe making, textiles, carpentry, barbershop, sharpeners, among others.

The profile of those engaged in the profession in the study area is linked to indigenous peoples and a destination of scarcity, precariousness, cheap labor and informal work. All this materializes in conditions of inequalities, in scenarios located on the street, from where those who embody the craftsmanship offer their productions and talents.

This is stated by craftsmen such as Christian, María, Ángela, Narcisa and Blanca, who do not have fixed premises and must go to fairs, squares or markets daily to sell their productions. They report that when they are lucky, they are not expelled from the makeshift posts by those who regulate public spaces (municipal police or servants hired by the control agencies).

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> We arrive at the markets in the morning, but sometimes the policemen take us out of the corners, and we have to move to others. And so it goes on until we can sell more or less. It is very tiring and sad (Narcissa, toquillera artisan in Cuenca).

This profession is generally an informal activity. Although there are guilds that group their participants with the purpose of achieving better job possibilities and improving the practice, precariousness, ideologies, informality and cheap labor, stigmatize them. For Volpedo and Thompson (2017), the socio-economic profile of the craft industry shows that these are vulnerable communities in social, economic, labor and productive terms. These practices are reflected in the standard of living, purchasing power and access to basic services of the members of the craft industry.

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> If a painting is painted by an indigenous person, it is worth less and is sold on the street. Only when it is sold in galleries or taken to other countries it is worth much more, but the person who paints it never sees the money. The same happens with crafts of any kind, it depends on who makes it (Janeth, artisan from Cuenca).

Janeth's experience reinforces the idea that the value assigned to artistic productions depends on who markets it and where it is done. For example, selling a craft in a market is not the same as selling it in an art gallery or airport store.

Educational and ethnic dimension

42.8% of respondents completed basic education, but not all completed High School. Several of them dropped out for work and economic reasons, in addition to the fact that their families and communities – especially rural ones – did not consider education as a priority.

In the group of those who had access to education since childhood, there are accounts that in the communities where they grew up there were religious institutions with free access for girls and boys from those backgrounds. This is how Hilda studied basic education and high school. She attended a religious school in a convent, where in addition to basic contents such as reading, writing and performing mathematical operations, she was taught the craft of sewing. Hilda says her profession as a seamstress "owes it to them."

During the Colony, religious educational centers welcomed girls and boys who later became artisans. There they learned to be blacksmiths, painters, tailors, seamstresses, carpenters, hairdressers, weavers (Rhodes,

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2007). These same people with their knowledge were the ones who later strengthened knowledge with practice, repetition and with it the improvement of certain trades (Zambrano, 2020).

A similar situation occurred with Juan, who points out that his family were able to attend school because access was free. They gave them food and also the priests taught them crafts. Thus, he and his brothers learned to read and write, but also trades that would be beneficial for them to generate economic income; in his case, the trade of tinsmith.

Religion is an integral element of the culture of a given society, so it took on particular relevance in the social structure of craftsmanship for the indigenous world. Otherwise, as several collaborators claim, they would have been marginalized from the school. Learning to read and write was a tool to protect themselves and defend themselves against the multiplicity of indolent acts against the most vulnerable, often indigenous sectors.

Through these learnings, they expanded their abilities to conduct themselves in life and interact with other people in an efficient way, establishing codes, communication channels and dialogs that guaranteed their development in the craft and in the construction of more human social networks (Hernández, 2015).

On the other hand, in the case of another group of artisans, the ethnic-indigenous condition delimited the space they occupied in the social structure in which they are anchored. From childhood they had limitations and restrictions to be located in certain places located in certain contexts such as school, community and city. In adulthood, these barriers were experienced at the workplace.

> I know people who say that schools were not the same for everyone […] if you were indigenous, the son of indigenous people, you weren't very welcome, they weren't everywhere on the street either. They are still not welcome in the city, but they were in the countryside or in the neighborhoods where they lived, it is cruel (Pedro, artisan from Cuenca).

At present, these barriers are in force, as craftsmanship continues to be approached from the invisibility and from instrumental, utilitarian and informal concepts, considering its makers as citizens of lower value or second class.

In the words of María, another of the artisans, not having finished her educational stage and not having a bachelor's degree led her to work from an early age in artisan places under precarious circumstances at an economic level. According to her, society labels people as good or bad for

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a specific job depending on the level of education they have and the professions they practice. In these margins, the professions that are executed on the streets and those that are inherited by families generationally are delegitimized. This results in the devaluation and expulsion of knowledge acquired by the experience of the human being (non-scientists) from the bosom of school education.

> That's how others see us. Because inside the family and the community we are happy selling our merchandise, we do it among the families and we are all together. We all do this. But we are often told to study (Maruja, an artisan from Otavalo based in Cuenca).

For Ana María, Blanca, Camila and Mónica, the oppression experienced and embodied in their stories, as in those of their mothers, fathers, older brothers, led them to enter the educational system and pursue a third and fourth level career. This group of women say they do not want future generations of their families and communities to experience similar situations of exclusion. Therefore, they motivate them to achieve a cultural tenure that allows them access to economies and cultural goods, in order not to be seen as mere stigmatized packages (García Canclini, 2019).

Ana María (graduate in Educational Psychology), Mónica (who finished high school and aspires to study Education Sciences at the state university), Blanca (who managed to make her only child able to study a postgraduate degree abroad) and Camila (who studies the profession that her father could not study) are clear that the improvement of their practices through the knowledge acquired from the formal school will help to maintain their professions, as well as to acquire standards of quality and survival in some environments, where the artisanal is condemned for its utilitarian, pristine, collective, community or for its folkloric approach (Voscoboinik, 2021).

The articulation of craft knowledge with knowledge circulating in formal or school education provide a complementarity in the formation of the human being. This integration is carried out as an ecology of knowledge (*cf*. Estrada García, 2023), where all knowledge, regardless of its origin, share space and are assigned the same value. The objective is to transcend the disjunctive logic of knowledge, in this way to crystallize a social education at the service of the most needy human beings.

In this context, it is known that the product of education is learning, i.e. the result that the human being achieves: acquisition of skills, knowledge, behaviors and values. In the same way, we must pay attention to the process, where experiences linked to learning are found. For

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example, reflection, attention to diversity, perception of the formative process, etc. In short, learning involves both the practical acquisition of specific skills and the acquisition of a deep and general understanding of the world around humanity (Kirschner and Hendrick, 2020). This corresponds to the social training that is intended to be practiced in educational institutions, which emphasizes establishing spaces for dialog with knowledge that has been historically marginalized as are craft knowledge. Because learning is both a process and a product of knowledge, therefore, theoretical, methodological and epistemological dialogs in the context of education are essential.

Artisan knowledge that goes beyond life and society

The educational system and the social structure in which craftsmanship is based lead to think that the knowledge of the craft does not integrate into the national educational curriculum, because the history of education and its axioms of Western reproduction root mechanisms that untie the knowledge of peoples and nationalities in curricular training proposals. Many of this knowledge is what De Sousa Santos (2009) call "southern" and is developed in the professional practice of trades that combine content and knowledge capable of constituting useful philosophies and wisdom in the exercise of life.

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The learning that emerges from the craft trades – as well as those that are woven in the educational spaces – begin as practices and from these they hatch the knowledge necessary to understand the events of the daily life. Practice and theory are fundamental tools, useful in the creation of new knowledge, provided that there is imagination and repetition in the mechanics of pedagogical action (Alliud, 2017; Sennett, 2008).

Javier, a craftsman and musician, emphasizes that skill develops with repetition, and that is a mechanism that improves practices. He turned his acquired competences in his profession. In another case, Saul, craftsman Luther, narrates that the process of building a handcrafted guitar is a work that requires knowledge, intellect, imagination, individual and collective work, and in that construction journey are intertwined countless learnings that are representative for the life of the craftsman, as well as those who appreciate this type of art. Contrary to institutionalized ideas such as stigma, it is not an easy and inexperienced job.

> This is something that we have known in my family for decades, and we do a job that not everyone does; from choosing quality wood, selecting the parts that will serve, the drying and treatment processes, everything

is important […] one develops skills and uses all the senses: smell, hearing, sight, touch […] is one of the most complete works (Paul, artisan Lutier of Cuenca).

For him, music as an artistic expression, has educational and cultural purposes that are beneficial for the construction of learning. This is related to the thesis of Morin (2004), who argued that education is not alien to life, because it is intrinsically linked to the practices that people perform daily and from which knowledge and valid devices for subsistence are extracted.

For all the above, the convergence of experiential knowledge that is derived from the daily practices of craftsmanship gives meaning to human work, which is constituted in transdisciplinary, peripheral or ancestral knowledge, which are conducive to the understanding of the complex problems that society and education go through.

The trade of being a teacher and craftsman

Regardless of the artisan or artistic alternative, the practice of the craft constitutes a means to express emotions, reflect, denounce and resignify experiences and knowledge (Sandoval and Pineda, 2022). It is also a mechanism for reconciling collective theories and practices. It responds to a knowledge that constitutes a tool for action, its practice being the source of reference and legitimacy (Alliud, 2017), both for teaching and for craftsmanship.

Authors such as Bovisio (2002), Sennett (2008) and Tolstoy (2019) agree that there is a dialogical relationship between teaching and the craft profession, highlighting a practice that allows to improve professional skills and obtain results in the performance of any field or activity. The experience in any of the professions represents necessary competences in the subjects who teach and from whom one learns. Also, according to Baú (2018), in the processes of construction and reconstruction of societies, collectives that are minorities or victims of conflicts find alternative artistic manifestations to forge a diverse identity and consistent with the values they project.

Ecuadorian artisans, especially those generationally aged between 18 and 30 years, do not doubt that expertise in the craft should be put to value in the university careers of the future. For example, Monica thinks that despite not having continued with her university studies she aspires to become a teacher. She says she has learned significant lessons from the art of basketry and considers herself an empirical teacher who now can teach other people what she knows. This also happens when she teaches her children the trade:

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> I didn't study [at] the university, I graduated from school, but it's never too late […] I would like to study Education Sciences. Because it's something I like. It has to do with teaching, a little bit with what I do. My brother is studying social communication. Young people who want to learn basketry come to the house, there are some who love to learn this (Monica, artisan from Azuay).

Monica says she has supported young people whose thesis topics revolved around craftsmanship. For example, she collaborated with a university student who came to the workshop and learned to weave. The student had craft skills that allowed her to capture the elaboration processes from start to finish.

Camila, one of the youngest artisans, began her studies in plastic arts, for her what she learned in her father's workshop is a necessary input in the approach of knowledge from an academic perspective. In addition, she argues that graduating from a bachelor's degree will allow her to consolidate her knowledge in combination with real practice, managing to fulfill her desires to teach other people.

> What I know, maybe they'll teach me in the career. I don't know, but I think that coming from this profession, from knowing what my dad knows is a gift that not everyone has, is an apprenticeship (Camila, artisan from Azuay).

Juan, a tinsmith, says that knowing how to do the trade transcends his workshop, allowing him to develop leadership skills in the area where he lives. Currently, he leads social and citizen participation movements in a rural area near Cuenca, where he is also a teacher of his craft and other learning that is built collectively.

> Being in the workshop and meeting people from all over, and having conversations, learning, you are always learning. I know what they share with me (clients and visitors) and they know what my profession is. Life is a lifelong learning and I try to give my community some of that too. I work with children, with other colleagues, and with women, giving training or organizing activities (Juan, artisan from Azuay).

Sennett (2008) explains that, in the mind of the practitioner, the details of everyday work are connected to the final product. Work from that area is translated through the freedom to experiment, create, draw mental maps that require imagining the work before it is done. Hence, when the work is finished there is a degree of inner satisfaction in the artist, in the community and in the family. The experience cited is capable of strength-

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ening social networks, local and collective identity, as well as providing the necessary foundations in the intention of rethinking sociocultural contexts.

Craft and Creative Economies

Crafts and their makers allow us to think of craftsmanship as a social dimension (Sennett, 2008), which connects creativity, imagination and the work executed. Creativity is the constant, expressed from new ideas, once applied result in the creation of original works, cultural productions, and functional creations. However, it does not culminate, as in other scenarios, in scientific inventions and technological innovations (UNCTAD, 2008) at the service of humanity.

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The look of the craft leads to explore and understand how the modes of elaboration, techniques and knowledge that involve from its various expressions are part of a hidden curriculum that with its contents and knowledge have not managed to transcend the field of educational praxis. Likewise, they are not considered as social, cultural and economic resources that enrich the proposal of society. All this even though the craftsmen have proven to be able to generate productions and exchanges that fulfill a useful instrumental role in life at the cultural and economic level. However, there is still the idea of placing it in different conditions to other artistic manifestations considered of greater value and inclusion.

The current times bring craftsmanship closer to cultural and economic approaches that gradually place it in the spaces of creative economies (Boix and Lazzeretti, 2012), which refers to a systemic and interactive concept that intertwines culture, education, technologies and economy in a modern world in which predominate new languages such as multimodal and semiotic, sound, textual and archetypal. The concept of creative economies is useful in legitimizing invisible trajectories and positioning them within the cultural industry as an important theoretical-practical device in the creation of knowledge.

For these purposes, craftsmanship represents not only a way to promote the sale and commercialization of pieces, but also emerging and peripheral knowledge that are priority in the desire to know the nature and scope of the "sustainable", "circular" or "orange" economies to improve the quality of life of craftsmen.

It is worth mentioning that not all creative activities have the same behavior within these economies, some grow more, such as those associated with design, technology and video games. While craftsmanship, the performing and visual arts show no evidence of growth (Boix and Lazzeretti,

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2012), rather they tend to disappear because of the scarce resources allocated by the industry, as well as the devaluation of the hand and body work.

Conclusions

The relationship between individual-collective and social-cultural experiences characterized by dynamic working practices puts into perspective various ways of living and learning in society. The craft profession continues to foster human relations based on a democratic, participatory, fair and cooperative spirit, not only in the labor sphere —from where they project their profession— but from the dimensions that articulate the meaning, communication and meaning of life.

The research makes learning visible as a product and as a process of knowledge in formal and non-formal contexts, establishes transdisciplinary dialogs between knowledge from the craftsmen in relation to educational experiences and practices, in order to rethink the theories and pedagogical models with which current societies are being formed. Given the above, it is challenging to think about the educational process outside the academy, and how the absolute truths and conceptual structures that circulate in formal education systems are put into play.

The study showed the different dimensions that account for the exclusionary and unequal situation that the craftsmen live. In this case, it is a collective that contributes with its "know-how" to the development not only of their communities, but they are possessed of experiences and knowledge capable of influencing the process of transformation towards a society coherent with the challenges of postmodernity. Despite the above, artisans consider themselves to be neither part of the social system, nor as educators, mediators, or facilitators, nor as first-class citizens.

The profession, at present, continues to be thought and observed from utilitarian ends, on the margins of scarcity, precariousness of work, social and economic. The social fabric places them in the group of trades inherited and learned in other cases, over time, which are classified as illegitimate for not having crossed the "formal" "academic" education system. As a result, their practices continue to be seen as knowledge that is not an important part of the structure or of social spaces (galleries, museums, other spheres reserved for art). To this has contributed the reproduction of stereotypes present in relation to some and other professions, some with greater value while others at a disadvantage.

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Craftsmanship, as an emerging activity, has the creative and artistic potential to cross the limitations of reductionist thinking. With its potential and accumulation of manpower and intellect, it can be shown in scenarios in which it is necessary to work the sensitivities, aesthetics, diverse forms and processes that resignify the language, the gaze and the apprehension of the world.

Therefore, the knowledge that comes from artistic-craft experiences is valid and necessary in equitable coexistence where everyone can contribute and benefit from the opportunities offered by the social imaginary. If the real desire is for the school to address the real problems of society, it is then appropriate to establish dialogs to make interculturality possible through the construction of bridges that promote true collaborative projects.

The combination of each skill and competence is visible in artisanal empirical training. Therefore, although most artisans do not have a professional degree obtained in universities, they do have the skills developed in practice, which are conceived from thought, knowledge, imagination, creativity, individual or collective participation and have an end not only for them as makers, but for someone else (the recipients of their messages, processes and products).

Artisanal knowledge brings history, learning and didactic trajectories by the implications in the way of seeing, thinking and doing the education. In a globalized era, craftsmanship is an aesthetic tool that can help to conceive the world and its meanings from a transdisciplinary dimension, from a social prism enriched by the experience of the human being, his art and his intellect.

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VOSCOBOINIK, Nadia
    2021   *Artesanías qom: una práctica colectiva y comunitaria*. En XII Congreso Argentino de Antropología Social, La Plata, junio, julio y septiembre. https://t.ly/lv0xz

ZAMBRANO, Fanny
    2020   *El género como estructura social en el artesanado ecuatoriano y portugués: discursos e imaginarios socioculturales y educativos* [Tesis doctoral]. UNED.

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Editorial guidelines / *Normas editoriales*

Publication guidelines in «Sophia»

ISSN: 1390-3861 / e-ISSN: 1390-8626

1. General Information

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«Sophia» is a scientific publication of the *Salesian Polytechnic University of Ecuador,* published since January 2006 in an uninterrupted manner, with a fixed biannual periodicity, specialized in Philosophy of Education and its interdisciplinary lines such as Epistemology, Deontology, Aesthetics, Critical Studies, Hermeneutics, Axiology, Ontology, Philosophical Anthropology, Sociology, Philosophical Analytics, among others, all linked to the field of Education.

It is scientific journal, which uses the peer-review system, under double-blind review methodology, according to the publication standards of the American Psychological Association (APA). Compliance with this system allows authors to guarantee an objective, impartial and transparent review process, which facilitates the publication of their inclusion in reference databases, repositories and international indexing.

«Sophia» is indexed in **(SCOPUS)** Emerging Sources Citation Index **(ESCI)** from Web of Science; in Scientific Electronic Library Online **(SciELO)**; in the Scientific Information System **(REDALYC)**; in the directory and selective catalog of the Regional Online Information System for Scientific Journals of Latin America, the Caribbean, Spain and Portugal **(LATINDEX)**, in the Matrix of Information for the Analysis of Journals **(MIAR)**, in Integrated Classification of Scientific Journals **(C.I.R.C)**, in the Academic Resource Index **(Research Bible)**, in the Ibero-American Network of Innovation and Scientific Knowledge **(REDIB)**, in the Portal for the dissemination of scientific production **(Dialnet)**; in Latin American Bibliography in Journals of Scientific and Social Research **(BIBLAT)**; in the Directory of Open Access Journals **DOAJ** and in repositories, libraries and specialized catalogs of Latin America.

The journal is published in a double version: printed (ISSN: 1390-3861) and digital (e-ISSN: 1390-8626), Spanish and English, each work being identified with a DOI (Digital Object Identifier System).

2. Scope and policy

2.1. Theme

Original contributions in Philosophy of Education, as well as related areas: Epistemology, Deontology, Aesthetics, Critical Studies, Hermeneutics, Axiology, Ontology, Philosophical Anthropology, Sociology, Philosophical Analytics,... and all interdisciplinary related disciplines with a philosophical reflection on education

2.2. Contributions

«Sophia» publishes critical studies, reports and proposals, as well as selected state-of-the-art literature reviews related to Philosophy of education. Accepting also results of empirical research on Education, written in Spanish and/or English.

The contributions can be:

- **Reviews**: 10,000 to 11,000 words of text, without including charts and references. Justified references would be specially valued. (around a minimum of 60 works)
- **Research**: 8,000 to 9,500 words of text, without including title, abstracts, descriptors, charts and references.
- **Reports, studies and proposals:** 8,000 to 9,500 words of text, without including title, abstracts, charts and references.

2.3. Characteristics of the content

All works presented for publication in «Sophia» must comply with the characteristics of scientific research:

- Be original, unpublished and relevant
- Address issues that respond to current problems and needs
- Contribute to the development of scientific knowledge in the field of Philosophy of Education and its related areas
- Use adequate, clear, precise and comprehensible language
- Not have been published in any medium or in the process of arbitration or publication.
- Not to be the result of thesis work, monographs, and/or degree projects
- Do not exceed 2% similarity with other documents.

Depending on the relevance of the article, it will be considered as special contributions and will occasionally be published:

- Works that exceed the stated extent
- Works that do not correspond to the subject of the reflection foreseen for the respective issue

2.4. Periodicity

«Sophia» has a biannual periodicity (20 articles per year), published in January and July and counts by number with two sections of five articles each, the first referring to a **Monographic** topic prepared in advance and with thematic editors and the second, a section of **Miscellaneous**, composed of varied contributions within the theme of the publication.

3. Presentation, Structure and Submission of the Manuscripts

Texts will be presented in Arial 12 font, single line spacing, complete justification and no tabs or blank spaces between paragraphs. Only large blocks (title, authors, summaries, keywords, credits and headings) will be separated with a blank space. The page should be 2 centimeters in all its margins.

Papers must be submitted in a Microsoft Word document (.doc or .docx), requiring that the file be anonymized in File Properties, so that the author/s identification does not appear.

Manuscripts must be submitted only and exclusively through the OJS (Open Journal System), in which all authors must previously register. Originals sent via email or other interfaces are not accepted.

3.1. Structure of the manuscript

For those works that are empirical investigations, the manuscripts will follow the IMRDC structure, being optional the Notes and Supports. Those papers that, on the contrary, deal with reports, studies, proposals and reviews may be more flexible in their epigraphs, particularly in material and methods, analysis, results, discussion and conclusions. In all typologies of works, references are mandatory.

A. Empirical research

Its purpose is to contribute to the progress of knowledge through original information, following the IMRDC structure: Introduction (objectives, previous literature). Materials and methods, Analysis and Results, Discussion, integration and conclusions. Following the criteria set by UNESCO, it is these types of scientific texts are also called as: "original memories"

The recommended structure, especially in works that include empirical research, is the following:

1) Title (Spanish) /Title (English): Concise but informative, in Spanish on the first line and in English on the second. A maximum of 85 characters with spaces are accepted. The title is not only the responsibility of the authors, changes being able to be proposed by the Editorial Board.

2) Identification data: Of each of the authors, organized by priority. A maximum of 3 authors will be accepted per original, although there may be excep-

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tions justified by the topic, its complexity and extent. Next to the names must follow the professional category, work center, email of each author and complete ORCID number. Aspects that must be included in the Cover Letter, must also be uploaded to the OJS system of the journal, in the Metadata section and /or in a word document attached to the file containing the work proposed for the evaluation.

3) Abstract (Spanish) / Abstract (English): It will have a minimum length of 210 and a maximum of 220 words in Spanish; and 200 and maximum 210 words in English. The abstract will describe concisely and in this order: 1) Justification of the topic; 2) Objectives; 3) Methodology; 4) Main results; 5) Main conclusions. It must be impersonally written "This paper analyzes...". In the case of the abstract, the use of automatic translators will not be accepted due to their poor quality.

4) Keywords (Spanish) / Keywords (English): A maximum of 6 keywords must be presented for each language version directly related to the subject of the work. The use of the key words set out in UNESCO's Thesaurus and of the journal itself, located in the following link: https://sophia.ups.edu.ec/tesauro_sophia.php, will be positively valued.

5) Introduction and state of the issue: It should include the problem statement, context of the problem, justification, rationale and purpose of the study, using bibliographical citations, as well as the most significant and current literature on the topic at national and international level..

6) Material and methods: It must be written so that the reader can easily understand the development of the research. If applicable, it will describe the methodology, the sample and the form of sampling, as well as the type of statistical analysis used. If it is an original methodology, it is necessary to explain the reasons that led to its use and to describe its possible limitations.

7) Analysis and results: It will try to highlight the most important observations, describing them, without making value judgments, the material and methods used. They will appear in a logical sequence in the text and the essential charts and figures avoiding the duplication of data.

8) Discussion and conclusions: Summarize the most important findings, relating the observations themselves with relevant studies, indicating contributions and limitations, without adding data already mentioned in other sections. Also, the discussion and conclusions section should include the deductions and lines for future research.

9) Supports and acknowledgments (optional): The Council Science Editors recommends the author (s) to specify the source of funding for the research. Priority will be given to projects supported by national and international competitive projects. In any case, for the scientific evaluation of the manuscript, it should be only anonymized with XXXX for its initial evaluation, in order not to identify authors and research teams, which should be explained in the Cover Letter and later in the final manuscript.

10) The notes (optional) will go, only if necessary, at the end of the article (before the references). They must be manually annotated, since the system of footnotes or the end of Word is not recognized by the layout systems. The

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numbers of notes are placed in superscript, both in the text and in the final note. The numbers of notes are placed in superscript, both in the text and in the final note. No notes are allowed that collect simple bibliographic citations (without comments), as these should go in the references.

11) References: Bibliographical citations should be reviewed in the form of references to the text. Under no circumstances should references not mentioned in the text be included. Their number should be sufficient to contextualize the theoretical framework with current and important criteria. They will be presented alphabetically by the first last name of the author.

b. Reviews

Literature reviews are based on the analysis of major publications on a give-Literature reviews are based on the analysis of major publications on a given topic; Its objective is to define the current state of the problem and to evaluate the investigations carried out. Its structure responds to the phases of the theme/ problem, contributions of researchers or teams, changes in theory or main theoretical currents; unsolved problems; current and future trends (Giordanino, 2011). According to UNESCO, this type of work is also known as "recapitulative studies"

1) Title (Spanish) /Title (English): Concise but informative, in Spanish on the first line and in English on the second. A maximum of 85 characters with spaces are accepted. The title is not only the responsibility of the authors, changes being able to be proposed by the Editorial Board.

2) Identification data: Of each of the authors, organized by priority. A maximum of 3 authors will be accepted per original, although there may be exceptions justified by the topic, its complexity and extent. Next to the names must follow the professional category, work center, email of each author and complete ORCID number. Aspects that must be included in the Cover Letter, must also be uploaded to the OJS system of the journal, in the Metadata section and /or in a word document attached to the file containing the work proposed for the evaluation.

3) Abstract (Spanish) / Abstract (English): It will have a minimum length of 210 and a maximum of 220 words in Spanish; and 200 and maximum 210 words in English. The abstract will describe concisely and in this order: 1) Justification of the topic; 2) Objectives; 3) Methodology; 4) Main results; 5) Main conclusions. It must be impersonally written "This paper analyzes..." In the case of the abstract, the use of automatic translators will not be accepted due to their poor quality.

4) Keywords (Spanish) / Keywords (English): A maximum of 6 keywords must be presented for each language version directly related to the subject of the work. The use of the key words set out in UNESCO's Thesaurus and of the Journal itself will be positively valued.

5) Introduction: It should include a brief presentation of the topic, the formulation of the purpose or objective of the study, the context of the problem and the formulation of the problem that is proposed, the presentation of the

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idea to be defended, the justification explaining the importance, the relevance of the study; the methodological framework used, and finally, a brief description of the structure of the document. In the justification it is necessary to use bibliographical citations as well as the most significant and current literature on the subject at national and international level.

6) Body or development of the document: It implies putting into practice throughout the text, a critical attitude that should tend towards the interpellation, in order to attract the attention of the topic and the problem treated. The writer must generate in the reader the capacity to identify the dialogical intention of the proposal and to promote an open discussion.

7) Conclusions: Objectively state the results and findings. Offer a vision of the implications of the work, the limitations, the tentative response to the problem, the relations with the objective of the research and the possible lines of continuity (to fulfill this objective it is suggested not to include all the results obtained in the research). The conclusions should be duly justified according to the research carried out. The conclusions may be associated with the recommendations, evaluations, applications, suggestions, new relations and accepted or rejected hypotheses.

8) Bibliography: It is the set of works used in the structuring of the scientific text. It should include only the reference of the works used in the research. Bibliographical references should be ordered alphabetically and conform to the international APA standards, in their sixth edition.

3.2. Guidelines for references

PERIODIC PUBLICATIONS

Journal article (author): Valdés-Pérez, D. (2016). Valdés-Pérez, D. (2016). Incidencia de las técnicas de gestión en la mejora de decisiones administrativas [Impact of Management Techniques on the Improvement of Administrative Decisions]. Retos, 12(6), 199-2013. https://doi.org/10.17163/ret.n12.2016.05

Journal Article (Up to six authors): Ospina, M.C., Alvarado, S.V., Fefferman, M., & Llanos, D. (2016). Introducción del dossier temático "Infancias y juventudes: violencias, conflictos, memorias y procesos de construcción de paz" [Introduction of the thematic dossier "Infancy and Youth: Violence, Conflicts, Memories and Peace Construction Processes"]. Universitas, 25(14), 91-95. https://doi.org/10.17163/uni.n25.%25x

Journal article (more tan six authors): Smith, S.W., Smith, S.L. Pieper, K.M., Yoo, J.H., Ferrys, A.L., Downs, E.,... Bowden, B. (2006). Altruism on American Television: Examining the Amount of, and Context Surronding. Acts of Helping and Sharing. Journal of Communication, 56(4), 707-727. https://doi.org/10.1111/j.1460-2466.2006.00316.x

Journal article (without DOI): Rodríguez, A. (2007). Desde la promoción de salud mental hacia la promoción de salud: La concepción de lo comunitario en la implementación de proyectos sociales. Alteridad, 2(1), 28-40. (https://goo.gl/zDb3Me) (2017-01-29).

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Books and Book Chapters

Full books: Cuéllar, J.C., & Moncada-Paredes, M.C. (2014). El peso de la deuda externa ecuatoriana. Quito: Abya-Yala.

Chaprter of book: Zambrano-Quiñones, D. (2015). El ecoturismo comunitario en Manglaralto y Colonche. En V.H. Torres (Ed.), Alternativas de Vida: Trece experiencias de desarrollo endógeno en Ecuador (pp. 175-198). Quito: Abya-Yala.

Digital media

Pérez-Rodríguez, M.A., Ramírez, A., & García-Ruíz, R. (2015). La competencia mediática en educación infantil. Análisis del nivel de desarrollo en España. Universitas Psychologica, 14(2), 619-630. https://doi.org.10.11144/Javeriana.upsy14-2.cmei

It is prescriptive that all quotations that have DOI (Digital Object Identifier System) are reflected in the References (can be obtained at http://goo.gl/gfruh1). All journals and books that do not have DOI should appear with their respective link (in their online version, if they have it, shortened by Bitly: https://bitly.com/) and date of consultation in the indicated format.

Journal articles should be presented in English, except for those in Spanish and English, in which case it will be displayed in both languages using brackets. All web addresses submitted must be shortened in the manuscript, except for the DOI that must be in the indicated format (https://doi.org/XXX).

3.3. Epigraphs, Figures and Charts

The epigraphs of the body of the article will be numbered in Arabic. They should go without a full box of capital letters, neither underlined nor bold. The numbering must be a maximum of three levels: 1. / 1.1. / 1.1.1. A carriage return will be established at the end of each numbered epigraph.

The charts must be included in the text in Word format according to order of appearance, numbered in Arabic and subtitled with the description of the content.

The graphics or figures will be adjusted to the minimum number required and will be presented incorporated in the text, according to their order of appearance, numbered in Arabic and subtitled with the abbreviated description. Their quality should not be less than 300 dpi, and it may be necessary to have the graph in TIFF, PNG or JPEG format.

4. Submission Process

The receipt of articles is permanent, however, considering that the publication of the Sophia Journal is bi-annual, the manuscripts must be sent at least one period before the date stipulated in the corresponding Call.

The manuscripts must be sent through the OJS (Open Journal System) system of the journal, for which it is necessary that the author previously registers in

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the respective space (enter in the following link: http://sophia.ups.edu.ec/index.php/sophia/user/register, complete the form and follow each of the suggested steps).

The two documents that must be sent are:

1) Presentation and cover (Use official model), which will appear:

Title. In Spanish in the first line, in letter Arial 14, with bold and centered, with a maximum of 85 characters with space. In English in the second line, in letter Arial 14, in italics and bold.

Full names and surnames of the authors. Organized in order of priority, a maximum of 3 authors are accepted per original, although there may be exceptions justified by the topic, its complexity and extent. Each name must include the name of the institution in which he/she works as well as the city, country, email and ORCID number.

Abstract (Spanish) It will have a minimum length of 210 and a maximum of 220 words. It must include 1) Justification of the topic; 2) Objectives; 3) Methodology; 4) Main results; 5) Main conclusions. It must be impersonally written "The present paper analyzes..."

Abstract. Summary with all its components, translated into English and in cursive. Do not use automatic translation systems.

Keywords (Spanish): 6 standardized terms preferably of a single word and of the UNESCO and the Journal's Thesaurus separated by commas (,).

Keywords. The 6 terms above translated into English and separated by comma (,). Do not use automatic translation systems.

In addition, a statement must be included (using a template called: Presentation) in which it is explained that the submitted manuscript is an original contribution, not sent or being evaluated in another journal, confirmation of the signatory authors, acceptance (if applicable) of formal changes in the manuscript according to the norms and partial transfer of rights to the publisher. This document must be signed and recorded through the OJS system, in the section: "Complementary files".

2) Manuscript totally anonymized, according to the guidelines referred in precedence.

All authors must register with their credits on the OJS platform, although only one of them will be responsible for correspondence. No author can submit or have in review two manuscripts simultaneously, estimating an absence of four consecutive numbers (2 years).

5. Publication interval

The interval between receipt and publication of an article is 7 months (210 days).

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Normas de Publicación en «Sophia»

ISSN: 1390-3861 / e-ISSN: 1390-8626

1. Información general

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«Sophia» es una publicación científica de la Universidad Politécnica Salesiana de Ecuador, editada desde junio de 2006 de forma ininterrumpida, con periodicidad fija semestral, especializada en Filosofía de la Educación y sus líneas interdisciplinares como Epistemología, Deontología, Estética, Estudios Críticos, Hermenéutica, Axiología, Ontología, Antropología Filosófica, Sociología, Analítica Filosófica... vinculadas al ámbito de la educación.

Es una revista científica arbitrada, que utiliza el sistema de evaluación externa por expertos (*peer-review*), bajo metodología de pares ciegos (*doble-blind review*), conforme a las normas de publicación de la American Psychological Association (APA). El cumplimiento de este sistema permite garantizar a los autores un proceso de revisión objetivo, imparcial y transparente, lo que facilita a la publicación su inclusión en bases de datos, repositorios e indexaciones internacionales de referencia.

«Sophia» se encuentra indexada en **(SCOPUS)** Emerging Sources Citation Index **(ESCI)** de Web of Science; en Scientific Electronic Library Online **(SciELO)**; en el Sistema de Información Científica **(REDALYC)**; en el directorio y catálogo selectivo del Sistema Regional de Información en Línea para Revistas Científicas de América Latina, el Caribe, España y Portugal **(LATINDEX)**, en la Matríz de Información para el Análisis de Revistas **(MIAR)**, en Clasificación Integrada de Revistas Científicas **(C.I.R.C)**, en Academic Resource Index **(Research Bible)**, en la Red Iberoamericana de Innovación y Conocimiento Científico **(REDIB)**, en el Portal de difusión de la producción científica **(Dialnet)**; en Bibliografía Latinoamericana en Revistas de Investigación Científica y Social **(BIBLAT)**; en el Directorio de Revistas de Acceso Abierto **DOAJ** y en repositorios, bibliotecas y catálogos especializados de Iberoamérica.

La revista se edita en doble versión: impresa (ISSN: 1390-3861) y electrónica (e-ISSN: 1390-8626), en español y en inglés, siendo identificado además cada trabajo con un DOI (Digital Object Identifier System).

2. Alcance y política

2.1. Temática

Contribuciones originales en materia de Filosofía de la Educación, así como áreas afines: Epistemología, Deontología, Estética, Estudios Críticos, Hermenéutica, Axiología, Ontología, Antropología Filosófica, Sociología, Analítica Filosófica,... y todas aquellas disciplinas conexas interdisciplinarmente con una reflexión filosófica sobre la educación.

2.2. Aportaciones

«Sophia» edita estudios críticos, informes, propuestas, así como selectas revisiones de la literatura (*state-of-the-art*) en relación con la Filosofía de la Educación, aceptando asimismo trabajos de investigación empírica, redactados en español y en inglés.

Las aportaciones en la revista pueden ser:

- **Revisiones:** 10.000 a 11.000 palabras de texto, sin incluir tablas y referencias. Se valorará especialmente las referencias justificadas, actuales y selectivas de alrededor de un mínimo de 60 obras.
- **Investigaciones:** 8.000 a 9.500 palabras de texto, sin incluir título, resúmenes, descriptores, tablas y referencias.
- **Informes, estudios y propuestas:** 8.000 a 9.500 palabras de texto, sin incluir título, resúmenes, tablas y referencias.

2.3. Características del contenido

Todos los trabajos presentados para la publicación en «Sophia» deberán cumplir con las características propias de una investigación científica:

- Ser originales, inéditos y relevantes
- Abordar temáticas que respondan a problemáticas y necesidades actuales
- Aportar para el desarrollo del conocimiento científico en el campo de la Filosofía de la Educación y sus áreas afines
- Utilizar un lenguaje adecuado, claro, preciso y comprensible
- No haber sido publicados en ningún medio ni estar en proceso de arbitraje o publicación.
- No ser resultado de trabajos de tesis, monografías y/o trabajos de titulación.
- No exceder el 2% de similitud con otros documentos.

Dependiendo de la relevancia y pertinencia del artículo, se considerarán como contribuciones especiales y ocasionalmente se publicarán:

- Trabajos que superen la extensión manifestada
- Trabajos que no se correspondan con el tema objeto de la reflexión prevista para el número respectivo

2.4 Periodicidad

«Sophia» tiene periodicidad semestral (20 artículos por año), publicada en los meses de enero y julio; y por número cuenta con dos secciones de cinco artículos cada una, la primera referida al tema central de carácter **Monográfico** debidamente preparado y, la segunda, una sección **Miscelánea**, compuesta por aportaciones variadas dentro de la temática de la publicación.

3. Presentación, estructura y envío de los manuscritos

Los trabajos se presentarán en tipo de letra Arial 12, interlineado simple, justificado completo y sin tabuladores ni espacios en blanco entre párrafos. Se separarán con un espacio en blanco los grandes bloques (título, autores, resúmenes, descriptores, créditos y epígrafes). La página debe tener 2 centímetros en todos sus márgenes.

Los trabajos deben presentarse en documento de Microsoft Word (.doc o .docx), siendo necesario que el archivo esté anonimizado en Propiedades de Archivo, de forma que no aparezca la identificación de autor/es.

Los manuscritos deben ser enviados única y exclusivamente a través del OJS (Open Journal System), en el cual todos los autores deben darse de alta previamente. No se aceptan originales enviados a través de correo electrónico u otra interfaz.

3.1. Estructura del manuscrito

Para aquellos trabajos que se traten de investigaciones de carácter empírico, los manuscritos seguirán la estructura IMRDC, siendo opcionales los epígrafes de Notas y Apoyos. Aquellos trabajos que por el contrario se traten de informes, estudios, propuestas y revisiones sistemáticas podrán ser más flexibles en sus epígrafes, especialmente en Material y métodos; Análisis y resultados; Discusión y conclusiones. En todas las tipologías de trabajos son obligatorias las Referencias.

a. Investigaciones empíricas

Su objetivo es contribuir al progreso del conocimiento mediante información original, sigue la estructura IMRDC: Introducción (objetivos, literatura previa), Materiales y métodos; Análisis y Resultados; Discusión, integración y conclusiones. Siguiendo los criterios planteados por la Unesco, este tipo de textos científicos se llaman también como: "memorias originales"

La estructura recomendada, especialmente en trabajos que incluyen investigaciones empíricas, es la siguiente:

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1) Título (español) / Title (inglés): Conciso pero informativo, en castellano en primera línea y en inglés en segunda. Se aceptan como máximo 85 caracteres con espacio. El título no solo es responsabilidad de los autores, pudiéndose proponer cambios por parte del Consejo Editorial.

2) Datos de Identificación: Nombres y apellidos completos de cada uno de los autores, organizados por orden de prelación. Se aceptarán como máximo 3 autores por original, aunque pudieren existir excepciones justificadas por el tema, su complejidad y extensión. Junto a los nombres deberá incluirse, el nombre de la institución en la que trabaja así como la ciudad, el país, el correo electrónico y número completo de ORCID de cada autor aspectos que deberán constar de modo obligatorio en la Carta de Presentación, además deberán ser cargados en el sistema OJS de la revista, en la sección Metadatos y/o en un documento word adjunto al archivo que contiene el trabajo que se propone para la evaluación.

3) Resumen (español) / Abstract (inglés): Tendrá como extensión mínima de 210 y máxima de 220 palabras en español; y de 200 y máximo de 210 palabras en inglés. El resumen describirá de forma concisa y en este orden: 1) Justificación del tema; 2) Objetivos; 3) Metodología y muestra; 4) Principales resultados; 5) Principales conclusiones. Ha de estar escrito de manera impersonal "El presente trabajo analiza...". En el caso del abstract no se admitirá el empleo de traductores automáticos por su pésima calidad.

4) Descriptores (español) / Keywords (inglés): Se deben exponer máximo 6 términos por cada versión idiomática relacionados directamente con el tema del trabajo. Será valorado positivamente el uso de las palabras claves expuestas en el Thesaurus de la UNESCO y en el de la propia revista localizado en el siguiente enlace: https://sophia.ups.edu.ec/tesauro_sophia.php

5) Introducción y estado de la cuestión: Debe incluir el planteamiento del problema, el contexto de la problemática, la justificación, fundamentos y propósito del estudio, utilizando citas bibliográficas, así como la literatura más significativa y actual del tema a escala nacional e internacional.

6) Material y métodos: Debe ser redactado de forma que el lector pueda comprender con facilidad el desarrollo de la investigación. En su caso, describirá la metodología, la muestra y la forma de muestreo, así como se hará referencia al tipo de análisis estadístico empleado. Si se trata de una metodología original, es necesario exponer las razones que han conducido a su empleo y describir sus posibles limitaciones.

7) Análisis y resultados: Se procurará resaltar las observaciones más importantes, describiéndose, sin hacer juicios de valor, el material y métodos empleados. Aparecerán en una secuencia lógica en el texto y las tablas y figuras imprescindibles evitando la duplicidad de datos.

8) Discusión y conclusiones: Resumirá los hallazgos más importantes, relacionando las propias observaciones con estudios de interés, señalando aportaciones y limitaciones, sin redundar datos ya comentados en otros aparta-

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dos. Asimismo, el apartado de discusión y conclusiones debe incluir las deducciones y líneas para futuras investigaciones.

9) Apoyos y agradecimientos (opcionales): El Council Science Editors recomienda a los autor/es especificar la fuente de financiación de la investigación. Se considerarán prioritarios los trabajos con aval de proyectos competitivos nacionales e internacionales. En todo caso, para la valoración científica del manuscrito, este debe ir anonimizado con XXXX solo para su evaluación inicial, a fin de no identificar autores y equipos de investigación, que deben ser explicitados en la Carta de Presentación y posteriormente en el manuscrito final.

10) Las notas (opcionales) irán, solo en caso necesario, al final del artículo (antes de las referencias). Deben anotarse manualmente, ya que el sistema de notas al pie o al final de Word no es reconocido por los sistemas de maquetación. Los números de notas se colocan en superíndice, tanto en el texto como en la nota final. No se permiten notas que recojan citas bibliográficas simples (sin comentarios), pues éstas deben ir en las referencias.

11) Referencias: Las citas bibliográficas deben reseñarse en forma de referencias al texto. Bajo ningún caso deben incluirse referencias no citadas en el texto. Su número debe ser suficiente para contextualizar el marco teórico con criterios de actualidad e importancia. Se presentarán alfabéticamente por el primer apellido del autor.

b. Revisiones

Las revisiones de literatura se basan en el análisis de las principales publicaciones sobre un tema determinado; su objetivo es definir el estado actual del problema y evaluar las investigaciones realizadas. Su estructura responde a las fases del tema/problema, aportes de investigadores o equipos, cambios en la teoría o las corrientes teóricas principales; problemas sin resolver; tendencias actuales y futuras (Giordanino, 2011). De acuerdo con la UNESCO, este tipo de trabajos se conocen también como: "estudios recapitulativos"

1) Título (español) / Title (inglés): El título del artículo deberá ser breve, interesante, claro, preciso y atractivo para despertar el interés del lector. Conciso pero informativo, en castellano en la primera línea y en inglés en la segunda línea. Se aceptan como máximo 85 caracteres con espacio. El título no solo es responsabilidad de los autores, también los Miembros del Consejo Editorial puede proponer cambios al título del documento.

2) Datos de Identificación: Nombres y apellidos completos de cada uno de los autores, organizados por orden de prelación. Se aceptarán como máximo 3 autores por original, aunque pudieren existir excepciones justificadas por el tema, su complejidad y extensión. Junto a los nombres deberá incluirse, el nombre de la institución en la que trabaja así como la ciudad, el país, el correo electrónico y número completo de ORCID de cada autor aspectos que deberán constar de modo obligatorio en la Carta de Presentación, además deberán ser cargados en el sistema OJS de la revista, en la sección Metadatos y/o en un do-

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cumento word adjunto al archivo que contiene el trabajo que se propone para la evaluación.

3) Resumen (español) / Abstract (inglés): Tendrá como extensión mínima de 210 y máxima de 220 palabras en español; y de 200 y máximo de 210 palabras en inglés. El resumen describirá de forma concisa y en este orden: 1) Justificación del tema; 2) Objetivos; 3) Metodología; 4) Principales resultados; 5) Principales conclusiones. Ha de estar escrito de manera impersonal "El presente trabajo analiza...". En el caso del abstract no se admitirá el empleo de traductores automáticos por su pésima calidad.

4) Descriptores (español) / Keywords (inglés): Se deben exponer máximo 6 términos por cada versión idiomática relacionados directamente con el tema del trabajo. Será valorado positivamente el uso de las palabras claves expuestas en el Thesaurus de la UNESCO y en el de la propia revista.

5) Introducción: Deberá incluir una presentación breve del tema, la formulación del propósito u objetivo del estudio, el contexto de la problemática y la formulación del problema que se propone enfrentar, la presentación de la idea a defender, la justificación que explica la importancia, la actualidad y la pertinencia del estudio; el marco metodológico utilizado, y finalmente, una breve descripción de la estructura del documento. En la justificación es necesario utilizar citas bibliográficas así como la literatura más significativa y actual del tema a escala nacional e internacional.

6) Cuerpo o desarrollo del documento: Implica poner en práctica a lo largo de toda la exposición, una actitud crítica que deberá tender hacia la interpelación, a efectos de concitar la atención del tema y el problema tratados. El escritor deberá generar en el lector la capacidad de identificar la intención dialógica de la propuesta y propiciar en él una discusión abierta.

7) Conclusiones: Expone de manera objetiva los resultados y hallazgos; ofrece una visión de las implicaciones del trabajo, las limitaciones, la respuesta tentativa al problema, las relaciones con el objetivo de la investigación y las posibles líneas de continuidad (para cumplir con este objetivo se sugiere no incluir todos los resultados obtenidos en la investigación). Las conclusiones deberán ser debidamente justificadas de acuerdo con la investigación realizada. Las conclusiones podrán estar asociadas con las recomendaciones, evaluaciones, aplicaciones, sugerencias, nuevas relaciones e hipótesis aceptadas o rechazadas.

8) Bibliografía: Es el conjunto de obras utilizadas en la estructuración del texto científico. Deberá incluir únicamente la referencia de los trabajos utilizados en la investigación. Las referencias bibliográficas deberán ordenarse alfabéticamente y ajustarse a las normas internacionales APA, en su sexta edición.

3.2. Normas para las referencias

PUBLICACIONES PERIÓDICAS

Artículo de revista (un autor): Valdés-Pérez, D. (2016). Incidencia de las técnicas de gestión en la mejora de decisiones administrativas [Impact of Mana-

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gement Techniques on the Improvement of Administrative Decisions]. *Retos, 12*(6), 199-2013. https://doi.org/10.17163/ret.n12.2016.05

Artículo de revista (hasta seis autores): Ospina, M.C., Alvarado, S.V., Fefferman, M., & Llanos, D. (2016). Introducción del dossier temático "Infancias y juventudes: violencias, conflictos, memorias y procesos de construcción de paz" [Introduction of the thematic dossier "Infancy and Youth: Violence, Conflicts, Memories and Peace Construction Processes"]. *Universitas, 25*(14), 91-95. https://doi.org/10.17163/uni.n25.%25x

Artículo de revista (más de seis autores): Smith, S.W., Smith, S.L. Pieper, K.M., Yoo, J.H., Ferrys, A.L., Downs, E.,... Bowden, B. (2006). Altruism on American Television: Examining the Amount of, and Context Surronding. Acts of Helping and Sharing. *Journal of Communication, 56*(4), 707-727. https://doi.org/10.1111/j.1460-2466.2006.00316.x

Artículo de revista (sin DOI): Rodríguez, A. (2007). Desde la promoción de salud mental hacia la promoción de salud: La concepción de lo comunitario en la implementación de proyectos sociales. *Alteridad, 2*(1), 28-40. (https://goo.gl/zDb3Me) (2017-01-29).

Libros y capítulos de libro

Libros completos: Cuéllar, J.C., & Moncada-Paredes, M.C. (2014). *El peso de la deuda externa ecuatoriana*. Quito: Abya-Yala.

Capítulos de libro: Zambrano-Quiñones, D. (2015). *El ecoturismo comunitario en Manglaralto y Colonche*. En V.H. Torres (Ed.), Alternativas de Vida: Trece experiencias de desarrollo endógeno en Ecuador (pp. 175-198). Quito: Abya-Yala.

Medios electrónicos

Pérez-Rodríguez, M.A., Ramírez, A., & García-Ruíz, R. (2015). La competencia mediática en educación infantil. Análisis del nivel de desarrollo en España. Universitas Psychologica, 14(2), 619-630. https://doi.org.10.11144/Javeriana.upsy14-2.cmei

Es prescriptivo que todas las citas que cuenten con DOI (Digital Object Identifier System) estén reflejadas en las Referencias (pueden obtenerse en http://goo.gl/gfruh1). Todas las revistas y libros que no tengan DOI deben aparecer con su link (en su versión on-line, en caso de que la tengan, acortada, mediante Bitly: https://bitly.com/ y fecha de consulta en el formato indicado.

Los artículos de revistas deben ser expuestos en idioma inglés, a excepción de aquellos que se encuentren en español e inglés, caso en el que se expondrá en ambos idiomas utilizando corchetes. Todas las direcciones web que se presenten tienen que ser acortadas en el manuscrito, a excepción de los DOI que deben ir en el formato indicado (https://doi.org/XXX).

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3.3. Epígrafes, tablas y gráficos

Los epígrafes del cuerpo del artículo se numerarán en arábigo. Irán sin caja completa de mayúsculas, ni subrayados, ni negritas. La numeración ha de ser como máximo de tres niveles: 1. / 1.1. / 1.1.1. Al final de cada epígrafe numerado se establecerá un retorno de carro.

Las tablas deben presentarse incluidas en el texto en formato Word según orden de aparición, numeradas en arábigo y subtituladas con la descripción del contenido.

Los gráficos o figuras se ajustarán al número mínimo necesario y se presentarán incorporadas al texto, según su orden de aparición, numeradas en arábigo y subtituladas con la descripción abreviada. Su calidad no debe ser inferior a 300 ppp, pudiendo ser necesario contar con el gráfico en formato TIFF, PNG o JPEG.

4. Proceso de envío

La recepción de artículos es permanente, sin embargo, considerando que la publicación de la Revista Sophia es semestral, el envío de los manuscritos deberá efectuarse al menos un período antes de la fecha estipulada en la Convocatoria correspondiente.

Los manuscritos deberán remitirse a través del sistema OJS (Open Journal System) de la revista, para lo cual es necesario que el autor se registre previamente en el espacio respectivo (ingrese en el siguiente link: http://sophia.ups.edu.ec/index.php/sophia/user/register, complemente el formulario y siga cada uno de los pasos que se sugieren).

Los dos documentos que deben ser enviados son:

1) Carta de presentación o Cover letter (usar modelo oficial), en la que aparecerán:

Título. En castellano en la primera línea, en letra Arial 14, con negrita y centrado, con un máximo de 85 caracteres con espacio. En inglés en la segunda línea, en letra Arial 14, en cursiva y con negrita.

Nombres y apellidos completos de los autores. Organizados por orden de prelación, se aceptan como máximo 3 autores por original, aunque pudieren existir excepciones justificadas por el tema, su complejidad y extensión. Junto a cada uno de los nombres deberá incluirse, el nombre de la institución en la que trabaja así como la ciudad, el país, el correo electrónico y número de ORCID.

Resumen. Tendrá como extensión mínima 210 y máxima 220 palabras. El resumen describirá de forma concisa y en este orden: 1) Justificación del tema; 2) Objetivos; 3) Metodología; 4) Principales resultados; 5) Principales conclusiones. Ha de estar escrito de manera impersonal "El presente trabajo analiza...".

Abstract. Resumen con todos sus componentes, traducido al inglés y en letra cursiva. No utilizar sistemas de traducción automáticos.

Descriptores. Máximo 6 términos estandarizados preferiblemente de una sola palabra y del Thesaurus de la UNESCO y de la propia revista, separados por coma (,).

Keywords. Los 6 términos antes referidos traducidos al inglés y separados por coma (,). No utilizar sistemas de traducción automáticos.

Además, se deberá incluir una: **Declaración** (usar modelo denominado: Presentación) en la que se explica que el manuscrito enviado es una aportación original, no enviado ni en proceso de evaluación en otra revista, confirmación de las autorías firmantes, aceptación (si procede) de cambios formales en el manuscrito conforme a las normas y cesión parcial de derechos a la editorial. Este documento deberá ser firmado y consignado a través del sistema OJS, en la sección: **"Ficheros complementarios".**

2) Manuscrito totalmente anonimizado, conforme a las normas referidas en precedencia.

Todos los autores han de darse de alta, con sus créditos, en la plataforma OJS, si bien uno solo de ellos será el responsable de correspondencia. Ningún autor podrá enviar o tener en revisión dos manuscritos de forma simultánea, estimándose una carencia de cuatro números consecutivos (2 años).

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5. Intervalo de publicación

(El tamaño y estilo de la letra tal como se encuentra el numeral 4 (Proceso de envío)

El intervalo comprendido entre la recepción y la publicación de un artículo es de 7 meses (210 días).

Indications for External Reviewers of «Sophia»

The **Board of External Reviewers of «Sophia»** is an independent collegiate body whose purpose is to guarantee the excellence of this scientific publication, because the blind evaluation - based exclusively on the quality of the contents of the manuscripts and carried out by experts of recognized International prestige in the field - is, without a doubt, the best guarantee for the advancement of science and to preserve in this header an original and valuable scientific production.

To this end, the **Board of External Reviewers** is made up of several scholars and international scientists specialized in **Education**, essential to select the articles of the greatest impact and interest for the international scientific community. This in turn allows that all the articles selected to publish in «**Sophia**» have an academic endorsement and objectifiable reports on the originals.

Of course, all reviews in «**Sophia**» use the internationally standardized system of double-blind peer evaluation that guarantees the anonymity of manuscripts and reviewers. As a measure of transparency, the complete lists of reviewers are published on the official website of the journal (http://Sophia.ups.edu.ec/)

1. Criteria for acceptance/rejection of manuscript evaluation

The editorial team of «**Sophia**» selects those that are considered more qualified in the subject of the manuscript from the list of reviewers of the Board of Reviewers. While the publication requires the maximum collaboration of reviewers to expedite the evaluations and reports on each original, acceptance of the review must be linked to:

a. **Expertise**. Acceptance necessarily entails the possession of competences in the specific theme of the article to be evaluated.
b. **Availability**. Reviewing an original takes time and involves careful reflection on many aspects.
c. **Conflict of interests**. In case of identification of the authorship of the manuscript (despite their anonymity), excessive academic or family closeness to their authors, membership in the same University, Department, Research Group, Thematic Network, Research Projects, joint publications with authors… or any other type of connection or conflict / professional proximity; The reviewer must reject the publisher's invitation for review.
d. **Commitment of confidentiality.** Reception of a manuscript for evaluation requires the Reviewer to express a commitment of confidentiality, so that it cannot be divulged to a third party throughout the process.

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In the event that the reviewer cannot carry out the activity for some of these reasons or other justifiable reasons, he/she must notify the publisher by the same route that he/she has received the invitation, specifying the reasons for rejection.

2. General criteria for the evaluation of manuscripts

a) Topic

In addition to being valuable and relevant to the scientific community, the topic that is presented in the original must be limited and specialized in time and space, without excessive localism.

b) Redaction

The critical assessment in the review report must be objectively written, providing content, quotes or references of interest to support its judgment.

c) Originality

As a fundamental criterion of quality, an article must be original, unpublished and suitable. In this sense, reviewers should answer these three questions in the evaluation:

- Is the article sufficiently novel and interesting to justify publication?
- Does it contribute anything to the knowledge canon?
- Is the research question relevant?

A quick literature search using repositories such as Web of Knowledge, Scopus and Google Scholar to see if the research has been previously covered, may be helpful.

d) Structure

Manuscripts that refer to «Sophia» must follow the IMRDC structure, except those that are literature reviews or specific studies. In this sense, the originals must contain summary, introduction, methodology, results, discussion and conclusion.

- The **title, abstract, and keywords** should accurately describe the content of the article.
- The **review of the literature** should summarize the state of the question of the most recent and adequate research for the presented work. It will be especially evaluated with criteria of suitability and that the references are to works of high impact - especially in WoS,

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Scopus, Scielo, etc. It should also include the general explanation of the study, its central objective and the followed methodological design.

- In case of research, in the **materials and methods**, the author must specify how the data, the process and the instruments used to respond to the hypothesis, the validation system, and all the information necessary to replicate the study are collected.

- **Results** must be clearly specified in logical sequence. It is important to check if the figures or charts presented are necessary or, if not, redundant with the content of the text.

- In the **discussion**, the data obtained should be interpreted in the light of the literature review. Authors should include here if their article supports or contradicts previous theories. The conclusions will summarize the advances that the research presents in the area of scientific knowledge, the future lines of research and the main difficulties or limitations for carrying out the research.

- **Language**: It will be positively assessed if the language used facilitates reading and is in favor of the clarity, simplicity, precision and transparency of the scientific language. The Reviewer should not proceed to correction, either in Spanish or English, but will inform the Editors of these grammatical or orthographical and typographical errors.

- Finally, a thorough **review of the references** is required in case any relevant work has been omitted. The references must be precise, citing within the logic of the subject at study, its main works as well as the documents that most resemble the work itself, as well as the latest research in the area.

3. Relevant valuation dimensions

For the case of empirical research articles**, «Sophia»** uses an evaluation matrix of each original that responds to the editorial criteria and to compliance with the publication guidelines. In this sense, the reviewers must attend to the qualitative-quantitative assessment of each of the aspects proposed in this matrix with criteria of objectivity, reasoning, logic and expertise.

If the original is a review of the literature (status of the matter) or other type of study (reports, proposals, experiences, among others), the Editorial Board will send to the reviewers a different matrix, including the characteristics of Structure of this type of originals:

STUDIES, REPORTS, PROPOSALS AND REVIEW	
Valuable items	**Score**
01. Relevancy of the title (clarity, precision and with a maximum of 85 characters).	0/5
02. They summarize (In an alone paragraph and without epigraphs, minimum / minimal: 210-220 words).	0/5
03. Introduction (brief presentation of the topic; formulation of the problem; it designs to defending or hypothesis to demonstrating; I target; importance of the topic; current importance; methodology; structure of the document).	0/5
04. Review of the bibliographical foundation (Beside using current bibliography to consider the incorporation of Sophia's documents).	0/10
05. Structure and organization of the article (argumentative capabilities, coherence and scientific redaction).	0/10
06. Original contributions and contextualized analyses.	0/5
07. Conclusions that answer to the topic, to the problem and to the raised aim.	0/5
08. Citations and references of agreement to the regulation and to the format requested by the magazine (Any document and author who consists in the section of bibliography must consist in the body of story and vice versa).	0/5
Maximun total	50 points

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RESEARCHES	
Valuable items	**Score**
01. Relevancy of the title (clarity, precision and with a maximum of 85 characters).	0/5
02. They summarize (In an alone paragraph and without epigraphs, minimum / minimal: 210-220 words).	0/5
03. Introduction (brief presentation of the topic; formulation of the problem; it designs to defending or hypothesis to demonstrating; I target; importance of the topic; current importance; methodology; structure of the document).	0/5
04. Review of the bibliographical foundation (Beside using current bibliography to consider the incorporation of Sophia's documents). Methodological rigorous and presentation of instruments of investigation.	0/10
05. Structure and organization of the article (argumentative capabilities, coherence and scientific redaction). Analysis and results of investigation with logical sequence in the text. Presentation of tables and figures without duplicity of information.	0/10

06. Original contributions and contextualized analyses of the information.	0/5
07. Discussion, conclusions and advances that answer to the topic, to the problem and to the raised aim.	0/5
08. Citations and references of agreement to the regulation and to the format requested by the magazine (Any document and author who consists in the section of bibliography must consist in the body of story and vice versa).	0/5
Total	50 points

4. Ethical issues

a. **Plagiarism**: Although the journal uses plagiarism detection systems, if the reviewer suspects that an original is a substantial copy of another work, he must immediately inform the Editors citing the previous work in as much detail as possible.

b. **Fraud**: If there is real or remote suspicion that the results in an article are false or fraudulent, it is necessary to inform them to the Editors.

5. Evaluation of the originals

After the quantitative-qualitative evaluation of the manuscript under review, the reviewer may make recommendations to improve the quality of the manuscript. However, the manuscript will be graded in three ways:

a. **Rejection** due to detected deficiencies justified and reasoned with quantitative and quantitative assessment. The report should be longer if a score of less than 40 of the 50 possible points is obtained.

b. **Acceptance without review**

c. **Conditional acceptance** and therefore review (greater or lesser). In the latter case, it is necessary to clearly identify which review is necessary, listing the comments and even specifying paragraphs and pages suggesting modifications.

Indicaciones para revisores externos de «Sophia»

El **Consejo de Revisores Externos de «Sophia»** es un órgano colegiado independiente cuyo fin es garantizar la excelencia de esta publicación científica, debido a que la evaluación ciega —basada exclusivamente en la calidad de los contenidos de los manuscritos y realizada por expertos de reconocido prestigio internacional en la materia— es la mejor garantía y, sin duda, el mejor aval para el avance de la ciencia y para preservar en esta cabecera una producción científica original y valiosa.

Para ello, el **Consejo de Revisores Externos** está conformado por diversos académicos y científicos internacionales especialistas en **Filosofía de la Educación**, esenciales para seleccionar los artículos de mayor impacto e interés para la comunidad científica internacional. Esto permite a su vez que todos los artículos seleccionados para publicar en «**Sophia**» cuenten con un aval académico e informes objetivables sobre los originales.

Por supuesto, todas las revisiones en «**Sophia**» emplean el sistema estandarizado internacionalmente de evaluación por pares con «doble ciego» (*doble-blind*) que garantiza el anonimato de los manuscritos y de los revisores de los mismos. Como medida de transparencia, anualmente se hacen públicos en la web oficial de la revista (http://Sophia.ups.edu.ec/) los listados completos de los revisores.

1. Criterios de aceptación/rechazo de evaluación manuscritos

El equipo editorial de «**Sophia**» selecciona del listado de evaluadores del Consejo de Revisores a aquellos que se estiman más cualificado en la temática del manuscrito. Si bien por parte de la publicación se pide la máxima colaboración de los revisores para agilizar las evaluaciones y los informes sobre cada original, la aceptación de la revisión ha de estar vinculada a:

a. **Experticia.** La aceptación conlleva necesariamente la posesión de competencias en la temática concreta del artículo a evaluar.
b. **Disponibilidad**. Revisar un original exige tiempo y conlleva reflexión concienzuda de muchos aspectos.
c. **Conflicto de intereses.** En caso de identificación de la autoría del manuscrito (a pesar de su anonimato), excesiva cercanía académica o familiar a sus autores, pertenencia a la misma Universidad, Departamento, Grupo de Investigación, Red Temática, Proyectos de Investigación, publicaciones conjuntas con los autores... o cualquier otro tipo de conexión o conflicto/cercanía profesional; el revisor debe rechazar la invitación del editor para su revisión.
d. **Compromiso de confidencialidad**. La recepción de un manuscrito para su evaluación exige del Revisor un compromiso expreso de

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confidencialidad, de manera que éste no puede, durante todo el proceso, ser divulgado a un tercero.

En caso que el revisor no pueda llevar a cabo la actividad por algunos de estos motivos u otros justificables, debe notificarlo al editor por la misma vía que ha recibido la invitación, especificando los motivos de rechazo.

2. Criterios generales de evaluación de manuscritos

a) Tema

La temática que se plantea en el original, además de ser valiosa y relevante para la comunidad científica, ha de ser limitada y especializada en tiempo y espacio, sin llegar al excesivo localismo.

b) Redacción

La valoración crítica en el informe de revisión ha de estar redactada de forma objetiva, aportando contenido, citas o referencias de interés para argumentar su juicio.

c) Originalidad

Como criterio de calidad fundamental, un artículo debe ser original, inédito e idóneo. En este sentido, los revisores deben responder a estas tres preguntas en la evaluación:

- ¿Es el artículo suficientemente novedoso e interesante para justificar su publicación?
- ¿Aporta algo al canon del conocimiento?
- ¿Es relevante la pregunta de investigación?

Una búsqueda rápida de literatura utilizando repositorios tales como Web of Knowledge, Scopus y Google Scholar para ver si la investigación ha sido cubierta previamente puede ser de utilidad.

d) Estructura

Los manuscritos que se remiten a «**Sophia**» deben seguir la estructura señalada en las normas de publicación tanto para las investigaciones empíricas como para revisiones de la literatura o estudios específicos. En este sentido, los originales han de contener resumen, introducción, metodología, resultados, discusión y conclusión.

- El título, el resumen y las palabras clave han de describir exactamente el contenido del artículo.

- La revisión de la literatura debe resumir el estado de la cuestión de las investigaciones más recientes y adecuadas para el trabajo presentado. Se valorará especialmente con criterios de idoneidad y que las referencias sean a trabajos de alto impacto —especialmente en WoS, Scopus, Scielo, etc. Debe incluir además la explicación general del estudio, su objetivo central y el diseño metodológico seguido.
- En caso de investigaciones, en los materiales y métodos, el autor debe precisar cómo se recopilan los datos, el proceso y los instrumentos usados para responder a las hipótesis, el sistema de validación, y toda la información necesaria para replicar el estudio.
- En los resultados se deben especificar claramente los hallazgos en secuencia lógica. Es importante revisar si las tablas o cuadros presentados son necesarios o, caso contrario, redundantes con el contenido del texto.
- En la discusión se deben interpretar los datos obtenidos a la luz de la revisión de la literatura. Los autores deberán incluir aquí si su artículo apoya o contradice las teorías previas. Las conclusiones resumirán los avances que la investigación plantea en el área del conocimiento científico, las futuras líneas de investigación y las principales dificultades o limitaciones para la realización de la investigación.
- Idioma: Se valorará positivamente si el idioma utilizado facilita la lectura y va en favor de la claridad, sencillez, precisión y transparencia del lenguaje científico. El Revisor no debe proceder a corrección, ya sea en español o inglés, sino que informará a los Editores de estos errores gramaticales u ortotipográficos.
- Finalmente, se requiere una profunda revisión de las referencias por si se hubiera omitido alguna obra relevante. Las referencias han de ser precisas, citando en la lógica de la temática a estudiar, sus principales obras así como los documentos que más se asemejen al propio trabajo, así como las últimas investigaciones en el área.

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3. Dimensiones relevantes de valoración

Para el caso de artículos de investigaciones empíricas, «**Sophia**» utiliza una matriz de evaluación de cada original que responde a los criterios editoriales y al cumplimiento de la normativa de la publicación. En este sentido los revisores deberán atender a la valoración cuali-cuantitativa de cada uno de los aspectos propuestos en esta matriz con criterios de objetividad, razonamiento, lógica y experticia.

Para el caso de artículos reflexivos, estudios, revisiones de literatura (estado de la cuestión) u otro tipo de estudio (informes, propuestas, experiencias, entre otras), el Consejo Editorial remitirá a los revisores una matriz distinta, comprendiendo las características propias de estructura de este tipo de originales:

ESTUDIOS, PROPUESTAS, INFORMES Y EXPERIENCIAS	
Ítems valorables	**Puntaje**
01. Pertinencia del título (claridad, precisión y con un máximo de 85 caracteres).	0/5
02. Resumen (En un solo párrafo y sin epígrafes, mínimo/máximo: 210-220 palabras).	0/5
03. Introducción (breve presentación del tema; formulación del problema; idea a defender o hipótesis a demostrar; objetivo; importancia del tema; actualidad; metodología; estructura del documento).	0/5
04. Revisión de la fundamentación bibliográfica (Además de usar bibliografía actual considerar la inclusión de documentos de Sophia).	0/10
05. Estructura y organización del artículo (capacidad argumentativa, coherencia y redacción científica).	0/10
06. Aportaciones originales y análisis contextualizados.	0/5
07. Conclusiones que respondan al tema, al problema y al objetivo planteado.	0/5
0.8. Citaciones y referencias de acuerdo a la normativa y al formato solicitado por la revista (Todo documento y autor que conste en la sección de bibliografía debe constar en el cuerpo del artículo y viceversa).	0/5
Total máximo	50 puntos

INVESTIGACIONES	
Ítems valorables	**Puntaje**
01. Pertinencia del título (claridad, precisión y con un máximo de 85 caracteres)	0/5
02. Resumen (En un solo párrafo y sin epígrafes, mínimo/máximo: 210-220 palabras).	0/5
03. Introducción (breve presentación del tema; formulación del problema; idea a defender o hipótesis a demostrar; objetivo; importancia del tema; actualidad; metodología; estructura del documento).	0/5
04. Revisión de la fundamentación bibliográfica (Además de usar bibliografía actual considerar la inclusión de documentos de Sophia). Rigor metodológico y presentación de instrumentos de investigación.	0/10

05. Estructura y organización del artículo (capacidad argumentativa, coherencia y redacción científica). Análisis y resultados de investigación con secuencia lógica en el texto. Presentación de tablas y figuras sin duplicidad de datos.	0/10
0.6. Aportaciones originales y análisis contextualizados de los datos.	0/5
0.7. Discusión, conclusiones y avances que respondan al tema, al problema y al objetivo planteado.	0/5
0.8. Citaciones y referencias de acuerdo a la normativa y al formato solicitado por la revista (Todo documento y autor que conste en la sección de bibliografía debe constar en el cuerpo del artículo y viceversa).	0/5
Total máximo	50 puntos

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4. Cuestiones éticas

a. Plagio: Aunque la revista utiliza sistemas de detección de plagio, si el revisor sospechare que un original es una copia sustancial de otra obra, ha de informar de inmediato a los Editores citando la obra anterior con tanto detalle cómo le sea posible.

b. Fraude: Si hay sospecha real o remota de que los resultados en un artículo son falsos o fraudulentos, es necesario informar de ellos a los Editores.

5. Evaluación de los originales

Una vez realizada la evaluación cuanti-cualitativa del manuscrito en revisión, el revisor podrá realizar recomendaciones para mejorar la calidad del original. Sin embargo, se atenderá a la calificación del manuscrito de tres maneras:

a. **Rechazo** debido a las deficiencias detectadas, justificadas y razonadas con valoración cualitativa y cuantitativa. El informe ha de ser más extenso si obtiene menos de los 30 de los 50 puntos posibles.

b. **Aceptación sin revisión.**

c. **Aceptación condicionada** y por ende con revisión (mayor o menor). En este último caso, se ha de identificar claramente qué revisión es necesaria, enumerando los comentarios e incluso especificando párrafos y páginas en las que sugieren modificaciones.

Protocol of Manuscript Evaluation
for External Reviewers

Instructions

- The fulfillment of each one of the articles will be valued in agreement to the following protocol.
- The total sum of the articles will determine the approval or rejection of the article.
- The minimal puntaje in order that the article is approved will be of 44/50.

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Article Details		
Date of submission for evaluation:	Date of return of evaluation:	Article code:
Title of the article to be evaluated:		
SECTION: REPORTS, STUDIES, PROPOSALS AND REVIEWS		
01.- Relevancy of the title (clarity, precision and with a maximum of 85 characters)	Mandatory comments:	
	Value from 0 to 5	
02.- They summarize (In an alone paragraph and without epigraphs, minimum / minimal: 210-220 words).	Mandatory comments:	
	Value from 0 to 5	
03.- Introduction (brief presentation of the topic; formulation of the problem; it designs to defending or hypothesis to demonstrating; I target; importance of the topic; current importance; methodology; structure of the document)	Mandatory comments:	
	Value from 0 to 5	
04.- Review of the bibliographical foundation (Beside using current bibliography to consider the incorporation of Sophia's documents).	Mandatory comments:	
	Value from 0 to 10	

05.- Structure and organization of the article (argumentative capabilities, coherence and scientific redaction)	Mandatory comments:
	Value from 0 to 10
06.- Original contributions and contextualized analyses	Mandatory comments:
	Value from 0 to 5
07.- Conclusions that answer to the topic, to the problem and to the raised aim	Mandatory comments:
	Value from 0 to 5
08.- Citations and references of agreement to the regulation and to the format requested by the magazine (Any document and author who consists in the section of bibliography must consist in the body of story and vice versa)	Mandatory comments:
	Value from 0 to 5
OBTAINED PUNCTUATION	Of the total of 50 predictable points, this assessor grants:

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REDACTED OPINION More detailed if the work does not get 44 points, to inform the autor (s). This text is sent verbatim to the autor (s) amonymously	

RECOMMENDATION ON HIS PUBLICATION IN SOPHIA			
Validation criteria	**Result**		
	Yes	**Yes, with conditions**	**No**
01. Widely recommended			
02. Recommended only if his quality is improved attending to the totality of the suggestions realized by the revisers			
03. His publication is not recommended			
PROPOSED CHANGES (In case of "Yes, with conditions")			

Protocolo de evaluación de manuscritos
para revisores externos

Instrucciones

- El cumplimiento de cada uno de los ítems será valorado de acuerdo al siguiente protocolo.
- La suma total de los ítems determinará la aprobación o rechazo del artículo. El puntaje mínimo para que el artículo sea aprobado será de 44/50.

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Datos del artículo		
Fecha envío evaluación:	Fecha devolución evaluación:	Código artículo:
Título del artículo a evaluar:		
SECCIÓN: ESTUDIOS, PROPUESTAS, INFORMES Y REVISIONES		
01.- Pertinencia del título (claridad, precisión y con un máximo de 85 caracteres)	Comentarios obligatorios:	
	Valore de 0 a 5	
02.- Resumen (En un solo párrafo y sin epígrafes, mínimo/máximo: 210-220 palabras).	Comentarios obligatorios:	
	Valore de 0 a 5	
03.- Introducción (breve presentación del tema; formulación del problema; idea a defender o hipótesis a demostrar; objetivo; importancia del tema; actualidad; metodología; estructura del documento)	Comentarios obligatorios:	
	Valore de 0 a 5	
04.- Revisión de la fundamentación bibliográfica (Además de usar bibliografía actual considerar la inclusión de documentos de Sophia)	Comentarios obligatorios:	
	Valore de 0 a 10	
05.- Estructura y organización del artículo (capacidad argumentativa, coherencia y redacción científica)	Comentarios obligatorios	
	Valore de 0 a 10	

06.- Aportaciones originales y análisis contextualizados	Comentarios obligatorios:
	Valore de 0 a 5
07.- Conclusiones que respondan al tema, al problema y al objetivo planteado	Comentarios obligatorios:
	Valore de 0 a 5
08.- Citaciones y referencias de acuerdo a la normativa y al formato solicitado por la revista (Todo documento y autor que conste en la sección de bibliografía debe constar en el cuerpo del artículo y viceversa)	Comentarios obligatorios:
	Valore de 0 a 5

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| PUNTUACIÓN OBTENIDA | Del total de 50 puntos previsibles, este evaluador otorga: | |

| **OPINIÓN REDACTADA** (Más detallada si el trabajo no tiene 44 puntos, para informar al autor/es) Este texto se remite textualmente al/ los autor/es de forma anónima | |

RECOMENDACIÓN SOBRE SU PUBLICACIÓN EN SOPHIA		
PUBLICABLE	**Resultado**		
	SI	**Sí, con condiciones**	**NO**
01. Ampliamente recomendado			
02. Recomendado sólo si se mejora su calidad atendiendo a la totalidad de las sugerencias realizadas por los revisores			
03. No se recomienda su publicación			
MODIFICACIONES PROPUESTAS (En caso de «Sí, con condiciones»)			

Checklist prior to sending the manuscript

1. CHECK OF THE MANUSCRIPT, PRIOR TO SENDING	
To facilitate the process of evaluation of the manuscript and to accelerate the report of its possible publication, a final self-review of the manuscript is advised, checking the following questions.	
COVER LETTER	
Title of the manuscript in spanish (maximum 85 characters).	
Title of the manuscript in english (maximum 85 characters).	
The two versions of the title of the manuscript are concise, informative and collect as many identifiable terms as possible.	
The abstract in spanish is included, in a single paragraph and without epigraphs (minimum / maximum: 210/220 words).	
The abstract in english is included, in a single paragraph and without epigraphs (minimum / maximum: 210-220 words).	
Abstracts in spanish and english respond in order to the following issues: justification of the subject, objectives, study methodology, results and conclusions.	
It includes 6 descriptors (in english and spanish) (only simple words, not phrases or combinations of words), with the most significant terms, and if possible standardized.	
The texts in english (title, abstract and descriptors) have been written or verified by an official translator or expert in this language (The use of automatic translators is prohibited).	
All the identification data of the authors are included in the order stipulated in the norms: identification and correspondence data, professional filiations, last academic degree…	
The first and last name of the authors has been normalized.	
Each author is identified with their ORCID code.	
The maximum number of authors is three, with the exception of those works that justify a higher but limited number of authors	
The author(s) have duly signed the letter of presentation of the article, which includes the partial transfer of rights and the declaration of conflict of interest.	
MANUSCRIPT	
It includes title of the manuscript, abstract, and keywords. All in spanish and english.	

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An introduction is included that in order contains: brief presentation of the subject; problem formulation; Idea to defend or hypothesis to prove; objective; Importance of the theme; relevance; methodology; structure of the document.	
The text is within the minimum and maximum extension: In the Review sections: 10,000/11,000 words of text (without including the references). In the research section: 8,000/9,500 words of text (without including the references). Reports, Studies: 8,000/9,500 words of text (without including the references).	
In case of research, the manuscript responds to the structure required in the guidelines (IMRDC).	
In the case of a report, study or review, the manuscript respects the minimum structure required by the guidelines.	
The review work includes three citations from three previous issues of Sophia Journal.	
The manuscript explicitly cites and cites the used sources and materials.	
The methodology described for the research work is clear and concise, allowing its replication, if necessary, by other experts.	
The conclusions follow on objective and problem raised are supported by the results obtained and presented in the form of a synthesis.	
If statistical analyzes have been used, they have been reviewed/contrasted by an expert.	
The citations in the text are strictly in accordance with the APA 6 regulations, reflected in the instructions.	
In case of use of final notes, it has been verified that these are descriptive and cannot be integrated into the general citation system. Footnotes are not acceptable.	
The final references have been rigorously reviewed and only those that have been cited in the text are included.	
The final references conform in style and format to the international standards used in Sophia.	
The number of references is according to the theoretical basis of the study carried out	
DOIs have been included in all References that carry it in the following format: doi: https://doi.org/XXXXXX	
All web addresses of references have been shortened with Google Url Shortner	
If figures and charts are included, they should provide additional and not repeated information in the text. Their graphic quality has been verified.	

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The number of charts and / or figures does not exceed 6	
If the case, financial support is declared.	
ASPECTOS FORMALES	
The rules have been strictly observed in the use of bold, capital letters, italics and underlines.	
Arial font, size 12 has been used.	
A single line spacing (1) has been used without tab.	
The epigraphs have been properly and hierarchically numbered in Arabic.	
Double spaces have been deleted.	
The typographic quotes « » (with alt + 174 and alt + 175 for opening and closing) have been used.	
Word dictionary for surface spelling has been used.	
The text has been supervised by external staff to ensure grammar and style.	
PRESENTATION	
Attached is a cover letter indicating originality, novelty of the work and section of the journal to which it is addressed, and if appropriate, informed consent of experimentation.	
The cover letter includes an attachment signed by all authors, being responsible for the authorship and giving the copyright to the publisher.	
The manuscript is uploaded to the platform in Word format and without authors identification	
ANNEXED DOCUMENTS	
Attached are the two attached documents: the cover letter and the manuscript.	
The accompanying documents and annexes have been published with Figshare.	

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Chequeo previo al envío del manuscrito

1. CHEQUEO DEL MANUSCRITO, PREVIO AL ENVÍO	
Para facilitar el proceso de evaluación del manuscrito y acelerar el informe de su posible publicación, se aconseja una autorevisión final del manuscrito, comprobando las siguientes cuestiones.	
DOCUMENTO PORTADA (Cover Letter)	
Se incluye título del manuscrito en español (máximo 85 caracteres).	
Se incluye título del manuscrito en inglés (máximo 85 caracteres).	
Las dos versiones del título del manuscrito son concisas, informativas y recogen el mayor número de términos identificativos posibles.	
Se incluye resumen en español, en un solo párrafo y sin epígrafes (mínimo/máximo: 210/220 palabras).	
Se incluye abstract en inglés, en un solo párrafo y sin epígrafes (mínimo/máximo 210-220 palabras).	
Los resúmenes en español e inglés responden ordenadamente a las siguientes cuestiones: justificación del tema, objetivos, metodología del estudio, resultados y conclusiones.	
Se incluyen 6 descriptores (en español e inglés) (sólo palabras simples, no sintagmas o combinaciones de palabras), con los términos más significativos, y a ser posibles estandarizados.	
Los textos en inglés (título, resumen y descriptores) han sido redactados o verificados por un traductor oficial o persona experta en este idioma (Se prohíbe el uso de traductores automáticos).	
Se incluyen todos los datos de identificación de los autores en el orden estipulado en la normativa: datos de identificación y correspondencia, filiaciones profesionales, último grado académico.	
Se ha normalizado el nombre y apellido de los autores.	
Cada autor está identificado con su código ORCID.	
El número máximo de autores es tres, a excepción de aquellos trabajos que justifiquen un número mayor limitado.	
El autor/es ha firmado debidamente la carta de presentación del artículo, en la que consta la cesión parcial de derechos y la declaración de conflicto de intereses.	
MANUSCRITO	

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Se incluye título del manuscrito en español, inglés, resumen, abstract, descriptores y keywords	
Se incluye una introducción que en orden contiene: breve presentación del tema; formulación del problema; idea a defender o hipótesis a demostrar; objetivo; importancia del tema; actualidad; metodología; estructura del documento.	
El trabajo respeta la extensión mínima y máxima permitidas: Sección de Revisiones: 10.000/11.000 palabras de texto (sin incluir las referencias). Investigaciones: 8.000/9.500 palabras de texto (sin incluir las referencias). Informes, Estudios: 8.000/9.500 palabras de texto (sin incluir las referencias).	
En caso de investigación, el manuscrito responde a la estructura exigida en las normas (IMRDC).	
Si se trata de un informe, estudio o revisión, el manuscrito respeta la estructura mínima exigida en las normas.	
En los trabajos de revisión se incluyen tres citas de tres números anteriores de la Revista Sophia.	
El manuscrito explicita y cita correctamente las fuentes y materiales empleados.	
La metodología descrita, para los trabajos de investigación, es clara y concisa, permitiendo su replicación, en caso necesario, por otros expertos.	
Las conclusiones responden al objetivo y al problema planteados, se apoyan en los resultados obtenidos y se presentan en forma de síntesis.	
Si se han utilizado análisis estadísticos, éstos han sido revisados/contrastados por algún experto.	
Las citas en el texto se ajustan estrictamente a la normativa APA 6, reflejadas en las instrucciones.	
En caso de uso de notas finales, se ha comprobado que éstas son descriptivas y no pueden integrarse en el sistema de citación general. No se aceptan notas a pie de página.	
Se han revisado rigurosamente las referencias finales y se incluyen solo aquéllas que han sido citadas en el texto.	
Las referencias finales se ajustan en estilo y formato a las normas internacionales utilizadas en Sophia.	
El número de referencias está de acuerdo a la fundamentación teórica del estudio realizado	
Se han incluido los DOI en todas las Referencias que lo lleven con el siguiente formato: doi: https://doi.org/XXXXXX	

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Todas las direcciones web de las referencias han sido acortadas con Google Url Shortner	
Si se incluyen figuras y tablas éstas deben aportar información adicional y no repetida en el texto. Su calidad gráfica se ha verificado.	
El número de tablas y/o figuras no sobrepasa las 6.	
En su caso, se declaran los apoyos y/o soportes financieros.	
ASPECTOS FORMALES	
Se ha respetado rigurosamente la normativa en el uso de negritas, mayúsculas, cursivas y subrayados.	
Se ha utilizado letra Arial, tamaño 12.	
Se ha usado un interlineado sencillo (1) y sin tabulaciones.	
Se han numerado los epígrafes en arábigo de forma adecuada y jerárquicamente.	
Se han suprimido los dobles espacios.	
Se han empleado las comillas tipográficas « » (con alt+174 y alt+175 para apertura y cierre).	
Se ha utilizado el diccionario de Word para corrección ortográfica superficial.	
Se ha supervisado el trabajo por personal externo para garantizar la gramática y el estilo.	
PRESENTACIÓN	
Se adjunta carta de presentación indicando originalidad, novedad del trabajo y sección de la revista a la que se dirige, así como, en su caso, consentimiento informado de experimentación.	
La carta de presentación incluye un anexo firmado por todos los autor/es, responsabilizándose de la autoría y cediendo los derechos de autor al editor.	
El manuscrito se sube a la plataforma en formato Word y sin identificación de autores.	
DOCUMENTOS ANEXOS	
Se adjuntan los dos documentos anexos: la carta de presentación y el manuscrito.	
Los documentos complementarios y anexos han sido publicados con Figshare.	

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Cover Letter

Title in Spanish: Arial 14 bold and centered.
Maximum 85 characters with spaces
Title in English: Arial 14 cursive. Maximum 805characters with spaces

Name author 1 (standardized)
Professional category, Institution, Country
Institutional email
ORCID

Name author 2 (standardized)
Professional category, Institution, Country
Institutional email
ORCID

Name author 3 (standardized)
Professional category, Institution, Country
Institutional email
ORCID

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Abstract (Spanish)

Minimum 210 and maximum 220 words. It must include 1) Justification of the topic; 2) Objectives; 3) Methodology; 4) Main results; 5) Main conclusions. It must be impersonally written "The present paper analyzes…"

Abstract (English)

Minimum 200 and maximum 210 words. It must include 1) Justification of the topic; 2) Objectives; 3) Methodology; 4) Main results; 5) Main conclusions. It must be impersonally written "The present paper analyzes…" Do not use automatic translation systems.

Keywords (Spanish)

6 standardized terms preferably of a single word and of the UNESCO Thesaurus separated by commas (,).

Keywords

The 6 terms referred to in English separated by commas (,). Do not use automatic translation systems.

Financial Support of Research (optional)

Entity:
Country:
City:
Subsidized project:
Code of the project:

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Cover Letter

Sección (Marcar)
Dossier Monográfico ___
Miscelánea ___

Título en español: Arial 14 negrita y centrado.
Máximo 85 caracteres con espacios
Title in English: Arial 14 cursiva. Máximo 85 caracteres con espacios

Nombre autor 1 (estandarizado)
Categoría profesional, Institución, País
Correo electrónico institucional
ORCID

Nombre autor 2 (estandarizado)
Categoría profesional, Institución, País
Correo electrónico institucional
ORCID

Nombre autor 3 (estandarizado)
Categoría profesional, Institución, País
Correo electrónico institucional
ORCID

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Resumen

Mínimo 210 y máximo 220 palabras. Debe incluir 1) Justificación del tema; 2) Objetivos; 3) Metodología; 4) Principales resultados; 5) Principales conclusiones. Ha de estar escrito de manera impersonal "El presente trabajo analiza..."

Abstract

Mínimo 200 y máximo 210 palabras cursiva. Debe incluir 1) Justificación del tema; 2) Objetivos; 3) Metodología; 4) Principales resultados; 5) Principales conclusiones. Ha de estar escrito de manera impersonal "El presente trabajo analiza..." No utilizar sistemas de traducción automáticos.

Descriptores

6 términos estandarizados preferiblemente de una sola palabra y del Thesaurus de la UNESCO separados por coma (,).

Keywords

Los 6 términos referidos en inglés separados por coma (,). No utilizar sistemas de traducción automáticos.

Apoyos y soporte financiero de la investigación (opcional)

Entidad:
País:
Ciudad:
Proyecto subvencionado:
Código de proyecto:

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PRESENTACIÓN
Cover Letter

Sr. Editor de «Sophia»

Leída la normativa de la revista «Sophia» y analizada su cobertura, área temática y enfoque, considero que esta revista es la idónea para la difusión del trabajo que le adjunto, por lo que le ruego sea sometida a la consideración para su publicación. El original lleva por título "_____", cuya autoría corresponde a _____.

El/los autor/es certifican que este trabajo no ha sido publicado, ni está en vías de consideración para su publicación en ninguna otra revista u obra editorial.

El/los autor/es se responsabilizan de su contenido y de haber contribuido a la concepción, diseño y realización del trabajo, análisis e interpretación de datos, y de haber participado en la redacción del texto y sus revisiones, así como en la aprobación de la versión que finalmente se remite en adjunto.

Se aceptan la introducción de cambios en el contenido si hubiere lugar tras la revisión, y de cambios en el estilo del manuscrito por parte de la redacción de «Sophia».

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La Editorial Abya-Yala (editorial matriz de las obras de la Universidad Politécnica Salesiana de Ecuador) conserva los derechos patrimoniales (**copyright**) de las obras publicadas y favorecerá la reutilización de las mismas. Las obras se publican en la edición electrónica de la revista bajo una licencia Creative Commons Reconocimiento / No Comercial-Sin Obra Derivada 3.0 Ecuador: se pueden copiar, usar, difundir, transmitir y exponer públicamente.

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Se declara además haber respetado los principios éticos de investigación y estar libre de cualquier conflicto de intereses.

En _____(ciudad), a los _____ días del mes de _____ de 201_

Firmado. (Por el autor o en su caso, todos los autores)

Nombre y apellido del autor
Documento de Identidad

Firma

Nombre y apellido del autor
Documento de Identidad

Firma

Nombre y apellido del autor
Documento de Identidad

Firma

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**Nota: Una vez haya guardado el documento cumplimentado y fir-
mado, deberá consignarlo a través del sistema OJS en la sección "Ficheros
Complementarios".**

Announcements 2024-2030 / *Convocatorias 2024-2030*

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Sophia 38
The inductive method in the humanities and pedagogy

Descriptors: Scientific activity and reflection on the method of knowledge; The inductive method in the social sciences; Induction, experience and action as the foundation of pedagogy; The methods of knowledge and learning in the humanities; Value and limits of the experimental method in the human sciences; Value and limits of pedagogical positivism; Reflections on the scientific method and implications in the learning processes; Applications of the inductive method in education; Usefulness of the inductive method for psychology; Pedagogical proposals of an inductive character in the human sciences.

Generation of articles from representatives of philosophy prominent in the central theme and its implications in psychology, pedagogy or other disciplines.

Deadline for receipt of manuscripts: July 15, 2024
Publication date of this issue: January 15, 2025

Sophia 39
Philosophy in times of digitalization

Lines of research:

- Philosophy of educational technology
- Philosophy of education in the digital age
- Philosophy of artificial intelligence in the digital era
- Meaning, significance, and purpose of artificial intelligence in education
- Artificial intelligence as a means of surpassing human intelligence
- Virtual assistants in education
- Philosophical currents underpinning education in the digital age
- The role of teachers and the automation of educational processes
- Reflections on education through virtual methodology
- Teachers as digital immigrants
- Hybrid identity and mobile applications in learning

Article contributions: We welcome articles from prominent representatives in the field of philosophy, addressing the central theme and its implications in the philosophy of education, psychology, pedagogy, or other disciplines.

Manuscript submission deadline: December 15, 2024
Publication date of this edition: July 15, 2025

Sophia 40
Philosophy in the education of principles and values

Lines of research:

- Philosophy of values and their implications in education
- Knowledge of moral virtues
- Didactics of ethics
- Didactics of axiology
- Discourse as an ethical practice
- Education in ethical, political, civic, and religious values
- Philosophy of education based on axiology
- Freedom, justice, and democracy in education
- Onto-anthropological aspects in values education
- Importance of vocation and peaceful coexistence in the educational environment
- Philosophical currents contributing to values education
- Teaching professional ethics
- Responsibility of professionals in the pursuit and communication of truth
- Ethical dilemmas related to truth in various professions
- Ethical dilemmas related to the use of technology and digital media

Article Contributions: We welcome articles from prominent representatives in the field of philosophy, addressing the central theme and its implications in the philosophy of education, psychology, pedagogy, or other disciplines.

Manuscript submission deadline: July 15, 2025
Publication date of this edition: January 15, 2026

Sophia 41

Fundamental categories for understanding the philosophy of education in
contemporary society

Lines of research:

- Educational theory
- Ontic and ontological categories in the philosophy of education
- Critical theory of education
- Paradoxes of critical thinking and educational reality
- Nature and philosophy of learning
- Critical perspective on educational methodology and innovation
- Critical pedagogies and methodologies
- Self-concept and metacognitive strategies
- Contributions of formal logic, modal logic, and dialectical logic to understanding the philosophy of education

Article Contributions: We welcome articles from prominent representatives in the field of philosophy, addressing the central theme and its implications in psychology, pedagogy, or other disciplines.

Manuscript Submission Deadline: December 15, 2025
Publication Date of This Edition: July 15, 2026

Sophia 42

Philosophy in media communication and digital media in education

Lines of research:

- Reflections on media education
- Truthfulness of information in digital media
- Philosophical analyses of misinformation phenomena
- Questions on the impact of fake news on society and education
- Critical formation of individuals regarding media and digital technologies
- Reflections on various media and digital formats
- Philosophical foundations of digital literacy and media education
- Critical and competent civic formation in the use of media and digital technologies
- Constructivist and critical approaches to media education
- Philosophical methods for teaching media skills
- Pedagogical strategies for teaching media and digital skills
- Critical thinking for media analysis
- Technical and creative skills for media content production
- Ethics and responsibility in the digital age
- Ethics and responsibility in creating and disseminating digital content

- Impact of media and technology on society
- Education on online privacy and personal data protection
- Strategies for maintaining digital security and ethics in technology use
- Equitable access to technology and media
- Policies and practices to reduce the digital divide and promote technological inclusion
- The role of media literacy in forming informed and participative citizens
- The use of digital media for civic participation
- Ethical dilemmas related to the use of technology and digital media
- Social responsibility and professional ethics in creating and consuming media content
- Integration of media education into the curriculum
- Critical evaluation of educational programs and practices in media literacy
- Emerging trends in digital literacy and their relevance to the future of education
- Globalization through the internet and the power of Artificial Intelligence as a leveling force in education

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Article contributions: We welcome articles from prominent representatives in the field of philosophy, addressing the central theme and its implications in psychology, pedagogy, or other disciplines.

Manuscript submission deadline: July 15, 2026
Publication date of this edition: January 15, 2027

Sophia 43
Philosophy of neuroeducation

lines of research:
- Ethical, epistemological, and methodological implications of applying neuroscientific knowledge in education
- Nature, limitations, and purposes of neuroeducation
- Philosophical reflection on the relationship between neuroscience, psychology, and pedagogy
- Neurobiological foundations of learning
- Brain plasticity and memory consolidation
- Fundamental cognitive processes: attention, perception, memory, and emotions in education
- Principles of neuroscience to improve teaching and learning
- Ethics of neuroeducation
- Informed consent in neuroeducational research
- Critical evaluation of neuroscientific methodologies
- Criticisms of neuroscience and neuroeducation

- Designing learning environments adapted to students' cognitive and emotional needs
- Impact of emotions on learning and memory processes
- Strategies to foster intrinsic motivation and emotional well-being in the classroom
- Lifelong learning and neuroplasticity in adulthood
- Philosophical reflection on the use of emerging technologies like neuroimaging and brain stimulation in educational research
- Philosophical reflection on teacher training and neuroeducation
- Influence of neuroscientific knowledge on educational practice
- Philosophy of mind and neuroeducation
- Moral neuroeducation
- Neuroethics related to education

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Article contributions: We welcome articles from prominent representatives in the field of philosophy, addressing the central theme and its implications in psychology, pedagogy, or other disciplines.

Manuscript submission seadline: December 15, 2026
Publication date of this edition: July 15, 2027

Sophia 44
Ethics of artificial intelligence in education

Lines of research:

- Ethical and moral implications of AI development and use
- Transparency, privacy, and data protection
- Ethical handling of personal data
- Autonomy and educational decision-making with AI systems
- Human autonomy and supervision with AI
- Effects of automation and AI in education
- Philosophical reflection on the use of AI
- Strategies to combat misinformation generated by AI
- Criticisms of machine autonomy and robot ethics
- Cultural and ethical differences in the perception and regulation of AI
- Approaches, perspectives, and trends to address the challenges and opportunities of this technology
- The use of AI in virtual educational environments
- Security, justice, and benefits of AI for stakeholders
- Reflections on equity promoted by AI
- Impact of AI on teachers' responsibilities and students' roles
- Ethics as a balance point between technology and human interaction in the educational process

- Educational assessment
- Ethical use of AI to evaluate student performance
- Ethical approach to the implementation of artificial intelligence in education

Article contributions: We welcome articles from prominent representatives in the field of philosophy, addressing the central theme and its implications in psychology, pedagogy, or other disciplines.

Manuscript submission deadline: July 15, 2027
Publication date of this edition: January 15, 2028

Sophia 45
Philosophy of education in truth and post–truth

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Lines of research:

- Conceptions, theories, and criteria of truth
- Epistemological foundations of how we know the truth
- Theories of knowledge and their application in education
- Implications of truth in educational processes
- The truth in the teacher vs. the truth in the student
- Ethics and truth in educational research
- Types of truth, problems, and limits of truth in education
- Education in truth based on critical thinking
- Education in truth in the post-truth era
- Educational dimension of post-truth
- Intellectual honesty, integrity, objectivity, and rigorous pursuit of knowledge
- Truth as the center of the educational process
- The role of truth in civic education and citizen formation
- Relationship between truth, power, and propaganda in education
- Strategies to promote self-reflection and personal pursuit of truth
- Importance of authenticity and honesty in personal and educational development
- Methods of teaching truth
- Truth in the sciences, humanities, and social sciences
- The pursuit of truth in academic and scientific research
- Cultural relativity and truth
- Teaching truth in a multicultural and pluralistic context

Article contributions: We welcome articles from prominent representatives in the field of philosophy, addressing the central theme and its implications in psychology, pedagogy, or other disciplines.

Manuscript submission deadline: December 15, 2027
Publication date of this edition: July 15, 2028

Sophia 46
Philosophy of the environment and education

Lines of research:

- Interaction between environmental philosophy and education
- Philosophical approaches to environmental education
- Environmental ethics in education
- The ethics of respect and care for the environment
- Environmental ethical dilemmas in the classroom
- Transdisciplinary dialogue on sustainable development and regenerative cultures from critical pedagogy
- Philosophy of nature and education, philosophical perspectives on nature influencing education
- The role of education in global sustainability
- Philosophy of ecology in education
- Educational methods to develop ecological awareness
- Environmental education in the formation of ecological values
- Teaching environmental equity
- Ecofeminism in environmental education
- Philosophy of climate change and education
- Climate change from a philosophical perspective
- Critical pedagogy for understanding the environment
- Teaching about the rights of nature
- Philosophical implications of nature
- Philosophical foundations of curriculum integration with environmental topics
- Interdisciplinary curriculum from environmental philosophy
- Anthropocentrism and ecocentrism
- Philosophy and environmental technoscience in education
- Ethics of geoengineering and other technological interventions in the environment
- Ontology of the environment
- Philosophy of ecology
- Criticisms and challenges in implementing the rights of nature

Article contributions: We welcome articles from prominent representatives in the field of philosophy, addressing the central theme and its implications in psychology, pedagogy, or other disciplines.

Manuscript submission deadline: July 15, 2028
Publication date of this edition: January 15, 2029

Sophia 47
Problems and challenges in the philosophy of education

Lines of research:

- Philosophical foundations of inequality and educational equity in education
- The role of the philosophy of education in cultural diversity
- The role of the philosophy of education in political and civic formation
- Intercultural philosophy and educational competencies in globalization
- Evaluation of the relevance and updating of educational content
- Alternative methods of educational assessment
- Decentralization and governance in education
- Philosophy of education for understanding the mental health of teachers and students
- Pedagogical orientations based on philosophical currents
- Critical thinking in the classroom

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Article contributions: We welcome articles from prominent representatives in the field of philosophy, addressing the central theme and its implications in psychology, pedagogy, or other disciplines.

Manuscript submission deadline: December 15, 2028
Publication date of this edition: July 15, 2029

Sophia 48
The role of the teacher in character formation and virtue modeling

Lines of research:

- Character education from philosophy
- Articulation of ethical theory, pedagogical practices, and cultivation of a school environment for moral development
- Philosophical strategies for character education
- Teaching values
- Modeling virtues
- Teachers' behavior and decisions
- Teachers as role models of virtues
- Moral and ethical dilemmas in the classroom
- Philosophy for children programs for developing critical thinking skills
- Experiential learning for character education
- Project-based learning as an experience to strengthen human character
- Importance of interdisciplinarity in character formation
- Influence of the school environment in character formation

- The practice of virtues as a mechanism for forming the character of the subject
- Character education through developmental stages
- Teaching values
- Philosophical methods, techniques, and strategies for character formation
- Philosophical-pedagogical proposals for character formation
- Personal reflection and self-knowledge as mechanisms for character formation
- Philosophical currents for character formation
- Ethical theories for character formation
- Theories of moral development (Piaget, Kohlberg, etc.)
- Understanding character formation through the relationship between moral and psychological development
- Role of character education in civic participation and the common good
- Role of religion and spirituality in character education
- Importance of religions in character formation
- Criticisms and defenses of character education programs
- Role of mentors in character education
- Character formation from philosophy
- Character formation from pedagogy
- Philosophical and pedagogical strategies for character education
- Interdisciplinary approach to moral education
- Relationship between character and knowledge
- Theories, practices, and school environments in moral development and character education
- Pedagogy and philosophy in moral education
- The art of character formation from pedagogy and moral philosophy
- Philosophy and pedagogical practices for character development

Article contributions: We welcome articles from prominent representatives in the field of philosophy, addressing the central theme and its implications in psychology, pedagogy, or other disciplines.

Manuscript submission deadline: July 15, 2029
Publication date of this edition: January 15, 2030

Sophia 49
Philosophical foundations and perspectives of transformative education

Lines of research:

- Theoretical foundations of critical consciousness
- Participatory pedagogy as a basis for transformative education
- Contextualized education as key to personal and social transformation
- Interdisciplinarity as a mechanism to address problems
- Critical consciousness as the basis for transformative education
- Participatory pedagogy as a reference for transformative education
- Interdisciplinary approach to education and social transformation
- Foundations of transformative education from Freire to Foucault
- Holistic learning as a foundation for transformative education
- Theory, praxis, and philosophy towards transformative education
- Contextualized education as a basis for personal and social transformation
- Interdisciplinarity and critical consciousness in transformative education
- Philosophical perspectives of transformative education: Freire, Dewey, etc.
- Theories and practices for holistic understanding of transformative education
- Holistic perspective of learning and understanding as a basis for transformative education
- Philosophical foundations of transformative education from Freire, Dewey, Kant, Rousseau, Giroux, Foucault, Gramsci, etc.

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Article contributions: We welcome articles from prominent representatives in the field of philosophy, addressing the central theme and its implications in psychology, pedagogy, or other disciplines.

Manuscript submission deadline: December 15, 2029
Publication date of this edition: July 15, 2030

Sophia 50
Phenomenology of experience in education

Lines of research:

- Study of subjective experience
- Phenomenological methods to understand the mind
- Importance of lived and subjective experiences in integral formation
- Philosophical foundations of lived experience
- Attention and focus as necessary aspects for understanding
- Sensory and cognitive perception in educational experience
- Influence of the temporality of experience on learning
- Impact of time perception on educational experience
- Importance of situational context, physical, educational, social, and cultural space in the learning experience
- Development of personal and professional identity of the main educational agents
- Importance of authenticity in education
- Influence of emotions and feelings on educational experience and learning process
- Relationship between emotion and cognition
- Influence of emotional experiences on understanding and academic performance
- Critical reflection on educational experiences to foster deep and meaningful learning
- Adapting the curriculum to respond to perceptions and needs
- Experiential learning and self-directed discovery
- Reflective and empathetic teaching based on students' perspectives and experiences
- Learning environments to foster interaction and collaboration

Article contributions: We welcome articles from prominent representatives in the field of philosophy, addressing the central theme and its implications in psychology, pedagogy, or other disciplines.

Manuscript submission deadline: July 15, 2030
Publication date of this edition: January 15, 2031

Convocatorias 2024-2030

Sophia 38
El método inductivo en las humanidades y en la pedagogía

Descriptores: La actividad científica y reflexión sobre el método de conocimiento; el método inductivo en las ciencias sociales; inducción, experiencia y acción como fundamento de la pedagogía; los métodos de conocimiento y aprendizaje en las humanidades; valor y límites del método experimental en las ciencias humanas; valor y límites del positivismo pedagógico; reflexiones sobre el método científico e implicaciones en los procesos de aprendizaje; aplicaciones del método inductivo en la educación; utilidad del método inductivo para la psicología; propuestas pedagógicas de carácter inductivo en las ciencias humanas.

Generación de artículos desde representantes de la filosofía destacados en el tema central y sus implicaciones en la psicología, en la pedagogía o en otras disciplinas.

Fecha límite para la recepción de manuscritos: 15 de julio de 2024
Fecha de publicación de esta edición: 15 de enero de 2025

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Sophia 39
La filosofía en tiempos de la digitalización

Líneas de Investigación: Filosofía de la tecnología educativa; filosofía de la educación en la era digital; filosofía de la inteligencia artificial en la era digital; sentido, significado y finalidad de la inteligencia artificial en la educación; la inteligencia artificial como forma de superación de la inteligencia humana; asistentes virtuales en la educación; corrientes filosóficas que fundamentan a la educación en la era digital; el rol del docente y la automatización de los procesos educativos; reflexiones sobre la educación mediante la metodología virtual; docentes como inmigrantes digitales; identidad híbrida y aplicaciones móviles en el aprendizaje.

Generación de artículos desde representantes de la filosofía destacados en el tema central y sus implicaciones en la filosofía de la educación, en la psicología, en la pedagogía o en otras disciplinas.

Fecha límite para la recepción de manuscritos: 15 de diciembre de 2024
Fecha de publicación de esta edición: 15 de julio de 2025

Sophia 40
La filosofía en la educación de principios y valores

Líneas de Investigación: Filosofía de los valores y su implicación en la educación; el conocimiento de las virtudes morales; didáctica de la ética; didáctica de la axiología; discurso como práctica ética; educación en valores éticos, políticos, cívicos, religiosos; filosofía de la educación basada en la axiología; la libertad, la justicia y la democracia en la educación; lo onto-antropológico en la educación en valores; la importancia de la vocación y la convivencia pacífica en el entorno educativo; corrientes filosóficas que aportan para la educación en valores; la enseñanza de la ética profesional; responsabilidad de los profesionales en la búsqueda y comunicación de la verdad; dilemas éticos relacionados con la verdad en diversas profesiones; dilemas éticos relacionados con el uso de tecnología y medios digitales.

Generación de artículos desde representantes de la filosofía destacados en el tema central y sus implicaciones en la filosofía de la educación, en la psicología, en la pedagogía o en otras disciplinas.

Fecha límite para la recepción de manuscritos: 15 de julio de 2025
Fecha de publicación de esta edición: 15 de enero de 2026

Sophia 41
Categorías fundamentales para la comprensión
de la filosofía de la educación en la sociedad actual

Líneas de Investigación: Teoría educativa; categorías ónticas y ontológicas de la filosofía de la educación; teoría crítica de la educación; paradojas del pensamiento crítico y realidad educativa; naturaleza y filosofía del aprendizaje, perspectiva crítica de la metodología y la innovación educativa; pedagogías y metodologías críticas; autoconcepto y estrategias metacognitivas; contribuciones de la lógica formal, de la lógica modal, de la lógica dialéctica para la comprensión de la filosofía de la educación

Generación de artículos desde representantes de la filosofía destacados en el tema central y sus implicaciones en la psicología, en la pedagogía o en otras disciplinas.

Fecha límite para la recepción de manuscritos: 15 de diciembre de 2025
Fecha de publicación de esta edición: 15 de julio de 2026

Sophia 42
Filosofía en la comunicación mediática
los medios digitales en la educación

Líneas de Investigación: Reflexiones sobre la educación mediática; la veracidad de la información en medios digitales; análisis filosóficos de los fenómenos de desinformación; cuestionamientos sobre el impacto de las noticias falsas (fake news) en la sociedad y la educación; la formación crítica de los individuos en relación con los medios de comunicación y las tecnologías digitales; reflexiones sobre diversos formatos mediáticos y digitales; fundamentos filosóficos de la alfabetización digital y la educación mediática; formación ciudadana crítica y competente en el uso de medios y tecnologías digitales; enfoques constructivistas y críticos en la educación mediática; métodos filosóficos para la enseñanza de habilidades mediáticas; estrategias pedagógicas para la enseñanza de habilidades mediáticas y digitales; pensamiento crítico para el análisis de medios; habilidades técnicas y creativas para la producción de contenido mediático; ética y responsabilidad en la era digital; ética y responsabilidad en la creación y difusión de contenido digital; impacto de los medios y la tecnología en la sociedad; educación sobre la privacidad en línea y protección de datos personales; estrategias para mantener la seguridad digital y la ética en el uso de tecnologías; acceso equitativo a la tecnología y a los medios de comunicación; políticas y prácticas para reducir la brecha digital y promover la inclusión tecnológica; rol de la alfabetización mediática en la formación de ciudadanos informados y participativos; el uso de los medios digitales para la participación cívica; dilemas éticos relacionados con el uso de tecnología y medios digitales; responsabilidad social y ética profesional en la creación y consumo de contenido mediático; integración de la educación mediática en el currículo; evaluación crítica de programas y prácticas educativas en alfabetización mediática; tendencias emergentes en la alfabetización digital y su relevancia para el futuro de la educación; La globalización mediante internet y el poder de la Inteligencia Artificial como fuerza de nivelación de la educación

Generación de artículos desde representantes de la filosofía destacados en el tema central y sus implicaciones en la psicología, en la pedagogía o en otras disciplinas.

Fecha límite para la recepción de manuscritos: 15 de julio de 2026
Fecha de publicación de esta edición: 15 de enero de 2027

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Sophia 43
Filosofía de la neuroeducación

Líneas de Investigación: Implicaciones éticas, epistemológicas y metodológicas de aplicar conocimientos neurocientíficos en la educación; naturaleza, limitaciones y finalidades de la neuroeducación; reflexión filosófica de la relación entre neurociencia, psicología y pedagogía; bases neurobiológicas del aprendizaje; plasticidad cerebral y consolidación de la memoria; procesos cognitivos fundamentales: atención, percepción, memoria y emociones en la educación; principios de la neurociencia para mejorar la enseñanza y el aprendizaje; ética de la neuroeducación; el consentimiento informado en la investigación neuroeducativa; evaluación crítica de las metodologías neurocientíficas; críticas a la neurociencia y a la neuroeducación; diseño de entornos de aprendizaje adaptados a las necesidades cognitivas y emocionales de los estudiantes; impacto de las emociones en los procesos de aprendizaje y memoria; estrategias para fomentar la motivación intrínseca y el bienestar emocional en el aula; aprendizaje a lo largo de la vida y neuroplasticidad en la edad adulta; reflexión filosófica sobre el uso de tecnologías emergentes como la neuroimagen y la estimulación cerebral en la investigación educativa; reflexión filosófica sobre la formación docente y la neuroeducación; influencia de los conocimientos neurocientíficos en la práctica educativa; filosofía de la mente y neuroeducación; neuroeducación moral; neuroética vinculada con la educación.

Generación de artículos desde representantes de la filosofía destacados en el tema central y sus implicaciones en la psicología, en la pedagogía o en otras disciplinas.

Fecha límite para la recepción de manuscritos: 15 de diciembre de 2026
Fecha de publicación de esta edición: 15 de julio de 2027

Sophia 44
Ética de la inteligencia artificial en la educación

Líneas de Investigación: Implicaciones éticas y morales del desarrollo y uso de la IA; transparencia, privacidad y protección de datos; manejo ético de los datos personales; autonomía y toma de decisiones educativas con los sistemas de IA; autonomía y supervisión humana con la IA; efectos de la automatización y la IA en la educación; reflexión filosófica sobre el uso de la IA; estrategias para combatir la desinformación generada por la IA; críticas sobre la autonomía de las máquinas y la ética de los robots; diferencias culturales y éticas en la percepción y regulación de la IA; enfoques, perspectivas y tendencias para abordar los desafíos y oportunidades que presenta esta tecnología; el uso de la IA en entornos virtuales educativos; seguridad, justicia y beneficios de la IA para los involucrados; reflexiones sobre la equidad promovida desde la IA; impacto de la IA en las responsabilidades del docente y en el rol del estudiante;

la ética como punto de equilibrio entre tecnología e interacción humana en el proceso educativo; la evaluación educativa; uso ético de la IA para evaluar el rendimiento estudiantil; enfoque ético en la implementación de la inteligencia artificial en la educación.

Generación de artículos desde representantes de la filosofía destacados en el tema central y sus implicaciones en la psicología, en la pedagogía o en otras disciplinas.

Fecha límite para la recepción de manuscritos: 15 de julio de 2027
Fecha de publicación de esta edición: 15 de enero de 2028

Sophia 45
Filosofía de la educación en la verdad y la post-verdad

Líneas de Investigación: Concepciones, teorías y criterios de verdad; fundamentos epistemológicos de cómo conocemos la verdad; teorías del conocimiento y su aplicación en la educación; implicaciones de la verdad en los procesos educativos; la verdad en el docente vs la verdad en el estudiante; ética y verdad en la investigación educativa; clases de verdad, problemas y límites de la verdad en la educación; educación en la verdad basada en el pensamiento crítico; educación en la verdad en la era de la posverdad; dimensión educativa de la posverdad; honestidad intelectual, integridad, objetividad y búsqueda rigurosa del conocimiento; la verdad como centro del proceso educativo; el rol de la verdad en la educación cívica y en la formación de ciudadanos; relación entre verdad, poder y propaganda en la educación; estrategias para fomentar la auto-reflexión y la búsqueda personal de la verdad; la importancia de la autenticidad y la honestidad en el desarrollo personal y educativo; métodos de enseñanza de la verdad; la verdad en las ciencias, las humanidades y las ciencias sociales; la búsqueda de la verdad en la investigación académica y científica; relatividad cultural y verdad; enseñanza de la verdad en un contexto multicultural y pluralista.

Generación de artículos desde representantes de la filosofía destacados en el tema central y sus implicaciones en la psicología, en la pedagogía o en otras disciplinas.

Fecha límite para la recepción de manuscritos: 15 de diciembre de 2027
Fecha de publicación de esta edición: 15 de julio de 2028

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Sophia 46
Filosofia del medio ambiente y educación

Líneas de Investigación: Interacción entre filosofía del medio ambiente y la educación; enfoques filosóficos en la educación ambiental; ética ambiental en la educación; la ética de respeto y cuidado por el medio ambiente; dilemas éticos ambientales en el aula; diálogo transdisciplinar sobre el desarrollo sostenible y culturas regenerativas desde la pedagogía crítica; filosofía de la naturaleza y educación, perspectivas filosóficas sobre la naturaleza que influyen en la educación; el papel de la educación en la sostenibilidad global; filosofía de la ecología en la educación; métodos educativos para desarrollar una conciencia ecológica; la educación ambiental en la formación de valores ecológicos; enseñanza de la equidad ambiental; ecofeminismo en la educación ambiental; filosofía del cambio climático y educación; cambio climático desde una perspectiva filosófica; pedagogía crítica para la comprensión del medio ambiente; enseñanza sobre los derechos de la naturaleza; implicaciones filosóficas sobre la naturaleza; fundamentos filosóficos de la integración curricular con temas ambientales; currículo interdisciplinario desde la filosofía ambiental; antropocentrismo y ecocentrismo; filosofía y tecnociencia ambiental en la educación; ética de la geoingeniería y otras intervenciones tecnológicas en el medio ambiente; ontología del medio ambiente; filosofía de la ecología; críticas y desafíos en la implementación de los derechos de la naturaleza.

Generación de artículos desde representantes de la filosofía destacados en el tema central y sus implicaciones en la psicología, en la pedagogía o en otras disciplinas.

Fecha límite para la recepción de manuscritos: 15 de julio de 2028
Fecha de publicación de esta edición: 15 de enero de 2029

Sophia 47
Problemas y desafíos de la filosofia de la educación

Líneas de Investigación: Fundamentos filosóficos de la desigualdad y la equidad educativa en la educación; papel de la filosofía de la educación en la diversidad cultural; función de la filosofía de la educación en la formación política y ciudadana; filosofía intercultural y competencias educativas en la globalización; evaluación de la relevancia y actualización del contenido educativo; métodos alternativos de evaluación educativa; descentralización y gobernanza en la educación; la filosofía de la educación para la comprensión de la salud mental de docentes y estudiantes; orientaciones pedagógicas basadas en corrientes filosóficas; el pensamiento crítico en el aula.

Generación de artículos desde representantes de la filosofía destacados en el tema central y sus implicaciones en la psicología, en la pedagogía o en otras disciplinas.

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Sophia 48
La función del docente en la formación del carácter y en la modelación de virtudes

Líneas de Investigación: La educación del carácter desde la filosofía; articulación de teoría ética, prácticas pedagógicas y cultivo de un ambiente escolar para el desarrollo moral; estrategias filosóficas para la educación del carácter; enseñanza de valores; modelado de virtudes; comportamiento y decisiones de los docentes; docentes como modelos de las virtudes; dilemas morales y éticos en el aula; programas de filosofía para niños para el desarrollo de habilidades de pensamiento crítico; el aprendizaje experiencial para la educación del carácter; el aprendizaje basado en proyectos como experiencia para fortalecer el carácter del ser humano; importancia de la interdisciplinariedad en la formación del carácter; influencia del ambiente escolar en la formación del carácter; la práctica de las virtudes como mecanismo para la formación del carácter del sujeto; la educación del carácter a través del desarrollo evolutivo; la enseñanza de valores; métodos filosóficos, técnicas y estrategias para formar el carácter; propuestas filosófico-pedagógicas para la formación del carácter; la reflexión personal y el autoconocimiento como mecanismos para la formación del carácter; corrientes filosóficas para la formación del carácter; teorías éticas para la formación del carácter; teorías del desarrollo moral (Piaget, Kohlberg, etc.); comprensión de la formación del carácter desde la relación entre desarrollo moral y desarrollo psicológico; función de la educación del carácter en la participación ciudadana y el bien común; rol de la religión y la espiritualidad en la educación del carácter; importancia de las religiones en la formación del carácter; críticas y defensas de los programas de educación del carácter; rol de los mentores en la educación del carácter; la formación del carácter desde la filosofía; formación del carácter desde la pedagogía; estrategias filosóficas y pedagógicas para la educación del carácter; enfoque interdisciplinario en la educación moral; relación carácter y conocimiento; teorías, prácticas y ambientes escolares en el desarrollo moral y la educación del carácter; pedagogía y filosofía en la educación moral; el arte de formar el carácter desde la pedagogía y la filosofía moral; filosofía y prácticas pedagógicas para el desarrollo del carácter

Generación de artículos desde representantes de la filosofía destacados en el tema central y sus implicaciones en la psicología, en la pedagogía o en otras disciplinas.

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Sophia 49
Fundamentos y perspectivas filosóficas de la educación transformadora

Líneas de Investigación: Fundamentos teóricos sobre la conciencia crítica; la pedagogía participativa como base para la educación transformadora; educación contextualizada clave para la transformación personal y social; la interdisciplinariedad como mecanismo para abordar problemas; conciencia crítica como base para la educación transformadora; la pedagogía participativa como referente para una educación transformadora; enfoque interdisciplinario para la educación y transformación social; fundamentos de la educación transformadora de Freire a Foucault; aprendizaje holístico como fundamento para la educación transformadora; teoría, praxis y filosofía en clave hacia una educación transformadora; la educación contextualizada como base para la transformación personal y social; interdisciplinariedad y conciencia crítica en la educación transformadora; perspectivas filosóficas de la educación transformadora: Freire, Dewey, etc.; teorías y prácticas para la comprensión holística de la educación transformadora; perspectiva holística del aprendizaje y la comprensión como base para la educación transformadora; fundamentos filosóficos de la educación transformadora desde Freire, Dewey, Kant, Rousseau, Giroux, Foucault, Gramsci; etc.

Generación de artículos desde representantes de la filosofía destacados en el tema central y sus implicaciones en la psicología, en la pedagogía o en otras disciplinas.

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Sophia 50
Fenomenología de la experiencia en la educación

Líneas de Investigación: Estudio de la experiencia subjetiva; métodos fenomenológicos para comprender la mente; importancia de las experiencias vividas y subjetivas en la formación integral; fundamentos filosóficos de la experiencia vivida; atención y focalización como aspectos necesarios para la comprensión; la percepción sensorial y cognitiva en la experiencia educativa; influencia de la temporalidad de la experiencia en el aprendizaje; incidencia de la percepción del tiempo en la experiencia educativa; importancia del contexto situacional, del espacio físico educativo, social y cultural en la experiencia del aprendizaje; desarrollo de la identidad personal y profesional de los principales agentes de la educación; importancia de la autenticidad en la educación; influencia de las emociones y los sentimientos en la experiencia educativa y en el proceso de aprendizaje; relación entre emoción y cognición; influencia de las experiencias emocionales en la comprensión y rendimiento académico; reflexión crítica sobre las experiencias educativas para fomentar el aprendiza-

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je profundo y significativo; adaptación del currículo para responder a las percepciones y necesidades. aprendizaje experiencial y el descubrimiento autodirigido; enseñanza reflexiva y empática basada en las perspectivas y vivencias de los estudiantes; ambientes de aprendizaje para fomentar la interacción y la colaboración.

Generación de artículos desde representantes de la filosofía destacados en el tema central y sus implicaciones en la psicología, en la pedagogía o en otras disciplinas.

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