

ARTICLE

Holonic Theory and Holistic Education

Josep Gallifa*

FPCEE Blanquerna. Ramon Llull University, C. Cister 34, 08022 Barcelona, Spain

ARTICLE INFO

Article history:

Received: 18 December 2018

Accepted: 27 December 2018

Published: 18 January 2019

Keywords:

Holonic Theory

Holistic Education

Holistic Pedagogy

Phenomenology

ABSTRACT

This paper presents the holonic theory, which is an attempt to develop in a single model the explanation of the evolution in the physic, biologic and cultural dimensions. The purpose of this development is to understand the traits of nowadays common holism, which is considered a necessary thinking practice in different domains, among them education. A phenomenological study has been developed connecting diverse noospheric holons. The results allow for a characterization of the holonic structure of a holistic consciousness act. This characterization is used to define holistic education: An education with the dimensions of preservation, profundity, projective action and span. This article can also be interpreted as a contribution to provide the ontological and epistemological bases for going beyond the modern and postmodern worldviews. These findings help in providing a framework for today's holistic pedagogical debates and developments.

1. Introduction

In the most part of professions that involve human relationships and, more generally, in contemporary intellectual perspectives there is a common need: to think comprehensively, globally, holistically. Effectively, today's problems rarely can be approached only from only one specialty, and integrated or integral approaches are needed in order to grasp the complexity of issues and phenomena. Education is in the midst of this contemporary trend. Nevertheless to create holistic or integral kinds of thinking there is a previous need to be addressed and focused on, which is to have a well-defined ontological model, able to accommodate integrated and holistic -instead of fragmented- perspectives. Therefore a first question to be discussed is: Is there an ontological system as inclusive as possible of multiple perspectives?

On the other hand, there is another important need in intellectual and practical endeavors that can be formulat-

ed, in a simple way, as recovering the 'subject', by presenting a suitable model of consciousness. The bias towards the 'objective' knowledge let the legacy of premodern traditions aside. Recovering the 'subject' in the context of the nowadays modern and postmodern worldviews is thus another related important need. Wilber^[1] presented an integral theory to integrate these worldviews and traditions in a single model. Particularly meaningful is the contribution of Wilber presenting a model for the evolution of the subject, in the form of a spectrum of consciousness, in which he described the levels of evolution of the subjective consciousness. The model of Wilber was used to substantiate in turn different approaches: Beck and Cowan in the value-memes of a culture,^[2] Esbjörn-Hargens or Murray in integral education,^[3] Laloux in the evolution of organizations,^[4] Thomas in integral leadership,^[5] among many others. All of these approaches are founded on subjective acts of holistic consciousness. Another question,

**Corresponding Author:*

Josep Gallifa,

Faculty of Psychology, Education and Sport Sciences Blanquerna, Ramon Llull University,

C. Cister 34, 08022 Barcelona, Spain

E-mail: josepgr@blanquerna.url.edu

therefore, open to be answered and important is: Is there any pattern for modeling and understanding holistic consciousness?

In education, these tendencies helped to develop what has been known as holistic education. Holistic education is another way to refer the Early 20th. Century movement of "progressive education", carried out by Montessori, Steiner or Dewey, among many others. Their pedagogies emphasized imagination, aesthetics, organic thinking, practical engagement, creativity, and spirituality.^[6] In the 70s diverse approaches emerged being "critical of the formal, modernist 'factory-model' of mass education. Most sought to broaden education beyond the simple information-processing model based on a mechanistic view of the human being to a more holistic, creative, multifaceted, embodied and participatory approach".^[7] These perspectives were out of the dominant worldview of mainstream education. At the beginning of the 21st. Century appeared many pedagogical approaches related to the evolution of consciousness. Among them: aesthetic and artistic education, complexity in education, imaginative education, integral education, postmodern and poststructuralist pedagogies, social and emotional education, or spirituality in education.^[8] These approaches, pedagogically well founded and structured, usually referred to the methods used as holistic pedagogies.

In a strict sense, holistic education designates some perspectives developed following a single pedagogue. It's the case, for instance, of Steiner's model of education, which "provides an integrated, holistic balance of intellectual/cognitive, artistic/imaginative and practical/life skills education".^[9] This approach includes Steiner's notion of imaginative teaching using diverse methods: drama, exploration, storytelling, routine, arts, discussion, and empathy.^[10] Another example, using similar methodologies, is Krishnamurti's holistic education, which "reminds us that we should not be dogmatic or doctrinaire in our education".^[11] Some author-dependent holistic education developments become in time –unfortunately– "too narrow and rigid"^[12] in their approaches.

In a more general sense, holistic education can designate any pedagogy that incorporates principles of spirituality, wholeness, and interconnectedness along with principles of freedom, autonomy, and democracy.^[13] Doing so holistic education perspectives highlight eight broad principles: spirituality, reverence to life/nature, interconnectedness, human wholeness, individual uniqueness, caring relations, freedom/autonomy, and democracy.^[14]

"Holistic education is a radically non-reductionistic approach based upon a person-centered, ecological, global and spiritual worldview. As such, the holistic

paradigm is an alternative not only to the scientific reductionism of the modern age but also to the intellectual reductionism of postmodern thought. Holistic education is a humanistic as well as a spiritual critique of the dominant culture".^[15]

Holistic education encompasses a wide range of pedagogies and philosophical or spiritual orientations. Holistic pedagogies try to include any significant aspect of the human experience, "the different aspects of the individual (intellectual, physical, spiritual, emotional, social and aesthetic), as well as the relationships between the individual and other people, the individual and natural environment, the inner- self of students and external world, emotion and reason, different discipline of knowledge and different form of knowing, holistic education is concerned with life experience, not with narrowly defined "basic skills".^[16] Nevertheless, in holistic perspectives, sometimes there is an implicit -or sometimes explicit- worldview or metaphysical approach. A defining feature of holistic pedagogical perspectives is the relationship between education and consciousness evolution. This relationship has been promoted "pointing to the emergence of more complex, dialectical, imaginative, self-reflective and spiritual ways of thinking, living and loving".^[17] Nevertheless, there isn't a unified systematic characterization of holistic consciousness, neither a characterization with minimal metaphysical references. This is the aim of this work: to find a general model for holistic consciousness to relate it to holistic education and pedagogies.

These aforementioned developments have relevance in today's general pedagogical debates, in a diversity of ways. For example, in the curricular field, there is a need to promote complex curricula, as opposed to the modernist oriented curriculum.^[18] This means that nowadays there are new -or not so new- expected curricular standards: constructivist views of learning, social inclusion, and respect for diversity, a view of the process as being as important than product, lifelong learning outcome, the significance of metacognition and motivation in learning, or promoting multiple intelligences.^[19] "Curriculum theory and practice are faced by new uncertainties, and such uncertainties require new approaches to practice and new ways of thinking".^[20] One trend is framing of the new curricula around capacities or core/key competencies. Thus, for example, Scotland specifies that the curriculum should enable young people to become:^[21] successful learners, confident individuals, responsible citizens, and effective contributors. Students are expected to play a diversity of roles in different dimensions of human evolution. And it means that there is a need for comprehensive curricular agendas. Another related pedagogical need is 'holding the

complexity', for example, using integrative and holistic approaches within the tradition of the critical-constructive Didaktik.^[22] Yates defined 'pedagogy as the way we bring together broad intentions about what is to be learned or developed with particular kinds of learners in particular historical, national and institutional settings'.^[23] The issues that have made this hard to deal with, in present times, are:^[24]

1. The problem of reconciling recognition and distribution in relation to our greater sensitivity to diversity and embodied learners.
2. The problem of reconciling concepts of education based on comparative measurement and standards that look backward, with concepts of new times and a desire for young people to enter the changing world with a new kind of preparation and persona.
3. The continued divergence of cognitive and culturalist approaches to pedagogy and knowledge and identity.

To approach pedagogically these tensions, as well as other common contemporary pedagogical debates, it would be useful to have more well-defined models for holistic education.

The aim of this paper, to respond these contemporary needs, is: to present a theoretical framework for an ontology inclusive of the different levels of reality; to study, following a phenomenological path, a general model for holistic acts of consciousness, independent of metaphysical frameworks; to apply this model to education in order to characterize holistic education, and thus, to project these findings to develop holistic pedagogies.

2. Holonic Theory

Holonic theory can be the framework for an inclusive ontology. The holonic theory, based in the concept of holon that Koestler^[25] coined, presents a model to integrate into a comprehensive model the evolution in the physiosphere, biosphere, and noosphere, terms that Teilhard de Chardin^[26] developed in his understanding of evolution. The holonic model is useful to represent holistic consciousness acts, in particular, the full evolutionary spectrum of consciousness.^[27] Some authors contributed to the development of the holonic theory. Among others, we can mention Goddard,^[28] Smith,^[29] Edwards,^[30] Helfrich,^[31] and Anderson.^[32]

Minimal reference to Metaphysics

Wilber proposed a minimal Metaphysics at the moment of integrating the evolution from the physiosphere, towards the biosphere and finally towards the human noosphere,^[33] in a similar way as Teilhard de Chardin did.^[34] If this evolution is pushed by the Eros/will, there is another aspect, which is the result of the 'involution', that is to go back in the evolution, before the 'starting point'. This leads

to the only metaphysical assumption that Wilber contemplates: the 'Agape' or genuine 'Love' in the beginning. Except for this presuppose, research, said Wilber, should be influenced as little as possible by metaphysical elements.^[35] "With involution and evolution the basic idea is that Spirit as causal Consciousness 'steps down' or 'throws itself out' into soul, then mind, then body, and finally matter causing a Big Bang of primordial physios, which contains varying degrees of proto-interiority that sets the stage for matter to begin its journey back to Spirit through the evolutionary process (e.g., physiospheres, then biospheres, then noospheres, then...). Thus, the notion of involutory and evolutionary 'currents', 'fields', or telos helps explain the plausibility that Spirit is hardwired into all physiospheres 'before the beginning', at the beginning (Big Bang), and thereafter providing a 'push and pull' or innate directionality and intention to the Kosmos".^[36] Wilber in this regard stated:

"Now you are perfectly free to believe in evolution and reject the notion of involution. I find that an incoherent position; nonetheless, you can still embrace everything... about the evolution of culture and consciousness, and refuse or remain agnostic about involution. But the notion of a prior involutory force does much to help with the otherwise impenetrable puzzles of Darwinian evolution, which has tried, ever-so-unsuccessfully, to explain why dirt would get right up and eventually start writing poetry".^[37]

A Definition of Holon

After presenting briefly the involution-evolution rationale, Wilber introduced the concept of holon that previously Koestler formulated.^[38] A holon is a unit of consciousness that is at the same time part and whole. For example, an atom, a grain of sand, an animal, a symbol, are examples of holons. Holons can be considered themselves by definition as a whole and at the same time as part of another wider reality. Holons help to explain the hierarchical and heterarchical relationships within the evolutionary spectrum of consciousness.^[39] Holons are the result of the interactions between any kind of potential realities with human consciousness.

Holons are organized and can be organizing agents. On the one hand "hierarchies unfold in irreversible, increasing depths of transcending yet include relationships, for instance: seedlings to saplings to trees. Heterarchies, on the other hand, consist of similar holons with spans of equivalence, for example, groups of atoms, amphibians, or primates".^[40] Therefore the holon eventually would provide conceptual means to integrate crucial relationships during long periods of evolutionary time (evolution) with relationships more localized in a human life (development).

Wilber refined Koestler's concepts of 'vertical' transformation and depth within 'horizontal' translation and span, two complementary aspects of development. Taken together, hierarchy (depths of inequivalence) and heterarchy (spans of equivalence) form what Koestler named a holarchy'.^[41] Consequently, there are holons (whole/part) that can be: physical (ex: atoms), biological (ex: cells), psychological (ex: minds), psychic (ex: souls) and spiritual (ex. causal holons), and can be traced up and down in the holarchy.

Applying the definition of holon, "reality is not composed of things or processes, it is not composed of atoms or quarks. It is not composed of 'wholes', nor does it have any 'parts'. Rather, it is composed of whole/part or holon units".^[42] "There is nothing that isn't a holon (upwardly and downwardly, forever".^[43] With this definition, Wilber goes beyond atomism (reductionism, no interiors) and simple holism (extreme heterarchy). This moves him away from reductionism or incomplete synthesis. It must be taken into account that holons in this way defined comprise any simple or complex unit of consciousness.

A holon is, therefore, a fundamental structural element common to all reality. Its definition as a whole or as a part will depend on the context. It is always complete and incomplete so, trying to maintain its identity or express its potential, it flows and extends into becoming. It could be said that a holon is a construct, but also it is a self-evident revelation, resulting from a natural phenomenology. "Its symmetry provides structure and stability and its lack of definition provides asymmetries and movement. It is the 'root' event and the structural basis of the forms and of all the other events".^[44]

Value of the Holons

Holonic theory served Wilber to propose a post-Meta-physics to understand the reality as a manifestation of the non-dual Spirit. The Spirit, whether non-dual or dual, as a basis and as an objective of the evolution, permeates both vertical holarchies and horizontal heterarchies. In this sense Wilber asserted that all holons have some kind of value:^[45]

- Basic value: All holons are manifestations of the Spirit. This value is radically equal for all holons.

- Intrinsic value: The value that a holon has in itself as a whole (agent, depth in whole/part relationships).

- Extrinsic value: The value that the holon has as a part (communion, span in whole/part relationships).

"The higher the holon's vertical development within the Kosmos (e.g., physiosphere, biosphere, noosphere) the more intrinsic value and depth it has. On the other hand, the lower the holon's vertical development the more extrinsic value and greater span it has. There-

fore, humans have more intrinsic value than animals, fish, prokaryotes, rocks, molecules, and quantum fields respectively, and vice versa for extrinsic value".^[46] Nevertheless, these values are finally noospheric constructions or human consciousness constructions.^[47]

Principles and Proprieties of the Holons.

Holons explain the 'relatively stable habits of evolution', rather than 'laws of evolution'; thus Wilber speaks of 'patterns of existence', 'results of the process of involution', 'tendencies of evolution', 'laws of form', 'propensities of manifestation'.^[48] They have in common: "Eros: Each holon is Spirit-in-Itself playing at being 'other', because it is, by involution, another and has a tendency to evolve towards the Spirit; Agape: The Spirit reaches out to all holons attracting other holons; Morphogenetic gradient or field of potentials: result of involution with contents and concrete forms but with evolutionary potential; and also certain fixed patterns or prototypical forms".^[49]

Holons manifest in 20 tenets. These are:^[50]

1. Reality as a whole is not composed of things or processes but of holons (part/whole).{1}
2. Holons display four fundamental capacities: self-preservation, self-adaptation, self-transcendence. self-dissolution. {2}
3. Holons emerge, because transcendence, freedom, and creativity are consubstantial in them. {3}
4. Holons emerge holarchically (as whole/part).{4}
5. Each emerging holon transcends and includes its predecessor(s). {5}
6. The lower or less inclusive holon sets the possibilities of the superior or more inclusive. The higher or more inclusive holon sets the probabilities of the lower or less inclusive. {6}
7. The number of levels, which a hierarchy comprises, determines whether it is shallow or deep (vertical dimension); {7} and the number of holons on any given level we shall call its span (horizontal dimension). {8}
8. Each successive level of evolution produces greater depth and less span. Addition I: The greater the depth of a holon, the greater its degree of consciousness. {9}
9. Destroy any type of holon and you will destroy all the holons above it and none of the holons below it. {10}
10. Holarchies coevolve. {11}
11. The micro (individual holons) is in relational exchange with the macro (social/ environmental holons) and all levels of its depth. {12}
12. Evolution has directionality, {13} increasing complexity, {14} increasing differentiation/integration, {15} increasing organization/structure, {16} increasing relative autonomy. {17} Increasing 'telos'. {18}

13. Addition II: Every holon issues an IOU to the Cosmos (IOU = Incomplete Or Uncertain). In other words, it is in tension and constant search. {19}

14. Addition III: All IOUs to the Cosmos are redeemed in Emptiness. Holons are conventional truths. The Emptiness/Spirit is the ultimate truth. {20}

These principles describe the nature of the holons and their behavior in the framework of the process of 'involution-evolution'. A central aspect is the inclusion of "telos", directionality, purpose, which Wilber takes from Whitehead, as well as he did with the involution-evolution model. In the words of Wilber:

"Whitehead had the notion that reality appears moment by moment as a subject of experience, and even the smallest material objects, such as molecules or atoms, have a small level of consciousness; a little proto-feeling that he called "apprehension." In this way, this present moment is a subject of experience that apprehends the previous moments as an object, feeling the experience as it appears from moment to moment. So the previous moment, which was a subject before, now becomes the 'object' of the subject. And that is causality because the past is having an impact on the present, determining it. If this were the only thing that could happen (the subject that apprehends the previous object over and over again), the Universe would be deterministic, mechanistic and causal. But according to Whitehead every moment, besides having 'apprehension', has 'creativity', which means that there is a bit of originality or novelty".^[51]

This evolutionary 'creativity' or 'novelty' can be explained in more detail: In every moment there is a bit of novelty. It is an optimization of the Universe. Every holon, even those of inner matter, has a slight degree of consciousness, and a small degree of creativity. Each moment transcends and includes the previous moment, adding novelty, since it goes beyond the previous. That's what is happening even at the lowest levels. Then there will never be a strict causality since there are causality and creativity

Self-transcendence explains the emergence of new holons or evolution. Therefore, "in the model, freedom and self-determination are foundational (Prigogine). The determinism arises when there is no self-transcendence or when is limited by a higher holon. When creativity is minimal, reconstructive sciences collapse in predictive sciences; this is the source of all reductionism".^[52] This means that when transcendence is near zero the realist ontology and the predictive logical-empirical sciences are particular cases of the general model. But the general model encompasses other possible ontologies and epistemologies.

Thus evolution has directionality "exists in terms of increasing differentiation, variety, complexity, and organization in the physiosphere, biosphere, and noosphere. Regressions, dissolutions, or stoppages occur, but other indicators of directionality include creative emergence (novelty), symmetry breaks (Prigogine), self-transcendence, increased depth, and greater awareness".^[53] Thus, there is greater complexity, greater differentiation/integration, increasing in organization/structure, increasing in relative autonomy in the midst of social/environmental fluctuations, the realization of 'telos'.

This last aspect of 'telos' assumes that each holon also acts as an attractor, an 'omega point', for the actualization of itself or other holons in space and time. 'Pulls' the updating or development of the holon in one direction, be it physical, biological or mental system.^[54] Broader and wider contexts 'pull', in the form of 'telos', more limited present contexts. However, in the biosphere, living holons also do other things such as sexual reproduction, metabolic communication, autopoietic self-preservation, etc. The holons with mind of the noosphere do things that biospheres cannot do, such as verbal communication, conceptual self-expression, artistic effort, etc. Thus the general laws are completed with these new realities.^[55]

Detailed Dimensions of Holons

Wilber synthesized what holons of any kind have in common. Every holon has four characterizing dimensions:^[56] Agency. A tendency to be a whole. Aristotelian entelechy, morphic unit/field (Sheldrake), canon (Koestler), self-asserting, relative autonomy and wholeness, yang. It manifests the tendency towards self-preservation, autonomy, self-responsibility, self-esteem. It assumes in this sense fixed forms or patterns, among which there are the 20 tenets. Wilber named this dimension deep structure. In pathological forms, it manifests as alienation and repression.

Communion. A tendency to the relationship, participatory, bonding, joining tendencies, expresses its partnership, the ability to be part of a whole, attract other parties, relationship with something larger, self-adaptation, yin. Pathological forms: fusion and indissociation.

Self-transcendence. Self-transformation, creative novelty, creativity.^[57] Each holon becomes a new whole/part that has its own new forms of agency and communion. It is about the impulse to experience freedom, to find cohesion and unity through a greater, deeper and broader totality. Articulated by 'symmetry breaks' (Prigogine) not equivalent rearrangements of the same stuff. Evolution is the result of self-transcendence at all levels: It is also called as 'Eros', that is, Spirit manifested in something else: matter, body, mind, soul, etc. In this dimension, the 'telos' or purpose is manifested. If self-transcendence is

not achieved, 'phobos' (fear, regression, panic, contraction, and repression) is experienced.

Self-dissolution/Self-immanence. Self-dissolution of transcendence that can be termed as self-immanence. A morphogenetic gradient in the manifest field. This means not only a manifest reality with some kind of support in the manifested reality but also potential to evolve. Preservation of the current level or regression to previous levels. Wilber conceptualizes it as an instinct of death or Thanatos, a force opposed to Eros.

The four properties can be represented in axes, as Wilber proposed: "Taken together, these four capacities can be imagined as a cross: Two horizontal opposites: agency and communion, and two vertical opposites: self-transcendence and self-immanence".^[58] We proposed, in previous work, a particular location for these dimensions in the space.^[59] The simple representation of a holon is, therefore:

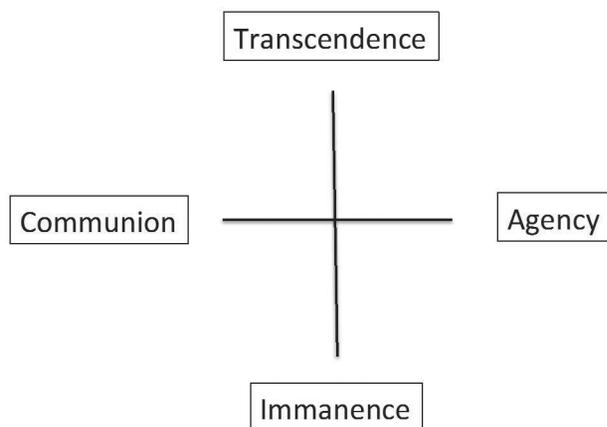


Figure 1. Immanence-Transcendence-Agency-Communion

Neurobiological Correlates

An example of holon can be a neuron, basic unit of the human brain: It is a cell and, as such, requires nutrients and oxygen to be alive and active, there is a somatic metabolism (preservation); it has a structure-nucleus, axon, etc., that is optimized by making connections and also by new connections that allow electrical or chemical synapses (agency); it is related to other neurons or groups of neurons - through connections in the dendrites - with which it forms patterns or neural networks (communion); it is open and sensitive to novelty in its environment (changes in neurotransmitters at synapses, new connections, new patterns) and activates/changes DNA to adapt to its environment and regulate its behavior over time (transcendence). The holonic scheme could be applied equally to more wide neuronal patterns or to the brain as a whole.

Introducing holons we do not necessarily assume any

kind of unnoticed dualism because of the relationship that exists between mind and brain. Damasio^[60] clarified the mind-brain relationship, understanding the relationship between neuronal patterns and mental images (equivalent to holons):

"When I say that images depend and arise from neuronal patterns or neural maps, instead of saying that they are neural patterns or maps, it is not that I slide towards an inadvertent dualism, that is, a neuronal pattern on the one hand and a 'cogitum' immaterial by another. Quite simply, what I am saying is that we can not yet characterize all the biological phenomena that occur between: a) our current description of a neuronal pattern at various neuronal levels, and b) our experience of the image originated within the activity of the neuronal map. There is a gap between our knowledge of neuronal events in the molecular, cellular and systems fields, on the one hand, and the mental image whose appearance mechanisms we wish to understand. There is a vacuum that must be filled with physical phenomena not yet identified, but presumably identifiable. The size of that gap and the degree to which it can be more or less saved in the future is, of course, an object of debate".^[61]

In other words, by introducing mental images Damasio doesn't separate his research from the neuropsychological paradigm but discarded the position of the "naive realism" by identifying, without further ado, neuronal patterns (physical, brain) and mental images (mind, for example, holons). Brain and mind are very closely related but they are not exactly the same.

3. Method: Phenomenological Psychology

To approach the proposed aims we used a phenomenological approach. Giorgi,^[62] studying the whole person and not only fragmented psychological processes, developed a "phenomenological method for researching humans in a psychological way based upon the work of Husserl and Merleau-Ponty".^[63] He explained that "psychologically phenomenologists are interested in specifically human consciousness, and because of that limited interest, the phenomenological method needs to be pre-transcendental",^[64] which means that psychology is interested in how a human consciousness relates to a specifically human world.^[65] Holons are the privileged location where this relationship takes place. Van den Berg emphasized that "insights into experience as lived, or the phenomenal level, is what is critical for psychologists to understand".^[66] This is the level that corresponds to the modalities of consciousness and education, which we are interested in. So the phenomenological-psychological method is appropriate to our aims. Therefore our characterization followed

the phenomenological method. To accomplish "the criteria necessary in order for a qualitative scientific method to qualify itself as phenomenological in a descriptive Husserlian sense, one would have to employ (1) description (2) within the attitude of the phenomenological reduction, and (3) seek the most invariant meanings for a context".^[67] These attitudes have been applied in our study.

4. Results

A Model for Holistic Acts of Consciousness

The holonic theory purpose is to provide a unified theory of the evolution, inclusive of the evolution of consciousness. Wilber took care especially about the basics, giving a coherent explanation of the evolution of the biosphere and noosphere, but giving no special details about the noosphere. To accomplish our purpose, which is to find a model for holistic acts of consciousness, we'll study phenomenologically diverse noospheric holons, covering diverse levels. The selected holons are either different dimensions of a whole, or complete systems to explain consciousness, in both cases represented in their holonic structure. This table covers a wide range of dimensions of human faculties. After studying carefully each one of the holonic four dimensions we'll give a name to each one. A general holon will rise above the included holons.

After considering and studying the diverse dimensions, the last row has been defined with names that characterize in each case the whole corresponding column. A general and inclusive holon emerge in this last row. Because it's a holon inclusive of the diverse noospheric holons and more elevated can be a representation of a holistic act of consciousness. The dimensions of this emergent holon include:

Preservation. It's the dimension of immanence (I). It's the preservation of what has value, frequently it comes from the past. It can have positive aspects, for example in resilience.

Profundity. It's the dimension of transcendence (T). More profundity means more consciousness (tenet number {9}). Without that dimension, there wouldn't be an advance to-wards holistic consciousness.

Projective action. It's the dimension of agency (A). The internal structure and order can be projected outside. Acting is a way of exercising free will. Although limited, there is room for human freedom. Action can be interiorized in a thinking process.

Span. It's the dimension of communion (C). This means participatory bonds and mutual understanding through shared meanings and implicit values.

In a holistic act of consciousness, these dimensions have to be, in some way, present. Note for example that in a case that there had been span but not profundity, there wouldn't have been the implication of a fundamental dimension for the advancement of consciousness. The consideration of this case as an act of holistic consciousness would be problematical. And the same can be said with the other dimensions.

A Model for Holistic Education

Once we have a model to include holistic acts of consciousness we can apply this holistic form of consciousness to education. Doing so we'll develop a model to characterize holistic education. Therefore, holistic education, following the development made, needs the contribution of four rationales:

Preservation (I). There are valuable things that must

Table 1 Noospheric Human Holons^[68]

Human holons:	Immanence	Agency	Communion	Transcendence
Organismic self-regulation (instincts)	Conservation	Sexual	Social	Novelty
Categories of perception	Time (Kronos)	Movement	Space	Time (Kairos)
Naranjo: Character-Essence	Dominant passions	Fixations	Virtues	Holy ideas
Enneagram dominant passions #	8, 9, 1	6, 7	2, 3	4, 5
Tolle: Ego-Being	Pain-body Past	Mind Past/Future	Presence Now	Being Unmanifested
Levels of desire	Receiving for oneself alone (ego)	Receiving	Receiving for the sake of sharing	Sharing (soul)
Human faculties	Memory	Will	Understanding	Wisdom
Cardinal virtues	Fortitude	Temperance	Prudence	Justice
Wilber's quadrants	Objective	Interobjective	Intersubjective	Subjective
Laloux: styles of Organization	Red-amber	Orange	Green	Teal
General holon	Preservation	Projective action	Span	Profundity

be preserved in education. For example: the already established knowledge via diverse sciences. On the other hand preservation in education, in a more concrete way, takes the form of a program. A program has objectives, methods, evaluation procedures, etc. It can have different dimensions and levels. Can be an administrative, strategic, curricular or classroom-applied program. Preservation means to preserve all the important values even the ones that come from the tradition. The recent trend to implement evidence-based reforms^[69] can be an example that confirms the importance of enhancing education with the implementation of proved programs. There are programs that have to be maintained. It's the logic of resources and energies to maintaining valuable educational efforts. That's the first rationale.

Profundity (T). The whole human being has to be considered. This is the second rationale. Education can be understood as a mean to improve consciousness and as a way of promoting human growing. It can be also promoting the development of the human faculties in developmental lines.^[70] Particularly interesting is the progress toward advanced stages of consciousness.^[71] In this way, education of the whole human being can be understood as a part of a wider general movement of elevation of personal consciousness.^[72] Psychologically speaking can be the construction of a bridge between the unconscious and conscience as in the Jungian transcendent function.^[73] It is also the rationale of the premodern religious-spiritual traditions.

Projective action (A). That means the knowledge of a group in order to transform reality by constructing artifacts.^[74] This means including the anthropological rationale, the ways mean by which the humanity had developed. It implies intentionality, the election of means, transformative action, evaluation, as well as learning in an expert-novice framework.^[75] Metacognition acquisition and competences based education fall inside that modality. A correspondence can be made with the Aristotelian episteme poietike directed to the poiesis. The educative professions are also in evolution in this category. It's the tékhne-arts-creative-productive logics.^[76] This means introducing practical and productive life and its rationale to education.

Span (C). This is the evolutionary cultural dimension. Culture is part of the imagined representations.^[77] This dimension is structured in worldviews, which are frequently unconscious until the advanced stages of consciousness. The evolution of the different worldviews and the values or v-memes of a culture was studied by Beck & Cowan.^[78] This is the logic of the Aristotelian episteme praktike oriented to the phronesis. It's the place for values and eth-

ics. Cooperative learning and team learning are located in this dimension. This is another rationale to be taken into account.

5. Discussion

Holonic Theory

We defined and developed the holonic theory as an ontological theory to explain the different levels of reality. There are holons (whole/part) in the physiosphere, in the biosphere, and in the noosphere. Examples of holons are a simple neuron, a neuronal pattern, a brain or a human being. Holonic theory is useful to integrate science, arts, cultures, and levels of consciousness. This perspective is not necessarily dualist (Damasio).

A correspondence can be done between scientific rationale and the Aristotelian episteme theoretike, conducted by the logical necessity. The corresponding Aristotelian way to the profundity of consciousness is the Aristotelian nous. And episteme poietike and praktike correspond respectively to projective action and culture. The predominance of each holonic dimension defines different epistemological approaches: empiric-logical science (I), phenomenological (T), Aristotelian tradition (A) and constructivist (C).^[79] Additionally, the model provides the background necessary to support Wilber's integral theory.

Holistic Consciousness

We studied diverse noospheric holons and found four dimensions useful in the characterization of holistic acts of consciousness: Preservation, profundity, projective action and span, We can understand from the model developed why only growing in one dimension is not fully holistic. This can be applied to the common contemporary syncretism, frequently denominated as holistic, that has span but without concern in profundity. The same can be said about some consciousness development movements that search for profundity but maybe discarding other logics, like for example preserving the good of the tradition. Truly holism, in harmony with the holonic theory, needs to contemplate the four dimensions in order to facilitate the integral evolution of consciousness.

Holistic Education

Following the model developed we defined holistic education, a way to consider education through four rationales: program, whole-person, projective action, and culture. Our suggestion for promoting a truly holistic education is to study how it can be referred to this characterization presented. We can see the limitations of the educational 'holisms' that are only activism, the ones only content-based, the ones focused only in personal development or the proposals that are only a juxtaposition of different perspec-

tives. In order to develop a model of holistic education,^[80] a reasonable presence of the four dimensions seems appropriate, after the development made by applying the holonic theory and the holistic consciousness to education. When in addition the holistic consciousness uses the whole holarchy (Wilber's integral theory) the resulting approach has been denominated as integral education.^[81]

Application into the Practical Context

We'll present a practical example for Project Based Learning, a usual methodology widely applied in education. Holistic education would be to project in this methodology the consciousness of the dimensions. Applying the development described, any educational activity has an impact in the four dimensions presented:

- Program. To select a formative activity with pieces of evidence in the past on their educative value. Value related to curricular contents and/or with past successful experiences.
- Whole-person. In which way this activity will help in the advance of consciousness of participants. Will it be relevant to the participant's lives?
- Projective action. How this activity will help in transforming reality. What kind of competences and abilities will be shared and mastered?
- Culture. What are the implicit values in the activity? Are there opportunities to advance toward collaborative and dialogical values?

Each one of the dimensions has their own rationality. Each one is important in a holistic education activity and can be assessed independently. In our example is not only important to solving the problem, but also the educational treatment of the other dimensions. Holistic education means to be conscious, or more precisely to apply holistic consciousness, into educational situations. This can be programmed and evaluated in a holistic pedagogy.

6. Conclusion

Begging with the detection of the contemporary need for holistic consciousness and integral visions, we developed the holonic theory, and characterized a holistic act of consciousness, using a psychological phenomenological method.

We related the many times blurry defined holistic education with holistic consciousness. We characterized holistic education as a holistic consciousness act with four dimensions: program, whole-person, projective action, and culture. All of these rationales are implicated in any holistic education act. Sometimes in regular education, certain of these dimensions remain unconscious. In this case, the perspective under consideration may be educative but not holistic or product of a holistic consciousness act.

All of these developments can be applied to pedagogy: The characterized holistic education can serve as a systematic framework for holistic pedagogical developments and debates. Holistic consciousness allows holistic pedagogical discussions to go beyond modern worldview and postmodern syncretism.

References

- [1] Wilber K. *The theory of everything*. Boston, MA: Shambhala; 2001.
Wilber K. Introduction to Integral Theory and Practice IOS basic and the AQAL map. *AQAL Journal of Integral Theory and Practice* 2005; 1(1): 1-38.
Wilber K. *The integral vision: A very short introduction*. Boston, MA: Shambhala; 2007.
- [2] Beck, DE., Cowan, C. *Spiral Dynamics: Mastering Values, Leadership, and Change*. New York: Wiley/Blackwell; 2005.
- [3] Esbjörn-Hargens S. *Integral Education By Design: How Integral Theory Informs Teaching, Learning, and Curriculum in a Graduate Program*. *ReVision* 2005; 28(3): 21-29.
Murray T. What is the Integral in Integral Education? *From Progressive Pedagogy to Integral Pedagogy*. *Integral Review* 2009; 5(1): 1-38.
- [4] Laloux F. *Reinventing Organizations: A Guide to Creating Organizations Inspired by the Next Stage of Human Consciousness*. Brussels: Nelson Parker; 2014.
- [5] Thomas B. *Integral Leadership Manifesto*. [Internet]; 2018 [updated 2018 Dec 10; cited 2018 Dec 16]. Available from: <http://integrallleadershipmanifesto.com> .
- [6] Gidley JM. Evolution of education: From weak signals to rich imaginaries of educational futures. *Futures* 2012; 44(1): 49.
- [7] Gidley JM. op. cit.; 2012: 50.
- [8] Gidley JM. op. cit.; 2012: 50.
- [9] Gidley JM. Holistic education and visions of rehumanized futures. *RoSE—Research on Steiner Education* 2010; 1(2): 139.
- [10] Nielsen TW. Towards a pedagogy of imagination: A phenomenological case study of holistic education. *Ethnography and Education* 2006; 1(2): 247-264.
- [11] Miller JP. Krishnamurti and holistic education. *Encounter, Education for Meaning and Social Justice* 2000; 13(4): 42.
- [12] Miller JP. Krishnamurti and holistic education. *Encounter, Education for Meaning and Social Justice* 2000; 13(4): 43.
- [13] Rudge LT. *Holistic education: An analysis of its pedagogical application* (Doctoral dissertation, The Ohio State University); 2008. p 2.
- [14] Rudge LT. *Holistic education: An analysis of its pedagogical application* (Doctoral dissertation, The Ohio State University); 2008. p 3.

- [15] Miller R. Beyond reductionism: The emerging holistic paradigm in education. *The Humanistic Psychologist* 2000; 28(1-3): 382.
- [16] Mahmoudi S., Jafari E., Nasrabadi HA., Liaghatdar MJ. Holistic Education: An Approach for 21 Century. *International Education Studies* 2012; 5(2): 178.
- [17] Gidley JM. Educational imperatives of the evolution of consciousness: The integral visions of Rudolf Steiner and Ken Wilber. *International Journal of Children's Spirituality* 2007; 12(2): 117-135.
- [18] Morrison K. Complexity theory and curriculum reforms in Hong Kong. *Pedagogy, Culture and Society* 2003; 11(2): 279-302.
- [19] Morrison K. Complexity theory and curriculum reforms in Hong Kong. *Pedagogy, Culture and Society* 2003; 11(2): 279-302.
- [20] Priestley M. Whatever happened to curriculum theory? Critical realism and curriculum change. *Pedagogy, Culture & Society* 2011; 19(2): 223.
- [21] Priestley M. Whatever happened to curriculum theory? Critical realism and curriculum change. *Pedagogy, Culture & Society* 2011; 19(2): 221-237.
- [22] Hudson B. Approaching educational research from the tradition of critical-constructive Didaktik. *Pedagogy, Culture and Society* 2003; 11(2): 173-187.
- [23] Yates L. From curriculum to pedagogy and back again: Knowledge, the person and the changing world. *Pedagogy, Culture & Society* 2009; 17(1): 27.
- [24] Yates L. From curriculum to pedagogy and back again: Knowledge, the person and the changing world. *Pedagogy, Culture & Society* 2009; 17(1): 27.
- [25] Koestler A. *The ghost in the machine*. New York, NY: MacMillan; 1967.
- [26] Teilhard de Chardin P. *The phenomenon of man*. New York NY: Harper Collins; 2002.
- [27] Wilber K. *Spectrum of consciousness*. Wheaton, IL: Quest; 1993.
- [28] Goddard G. Holonic logic and the dialectics of consciousness. Unpacking Ken Wilber's four quadrant model [Internet]; 2000 [updated 2018 Dec 10; cited 2018 Dec 16]. Available from: <http://www.integralworld.net/goddard2.html>.
- [29] Smith AP. The Spectrum of holons. A response to Fr Kofman. [Internet]; 2001 [updated 2018 Dec 10; cited 2018 Dec 16]. Available from: www.integralworld.net/smith2.html.
- [30] Edwards M. A brief history of holons [Internet]; 2003 [updated 2018 Dec 10; cited 2018 Dec 16]. Available from: <http://www.integralworld.net/edwards13>.
- [31] Helfrich PM. Ken Wilber's model of human development. An overview. [Internet]; 2007 [updated 2018 Dec 10; cited 2018 Dec 16]. Available from: http://www.paulhelfrich.com/library/Helfrich_P_The_Five_Phases_of_Wilber.pdf
- Helfrich PM. Ken Wilber's AQAL metatheory: An overview. Castaic, CA: Wildfire Media; 2008.
- [32] Anderson P. A fully holonic meta-theory for the heart of integral. [Internet]; 2017 [updated 2018 Dec 10; cited 2018 Dec 16]. Available from: <http://www.integralworld.net/philanderson1.html>.
- [33] Wilber K. *Up from Eden: A transpersonal view of human evolution*. Wheaton, IL: Quest; 1996.
- [34] Teilhard de Chardin P. *The phenomenon of man*. New York NY: Harper Collins; 2002.
- [35] Helfrich PM. op. cit.; 2008.
- [36] Helfrich PM. op. cit.; 2007.
- [37] Wilber K. Introduction to the collected works of Ken Wilber: Volume 2. [Internet]; 2003 [updated 2018 Dec 10; cited 2018 Dec 16]. Available from: http://wilber.shambhala.com/html/books/cowokey7_intro.cfm/.
- [38] Koestler A. *The ghost in the machine*. New York, NY: MacMillan; 1967.
- [39] Helfrich PM. op. cit.; 2007.
- [40] Helfrich PM. op. cit.; 2007. p 3.
- [41] Helfrich PM. op. cit.; 2007.
- [42] Wilber K. *Sex, ecology and spirituality*. Boston, MA: Shambhala; 1995. p 41.
- [43] Wilber K. *Sex, ecology and spirituality*. Boston, MA: Shambhala; 1995. p 41.
- [44] Piazenza G. El Holón y la dualidad inicial de la complejidad (Spanish) [Internet]; 2012 [updated 2018 Dec 10; cited 2018 Dec 16]. Available from: <https://www.monografias.com/trabajos94/holon-dualidad-inicial-complejidad/holon-dualidad-inicial-complejidad.shtml>. p 1.
- [45] Wilber K. *Sex, ecology and spirituality*. Boston, MA: Shambhala; 1995. p 544.
- [46] Wilber K. *Sex, ecology and spirituality*. Boston, MA: Shambhala; 1995. p 545.
- [47] Helfrich PM. op. cit.; 2008.
- [48] Wilber K. *Sex, ecology and spirituality*. Boston, MA: Shambhala; 1995. p 40.
- [49] Wilber K. *Sex, ecology and spirituality*. Boston, MA: Shambhala; 1995. p 132-134.
- [50] Wilber K. *Sex, ecology and spirituality*. Boston, MA: Shambhala; 1995. p 43-85 (tenets 1-18) and 527-532 (tenets 19 and 20).
- [51] Wilber K. Ken Wilber entrevistado por Raquel Torrent en 2016. Con preguntas de la Comunidad Integral Europea (Spanish) [Internet]; 2016 [updated 2018 Dec 10; cited 2018 Dec 16]. Available from: <https://asociacionintegral>.

- wordpress.com/_ p 18.
- [52] Wilber K. *Sex, ecology and spirituality*. Boston, MA: Shambhala; 1995. p 55.
- [53] Wilber K. *Sex, ecology and spirituality*. Boston, MA: Shambhala; 1995. p 74.
- [54] Wilber K. *Sex, ecology and spirituality*. Boston, MA: Shambhala; 1995. p 81.
- [55] Wilber K. *Sex, ecology and spirituality*. Boston, MA: Shambhala; 1995. p 121-124.
- [56] Wilber K. op. cit.; 1995. pp 48-52 and 132-134.
- [57] Whitehead AN. *Process and Reality*. New York: The Free Press; 1978.
- [58] Wilber K. op. cit.; 1995. p 54.
- [59] Gallifa J. *Paradigms and Methodologies for Knowledge Building*. *Review of Educational Theory* 2018b; 1(3): 73.
- [60] Damasio AR. *La sensación de lo que ocurre. Cuerpo y emoción en la construcción de la conciencia*. (Spanish). Madrid: Editorial Debate; 2001.
- [61] Damasio AR. op. cit; 2001. p 327.
- [62] Giorgi A. *The Descriptive Phenomenological Psychological Method*. *Journal of Phenomenological Psychology* 2012; 43(1).
- [63] Giorgi A. *The Descriptive Phenomenological Psychological Method*. *Journal of Phenomenological Psychology* 2012; 43(1): 3.
- [64] Giorgi A. *The Descriptive Phenomenological Psychological Method*. *Journal of Phenomenological Psychology* 2012; 43(1): 9.
- [65] Giorgi A. *The Descriptive Phenomenological Psychological Method*. *Journal of Phenomenological Psychology* 2012; 43(1): 10.
- [66] Giorgi A. *The Phenomenological Psychology of J.H. van den Berg*. *Journal of Phenomenological Psychology* 2015; 46(2): 141.
- [67] Giorgi A. *The Theory, Practice, and Evaluation of the Phenomenological Method as a Qualitative Research Procedure*. *Journal of Phenomenological Psychology* 1997; 28(2): 235.
- [68] Naranjo C. *Carácter y neurosis. Una visión integradora* (Spanish). Vitoria: La llave; 1996.
- Tolle E. *The power of now: A guide to spiritual enlightenment*. San Francisco: New World Library; 2004.
- Berg Y. *El poder de la Kabbalah* (Spanish). Los Angeles CA: Centro de Càbala Internacional; 2006.
- Wilber K. *The theory of everything*. Boston, MA: Shambhala; 2001.
- Wilber K. *Introduction to Integral Theory and Practice IOS basic and the AQAL map*. *AQAL Journal of Integral Theory and Practice* 2005; 1(1): 1-38.
- Wilber K. *The integral vision: A very short introduction*. Boston, MA: Shambhala; 2007.
- Laloux F. *Reinventing Organizations: A Guide to Creating Organizations Inspired by the Next Stage of Human Consciousness*. Brussels: Nelson Parker; 2014.
- [69] Slavin RE. *Evidence-based education policies: Transforming educational practice and research*. *Educational researcher* 2002; 31(7): 15-21.
- [70] Gardner H. *Frames of mind: the theory of multiple intelligences*. New York: Basic Books; 1983.
- [71] Botella L., Gallifa J. *A constructivist approach to the development of personal epistemic assumptions and worldviews*. *Journal of Constructivist Psychology* 1995; 8(1): 1-18.
- Commons ML., Richards, FA. *Four postformal stages* In: Demick J (editor) *Handbook of adult development*. New York: Plenum Press; 2002. pp. 199-219.
- [72] Graves CW. *Human Nature Prepares for a Momentous Leap*. *The Futurist*; 1974: 72-87. [Internet]; 1974 [updated 2018 Dec 10; cited 2018 Dec 16]. Available from: http://www.clarewgraves.com/articles_content/1974_Futurist/1974_Futurist.html.
- Wilber K. *Introduction to Integral Theory and Practice IOS basic and the AQAL map*. *AQAL Journal of Integral Theory and Practice* 2005; 1(1): 1-38.
- [73] Jung CG. *Análitical psychology: its theory and practice: the Tavistock lectures*. New York: Vintage books; 1968.
- Jung CG. *The basic writings of C.G. Jung*. New York: The Modern Library; 1993.
- [74] Helfrich PM. op. cit.; 2008.
- [75] Gallifa J. *The Tekhne-logic revolution. Rethinking the 'interobjective' dimension of the Integral Theory. Consequences and relevance to Education*. *Creative Education* 2018; 9(7): 1084-1104.
- [76] Gallifa J. op. cit.; 2018: 1084-1104.
- [77] Harari YN. *Sapiens: A Brief History of Humankind*. New York: Random House; 2014.
- [78] Beck DE., Cowan C. *Spiral Dynamics: Mastering Values, Leadership, and Change*. New York: Wiley/Blackwell; 2005.
- [79] Gallifa J. *Paradigms and Methodologies for Knowledge Building*. *Review of Educational Theory* 2018b; 1(3): 70-81.
- [80] Forbes S. *Holistic education: An analysis of its ideas and nature*. Brandon VT: Foundation for Educational Renewal Publishers; 2003.
- [81] Esbjörn-Hargens S. *Integral Education By Design: How Integral Theory Informs Teaching, Learning, and Curriculum in a Graduate Program*. *ReVision* 2005; 28(3): 21-29.
- Murray T. *What is the Integral in Integral Education? From Progressive Pedagogy to Integral Pedagogy*. *Integral Review* 2009; 5(1): 1-38.
- Gallifa J. *Educació integral: transformar l'educació, formar a la persona, millorar el món* (Catalan). Barcelona: Editorial UOC; 2018c.