



Complex perspectives in education: beyond dichotomies

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ABSTRACT

This academic essay is a serious reflection on the need to go beyond the duality that modern rationalization imposes on us. In education, this is obvious, because it places limits on educational realities, which go beyond models and modalities, which are insufficient. However, there is something good about these, which is why we must look at a new educational epistemology that allows us to observe in a trans-complex way the educational realities of cultures and their intentions. An archeological epistemology that can observe the reproductions, continuities, and ruptures in time and space, what societies and people want, overcoming the impostures of the centers of power. Hence, it is necessary to decolonize knowledge and condense models that in most cases collect within them the previous and the present, but also set their sights on the future.

INTRODUCTION

Education is a complex problem because in essence it is a complex system and to analyze it requires creating complex categories of analysis or complexity some that already exist. This can support the thesis that Education is not a process or a product = result, but a system that

coexists with others, because it shares the characteristics of overlapping, self-formation, self-organization, feedback, reproduction, and condensation in the different scales and dimensions of reality, which has been constructed by the prevailing rationality.

For this reason, in a dominant system paradigm, such as the modernist one, other models converge, because in itself it is a Western-style device that favors the coexistence of all those models that allow its survival. However, this is not exclusive only to modernist rationalization, but to all systems = paradigms created by human beings, including educational models.

DEVELOPMENT

Education and the Need for an Object of Study

'Education' is a concept referring to a phenomenon known and considered an intrinsic part of the "humanization of the Adam". This is a mega-scheme of action whose constitutive concepts (teaching, learning, conditioning, indoctrination, etc.) do not have terminological precision, even though dictionaries and scholars strive to present etymological meanings and meanings to make us think that this phenomenon is under human control (Luengo, 2004). However, they do not realize the diversity of aspects that make it up and how it manifests itself. For this reason, the term condenser contains a certain pandoric difficulty that limits the intended precision and comprehension of its meaning.

Luengo expresses that to approach the understanding of this phenomenon, it is necessary to adhere to: the ideal-utopian component, the external-internal influence, the intentional, the humanity of the phenomenon, the individual or social perspective, and the communication relations that are behind, between and after it. Education, therefore, is action, effect, and product; *it's pure complexity*. Consequently, it is a condensate that is interested in the improvement of the human being, to which it intentionally adds social values to individualize and socialize it.

Is something wrong with Luengo's approach? If the product is the individualization and socialization of the subject, then it does not seek humanization, therefore, the process is not right and the effects now make sense: a human object, for whom or whom. De la Orden (1985) states that the individual acquires forms of conduct, and modifies his models of behavior and predispositions as a direct effect of the influence of educational systems that respond to sociocultural contexts and the historical moments that produce them. However, this product of education, the personality pattern of the educated subject, also configures the desired socio-cultural profile. This makes it an evasive entity that requires the help of tools that can standardize it (indicators) or consider it in its complex=complex reality, as a desire to condense it, something not easy to achieve.

Considering the above, the ideal-utopian component is manifested in the different models that are put into practice for the task of education. However, this action is complex, if we bear in mind that:

(...) An educational model is a social construction that reflects (sic) the educational policies of a specific socio-cultural and economic context, is coherent with the philosophy and theoretical conception of education, aims at the unity of cultural codes that are concretized in the daily experiences of communities and suggests lines of research and concrete procedures of action in the educational field (...). (Vásquez & León, 2013, p.5).

Therefore, it is required to consider it within and as a process created by humanity to form, to preserve itself. In this sense, Díaz Domínguez and Alemán (2008) refer to the educational process as a universal consequence: "inherent to all humanity, but it moves within a certain sociocultural framework that is the vehicle for fulfilling its social functions (...)". (p.4), including preserving, developing, and promoting social culture.

But the matter does not end there. Mora-Olate (2020) highlights the epistemic debate on the scientific status of education. In this context, there is still a tendency to decide whether education is a "science" or whether it is several "sciences of education". Therefore, the question arises: in what way is education recognized? The answer obtained is that the complexity of the educational phenomenon leads us to speak of "educational sciences" in interdependence, because studying it in the cultural, social, historical, biological, and psychological dimensions, among others, is the task of an interdisciplinary---transdisciplinary perspective. That is to say, there is still no clarity of its object of study, therefore, the current condensation requires a trans complex sub-object view aimed at unveiling whether it is science or a device of social control.

Educational models: the complexity of the issue

Educational systems = models can be classified according to educational policies, the economic context, the theoretical-philosophical vision, and the unifying claim of cultural codes, that is, it is not an easy task – the conclusion of the previous section is valid for that one. Thus, models can be thought of by the degree of formalization, by the theoretical-epistemological approach, by the tradition (that is by its history), by the degree of social inclusion, and by the degree of freedom (democracy), among others.

Historical **educational models**, in a broad sense, consider that the historical processes experienced by societies influence themselves. This complex synthetic classification (based on Imén, 2021) is based on four major periods of social upheaval at different scales and latitudes. The reconstruction of historical currents, of educational systems, reveals four major models: the traditional or conservative; the liberal-social, colonial-postcolonial, and the counter-hege

monic=decolonial=emancipatory. In=between=from these, political-economic and educational-pedagogical plans are deployed that coexist in conflict, contradict and fight with each other. However, paradoxically, and based on what has been stated *above*, these are not exclusive, but continuities that show their path of complexity known, but not understood by all.

The first is *nourished in medieval education*, over a long period (centuries), the consolidation of the power of the Church and the Monarchy, education, science, and the various expressions of art were under their domination, consequently, the educational model responded to the interests of the papacy and the king.

The second arises *in the consolidation of the new bourgeois or landowning elites* (depending on the latitude). Thus, during the period of the formation of the nation-states, societies experienced crises in the educational system, because there was a struggle for hegemony between the already consolidated bourgeoisie and the Church. As a consequence, educational systems underwent a period of experimentation in which strands appeared that underpinned pedagogical lineages that were torn between criticisms of traditional education and incisive observations of the inadequacies of the new currents. However, the latter consolidated and expanded, with lines that were not always clearly differentiated, across the most diverse latitudes.

The third has its starting point in the *Russian Revolution and the great World Wars*. This period of world revolutions and conflagrations brought a context of high tension to societies. A new empire appears a high level of technification and scientific production occurs, and new political systems are confronted. It was replacing the previous paradigm, however, the previous systems were intertwined in it, now in one. Educational models responded to this and retain to this day in their constituent elements a mixture of this appearance, a sclerotic mixture of 'new and old pedagogical currents', with criticisms similar to those expressed in the previous period.

The fourth model appears with the advent of globalization. In a span of 40 years, humanity coined and condensed the so-called globalization as a hegemonic society. Education, science, and the arts are in the hands of elites who are increasingly visible and have a global reach. Technoscience at its best has allowed the emergence of new dimensions of reality and a new tendency, of unsuspected scope, shaking the system=world=society. Thus, the educational system and its models are not outside of this replay of ideals and give space to globalization-trans-nationalization, and globalization-internationalization of themselves. Faced with this reality, the counter-hegemonic=decolonial=emancipatory response of the countries emerges, which fight for a multipolar world against the colonial countries and their postcolonial drift, positioning the idea of quality and coverage of education as a necessity.

A look at the educational models of the native people *before European expansion has been left for the end*, of which very little is known and they are even considered unsystematic.

Despite their variety (nomads, gatherers, hunters, and those with a complex organization and remarkable cultural level), they had their particular educational systems whose development was oral = practical (adaptation, survival, astronomy, calculation, writing). With the arrival of Europeans to the continents, there was a clash between cultures: conquest, colonization, and the consequent disappearance of peoples' traditions. However, the features of these educational and cultural models have been able to survive over time among the colonizing models.

These models satisfied and still satisfy three basic functions: a) adjustment between generations for the transmission of social inheritance (shamanistic mechanism of the adult = dominant generations, for control and domination, with a traditionalist approach and charismatic-universal-gerontocratic foundations of the younger generations), b) of preservation and valorization of the forms and contents of traditional and magical-religious knowledge and c) of adaptation of the energies of life psychic to the rhythm of social life (Florestan, 1970 cited by Weinberg, 2022).

Theoretical **educational models** are born in the epistemological tradition of modernist rationalization. These are structured based on categories emanating from the positivist-classification scientific vision that responds to the theories of education and their dominant pedagogical model. Among others, the categories used are the cult of personality of pedagogues, the basic metaphor on which it is based, actors (teacher- student), evaluation, and teaching-learning.

In a tight synthesis (table 1), it is noted horizontally how these have evolved and overlap or overlap with each other depending on the political-economic systems that implant them, according to the ideal of citizen that a given society requires for itself. Thus, an educational system can adopt principles of the model whose conception of development is oriented towards the formation of character, but with a strong tendency towards technological progress, or take the metaphor of the builder with an idealization of the free man. In essence, the condensation of the models is fuzzy, so you can not think of pure models.

Table 1.

Synthesis of theoretical educational models

	Tradicional	Conductista	Romántico	Desarrollista	Constructivista	Cognitivo	Ecológico contextual (social, socialista)
Metáfora base	Otro ladrillo más en la pared	La máquina	El humano	Transformador	Constructor	Organismo como totalidad	Escenario de la conducta
Modelo de investigación	Producto	Proceso-producto	Máxima autenticidad y libertad individual	Proceso: ambiente estimulante a través de las experiencias	Proceso: ritmos de aprendizaje	Mediacional	Cualitativa y etnográfica
Currículo	Contenidos y valores acumulados por generaciones de adultos	Cerrado	Lo que el alumno solicite, experiencias libres	Flexible	Flexible	Experiencias de acceso a estructuras superiores, aprendizajes significativos de las ciencias	Científico-técnico, polifacético, politécnico
Actor principal	Profesor (autor) → alumno	Profesor (ejecutor de la programación) → alumno	Maestro auxiliar → alumno	Maestro estimulante, alumno activo (crítico, reflexivo)	La persona (estudiante)	Facilitador, estimulador del desarrollo → alumno	Maestro ↔ Estudiante crítico ante el conocimiento
Enseñanza aprendizaje	Determinada, restringida, secuencial. Transmisión de conocimientos	Centrada en el producto	Progresivo, secuencial, estructura jerárquicamente diferenciada, cambios conceptuales	Aprender haciendo, a través de la experiencia de los alumnos con sus sentidos, del contacto directo con los objetos, y con la realidad.	Aprendizaje significativo-por descubrimiento (cooperativo, dinámico y comunicativo), maneras de resolver los problemas, imita modelos, metodología activa.	Centrada en los procesos de aprendizaje	Centrada en la vida y el contexto sociocultural: la sociedad influye para determinar el desarrollo de los intereses y las capacidades del individuo
Evaluación	Mide grado de conocimiento de un tema	Cuantitativa	De referente personal, evaluar-calificar, evaluación con criterio	Cualitativa y formativa	Cualitativa y formativa	Formativa y criterial	Cualitativa y formativa
Autores y enfoques	<ul style="list-style-type: none"> Formación del carácter Max Beberman, Jarrold, Zacharias, Jean A. Comenius, Ignacio de Loyola 	<ul style="list-style-type: none"> Conformidad social Burrhus F. Skinner, Robert Mager, Robert Gagne, Edward L. Thorndike 	<ul style="list-style-type: none"> Desarrollo interior Jean Jacque Rousseau, Ivan Illich, Alexander Suthewrland Neill. 	<ul style="list-style-type: none"> Experiencia individual Dewey y Piaget 	<ul style="list-style-type: none"> Crecimiento en la cultura Jean Piaget, Lev Vygotsky, David Ausubel, Jerome Bruner 	<ul style="list-style-type: none"> Estructuralista progresista Bloom, Gagne, Ausubel, R. Feuerstein 	<ul style="list-style-type: none"> Liberación del hombre Anton Makarenko, Paulo Freire, Clestine Freinet
Concepción de desarrollo	Desarrollo de facultades humanas y del carácter a través de las disciplinas y la imitación del buen ejemplo	Transmisión y acumulación de contenidos, así como la asociación de los aprendizajes	Desarrollo natural e intuitivo, espontáneo, libre y posee una aproximación empírica a la realidad	Conocimiento es una experiencia individual del alumno con el mundo real.	Explicar la naturaleza del conocimiento humano, asumiendo que el conocimiento previo genera un conocimiento nuevo	Conocimiento a través de la reflexión científica. Madurez progresiva y secuencial, cambios conceptuales y estructuras diferenciadas	Quehacer educativo ligado a la militancia política, es progresivo y secuencial en el aprendizaje de las ciencias, busca el bien común

Source: Constructed from Weinberg (2022); Casanova Cardiel (2018); Ocaño (2010); Echeverri Sánchez, et al (1998); De Zubiria (2017) and Pérez (2004).

Based on the theoretical models, three models emerge in the educational episteme **according to the degree of formalization**: models of informal education, non-formal education, and formal education. This typology recognizes that education comprises much more aspects and ways of condensing than what is conventionally accepted. For this reason, *the idea has been expressed above* that the systems are intertwined in a fabric that has more threads than what is purely institutionalized as an educational system. The following table summarizes the educational models or modes by their formalization:

Table 2.

Educational models by degree of formality

		Educational Modes		
		Informal education	Non-formal education	Formal education
Educational Features	Who does it work with	Peer group: family and neighbors, unstructured	Structured educational activity: organized outside the formal system by masters of trades	Hierarchically Graded Schools: Teaching Staff and Chronological Grades
	Established Purpose	Everyday Experience: Lifelong Process	Parental instruction: geared toward serving identifiable learners and learning objectives	Certificates: by levels and degrees of training
	Manner and places where it takes place	Participation: in their environment, at work, at play, in the market, in the library, in the media, and on social networks	Systematic non-formal teaching: independent or as an important part of a larger activity	Institutions for full-time initial, secondary, vocational, and technical training
	By technological means	Technology: natural and ICT	Technology: Trades & ICT	Specialized Technology & ICT

Source: based on Coombs (1978) and La Belle (1980).

From the table, it is necessary to consider the following questions about these models: do they have different historical moments of origin? who established them? Are the established purposes different? should they be considered as individual entities or in constant interaction? which of them predominates? on what basis does it become predominant? by choosing its formation, does the individual penetrate one of the models or does it require all of them? The answer is complex: each individual decides on one model or another, and in doing so he faces

different educational situations that may have a predominant mode but may require him to adopt procedures typical of others.

Durkheim (1975) had already foreseen this complexity when he expounded the need to:

(...) to contemplate the educational systems that exist or have existed, to relate them to each other, to highlight the characteristics that they have in common (...) each society carves out a certain ideal of man, of what man should be from the intellectual, physical and moral point of view (...); From a certain point on, it is differentiated according to the particular areas that every society has within it. It is that ideal, at once unique and diverse. Education is the action of the adult generations on those who are not mature enough for social life. (p.52-53)

The above approach leads us to consider that it must be recognized that formal education is not the only one that prepares the individual in a society, but that the other two models survive with it. Therefore, the present imbricates educational modes, which in essence are not exclusive. Moreover, the non-formal model, by its origin, has always been in societies in coexistence with the other two models.

Due to *the degree of inclusion, models of popular education and education for interculturality* are recognized. Acri, et al. (2019), based on different experiences, propose that the history of Latin American education is inscribed in the struggle for the defense of the popular public school, for the sense of its social function, and as a social right of the people. It is an expression of neoliberal reforms aimed at implementing a socio-educational model that fractures and dilutes cultural diversity, promotes educational decentralization and privatization, and specular expressions of States that seek to evade the responsibility of financing and guarantee, concerning the integral sustenance of educational systems.

The result of this context is the construction of shared praxis (critical actions) and theories (critical views), anti-hegemonic, in the face of anti-human neoliberal consolidation on the continent. For this reason, the model of popular education emerges based on thematic axes and actions that are the expression of the struggle of the people for their emancipation¹. All these focuses converge towards a generalized feeling in today's world, in today's civilization, in this humanity. For this reason, and with them, this model focuses on: "highlighting the need to decolonize education by seeking and finding a path of continuous struggle in which 'places' of exteriority and alter-(n)ative constructions can be identified, made visible and encouraged"

1. Popular education and popular economy, popular education with young people and adults, popular education and public schools, popular education and university, popular education and militant research, popular education and decolonizing, feminist and anti-patriarchal pedagogies.

(Walsh, 2013, p.25), their own, of course, without disdaining the best of what has already been achieved.

On the other hand, the model of intercultural education seeks new ways of relating to achieving peace as a path of hope for humanity. It builds its epistemology and action on fields without mines, oppressions, injustices, and slavery. It calls for justice, respect, cooperation, and inequality for the people. It therefore urges all societies, their institutions, and members to be an important factor in social cohesion and transformation. Hence, this model focuses on an educational system that condenses models and programs around educational policies: a) assimilationist: model and compensation programs; (b) integrationist: human relations model and programs; (c) pluralistic: the model and curricula of a cultural group, and (d) intercultural: the intercultural model and programs. (Palumbo, et al, 2020).

By the degree of freedom, the existence of autocratic (traditional education), "democratic" (development education), and anarchic (interwar education) models are considered. The former have their origin in the models: traditional or conservative; the liberal-social, colonial-postcolonial, and the latter are based on the theoretical models produced by modernist rationality.

Interwar models emerge between global, regional, or national conflicts. It is the education that is torn between the old that does not want to end up dying and the new that is secured, but it does not yet have a clear path of continuity, simply because it arises in moments of conflict and tension for human beings. It is the education of the child of the guerrilla, of the revolutionary, of the exile, of the immigrant, of the internationalist or of the military attaché, of the worker, of the housewife, of the people who struggle to survive and who rely on education. These models are anarchic with glimmers of stability, yet they are in the process of self-formation, of transformation, in search of something better.

Models are blind, deaf, and dumb

Modern educational epistemology has been forged from desks. It traces almost entirely the religious and economic paradigms, both of which are dominant. It is nourished by the paradigm of modernity and its rationality, which reproduces the essence of those who see everything, hear it, and say it. That is, it reproduces omniscient, omnipresent, and omnipotent characteristics.

In other words, the knowledge produced does not see, hear, or speak of the complex realities where it is a question of implementing the 'ideal' educational models. It only recognizes these realities by comparing them with the realities where they were forged, which is why it tries to control them, without much success – although its durability has exceeded the limit of

expiry – because it is transfigured to present itself as a novelty that maintains the fundamental principles of its rational model.

Educational models do not see, hear, or talk about the subjects, or the people because they turn them into statistical data. It is data that makes up metrics to be compared using indicators. They are one more metaphor in the complex fabric of the reality of societies. How, then, can we achieve a real educational epistemology that is not a mirror image of modernity and the centers of power, that is not reductionist and dualistic? Is it possible to have an educational epistemology that condenses related educational models? What does it take to have a gaze without transubstantiation or transfiguration? Why is a decolonizing approach necessary to find the common and best models for societies and global society?

Dualism and the Complex Mechanism

Modern science provides humanity with concepts-symbols: dilemmas, dichotomies, differences... Do not the bar and the copulative or disjunctive conjunctions also denote the same conventional idea of dualism? Then, other concepts express dualism when applied 'in pairs' to the analysis of reality, they are part of the dichotomous vision: good and evil, god and demon; North and South, rich and poor, analysis and synthesis, a priori and a posteriori, deductive and inductive... In other words, they fragment, and reduce reality, before favoring the complex knowledge of it.

Dualism is a conventional conception, it is the product of a paradigmatic vision of the world coined by modernity and the overlapping, fortunately, of models that are still in force: religious, economic, political, and scientific. These concepts denote dualistic, reductionist, and linear conceptions. Is not this thought transferred in a normalized and hierarchical way to others such as education, production, society, technology, etc.?

And, before following the convention that feeds them, we make conceptual enrichment, orienting their meaning towards the idea of intertwining, relegation, and interweaving. On the one hand, we will use the results of dualism as a fulcrum; on the other hand, we will look at relationships; on the other, we will make visible the cracks, however thin, that allow us to distinguish = and imagine² existing or possible continuities, and with another, we will provide a new perspective from the experience of the trans complex sub-object individual. Now, with this unconventional logic, how to analyze Education: a) as a process and result, b) as a process or result, c) as a process = result, of = from a system whose existence is a consequence of the overlap of the models that have shaped it, because they have been self-forming, self-organizing, feeding, reproducing and condensing in the different scales and dimensions of reality. Yes, reality, the one we "know".

2. We will use the hyphen as a symbol of recursive continuity.

It can be said that it is a problem and a task of high complexity, which others have already undertaken, and whose results are said to be incomplete. Incompleteness seeks continuity. It can be linear in space and time or it can be non-linear, therefore manifesting itself in other spaces and times. So, what are we proposing: is it possible to analyze the education system?

The reason is posed in a) the question of how to analyze Education from a system whose existence is the result of the overlapping of the models that have shaped it. and b) in the "experience of the trans complex sub-object individual", which must be understood as the individual or collective subject that has been objectified. It can transfer knowledge and move in real, enunciation, and possible space and time. It is necessary to clarify that we will use the concepts, models, and systems as a whole.

Table 3 compares the definition of 'system' and the extension of the concept 'model' located in a non-hierarchical, but hierarchic logic, which essentially brings them together (extension 3) into a single concept 'model of a system' (Cova, 2016). If we apply the logic proposed (above) to this, the concept is condensed into the following image: model=system, which best represents the extension 1 made by Cova:

Table 3.
Comparison: system – model (Insert)

	System	Model
Definition	"A system is a potential source of data." (Cellier, 1991) (...) A set of elements that interact with each other and with their environment according to certain rules or principles.	"A model (M) for a system (S) and an experiment (E) is any object to which (E) can be applied to answer questions about (S)." (Minski, 1965)
Extension by typification	(...) they can be typified as natural or artificial, material or abstract; open, closed, or isolated; Static or dynamic	A model may very well be a material object, or it may also be an understanding, an understanding, of how a system (i.e., a mental model) works.

Extension by interpretation	The system is determined by the nature of its <i>component elements</i> , by the interactions between them, and by its boundary, that is, by the relations of belonging that separates the system from the environment in which it is immersed.	(...) The definition means that every model is also a system. This, in turn, implies that models are hierarchical in nature, which means that clipping a model generates a new model that is valid for a subset of the experiments applicable to the original model.
	(...) Each discipline defines the particular systems it studies and investigates (social, biological, data processing, organizational, thermoelectric, etc., etc.).	These “model models” make up – in the words of Kleijnen (1982) – “meta-models”, which are simplified versions of the original models.
		(...) the definition does not describe “ <i>models of systems</i> ” but a model is always referred to the pair {system, experiment}. The model of one system may be valid for one experiment and invalid for another; The term “model validation” always refers to an experiment or class of experiments applied to a system.

Source: Taken from Cova, 2016.

For Educational Models to See, Hear, and Speak

The idea of going beyond dichotomies must raise, in the first place, the not-easy idea of bringing together methodologies of analysis that are based on concepts already known, but that have been tried to enrich and make them more complex than they already were: 1) reproduction, 2) seed and 3) comparison.... Conceptual reengineering has already been initiated by others. Secondly, to consider the concept of method in a non-linear sense, insofar as this methodological hybridization must penetrate the “educational models” to be able to listen to them from various points of view, in such a way that it is possible not to lose sight of education as a process and result, but diluting the dualism that this contains. However, such a claim has the risk of remaining at a certain level of deepening, which will require further maturation, but in general, it lays the foundations for a complex analysis of this system = paradigm carried out by a trans complex object. Thirdly, consider that the concepts referred to do not have a solitary

life, but coexist with others and depend on them, therefore, they are not fossilized in time or in the devices that reproduce them.

The first point of view is based on Rockwell's (1986) critical approach to the theory of reproduction developed in the second half of the twentieth century. It takes a look at the production of theorists such as Althusser, Bourdieu, Bernstein, Apple, and Giroux, whom it recognizes for their contributions from the theoretical-analytical dimension, but criticizes them for not completing it with empirical research, to be able to verify *in situ* the approaches of such a theorizing empirical illustration. Rockwell raises the **need to observe reproduction** and therefore asks the question: How to observe it? but at the same time warns how one must be able to differentiate what is reproduced from what is not.

Documentation of *reality* and field observation are the techniques that this author proposes to observe and determine reproduction. However, it is also aided by a proposal of questions that guide them. Thus, he expresses that the ethnographic task must focus on four axes of questioning: 1) What is reproduced? What is the content of the reproduction? 2) At what level of abstraction is this content? 3) At what scale of reality does the process of reproduction occur? And 4) Where does the reproduction come from? What determines it? Although there are other axes of analysis such as conditions, mechanisms, and relationships, he does not address them as central axes, however, he incorporates them in his proposal.

By making Rockwell's approach more complex, we will add that reproduction occurs in a positive way (*from power*) in a negative way (*the normalized society*), or in an exo purgative intermediate way (*by the trans complex subjects of culture*). The three modes must be seen as interludes in the configuration of the action that a system with self-organizing characteristics integrates to survive, coexist, transform, and change. Therefore, the positive, the negative, and the intermediate in education also have their degrees of reference and manifestation in reality, while it is the **trans-complexifying subobjects** that from their worldview provoke the transformations and changes.

For our purpose, it is interesting to focus on these axes, but without linearly operationalizing them, but making a combination that favors a faster and more effective approach to the object to be observed. Therefore, we must pay attention to the following combinations:

- a. What is reproduced, from where, where, from when, when, and who reproduces it, favors the direct or indirect appreciation of the condensation that we want to observe.

- b. In the worldview of trans complex sub objects, reproduction reaches different degrees of consciousness, and therefore of abstraction, ranging from a normalized conception to a conception of transformation and change. For this reason, it is necessary to pay attention to the manifest meaningful conceptualization that emerges from the activity of the positive, negative, or intermediate modes that emerge from the system = educational paradigm in its actual functioning.
- c. Reproduction can occur at different scales of reality. For this reason, it must be objectified: in and between the concrete or mental dimension, concrete and mental, concrete = mental, mental or concrete, mental and concrete, mental = concrete. However, all these sub-objectification complement each other within the education system.

The second view is found in the concept of 'comparison' linked to education, that is, in comparative education. Among the different units of comparison, we are interested in the spaces, systems, times, and cultures where educational models are implemented, considering them processes = products. The breadth of these units covers different aspects of the educational reality and societies: educational policies and their changes, curriculum, financing, management structure, teaching methods, learning, labor market, demographic groups, actors, and their narratives, among others. (Bray, Adamson, & Mason, 2007).

By comparing different realities, the object of study becomes complex. That is why the idea of a *trans-complex* object makes sense. It searches for and finds: a) the entanglements between the units of analysis and b) condenses them into irregular realities with a high degree of uncertainty. This is so because by integrating multidisciplinary and interdisciplinary perspectives, this trans-complex object observes how the stable appearance of systems vanishes because their elements have other mechanisms of linkage beyond educational policies... that underlie the implementation of models (external or internal) in society.

The third point of view is based on the analysis carried out by Arata (2022), which rescues the contributions of Gregorio Weiberg, historian of Latin American education systems. It proposes a metaphorical system as a method that offers different keys to reading and the opportunity to examine systems = paradigms from other perspectives:

- a. The metaphor-concept '*seed*' complicates and orients the gaze towards the sensitivity and commitment to *cross the territories of history*, to sow and germinate other *ways of practicing the history of education*, to formulate new *questions*, to forge *new categories of analysis* or to *Latin Americanize those used (other metaphors)*.

- b. The metaphor 'ruin' is integrated, which allows: us to reconstruct historical scenes and memories, to consider authors made invisible by official histories, and to attend physical and virtual archives as complex ties that integrate the views on education.

Weinberg and Arata invite us to transform ourselves into their trans-complex objects to achieve the condensation of educational realities through the recovery of the results of the application of 'ideal models' to 'educate ideal societies'. The application of the methodology seed=furrow=sow=germinate and complex ties=reconstruct=visibility=assisting glass communicates social realities and their dimensions, deepens the gaze, to understand them without disdaining the other. That is to say, it not only unites but integrates to understand Education at different scales of reality, from other unofficial perspectives and in different contexts, to shape its own, particular and general visions of educational models.

CONCLUSIONS

Is looking at education as a process and as a result a new paradigm or the ultimate expression of the existing one? How is the emergence of a new rationalization conceived from this rationality? The answer is provided by Makarenko (1925-1935) when he narrates in his pedagogical poem that the existence of a creative engine is what gives way to the new pedagogy, which is not exempt from traumas to access reason and the heart:

The crux is not, brother, in the buildings; The important thing is to educate the new man, but you, the pedagogues, do nothing but sabotage everything: you don't like the building and the tables are not as they should be. You're missing that... you know what? The revolutionary fire. (p.6)

In this new moment that humanity is experiencing, education may be seen as the means to achieve far-reaching cultural transformations. To do this, an analytical, systematic, and critical component is required to shake up the illusion of current rationality.

A new epistemological attitude has emerged to understand the complexity of modernity--post modernity---?, within the extensive pedagogical memory (with its tensions, contradictions, conquests, and emergencies), where historical processes are not seen as impurities, but as a vast expanse of opportunities to extract effective learning, to help us go through this moment of transition until we arrive at a new condensation: Complex educational models where the new and the old interweave to illuminate the new humanity:

The most important thing is, you know, not a children's colony, but a school of social education. We need, you see, to forge a man of our own! And you're the one who should do it. Either way, we all have to learn. And therefore, you will learn too. I like that you told me frankly: I don't know. That's ok. (Makarenko, 1925-1935, p.8)

The final reflection is for new perspectives that allow a better condensation of the so-called educational models. The standardization that educational systems seek is an illusion that collides with the culture of people. Therefore, considering education as a process and as a result, in addition to being metaphors, must focus on the idea that its models are not rigid, rather, they are a fabric of traditions, intentions, and contradictions that are based on the purpose of ensuring the survival of societies in their journey through time of this and other humanities.

Hence, it is necessary to construct a new pedagogical poem with a new transcomplex observer (individual = plural), who provides new perspectives, with the certainty of obtaining results that go beyond dichotomies.

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