



## A TRANSLÓGICA NO DESENHO CURRICULAR TRANSDISCIPLINAR DA EDUCAÇÃO SUPERIOR

### Resumo

Procuramos visualizar a dinâmica do desenho curricular e clarificar os horizontes que nos conduzem a uma educação capaz de enfrentar os desafios emergentes, com uma visão prospectiva multidimensional, entendendo que a incerteza nos obriga a religar todo o potencial que o ser humano possui para evoluir a educação para a transdisciplinaridade. cenários que requerem uma nova forma de desenhar percursos educacionais, sustentados no pensamento translógico, que articulem o Planejamento Estratégico Educacional na Educação Superior.

**Palavras-chave:** Desenho curricular. Transdisciplinar. Planejamento. Pensamento estratégico e translógico.

## LA TRANSLOGICA EN EL DISEÑO CURRICULAR TRANSDISCIPLINAR DE LA EDUCACIÓN SUPERIOR

### Resumen

Tratamos de visualizar la dinámica del diseño curricular y matizamos los horizontes que nos lleven a una educación que pueda enfrentar retos emergentes, con una visión prospectiva multidimensional, entendiendo que la incertidumbre nos obliga a religar todo el potencial que dispone el ser humano para evolucionar la educación a escenarios transdisciplinares que requieren una nueva forma de diseñar los recorridos educativos, sostenidos en un pensamiento translógico, que articulan la Planificación Estratégica Educativa en la Educación Superior.

**Palabras-clave:** Diseño curricular. Transdisciplinariedad. Planificación. Estratégica, pensamiento translógico.

## TRANSLOGICS IN THE TRANSDISCIPLINARY CURRICULA DESIGN OF HIGHER EDUCATION

### Abstract

We try to visualize the dynamics of curricular design and qualify the horizons that lead us to an education that can face emerging challenges, with a multidimensional prospective vision, understanding that uncertainty forces us to reconnect all the potential that human beings have for evolve education to transdisciplinary scenarios that require a new way of designing educational paths, sustained in translological thinking, that articulate Educational Strategic Planning in Higher Education.

**Keywords:** Curricula Design. Transdisciplinary. Strategic Planning. Translological Thinking.

### Introduction



It is unavoidable to talk about the effects of the COVID-19 pandemic on all the tasks of humanity, much is said about its effects and also much attempts are made to identify errors from the past that were revealed to us today by a phenomenon of global impact.

The data from development agencies at global level (see UNESCO, 2020) are worrying when they speak of education in regions with a lower development index on the corresponding scale, assuming that the errors identified are recurrent from before the pandemic arrived.

On the other hand, prospectivists do not show that at this time, the history of humanity accelerated like in no other time, as a result of the need to find an answer to what is perceived and face true uncertainty.

In the years prior to the emergence of pandemic, many authors were trying to visualize phenomena that wore down the planet due to the “rational” behavior of human beings, trying to draw attention to the search for alternatives that would allow the development of humanity linked to respect for the planetary space that is unique for its survival.

In this understanding, the most sustained trend focused efforts in the education of this and the new generations and this was, is and apparently will be post-pandemic; It is no longer just something that worries us, but rather it will be something on which we have to act if we want our planet to continue to be the ideal scenario for the fulfillment of the wishes of the human species.

Education in the last century and at the beginning of this century was focused on making human beings visualize the future as a horizon in their personal fulfillment in a more “civilized” and also more developed society.

In the facts, two decades after the beginning of this century, we find ourselves with the harsh reality, education has made individualism prevail and anthropocentrism is a rhetorical figure to talk about the future of the planet, in less developed regions, access to the global network generated a deformation on the reality that these regions live and the cracks, between rich and poor, were mimicked by the plans to democratize knowledge through accessible education for all; In this regard, Maria Cândida Moraes (MORAES & BRASIL, 2007) tells us:

Scientific and technological development was not accompanied by a social, ethical, moral and spiritual evolution of society, cause we still working with a blind intelligence that fragments, that disjoins and mutilates, in the words of Edgar Morin (p. 2).

In this context, in this work we do an epistemic analysis and try to visualize the horizons that lead us to an education that can face emerging challenges with a multidimensional prospective vision, "modeled" from understanding that uncertainty forces us to reconnect all the potential human being has for evolve education to transdisciplinary scenarios, in which linear or classical logical thinking becomes a “one more” component of translogic applied to a new way of designing educational paths in the field of higher education.

## THE DESIGN OF EDUCATIONAL TOURS



The three dimensions that make up the educational journey according to Fernández (FERNÁNDEZ ANA GRACIELA, s. F.), Would be; The curricula design, The curricula development and the curricula evaluation.

**The Curricula design**, is a dimension of the curricula that reveals the methodology, actions and results of the diagnosis and modeling, structuring, and organization of curricular projects, has in the graduate profile the gestation center of the knowledge to be developed in the educational journey. This profile according to Arnaz, (1996) mentioned by Fernandez, should be a description of the main characteristics that students should have as a result of having gone through a certain teaching-learning system.

Also mentioned by Fernandez, Díaz Barriga (1996), tells us that the profiles are made up of both, the knowledge and skills as well as the attitudes that make up the performance and all this operationally defined delimits a professional practice.

Another component of the educational journey, according to Fernández, will be the curricular development, which consists in the conversion of design into an instrument of work and inquiry within the framework of its implementation, which in fact may be deployed at its three levels: macro, meso or micro.

Finally, the evaluation of the curricula design and development is a cyclical process through which the validity of the design as a whole is accredited or verified, determining to what extent the results and their projection satisfy the social needs and requirements for Higher Education Institutions (IES).

For sure, the approaches to what curricular designs are will lead us to several authors and different definitions that end up letting us know that, in any way, they are made up or structured by systematized dimensions from an educational project that wants to be deployed in those dimensions, delving into details are not the objective of this work, but it is to analyze the projections that the curricula design must consider into the future.

## TRADITIONAL FRAMING

Understanding that the epistemic currents generate theories and learning strategies that become Educational Models and these are the representation and deployment of the Educational Paradigms that educational institutions have as a reference to operationalize the educational journey, the discussions about their efficiency were deepened with the pandemic crisis cause we were forced to resort, massively, to the use of distance education resources and therefore to review in more detail what the operationalization of an educational model implies and the deployment of a paradigm to educate from distance.

We observe that in many cases the temptation to make technological resources the aim of distance education was recurrent, forgetting that the educational model refers to a paradigm with its own pedagogical and didactic characteristics, having in the technological means applied into education powerful resources to achieve the goals of education projected in the future.

Thereby, we saw how the educational tours became insufficient to promote a current education, based on modernized designs before the pandemic; also making us understand that the future of education faces an uncertain, chaotic and unpredictable context.

So, if the future is full of uncertainty and we accept that education prepares for the future; How educational journeys into that unpredictable future should be structured?

Maria Candida Moraes (2007) told us



we urgently need a transdisciplinary thought fueled by complexity, the logic of the third included and by an understanding of the existence of the levels of reality and its innumerable consequences, so that, as a humanity, we can truly respond more safely and competitively to the three great challenges presented by Edgar Morin (2000): the challenge of globality, complexity and the uncontrolled expansion of knowledge (p. 7).

In that perspective, we were able to review some works related to this intention, ie, to design transdisciplinary educational curricula.

In the scientific article of the electronic journal published by the School of Librarianship and Information Sciences of the University of Costa Rica, entitled “Model of transdisciplinary relations for the curricular design in Library and Information Sciences”. (SANDÍ SANDÍ *et al.*, 2012) the authors present the approach of a new curricular design that responds to the current needs and demands of the profession concluding with a proposal of the model of transdisciplinary relationships as a basis for the design of the new curricula for the career.

Another work that is of our referential interest, titled; The doctoral curricular design from the transdisciplinary perspective (VILA MORALES D., HERNÁNDEZ FERNÁNDEZ H, 2016). The authors point out that their work aims to reveal the theoretical bases of the transdisciplinary perspective in the context of doctoral curricular design and their objective is to show the theoretical and methodological importance of the transdisciplinary perspective to raise the level of epistemological updating of doctoral programs in medical sciences.

The work is carried out at the University of Medical Sciences, Havana, at the Center for Studies for the Improvement of Higher Education (CEPES), Cuba.

Maria de Fátima Viegas and João Henrique Suano, in a scientific article entitled “The construction of a transdisciplinary curricula for higher education” (FÁTIMA *et al.*, 2016), intend to narrate a pedagogical didactic initiative, describe the paths traveled and the actions developed in the higher courses of the Universities of Magsul, in Ponta Porã, Mato Grosso do Sul, to reconstruct the pedagogical projects of their careers, under the transdisciplinary approach, a pedagogical work of curricular planning, at the State University of Goiás (UEG).

In another scientific article entitled, “Towards a transdisciplinary curricula: a view from complex thinking” (SANCHEZ CARREÑO, 2011) the author describes that its main purpose was aimed at deconstructing the legitimated competency curricula in the university environment, with The objective of promoting the search for some keys that can summon towards the socio-construction of a curricula by projects for the strengthening of a transdisciplinary episteme that with the use of a language led to the practice of interdependence, complex convergences and the potential for transferability between the knowledge facilitated by interdisciplinarity and transdisciplinary; it is necessary to look for curricular options that strengthen the construction of these epistememes.

As we can see, these works approach transdisciplinary from the epistemic perspective with a focus on Basarab Nicolescu's approaches (NICOLESCU, 1994).

In regard, Osorio (2012), exposes us; For the thinkers who promote this approach, transdisciplinary is not only a pragmatic strategy around the concrete problems of an investigation (multi-poly or multidisciplinary), it is not only an expanded approach from the methodological point of view for the analysis of phenomena interrelated (interdisciplinarity), but it is, in addition to the above, a new vision of reality, a new complex organization



(epistemological) of knowledge and a new attitude towards oneself, towards knowledge and towards the world (OSORIO, 2012).

Considering this perspective and understanding that education for the future is a concern and that the principles of complexity; guides of the seven knowledge necessary for the education of the future seven by E. Morin (1999) and the postulates of transdisciplinary by B. Nicolescu enunciated in the Manifesto of Complexity, we believe that it is very important to consider a fundamental process to specify any trend from the present towards the future and that process is of the logic of thought (SOLIZ, 2018), that, being complementary to the approaches of complexity and transdisciplinary, can set us a course to see the education of the future projected not only in a curricular design, rather concretized in a new way of "understanding" reality by building strategic articulations nuanced by the engines of change, which are constant in the future, to move between multidimensional and transdisciplinary interweaves, making possible reattachments to guide our path.

## THE TRANSLOGIC AND THE CURRICULAR PATH

Scientific work, in different disciplines since the middle of the last century, was facing new ways of conceiving and representing properties of reality constituted by an interaction of numerous elements that are changing those properties and of course also that reality, which, spontaneously broke the balance, by the structuring of patterns where were none before and that opened a new way of seeing the planet.

The thought that served to "analyze, argue, reason, justify or prove reasoning and was characterized by being precise and exact, based on probable data, pertinent information and/or in facts", was overcome by the complexity of reality and is on the way of lose validity.

The exchanges, articulations and interconnections that come from the knowledge society; driven by the globalization of the economy, the technological scientific development and information management of the last century, in addition to the consolidation of a subatomic world that changes the ways of seeing nature itself, we face a series of contradictions that, from the perspective of linear logical thinking, they become insurmountable but; if that not enough, in this epidemic crisis the classical scientific foundations faced scenarios full of inconsistency and uncertainty that inescapably mark the need to better "understand" that reality that now is perceived as complex.

This makes us see that the treatment of the emerging uncertainty of the opening of reason to new ways of thinking and seeing reality should have an open way of being approached; This open form is closely related to the perception of reality posed by transdisciplinary, where the duality of non-formal conceptions of logic is overcome and introduces us to the need for complex thinking.

The words three and trans have the same etymological root: the "three" means "the transgression of two, which goes beyond two. Transdisciplinary is the transgression of duality" (NICOLESCU, 1994).

On the other hand, we believe that it is also worth considering the contributions of genetic epistemology and the revolutionary character of Jean Piaget's epistemological proposal, who poses a break in the way of conceiving the problem of knowledge, giving rise to the first epistemological theory of a scientific nature, open and dialectical.

In that direction, the renunciation of apriorism and the renunciation of empiricism supposes or implies accepting the continuity of the cognitive process that is an implicit affair in Piagetian constructivism.



So, the problem from there is rethought. In this regard, R. Garcia wonders: what does knowledge consist of? Answering that knowledge is a construction, does not solve the problem, what is built? How is it built? We do not build the objects, we do not build the tables, houses, what do we build? What is built is the way of organizing interactions with the external world (GARCÍA, 2006, p. 113 - 122).

That is why knowing is organizing the data of reality, giving them a meaning, which means building a logic, not the logic of texts, but a logic of action, of thought projected on / in reality where are an infinity irruption of small events; because organizing is structuring, that is, making inferences, establishing relationships between random elements, hazards, drifts and transformations; is build knowledge; without forgetting that for Piaget it is not about a noun, "structure", it is about a verb, "structuring". It's about organizing our experience, and that organization is creating structures.

Continuing in the same perspective, the French philosopher Edgar Morin introduces the notion of complex thought, as that capacity to interconnect different dimensions of the real, but also includes those modes of thought that involve reflection on the own methodology and on the content, they deal with. In the presence of multidimensional, interactive events or objects with random or venturesome components, we are forced to develop a thinking strategy that is not reductive or totalizing but reflective (MORIN, 2001).

Thus, we understand that the human experience has to be approached, by necessity, with a multidimensional thinking; This thinking, although it does not exist without a brain, neither exist without the personal, family, social, ecological, generic, ethnic, racial, educational dimensions, among others, that is, the physical world is always the world understood by biological and cultural beings, therefore, translogical thinking must face the framework, the overlapping of the phenomena in each other, the haze, the uncertainty, the contradiction.

Which characteristics does translogical thinking sustain?

Using Morin's (2001) complex thought perspective, the relationship with the object is broad and complex (trans) and dialogical, as it has the ability to interconnect different dimensions of the real, integrate knowledge and know through a reflection on the own methodology and on the content, it deals with and is open to contradiction and inconsistency; absent in dualistic thinking and limited in dialectic.

This translogical thinking should be considered as a thinking strategy that is neither reductive nor totalizing, but rather reflective, whose based-on uncertainty and the ability of the subject to relate self-echo and co-organization.

It is based on the systematic or organizational principle, the homogamic principle (hologrammatic); Principle of the retroactive loop or feedback; Principle of recursive loop; Principle of autonomy/dependence (self-eco-co-organization); Dialogical principle; Principle of reintroduction of the one who knows in all knowledge, which supports the possibility of the chaordic and organization.

This translogical or complex thinking, as Morin (2001) says (...) would involve a dialogic and translogical principle, which would integrate classical logic taking into account its de facto limits (problems of contradictions) and de jure (limits of formalism). It would carry within itself the principle of the Unitas multiplex, which escapes the abstract unity through for high (holism) and for low (reductionism).

The seven principles that characterize translogical or complex thinking are the result of the retroactive loop on the development of logic, they are, according to da Conceição de Almeida (2008), capable of dialoguing with uncertainty, the unpredictable and multiple



causality and allow starting from it; develop binding thinking and face the emerging uncertainty of the 21st century, reinforce the interpretation and understanding of the various phenomena of nature that require a different way of thinking and the use of different and transdisciplinary investigative methods, they allow the deconstruction of the reality; that reality that in this century is characterized by being transdimensional, omni-connected, chaotic and uncertain, therefore complex.

In chart 1<sup>1</sup> we make a contrast between the thoughts: logical - dualistic, dialogical - dialectic and translogical - complex, considering five criteria; the relationship with the objects in each thought, the management of knowledge, characterization, support and principles.

**Chart 1**  
**THE CONTRAST BETWEEN FORMS OF THOUGHT**

CRITERIA	LOGICAL DUALISTIC THINKING	DISLOGIC DIALECTIC THINKING	TRANSLOGIC COMPLEX THINKING
<b>RELATIONSHIP WITH OBJECTS</b>	It arises through the coordination of the relationships that have previously created between objects.	Thought advances from the surface of objects and things, to their interior, to their essence, to also later conceive their real manifestations.	Broad and complex (trans): capability to interconnect different dimensions of reality.
<b>KNOWLEDGE MANAGEMENT</b>	It serves to analyze, argue, reason, justify or prove reasoning.	Development of thinking, which goes from the exterior to the interior, from the phenomena to the essence, from the shallow essence to the deepest essence, from the immediate to the mediate, from the abstract to the concrete, from the relative's truths to the absolute's truths.	Integration of know and knowledge Reflection on the methodology itself and on the content it approaches.
<b>CHARACTERIZATION</b>	It is characterized by being precise and exact.	Contradiction as the root of all movement and vitality, the principle of all self-movement, since only what contains a contradiction moves.	Open to contradiction and inconsistency. Thought strategy that is neither reductive nor totalizing but reflective.
<b>SUSTENANCE</b>	Based on probable data or facts. The laboratory and the theories.	It is structured as a system of logical categories based on the dialectical-materialist method.	Uncertainty. Auto - Eco - Co-organization. Chaordic Organization.

<sup>1</sup>The picture comes from the advances in the author's postdoctoral research (SOLIZ GEMIO J. A., 2020). "Logical thinking and research", Reflections and university actions in the art of educating. Vol 4. p. 95-108.



		Movement generated by contradiction also allows the manifestation of tensions in praxis.	
<b>PRINCIPLES</b>	<ul style="list-style-type: none"> <li>• Principle of identity</li> <li>• Principle of non-contradiction or excluded contradiction.</li> <li>• Principle of the excluded third.</li> <li>• Principle of bivalence.</li> </ul>	<ul style="list-style-type: none"> <li>• Principle of universal interaction.</li> <li>• Principle of universal movement.</li> <li>• Principle of the unity of opposites.</li> <li>• Principle of the transformation of quantity into quality.</li> <li>• Principle of Spiral development.</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic or organizational principle.</li> <li>• Hologramic (hologrammatic) principle,</li> <li>• Principle of the feedback loop or feedback.</li> <li>• Recursive loop principle.</li> <li>• Principle of autonomy / dependence (self-eco-organization).</li> <li>• Dialogical principle.</li> <li>• Principle of reintroduction of the one who knows in all knowledge.</li> </ul>

Own creation.

## THE TRANSLOGIC AS AN ARTICULATOR OF THE EDUCATIONAL JOURNEY

What has been treated so far, allows us to pose a question that facilitates the analysis of our epistemic position on the process that an educational haul should have, considering the transdisciplinary in its operationalization, if reality is transdimensional, omni-connected, chaotic and uncertain, therefore complex how should we design the educational paths of the humans of the future?

## THE TRANSLOGIC AND TRANSDISCIPLINARY IN EDUCATIONAL STRATEGIC PLANNING

Educational Strategic Planning has two lines of deployment; the first, where the vision of the Higher Education Institutions marks the desired future situation and triggers the mission and organizational management strategies and the second, which deploys pedagogical management to articulate, in the curricular design, the north of the sustained





educational path for the profile that we want to build as the objective of a process linked to the tomorrow of the final product that we want to achieve, that is, to the future of the professionals who will stay, will be and will live on our planet.

This structured way makes it usual to deal with changes based on the record of current trends, the educational offer and existing problems, and then decide the phases that will be followed or make predictions for the future to adopt a political decision that set the objectives considered optimal, then applying strategies to make them happen. We believe that none of them has proven capable of taking into account the unpredictable aspects of future evolution, as the lack of contingent strategic plans for education showed us when COVID-19 burst onto the scene, making the need of an epistemic reflection on the future of curricular design.

## THE NEW VISION OF CURRICULA DESIGN

The European Center for the Development of Vocational Training (CEDEFOP), in the dossier on scenarios, points out that.

It is necessary to find ways to face and respond to present or future uncertainties, since the direction of educational and training systems is by force a slow and deliberate process that requires a clear vision, strategies for the future and the intervention in the transformations of a whole range of agents (LENEY *et al.*, 2004, p. 11).

It also indicates that the research on **engines of change**<sup>2</sup> allows the extraction of independent uncertainty factors used to elaborate scenarios, since the detection of these basic or independent engines of change are essential to elaborate scenarios and for the objectives of Strategic Planning, being also important, determine the factors that may inhibit or hinder changes in the future.

The most probable is that in the future the process of articulating the Educational Strategic Planning will be a careful combination of methods and future calendars that guide and re-establish the multidimensional in the educational journey and change the ways of approaching and constructing the curricular designs.

In that perspective, we consider that the vision that should guide the desired future of Educational Strategic Planning must be built with a translogical perspective, that is, that the prospective of the strategic plans and the profiles to guide the curricular designs must be built in the classroom starting from multidimensional, staggered, flexible and versatile educational routes based on the emerging interests of the student for the future and identifying engines of change in the auto-echo-co<sup>3</sup> of context where Strategic Planning in Education is articulated.

We want to say that the Strategic Planning of Education must collect daily inputs (forces of change) to rearticulate scenarios no longer in the medium or long term of the educational path, but rather, in the short or immediate term, enriching the educational

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<sup>2</sup>Always at all times will be there driving forces of the changes on a social scale: fashions, trends, interest in specific subjects and more general social currents generate changes in the values, the customs and the expectations, that at same time can influence in politics. It will always be useful to examine the political debates about “the state of the nation” to get an idea of the different interpretations that inspire on a social scale the nature of these transformative forces (CEDEFOP, 2004, p. 54).

<sup>3</sup>Auto - from own, echo - from the environment and co - from society.



proposals in higher education. We are also saying that the curricular designs adjust in the short terms the profiles that guide their concretion and do not anchor themselves in it; rather, they are centered on the educational path that the future planetary citizen requires.

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