



World Futures

The Journal of New Paradigm Research

ISSN: 0260-4027 (Print) 1556-1844 (Online) Journal homepage: <https://www.tandfonline.com/loi/gwof20>

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To cite this article: Eduardo Ruiz Cervantes, Enrique Vargas-Madrado & Magaly Corona García (2018) Epistemological transformation for a sustainable and transdisciplinary university: The experience at the university of veracruz, *World Futures*, 74:4, 257-264, DOI: [10.1080/02604027.2018.1444834](https://doi.org/10.1080/02604027.2018.1444834)

To link to this article: <https://doi.org/10.1080/02604027.2018.1444834>



Published online: 16 May 2018.



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EPISTEMOLOGICAL TRANSFORMATION FOR A SUSTAINABLE AND TRANSDISCIPLINARY UNIVERSITY: THE EXPERIENCE AT THE UNIVERSITY OF VERACRUZ

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This article presents a brief history of the development of the Western university and the individuation of disciplines. It discusses the phenomenal specialization that has occurred since the 19th century, and the lack of correlative synthesis of the disparate fields of knowledge, which increasingly has come under critique. We explore the transdisciplinary experience that has been developing over the last few years in the University of Veracruz, in particular with regards to the *Program for Transdisciplinarity, Dialogue of Knowing Styles and Sustainability*, a co-construction of a set of actions that foster a transformation of university academics by means of deep dialogue and a transdisciplinary re-learning process.

KEYWORDS: *Complexity, collaboration, re-learning, healing, dialogue, community.*

INTRODUCTION

For some time, the University of Veracruz (UV) has raised a series of questions and implemented important changes at the academic level that are focused on sustainability. Undoubtedly, among the diverse initiatives of sustainability and dialogue, one of the most radical and complex is that of the *University Program for Transdisciplinarity, Dialogue of Knowing Styles and Sustainability*. This program implemented by our EcoDialogue Center of the University of Veracruz, represents our contribution using eco-literacy and transdisciplinarity to the university's transformation towards an education for a sustainable lifestyle.

The program's main agenda is to advance epistemological reflections and trigger processes of transformation capable of reinventing the educational and academic systems that presently dominate the modern university experience. Yet, what is the university? Which university are we talking about? What are the epistemologies that have accompanied the generation of academic knowledge for centuries? How do we transform these old and positivist ways of constructing knowledge? And, furthermore, why transform them? What are the current

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challenges in the modern university, and which are active in the University of Veracruz?

THE UNIVERSITY AND ITS DISCIPLINES AS THE ONLY WAY OF KNOWING

Often those of us who graduate from or work in a university setting become critical of the systems that comprise it, yet we do not have a meaningful idea of what the word university even means. The word university comes from the Latin *universitas* and is derived from *unus*. After the fall of the Roman Empire, Latin continued as the only educated language used by the Church and the academy. The word *unus* expresses an indivisible whole. University has the same etymology as Universe and universally. These words express a multitude of different things, but in a unified sense *Universitas* designated any affiliation or community oriented toward a common goal (<http://etimologias.dechile.net/?universidad>).

As we know, over the course of many centuries, there were many thinkers who contributed to the birth of modern Western thought. Still, authors such as Galileo, Bacon, Copernicus, Newton, and Descartes are undoubtedly considered to be the founders of the scientific-modern revolution.¹ Yet, what is modern scientific thought? How was it formed, and what are the implications?

The essential theories that lie at the base of our culture's world vision and value system, which today have to be attentively re-examined, were formulated in the 16th and 17th centuries. Between 1500 and 1700 a radical change took place in people's mentality and in the ideas that they had about things. The new mentality and the new perception of the world gave our western civilization the features that characterize the modern age and turned into the foundations of the paradigm that has dominated our culture during the last three hundred years, and which now is on the verge of changing. (Capra 1996, 55²)

Going back to the origin of modern Western thought is an extremely complex task. Since its inception, science has received radical critiques from the very faithful supporters and craftsmen of science itself. They offer for discussion and revision every scientific method that, throughout the centuries, has survived and permeated the world of the modern university. In addition, some of them, Paul Feyerabend for example, try to make an agreement against the method, saying good-bye to reason.

Investigating and addressing disciplinary knowledge and its relation to the university's structure implies turning to the origin of scientific modern thought itself. This includes taking up and reflecting again on the foremost Aristotelian and platonic proposals that gradually built Western consciousness and modern science.

This critique of the history of the scientific-university spreads to the specialization of knowledge that began to develop by the 19th century. At present, one of the thinkers proposing a deeply committed and pertinent reflection from the social science perspective is Immanuel Wallerstein (2004) who, in his book, *To Open Social Sciences* states:

Intellectual history of the 19th century is notably marked by this “disciplinization” and professionalization of knowledge, that is to say, by the creation of permanent institutional structures designed as much to produce new knowledge as to reproduce producers of knowledge. The creation of multiple disciplines was based on the belief that systematic investigation needed a skillful concentration in multiple zones separate from reality, which had been rationally divided in distinct groups of knowledge. (Wallerstein 2004, 9–10)

Wallerstein goes on to say:

Over the course of the 19th century, new disciplines opened like a fan to cover the range of epistemological positions. As the separation of knowledge into two different spheres was taking place, each one with a different epistemological emphasis that became increasingly rigid, students of social realities remained caught in the middle and simultaneously deeply divided over these epistemological problems. (Wallerstein 2004, 12)

During the Transdisciplinarity and Sustainability Meeting at the UV in February 2009 Basarab Nicolescu,³ pointed out that the fragmentation of knowledge began in the 12th century with the inception of the first university, at which point there were only seven disciplines. In 1950, 50 different disciplines existed. Further, he said that after the Second World War, a boom happened to such an extent that, by the year 2000, a study in the United States revealed that more than 8,000 disciplines were taught in U.S. universities alone. This translates to 8,000 ways of observing and understanding reality. Nicolescu (2009) also indicated that, although it is true that some disciplines die off, many more are born.

THE EARTH CHARTER AND AGENDA 21: FAD OR COMMITMENT?⁴

The United Nations (UN) has among its main purposes: to keep international peace and safety; to reach an international work as a whole based on the friendship between nations; to achieve international cooperation in the solution of economic, development, social cultural or humanitarian problems; and to promote respect for human rights.

As we know, different countries spanning five continents comprise this organization, Mexico being among them. In general, the UN intends that its members fulfill its duties as a member and participate in its different areas of competence. A few years ago, the UN membership countries agreed that this is a critical moment for humanity and for the planet in general because of an ecological crisis. This began the focus on ecology and sustainable development. Since then, many nations, Mexico among them, began to work toward cultivating harmony between society and environment through their universities.

The issue quickly spread and became part of the international agenda of governments, academic institutions, and society. Big events and meetings were held to discuss the matter, and one of the first was in Stockholm in 1972. At that meeting a document named the “Declaration on Human Environment” was created asserting that human beings were obligated to protect the natural environment. As a

result in 1975 the UN created The United Nations Environmental Program and The Interdisciplinary Program of Environmental Education. In these programs the UN presents education as a fundamental instrument for directing sustainable development (González-Gaudiano, 1995, 1996; Trellez-Solís & Wilches-Chaux, 1999).

At the Belgrade meeting in 1975, and later in Tbilisi in 1977, international efforts were directed toward environmental education and training from an integral and holistic perspective. Concurrently, while ecology gained importance within capitalism and its monopolistic corporations, all the constituent countries of the UN promised to work in favor of a reestablishment of its balance at the Intergovernmental Conference on Environmental Education of Tbilisi.

In 1992, the Rio Summit or Earth Summit took place. An environmental perspective dominated the discussions leading to major implications. Two documents pertaining to sustainable development were created and signed: the *Earth Charter* and *Agenda 21*. The *Earth Charter*, argued for universal respect and established the ethical basis for a civil society to construct a sustainable world. *Agenda 21* is a plan of actions, which commits member governments to carry out their responsibilities in all areas related to environment. It also addresses the role of higher education to strengthen environmentally suitable attitudes, values, and standards. In other words, through the universities, an ecological consciousness is fostered and planetary citizens are created. And at the World Summit for Sustainable Development, celebrated in Johannesburg in 2002, the Mexican government declared its support for both the *Earth Charter* and *Agenda 21*.

Generally, the university is viewed as an institution responsible for generating in students and scholars a moral commitment to society and nature. Students are considered to be social actors capable of generating sustainable changes at local levels. The university also has the freedom, and perhaps the responsibility, of rethinking and transforming its structure, practices and position in the society.

TRANSDISCIPLINARITY AT THE UNIVERSITY OF VERACRUZ

Beginning in the year 2008, we have designed and implementing dozens of transdisciplinarity academic activities networked for faculty, students, administrators and all other employees of our university community. Different workshops has been set to connect, facilitate, and inspire transdisciplinary processes among academic researchers at UV at the following regional campuses: Veracruz–Boca del Río, Orizaba–Cordova, Coatzacoalcos–Minatitlán and Poza Rica–Tuxpan. In the past 2 years, two main workshops were created based on epistemological reflections: “University, Transdisciplinarity and Sustainability: Let’s Discuss and Re-learn our Relevant Concerns” and “Deepening our Knowing from a Full Consciousness: The Possibility of a Sustainable Knowledge by Way of Transdisciplinary Re-Learning” and have been offered at each campus.

In a workshop offered to university personnel in April 2009, Ricardo Corzo, academic secretary of UV, mentioned that the Station of EcoDialogue provides two of the most innovative programs within the entire UV: *A Master’s program in Transdisciplinary Studies for Sustainability* and the *University Program for the Transdisciplinarity, Dialogue of Knowing Styles and Sustainability*. These

programs and other structural changes paved the way for a system-wide shift that promoted the need for an ethical and epistemological change. The challenge was how to change an entire university? More specifically, how to do it at UV?

In October 2009, the *Program* and the *Master's programs* organized a symposium named *Towards a Transdisciplinary Vision of the University: Ecology of Knowing Styles for Local and Planetary Sustainability*, an event that was initiated by the then current Academic Secretary, Porfirio Carrillo, who commented:

The vision of individuals and organizations across the world has ended—and not because of the economic crisis, the lack of employment, the depletion of energy and hydrocarbons, or because of market contractions and the stock exchange. The vision that we have of the world has ended because we are at risk together with the planet that we inhabit; this is the source of the crisis. That is why the individual today has to change, and that is why the university today is a bastion of the fight for change. It is not just religious communities any more, not the Zen meditation groups, neither is it our therapist's office who, in 45 minutes, tries to change our vision of the world. The scene of the change is everything we do from the moment we wake up until the moment we fall asleep. Even our sleep is a scene of the change. This is why it is fundamental to turn to the university as an agent for change. Those of us who go every day to our offices, our classrooms, our laboratories and cubicles, or to fieldwork are individuals and beings that need to change our vision. We do not only need to innovate our educational model, it is the profound change within the individual which can change the institution; if the individual does not change, the way we create relationships among ourselves does not change and then there is no model that will work, there is no instruction from above that will work.

THE EXPERIENCE IN VERACRUZ

As mentioned before, Veracruz–Boca del Río is one of five UV campuses. It is clear that the experience of transdisciplinary re-learning and the epistemological focus on academics demonstrates, on the one hand, the work that has been done at UV since July 2008 and, on the other hand, that, in spite of the bureaucratic difficulties of the university, processes of epistemic transformation can be achieved.

Several training seminars have been given at this campus to transform academia and move it toward transdisciplinarity and sustainability. A regional committee was created whose essential task is to provide a safe place for discussing sustainability issues among the academic community. It is less about instructing *how it should be*, but about every professor, official, and student creating and sharing experiences. As a result, enriched dialogues have transpired on the most sensitive topics regarding university life, some revealing entangled dissent and others ending in significant consensus.

But, beyond what each and everyone takes from or contributes to the growth of the *University Program for the Transdisciplinarity, Dialogue of Knowing Styles and Sustainability*, the experience in Veracruz-Boca del Río is not only a stellar example, but a seed for more collaborative sharing within UV.

Regional activities have been carried out to generate new structures and modes of *doing and being* a university, perhaps in pursuit of the origins of a *universitas*. Among the recent activities, one in particular stands out, the “Eco-poiesis Ritual” workshop offered since 2010.

Today, those who benefited from the workshop of Eco-poiesis have become agents of change. Their message is unanimous: “to start taking care of one’s self in order to restore a connection with the Earth, with other human beings and with the UV.” This is how the Saturday morning *Chi kun* group was conceived in order to learn self-healing techniques and deeper understanding of the body-matter that we inhabit. Likewise a blog of natural cuisine focuses on recovering our profound dependency on the Earth—valuing what it provides, how we take from it, and the way and degree in which we give back to it.

The committee organizes an outdoor reading circle, highlighting the divisive and dissipative effects a normal academic atmosphere has on our personal development. In short we are academics looking for routes of transformation and looking to thinkers from all areas in all times for nourishment, especially those upholding traditional knowing systems having resisted the homogenization and colonization of knowledge. We are academics because that is our current social function and the vocation of the institution that houses us. We are academics with strategies to articulate diverse ways of knowing and knowledge production. And we question the university, because questions generate, detonate, and create.

CONCLUDING REFLECTIONS

The transformation of the university requires two fundamental elements: the recognition of the crisis and an epistemological rupture of existing structures. Following this route could lead to a re-structuring of higher education from a process of discovering-destroying the old paradigms and reconstructing the present one starting at its roots.

The basis for this transformation lies in the pedagogic and disciplinary education that UV has offered for more than half a century. Relevant questions emerge about how to reconstruct thought, education, and the production of knowledge in an institution such as a university. Thanks to the experiences in Veracruz-Boca del Río, we understand that a program with these goals is not a simple endeavor, but neither is it an impossible task, as long as we attend to and care for the multiple levels and complexities. It means that we need to employ a set of deeply rooted values in the infrastructure of the university as well as in the deepest part of us as human beings. We believe it is necessary that the transformative program include a series of collaborative platforms, that is to say, overlapping areas that combine and systematically work in concert to re-structure the university. These areas will in turn promote and nurture reflection as a way to contribute to the co-generation of possible resolutions of today’s concerns.

What we are proposing is not simple. Just as disciplinary knowledge exists, disciplinary dynamics, interactions, and activities also exist that, although connected, are mired in bureaucratic restrictions. It is important to work within the

university in ways that are more affable and less alienating; where the connection, the teaching, and the research are deeply entwined with one's self.

Our intention is to form a different relationship with the university in order to produce knowledge and enlighten the knower in accordance with today's local and global situations. The ongoing question is: How do we generate new forms of interaction among those of us who work in the academic field of the university? How do we generate an authentic university community where all types of borders, be they geographical, disciplinary, or, much less epistemological, cease to exist?

Fortunately we are not alone. At present many universities are trying to generate these sometimes drastic yet necessary changes, using different routes and alternatives. The majority of these institutions try to move to a more coherent pedagogic processes. Within all these efforts, we find a diversity of initiatives, from the most radical to the simplest. Some are directed toward research, others toward the educational side, and still others toward academic and organizational structures. The fundamental challenge is specifically to unite every one of these aspects under an umbrella of *universality* in order to re-compose and rebuild. A program (or several) that works is needed in conjunction and in community with all the competencies of the different actors who shape these projects. Trying to restructure the whole infrastructure of the university using only one aspect or perspective, despite how relevant that aspect might be would be an error. The restructuring needs to be agreed on and, above all, articulated as an organic university network built from the ground up and present on different levels. For instance, it needs to be present on the level where the majority of official programs interact with the work done to initiate deep institutional changes and it needs to reflect each specific program. It also needs to be active on the level where the complex and often convoluted ways exist on which current academic practices have been built. In the case of the UV, it requires a deep reflection on the context and history of its evolution.

So what is the lived experience in each university campus? What are their ways of thinking and how do the individuals assume the responsibility of being a part of this structure? Just how interconnected is the university with today's neoliberal global processes? How affected are university workers by these new and even more enslaving types of work? How does neoliberalism affect the educational practices of professors? How do academics feel in each of the regions? What are their concerns? What actions are they proposing and does the university consider their ideas viable? Finally, do they perceive the main campus in Xalapa as the center axis? These are only some of the myriad of questions awaiting responses.

Presented here in this article is our firm contention that university programs need to rely on diverse areas of work and operate on all levels with human interaction and feedback, plain and simple. When university academics feel a part of a living process, a process in which thoughts, convictions, and ways of being different from their own are valued, like Maturana and Varela (2008) would say, diverse worlds at hand, converge.

NOTES

1. This can be found in books like *The Turning Point (El punto crucial)* by Frijof Capra (1996) and *The Reenchantment of the World (El Reencantamiento del mundo)* by Morris Berman (1981).
2. Translator's note: this quote was pulled from the Spanish version published by Editorial Estaciones and subsequently translated.
3. Quantum physicist, founder of Transdisciplinary Group for UNESCO in 1992, and president of CIRET.
4. This section is found in the following document: "La Crisis Planetaria, las Universidades y el Aprendizaje Ecologizado hacia Sociedades Sostenibles" (*The Planetary Crisis, Universities and Ecologized Learning towards Sustainable Societies*) Institute for Biological Research (Investigaciones Biológicas), Universidad Veracruzana.

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