Vol. V, Number 10, february 2016 • ISSN: 2007-6703

ESPACIO I+D

INNOVACIÓN + DESARROLLO

General translation Michael J. Greces

Digital Journal of the Universidad Autónoma de Chiapas
Indexed in the directory and catalog of Latindex,
BIBLAT and CLASE

ESPACIO I+D, *Innovación más Desarrollo*

English Version v V (10), february 2016
—

Indexed in the Directory and Catalog Latindex,
BIBLAT and CLASE

It is a digital magazine of scientific and cultural
dissemination of multidisciplinary nature of the
Universidad Autónoma de Chiapas (UNACH).
Has a quarterly basis and record:

ISSN 2007-6703

University Campus, Building D,
Ejido Emiliano Zapata Highway, Kilometer 8
Tuxtla Gutierrez, Chiapas; Mexico. Zip Code 29000
Phone: 01 (961) 214 07 00 • 01 (961) 165 55 89
E-mail: espacioimasd@gmail.com,
espacioimasd@unach.mx

www.espacioimasd.unach.mx

INDEX

Articles

Ontological aspects of technology and transfer methods, case studies: the rainwater collector and sustainable house for indigenous communities 6

Pablo Palomino and Carlos Fuentes: Parallel lives 33

Institutional management for digital literacy of the university 45

The phenomenon of migration from the meaning of foreigners 69

Modification of agricultural land to urban in the town of texcoco, state of mexico 98

Virtual environments learning, supporting elements for understanding literary texts 123

Applications of nanoparticles in textiles for interior design 142

Academic Papers

Proceedings of the regional symposium
"LINKING COMMUNITY AND WISDOM" 2ª parte 170

Review:
THE OTHER WORD.
Stories, projects and testimonials from the Faculty of Humanities. 194

ARTICLES

ONTOLOGICAL ASPECTS OF TECHNOLOGY AND TRANSFER METHODS, CASE STUDIES: THE RAINWATER COLLECTOR AND SUSTAINABLE HOUSE FOR INDIGENOUS COMMUNITIES

Martín D. Mundo Molina
ic_ingenieros@yahoo.com.mx

Research Center of the School of Engineering
Autonomous University of Chiapas

SUMMARY

The poverty of the indigenous peoples of Mexico, lack of water and decent housing, and the degradation of their natural environment must be addressed. To support the solution of this problem, the Autonomous University of Chiapas, through the Research Center of the School of Engineering, has designed a community water collector (*colector de agua de lluvia comunitario* or CALLC) and an ecological house with appropriate technologies (*casa ecológica con tecnologías apropiadas* or CETA). The goal is to bring clean water and provide an alternative to decent housing especially for poor indigenous communities, and conserve natural resources and raise the standard of living of these communities. This article briefly presents both technologies as an excuse to analyze the differences between technique and technology, the ontological aspects of the design of such terms, its nature as an object of study, their category and their properties, as well as the basics of technology transfer for its social appropriation taking the CALLC as an example.

Keywords: *Technology, ontology, rainwater collector, sustainable house, indigenous communities*

INTRODUCTION

Mexico's indigenous communities live in precarious conditions regarding education, housing, basic health services, potable water, and sewage. We can add to this the degradation of their natural environment with the problems of the pollution of soil, air and water (Mundo et al, 2015). Two of the most important factors of low living standards and poor health of indigenous communities are: the poor quality of their water and no firm floors in makeshift housing, which demonstrate their poverty.

The housing problem. The indigenous population speaking a native language represents 7% of the population of Mexico, but becomes a little more than 10% if in addition to their language their origin is taken into account. According to data from FONHAPO (2010), 76% of these over 10 million indigenous people are have asset poverty and the proportion that need housing is 80.91%. On the other hand, the houses of indigenous peoples in general are made of flimsy materials, with dirt floors, and lack the conditions necessary to live healthily and with dignity.

The water problem. Mexico continues to suffer, particularly in rural areas, a lack of water and high rates of infectious disease whose transmission is associated with the use of water unfit for human consumption. One of the alternative solutions that the water sector institutions offers for the provision of this vital fluid is the building of rainwater collection basins, which are far from being a good measure but rather become a health problem. The collecting basins are built as "open to the sky" and therefore are easily contaminated by the hauling of garbage and fecal matter that are deposited in the basins by wind or water. Of the 20 projects monitored in the highlands of Chiapas, Mexico by specialists of the Research Center of the School of Engineering of the UNACH, 100% of the collecting basins studied were found to contain fecal coliform bacteria. The "basins" are not only

contaminated by human feces, but also by feces from domestic or wild animals, which are carried by storm water runoff .

The problem of the unsustainability of the natural environment. The slash and burn and forest fires are deforesting large areas of ejido land in the country, giving rise to changes in the micro-climate and hydrological cycle. These anthropogenic actions impact not only the ecological balance but also the availability of water for domestic use in areas where the resource in itself is meager. The natural environment changes due to the deforestation of valleys and mountains. If this occurs on mountainsides problem is intensified because the erosion rate increases, the soil is impoverished and the devastated area rapidly experiences desertification over time. In valleys the problem is the same but at a slower rate.

The Eco-Technologies (ET's) or Social Technologies (ST's) as alternative solutions. The ET's or ST's represent alternative solutions to the issues raised previously, for the themes of the conservation of air, soil, natural environment, as well as water. This article only briefly described two technologies related to water. However, presenting them is not the only purpose of this article. In addition, the technical solutions of the problems outlined in relation to the provision of water to small rural communities are described. The relevance of the ST or ET to solve a longstanding problem is also discussed. On the other hand, the relevance of this type of technology is shown and the philosophy behind the technology and its relationship with basic science from which it is nourished are also presented. The article also highlights: i) the technical and scientific value of these technologies (simple or compound), ii) the merit associated to distinguish its correct name according to its subject are and scope, iii) the importance of discerning the technological technique, iv) the significance of its ontology v) the onto-methodological aspects of its transfer and social appropriation.

TECHNICAL OR TECHNOLOGY

The technique is the ability to use procedures and resources to create some kind of tools. According to Liz (1995): "... the technique can be considered as a set of activities and systems of craft, artistic actions, which are socially structured but not integrated into modern productive industrial processes generally organized around an institution or company (public or private) and not linked to scientific activity. " For this reason Liz (1995) states: "... the technique is distinguished from technology, distanced even further from science, approaching an art."

On the other hand, *technology* plans and designs devices that use scientific knowledge to control things, natural or artificial processes, design artifacts or objects to solve specific problems or conceive operations rationally (Bunge, 1985). This is the case regarding CETA and CALLC and succinctly described below. Technology is the product of social organization, and the creative transformation of nature. To encourage and / or develop the economy on a large scale, industry imposes criteria for development (Brocano, 1995). Therefore it was not until the industrial revolution, with the emergence of the modern era of science, when technology began to have a higher demand and a social impact that opened the doors of a new stage of civilization and that today has reached its maximum development. However, despite this enormous influence, and that technology cohabits and is part of the current development of society, there is still no consensus as to its nature, rules of action, values, limits, nor its practical rationality. For these reasons, in this article some ontological aspects are outlined that the little existing literature refers to in order to discuss and if necessary add consensus.

ONTOLOGICAL ASPECTS OF TECHNOLOGY

Technology: A systemic approach. Quintanilla (1989) provides an ontological foundation of technology, trying to structure its action, define its properties and intention and characterize it as an overall system. Thus, he says: A technological realization is an intentional system of actions and technology and is a kind of equivalent of technological achievements. Thus, any physical system composed of interacting parts can be considered as a system of actions between components. For example, a computer is a specific technological system (T), if:

$$T=< C, S, S´, A, A´, O, R >$$

Where:

C = is a set of specific systems constituting components or materials of T.
S = is a set of human subjects or agents capable of acting intentionally on the elements of C "U" S ("U" denotes union in set theory).
A = it is a set of actions defined in C "U" S.
S'= it is a nonempty subset which is equal to S, or S content of intentional agents.
A'= is a nonempty subset that is equal to A, or content of A, of intentional actions of members of S on members of S with objectives oi i € O.
O = Objectives of the system.
R = Results of the system.

Thus, the "intentional action system" (I), with objectives O, and results R, is:

$$I = <S, S', A, A', O, R>$$

where the “action system” with results R, is:

$$A = <C \text{ “U” } S, A, R>$$

Thus a T technology system and the set of all equivalent systems to T constitutes a technology (Mundo, 2015).

Simple and complex technologies. A technological system (T) is simple if it consists of parts that are in turn (T) technical systems T (simple technologies are those that do not contain other technologies); and it is complex if T is formed by the assembly or integration of other technical systems T (see septuplet 1). That is, a technique T’ is integrated to a technique T if some of the results R of T depend on the results of the R of ‘T’.

Characterization of a technology. If you want to characterize a technology you have to determine the type of materials that you are going to work with, the characteristics that the subjects have that can develop and / or implement it, the type of actions you have to produce between components and subjects, and the objectives that they are intended to serve and the expected results.

Variants of a technology. A variant of a technological system is another system that has the same properties of structure, but with different values. That is, a variant of a technological system is one which is an embodiment of the same technology, but with duration values or performance of its parts, different from the first. Variations can therefore affect their physical dimensions, physical properties, chemicals, and materials, but not its structure (I), (see sextuple 2).

Modifying a technological system. Modify the structure (I) of the sextuple (2) of a T system, may represent a technological change in a positive generation (when technology changes its structure to respond to a set of different actions (A) of objectives (O) and results (R) , in a positive way), or a negative generation when the opposite occurs. That is, one of the most basic mecha-

nisms of technological change is the introduction of variants in a technological system.

Technology components. A technology consists of "unintentional" actions (3) and "intentional actions" (2). Unintentional actions A = <C "U" S, A, R>, are characterized by unintentional actions between components C and those on the human subject S. While intentional actions I = <S, S' , a, A'O, R>, are characterized by intentional actions of the subjects S on materials C (materials or raw materials of the technology in question) of (3).

Intentional actions are divided in turn into "production and enforcement actions" and "actions of organization, control and management." Enforcement actions are the relationships between C and S, where S acts on C, changing S to C in its state, its structure, its behavior, including its assembly, synthesis of new objects, use of tools and machines. The actions of "organization, control or management" are guided by intentional actions aimed organize the technological system as a whole, in other words, the fulfillment of objectives from its planning, design, execution instructions and final fulfillment of objectives .

Applications, uses and technology transfer. These concepts are important not only to understand what is the application and transfer of technology, but also enables the equally important discussion on the evaluative problems of technological application, that is, the objectives of the action and its moral implications. Thus, a T technological system can be applied in different ways by different individuals or group of individuals G, for different purposes; but beforehand T should be available for G, for either development (realization) or use. A T technology is available for a group of individuals G if some members of G possess or have access to their own components C, necessary for realization of T, and some members of G are trained to be part of the set S of agents an embodiment of T. Once developed, T is available for the use of G if T meets the goals that G desires who uses or applies T.

T Is considered transferred if besides that G uses and applies T, G understands its operation and is able to repair T in case of failure, or has advising and / or maintenance of T (this is the case of the transfer system collection of rainwater for indigenous communities, the reader is suggested to visit the following links on the internet about the transfer of T: https://www.youtube.com/watch?v=zeIT2L0bEqQ, https://www.youtube. com/watch?v=bsKjzsSWTpM, https://www.youtube.com/watch?v=dNhkPW2nYOU, https://www.youtube.com/watch?v=CkvB7jI4XcA)

ALTERNATIVE, PROPER AND SOCIAL TECHNOLOGIES

According to Thomas (2009): "... technologies demarcate positions and behavior of the actors, determine structures of social distribution, production costs, access to goods and services, generate social and environmental problems, and facilitate or hinder their resolution. It is not simply a matter of technological determinism, nor a causal relationship dominated by collective relationships. These are social constructs as much as societies are technological constructs. He continues: "... the resolution of the problems of poverty, exclusion and underdevelopment cannot be analyzed without taking into account the technological dimension in food production, housing, transportation, energy, access to knowledge and cultural heritage, environment, and social organization".

For this reason, social technologies are those that respond to problems generated in sectors where poverty exists, and must be analyzed not from an economic perspective of commercial utility, but from the perspective of social utility. In this sense and from a practical and dialectic point of view, it is necessary to know the technology, its relationships, ontological properties, and its evolution. Thus, the history of its genesis becomes relevant to understanding the role they play in the processes of social change.

They cannot be discussed seriously without understanding their nature and evolution. Based on these arguments, some aspects of their origin can be presented. Following this, the ontological properties of technology and social relevance of the methodology of "social technologies" for proper transfer will be discussed.

Since the mid-60's, there began to proliferate the production of "alternative", "intermediate" or "appropriate" technologies, and more recently, "social innovations". The explicit aim of these technologies has been to respond to issues of community development, generation of services and techno-productive alternatives in socio-economic scenarios characterized by extreme poverty in several developing countries of Asia, Africa and Latin America. Archetypal examples of these technologies are biomass reactors, some low - cost energy systems (based on solar and wind power), constructive social housing systems and agro ecological farming techniques.

From these example, Marco Thomas (2009) called them "*social technologies*" "... those aimed at solving social and / or environmental problems that generate social dynamics of social inclusion and sustainable development." However, to this there must be added the following requirements: 1. They are social technologies as long as the community uses them, as a successful methodological effort of their transfer, 2. They are social technologies as far as the social masses, users or recipients have been taken into account for their development, according to their specific needs and culture , 3. They are social technologies as long as the user understands the technology, maintains it and by its utilitarian nature such technology is capable for resolving a specific problem that motivates its incorporation into their way of life and culture and 4. Successful social technologies are those that once transferred are administered and managed by the community independently of the institution which supported, led and executed the technology.

Thus, the history of the "social technologies" dates back to the 40s with experiences in India and the People's Republic of China (Riskin 1983; Amhad, 1989). Then came the "democratic technologies" at the beginning of the 60s when Lewis Mumford denounced the political risks of production technologies on a large scale and in contrast proposed democratic technologies (Mumford, 1964), based on small - scale production with technologies moved by animal power or small machines, actively led by the community. According to Thomas (2009) the conceptual developments of Mumford are the antecedent of "appropriate technologies", whose primary objective was the production of technologies that were small - scale, purely family or community based, mature, low complexity, low content of scientific and technological knowledge, were low cost, and had low energy consumption and low environmental impact.

Undoubtedly, from the set of characteristics listed above, several have limited the broader production of goods and services through "alternative technologies", with one of the most important being small - scale production.

On the other hand, the "intermediate technologies" are those that propose the development of small industries oriented to solving local problems. They are distinguished from "appropriate technologies" because they are based on mature *industrial* technologies, are labor-intensive, and are geared to meet local consumer markets. However, intermediate technologies avoid latest generation technologies and equipment produced by highly complex industry (Schumacher, 1973; Pack, 1983; Riskin, 1983).

Appropriate technologies reemerged in the early 70 's , with the novelty of applying concepts of applied and economy engineering, seeking efficiency. According to Robinson, (1983) the definition of an "appropriate technology" should include: availability of skilled labor and its relative value, capital incorporated into the machinery, it consumables, the production process and the availability of human resources for its management . This re-

framing led to the assignment of a new mission, which was more inclusive, and included in its agenda not only the development of technologies to underdeveloped countries and populations living in extreme poverty, but also large - scale production aimed at mass markets in developed countries. During the decades of '70 and '80 appropriate technologies became a field of implementation of public policies and intervention of international support agencies (Thomas, 2009).

After the second phase of appropriate technologies comes the concept of "alternative technologies" , in order to overcome the issue left by the phase II of appropriate technologies that led to a massive industrial production, forsaking the technologies associated with poor communities. For that reason, Dickson (1980) raised the need to implement "alternative technologies" i.e. tools and techniques necessary to reflect and maintain modes of *non-oppressive social* and *non - manipulative production*, a non-exploitative relationship to the natural environment.

In the early 80 's in India, the concept of *Grassroots Innovations* was born ,whose relevance lies in turning to technologies of native peoples, i.e., an attempt to rescue the technological knowledge of vulnerable sectors of society. One of the premises of the approach is to recover the innovativeness of people from marginalized sectors of the population to generate solutions to practical problems with cheap, efficient and environmentally sustainable technological alternatives. Thus, most innovations are based on traditional knowledge of the communities they belong to (Gupta et al, 2003). However their major limitations are: the low scientific and technological content; relationship to the market and that technologies are oriented to punctual solutions (Thomas, 2009).

At the beginning of the decade of 2000, the concept of "social innovations" came forth which were mainly oriented to organizational development and dissemination of technologies to promote social change by meeting needs of disadvantaged social

groups (Martin et al, 2007). Social innovation is concerned with achieving social, cultural and political goals; It not produced exclusively by experts or scientists, but includes practical knowledge derived from experience with an assistance component.

Moreover, the proposal conceived by Prahalad (2006) called "Base of the Pyramid" (BOP) focuses on the development of innovations to the market of the poor (80% of the world population), to meet their "true" needs. Prahalad (2006) suggests the private sector as an engine for poverty alleviation. There is a market in the Base of the Pyramid of 4 billion people, which only need to be treated as consumers and not as poor, to awaken their potential and achieve economic and social climbing out of poverty. To develop this huge market of 80% of the world population, traditional production and marketing approaches that serve the top of the pyramid do not work (Prahalad, 2006). A new approach is needed, oriented towards innovation that recognizes the real needs of the poor classes in the world. According to Thomas (2009), the BOP is based on market relationships, assumes the risk of crystallization of social exclusion in other ways, and probably the main beneficiary is the transnational company. In this context resurfaces a renewed "social technologies" concept. One of the most widespread today is that adopted by the "Social Technology Network" comprising products, with re-applicable methodologies developed in interaction with the community and represent effective solutions for social transformation (Dagnino et al, 2004). In Brazil the "Bank of Social Technologies" and later the "Social Technology Network" program were developed.

In order to close this brief summary, a filiation of eco-technology terminology will be presented. Recently Ortiz et al (2104) published the book "Eco - technology in Mexico" ("*La ecotecnología en México*"), which preparation began in the Eco-technologies Unit of the Ecosystems Research Center of the Autonomous University of Mexico (UNAM). The book has among its objectives to respond to the concept of eco-technology. In the specialized

bibliography in English, the majority of the results concerning the word "Ecotechnology" refer to applications of ecological and industrial engineering. In Spanish the scientific references are few and usually are related to ecological applications (Ortiz, 2014).

In this book the need to develop a sustainable environmental and social model is presented, which includes a technology development project to reformulate the way technology is designed, created, disseminated, adopted and is integrated for the long term in society. A model that contributes to reducing poverty and vulnerability of the population in rural areas is neglected by the current technological model (Ortiz et al, 2014). The eco-technological model tries to encompass and give continuity to previous movements such as appropriate technologies, clean technologies and grassroots innovations. Ortiz et al (2014) argue that eco-technologies should meet certain environmental, social and economic factors, such as: To be accessible, especially for the poorest sectors of society; be focused on local needs and contexts; be environmentally friendly, promoting efficient use of resources, recycling and reuse of products; promote the use of local resources and their control; generate employment in regional economies, especially in rural areas where the population has had to migrate due to lack of opportunities; preferably be produced on a small scale and decentralized; be designed, adapted and disseminated through participatory processes, with dialogue between local and scientific knowledge (this is key to the peasant and indigenous context where local populations have very valuable collections of knowledge). For this reason Ortiz et al (2014) define eco-technology as follows: *devices, methods and processes that foster a harmonious relationship with the environment and seek to provide tangible social and economic benefits to its users, with reference to a specific socio-ecological context*.

Note that this definition does not fit the systemic definition of Quintanilla (2009) or the septuplet 1, because by Ortiz et al (2014) including in the above definition "methods and processes" the previous definition of the septuplet 1 is externalized. This means eco-technology does not refer only to the specific technological system T, but also to the relationships, procedures and sequence of events between T, the environment and users. From this perspective it is not valid that technologists or scientists talk about eco-technologies when referring to T as an element or device. Nor it is valid while T is not interfered in a transfer process to the society for which it was designed. Thus, the concept of eco-technology refers to technology itself but not individually as a T technological system but within the body of scientific knowledge, its methods and processes, the productive infrastructure development and its management strategies and dissemination.

Ortiz et al (2014) argue that eco-technologies can be designed to meet basic needs such as sanitation and cooking food, and serve complementary needs such as leisure and comfort. It also includes applications designed to counter local environmental impacts such as deforestation or pollution of water bodies and mitigating global impacts such as the emission of greenhouse gases into the atmosphere.

As it is seen and according to Thomas (2009) there are a variety of definitions accumulated over the last 50 years on technologies originally intended for a sector of the population suffering from poverty and technological deficit to meet even their basic needs. The concepts that attempt to support them derived from theoretical formulations, regulations and requirements for the design, development, production, management and evaluation of such technologies. However there are still many limitations, restrictions, discrepancies and inconsistencies identified in this historical summary. It seems inevitable the need to build new knowledge, new concepts, new analytical devices, oriented to

overcoming these problems so as to improve public policies related to the socio - economic development of countries (Thomas, 2009), especially in poor countries in Latin America.

The restrictions, contradictions and significant limitations of different approaches that are presented can be mentioned: Technological determinism, supply, voluntarism, paternalism, the exclusive use of mature technologies, little use of scientific and technological knowledge, labor intensiveness, restriction to intensive use of machinery and complex systems, no use of scale economies, punctual resolution of problems (non-systemic solutions), ignorance of the relationships between the market or excess of production oriented to other sectors (commercial vision), partial or nonexistent use of available analytical tools (for example innovation economy), restriction of the dynamic nature of the market as an exclusive path of economic relationships, and limitations and ambiguity of definitions.

In addition to these restrictions there are others not considered by Thomas (2009), which must be taken into account for their relevance: a lack of a transfer of exprofeso methodology according to the customs, traditions and culture of the society to whom it is addressed; little or no participation of individuality or objective collectivity to state their family or community needs and personal requirements according to their needs and culture; few considerations to avoid altering the environment; lack of interest or planning by the technologists and scientists regarding transfer schemes and tracking technology to correct errors in order to avoid rejection and subsequent distrust of users; lack of public sector policies where the technology will operate; a lack of promotion or lack of public policies that guarantee the state's interest to solve certain problems; ontological ignorance: not allowing the understanding of the technological concept from its root, to understand its limits, its aims, its nature and its intrinsic relations framed perhaps in a systemic approach.

BASIC CONCEPTS FOR THE TRANSFER OF TECHNOLOGY

The transfer of technology and social methodology. As a public R & D institution of the UNACH, over 20 years ago the School of Engineering began with projects on ***social technologies*** in indigenous communities in the highlands of Chiapas under agreement with the Mexican Institute of Water Technology (*Instituto Mexicano de Tecnología del Agua* -IMTA) operating in Jiutepec, Morelos, Mexico. 16 years ago a rainwater collection system (CALLC) was built and transferred in the indigenous Tsozil community of Yalentay in Zinacantan, Chiapas, Mexico. Based on this experience, a sustainable home (CETA) was built in the same community, with nearly a dozen technologies coupled in a modular way in order to raise the standard of living of indigenous families and to conserve natural resources such as water, soil, air and forest. During the process of *transferring* of the CALLC in 1999, a series of questions arose, which were not only practical but also ontological (to be discussed in order to understand the methodological process outlined below). From these questions it was concluded that it was essential to emphasize and build the ontological basis of "*social methodology*" as a basis to design, develop, adapt, implement and transfer *appropriate technologies* aimed at solving community and environmental problems, generating dynamic social, technological and economic inclusion, aimed at *sustainable development*.

The reference model. The CALLC of Yalentay. As already stated, The School of Engineering of the UNACH and IMTA transferred in 1999 the "Community Rainwater collector (CALLC)" in Yalentay Chiapas, Mexico (Mundo et al, 1999). After more than 15 years it is still working under the care of the community who gives it maintenance through hydraulic indigenous committee, created by the villagers themselves.

Photo 1. Collector rainwater, Yalentay, Zinacantán, Chiapas.

Thus, in practical terms we can say that a scientific or technological product is successfully transferred when it is understood by its users, covers a personal or social need (utility good), it is used, operated, maintained or repaired by the same users (or they know where to go for this purpose). This was what happened with the CALLC, where now every April 15 the water festival is conducted, a popular religious celebration of syncretic character of this Zinacantecan people. Based on these experiences, the following project was designed: *Design, construction and transfer of an ecological house with appropriate technologies (CETA) for the sustainable development of indigenous communities in the highlands of Chiapas*, which fundamental objectives are to: a). Build and evaluate sustainable housing in Yalentay, consisting of a house of 50 m^2 or more (the surface area meets the standards of operation "Rural Housing Program for fiscal year 2014" of SEDATU), b). Evaluate more than ten appropriate technologies

integrated into the house, with the goal of conserving natural resources such as water, soil, air, forest and also raise the standard of living of the people to overcome poverty.

The following outlines the technologies that make up the CETA in a modular fashion: a sustainable house, ecological bathroom, kitchen with ecological stove, water tank , home rainwater collector, bike water pump, ecological sink, irrigation system for agriculture, backyard solar panel kit, energy saving light bulbs, water saving showerheads, and water saving faucets (Mundo et al, 2014). Once built, the CETA will be assessed, among the most important variables, as follows: adaptation of the family to CETA, family health, family production activities with farm animals, backyard agricultural production activities, family economy, evaluation technique of each of the technologies CETA, integration and use of new technologies to their culture.

The project management unit will be the family and they will evaluate the CETA through the multidisciplinary work of Units of Higher Education (*Dependencias de Educación Superior*- DES) of the UNACH. The DES that will be potentially involved are: DES Engineering and Architecture; DES of Health Sciences; DES of Agricultural Sciences; DES Social Sciences and Humanities; DES Administrative and Financial Sciences; DES Language Teaching and DES University Development Centers. By way of example and just to give an idea, since each DES develops its own methodology, only some basic questions must be answered in the process of transferring the CETA, once the family that is designated by the community indicates their space needs, design and services needed within the CETA: Has the family appropriated the CETA? Is the architectural and civil design adapted to their customs? Did it improve the standard of living? How did the occupant's health evolve before and after the CETA? Did it improve their family economy with backyard agriculture for self-consumption and production? Did it improve their diet? Did it improve their economic level with the inclusion of animals and poultry? Is fa-

mily budget better managed? Were the technical communication materials (videos, manuals, brochures) translated by each DES to Tzotil used? How did they benefit? Is the social methodology for the technological transfer adequate or does it need to incorporate variables not considered in the process? Did audiovisual materials prepared by each DES into the native language help the transfer process and the dissemination of technology? Were the architectural spaces, which incorporated their customs into the sustainable house, adequate? What was necessary to incorporate them? What is the environmental impact of CETA? Are construction materials relevant in terms of cost, availability, durability, comfort? Were the uses and customs of all appropriate technologies of the CETA incorporated? What adaptations and improvements need to be done?

Three basic methodological aspects that must be considered not only because they are indispensable per se, but because they also worked in Yalentay and cut across all DES set out are: 1. *The Social Dynamics* (*SD*). If the SD is defined as "... the flow of customs, practices and beliefs of a society, specified as mechanisms governing the behavior of the masses against certain stimuli in certain circumstances, responding to social conditioning to which the individual or society has been exposed during the course of his life experience and the subconscious (emotions and instincts included) "then it is essential to take into account the following hypothesis: a. The SD is critical to establishing the objectives and design of any technology, especially for poor communities, and for their transfer. The CETA must correspond to the SD, b. The SD marks the starting point and the direction of making social and economic technical project decisions, c. The SD is the basic technological design of the CETA, d. The SD determines the success or failure of the project and its transfer.

For these reasons it is essential to consider within the transversal methodologies Conversely Making Decisions (CMD) used in the project CALLC in Yalentay (the apex to the base of the

pyramid in a reverse pyramid polyhedron, where the apex is resting on the reference plane, i.e., at the origin of the technology, the project itself, and the needs of the community). So now the vertex is the family as a starting and management unit. In simple terms: *you need to go in reverse in the decision making of the project* (from planning to completion) which means starting from the individual need outlined in the collective needs of the family. THE TDI or CMD is a step before community participation, ie, it starts with the individual and family participation. The specific needs of each individual with respect to the project are determined, without losing sight that the management unit is the family. It is certainly a long and complicated but methodologically more productive way, especially in terms of appropriate technologies for small rural communities.

To reverse the decision pyramid, the methodology and technology transfer design goes from apex to base, from the need of the individual to the needs of the family (vertex as a management unit) to the community decisions and arrangements. The minimum basic questions are: What do you need? How do you need it? For what do you need it? 2. *The technological dynamics* (*TD*), closely linked to the SD, TD should assume all hypothesis SD lines set out above to reduce the following risks: lack of public policy on the issue, resulting in the lack of institutional resources, absence of a permanent local structure of decision-making, lack of training, mistrust and resistance of the people to new technology that can be perceived as unstable or unreliable, cultural taboos (for example, many indigenous communities do not like chlorinating water) , social division of labor associated with political and religious issues (e.g., Protestants no longer cooperate), the government must pay everything (historical paternalism), territorial conflicts, conflicts of sources of water supply, social conflicts in general, either detected or potential . The technological dynamic is represented by the septuplet 1, the system of actions and intentions relations (2 and 3) and all the properties contained

in the section "ontological aspects of technology." 3. *The Economic Dynamics* (*ED*) is unrestrictedly associated with SD and TD. The ED should assume all hypothesis of SD and properties and limitations of TD. ED is almost always a limited element. Its limitation is void if there is an international or national source of public or private nature that supports it financially, not only during the design and construction of the project but also for reasonable evaluation and follow - up time after the transfer. One of the biggest problems with "ED" is its narrowing or nullification, because it directly affects SD and TD, disabling the entire process and creating more distrust in the community, which is sometimes irreversible, with historical consequences especially in indigenous communities.

Because in Yalentay the development of an exprofeso methodology has been proven for the transfer of technology, the Mexican state should include this issue in public sector policies. The bottleneck is not science or technology, or the theoretical aspects, nor in the social aspect, the bottleneck is in the appropriate technology transfer to small rural communities in the country, with special emphasis on indigenous communities by the difficulties that language and customs represent.

CONCLUSIONS

By way of example, two technologies were presented to discuss the genesis of the conception of technologies for poor communities, from alternative technologies, through democratic Mumford technologies to the contemporary concept of eco-technologies. Those that were taken as examples were community rainwater collector (CALLC) transferred to the Tzotzil indigenous community of Yalentay in the highlands of Chiapas, Mexico and the Sustainable House (CETA) which will be built in the same community.

The CALLC is a social technology because the Yalentay community has been using it for more than 15 years. It was the product of a great effort of a successful methodological transfer. Yalentay inhabitants were not only taken into account for the design of CALLC but also participated in its construction. The CALLC adapted to their specific needs and culture. The inhabitants of Yalentay understand the concept, give maintenance every April 15 in the "syncretic water festival" and have incorporated it into their way of life. It is currently administered and managed by the community independently of the institution that promoted, built and transferred it. But it is also an appropriate technology because the CALLC is a system that uses methods and processes that provide a harmonic relationship with the environment and provides social services, tangible economic benefits to the community of Yalentay (Transferred over 15 years ago) and has a specific socio-ecological context. The CALLC used scientific knowledge such as: The equation for the conservation of mass and the equation of conservation of energy and momentum.

Therefore the CETA and CALLC confirm that they are "social technologies" but also "appropriate" even "eco-technologies". This fact reveals the ambiguity of the current definitions of the studied currents.

One way to take away this ambiguity and refine their nature, is the scope in terms of its subject is the *systemic approach* (see endecatupla 1) to be from the philosophy of these technologies, i.e., from its ontology. For that reason, in this scientific paper the ontological aspects of the design of technology were exposed, its nature as an object of study, their category and their properties as well as the basics of technology transfer for social appropriation by reference to the CALLC. On the other hand, advancements were outlined from the *systemic approach based on ontological aspects* of technology that enable in the future the reduction of ambiguity to the diversity of denominations of "social technologies" accumulated over the past 50 years, which were designed

originally to a sector of the population suffering poverty and technological deficit to meet even their basic needs. These theoretical elements will build new knowledge, new concepts, and new analytical devices designed to overcome these problems.

REFERENCES

Ahmad, A. (1989). *Evaluating appropriate technology for development. Before and after. Evaluation Review*. 13, pp. 310-319.

Brocano, F. (1995). *La filosofía y la tecnología: una buena relación*. En: Brocano, F. (1995). Nuevas meditaciones sobre la técnica. Madrid, España.

Bunge, M. (1985). *Seudociencia e ideología*. Ed. Alianza Universidad, Madrid, España.

Dagnino, R., Brandão, F., Novaes, H. (2004). S*obre o marco analítico-conceitual da tecnología social, en Tecnología social: Uma estratégia para o desenvolvimiento*. Fundacão Banco do Brasil, Rio de Janeiro.

Dickson, D. (1980). *Tecnología alternativa*. H. Blume. Ediciones, Madrid.

FONHAPO (2010). *Diagnóstico de las necesidades y rezago en materia de vivienda de la población en pobreza patrimonial*. Fondo Nacional de Habitaciones Populares. SEDESOL. México.

Gupta, A., Sinha, R., Koradia, R., Patel, R. (2003). *Mobilizing grassroots´technological innovations and tradicional knowledge, values and institutions: articulating social and ethical capital. Futures*. (35), p. 975-987.

Liz, M. (1995). *Conocer y actuar a través de la tecnología*. En: Brocano, F. (1995). Nuevas meditaciones sobre la técnica. Madrid, España.

Martin, L., Osberg, S (2007). *Social entrepreneurship: The case for definition, stanford social innovation*. Review, pp. 29-39.

Mundo Molina, M., Martínez, A.P., Ballinas, A.R., Rodríguez, L.M. (1999). *La importancia de las ciencias sociales y de comunicación en la transferencia de tecnología, caso de estudio: construcción de un colector de agua de lluvia en la comunidad indígena Tzotzil de Yalentay, Chiapas*. Sexta Reunión Nacional sobre Sistemas de Captación de Agua de Lluvia. Jalapa, Veracruz, México.

Mundo Molina, M; Oseguera, L. (2014). *Casa sustentable y tecnologías apropiadas asociadas, para minimizar la pobreza elevar el nivel de vida de las comunidades indígenas y conservar el medio ambiente en México*. Espacio I+D Innovación más Desarrollo. Vol. IV, Núm. 7.

Mundo Molina, M. (2015). *Ontognoseología de la ciencia y la tecnología: similitudes y diferencias*. Artículo científico inédito. Centro de investigación de la Facultad de Ingeniería de la Universidad Autónoma de Chiapas. México.

Mundo Molina, M., Vargas, Ariana. (2015). *Ciña oh patria: Una reflexión sobre la marginación y pobreza de las comunidades indígenas de Chiapas*. Artículo de divulgación inédito (narrativa y audio). Centro de investigación de la Facultad de Ingeniería de la Universidad Autónoma de Chiapas, México.

Mumford, L. (1964). *Authoritarian and democratic technics*. Technology and culture, 5, (1), pp. 1-8.

Ortiz, M. J., Masera, C. O., Fuentes, G. A. (2014). *La ecotecnología en México*. Unidad de Eco-tecnologías del Centro de

Investigaciones en Ecosistemas de la Universidad Nacional Autónoma de México, Campus Morelia.

Pack, H. (1983). *Políticas de estímulo al uso de tecnología intermedia*. En: Robinson, A. (1983). Tecnologías apropiadas para el desarrollo del tercer mundo, FCE, México D.F., pp. 209-26.

Quintanilla, M.A. (1989). *Tecnología: un enfoque filosófico*. Ed. Fundesco, Madrid, España.

Prahalad, C.K. (2006). *The fortune at the bottom of the pyramid*. Eradicating Poverty Through Profits, Wharton School Publishing.

Riskin, K. (1983). *La tecnología intermedia de las industrias rurales de China*. En: Robinson, A. (1983). Tecnologías apropiadas para el desarrollo del tercer mundo, FCE, México D.F., pp.:75-100.

Robinson, A. (1983). *Tecnologías apropiadas para el desarrollo del tercer mundo*. FCE, México D.F.

Schumacher, E. (1973). *Small is beautiful*. Bond & Briggs, Londres.

Thomas, H. (2009). *De las tecnologías apropiadas a las tecnologías sociales*. Conceptos/estrategias/ diseños/acciones. Programa Consejo de la Demanda de Actores Sociales -Ministerio de Ciencia. http://inti.gob.ar/bicentenario/documentoslibro/pdf/anexo_4/jornadas_tecno_soc_hernan_thomas.pdf

PABLO PALOMINO AND CARLOS FUENTES: PARALLEL LIVES

José Martínez Torres
martinez_torres5@hotmail.com

Autonomous University of Chiapas

ABSTRACT

This article discusses certain aspects of contrasting the literary careers of two writers, one of them probably the most successful and the other among the least mentioned in the literary field of Mexico. The respective trajectories of Carlos Fuentes and Pablo Palomino had many features in common from the beginning: they belonged to the same cultural group called the *Basfumistas*, were part of a generation of writers and published their first novels within a difference of three years: *Autopsia* (*The autopsy*) (1955) and *La región más transparente* (*The most transparent region*) (1958). Some of the issues and the obvious technicalities in the first account are presented in this space in order to observe the various features that they have in common, such as the so - called stream of consciousness used by James Joyce in *Ulysses* (1922).

Keywords: *novel, urban, avant - garde, paradox, contrasts*

Pablo Palomino is a case that is underserved by literary criticism, especially if we look at the discreet reception his first novel - *Autopsia* (*Autopsy*) (1955) – which had been compared to the loud acclaim of the first novel of his friend and colleague Carlos Fuentes - *La región más transparente* (*The most transparent region*) (1958) - who were joined with various circumstances, not just generational.

While the latter was released to the public "as if it were a detergent" (Richard Reeve, 1982: 51) Autopsy barely made mention in the press: the highlight was the review that was published in the supplement *México en la Cultura* (*Mexico in Culture*)(Emmanuel Carballo, 1955: 2). [1]

It did not have, no less, hosting from other books of the time, like the aforementioned volume of Carlos Fuentes reprinted the same year of publication, or indeed that of the as widely read *Casi el paraíso* (*Almost paradise*) (1956) by Luis Spota, both promoted by the *Fondo de Cultura Economica* in spaces in major magazines and cultural supplements of the moment. [2]

Three years after Autopsy appeared, the appearance of *The most transparent region* by Carlos Fuentes would be held. It stated that it was the first urban novel of Mexico (Carballo, 1986: 536), among other virtues and novelties. The enthusiasm led to imprecision, because before 1958 there had appeared numerous stories with characters, plots and urban scenery, among others *Soledad*(*Solitude*) by Ruben Salazar Mallen (1944) *Los días terrenales*(*Earthly days*) of José Revueltas (1949) and the novel that represents the clearest antecedent of the first comprehensive

1. Remember that this publication was of great importance in the Mexican cultural horizon, to the point that there were comments like this one: "Cultural life in Mexico may be constructed in its best aspects, thanks to supplement the *News*" (Alfonso Reyes, 1958: 2). The review of "Autopsy" by Carballo was published in this space on Oct. 30, 1955.

2. One fact that stands out is that the copy of Autopsy borrowed in Daniel Cosio from the Villegas Library at El Colegio de Mexico had linked pages on the top edge, ie, had not been read, not even opened since 1955 in which it was published, until 2000 when it became consulted.

account of Carlos Fuentes, *Autopsy*, from Pablo Palomino, as discussed below.

In one of the classic essays on Latin American narrative, it noted not only this but that there is even a tradition of urban novels in Mexico: "The capital of the country has an increasingly large place in the Mexican novel. Azuela led the way with *La Malhora* in 1923 "(Claude Fell, 1976: 82). In fact, one could speak of even earlier urban novels, like *La Rumba* by Angel de Campo, published in 1890, and Santa by Federico Gamboa, which appeared in 1903, although not until *El Joven* (*The young man*) (1928) by Salvador Novo and *La luciérnaga* (*firefly*) (1932) by the own Mariano Azuela where Mexico City is no longer a backdrop and it becomes true participant and protagonist, the site where parading bureaucrats, beggars, whores, bums and murderers, as will happen in respective novels as already mentioned in Palomino and Fuentes, with upper - class characters serving as a counterpoint to the capital of the underworld of modern cities.

The *Dictionary of Mexican Writers* on the piece dedicated to Palomino mentions that his novel *Autopsy* "revolves around F. Persons, a character that we know through friends Clara, Luigi and Sergio B, who were summoned to a meeting at the home of Persons, who made the moral autopsy of this character. With this structure, Palomino foreshadowed certain topics and resources that later would use sources such as the joke and parody of comic characters: "It was Baron von D., of Prussian aristocrat origin" (Palomino, 1955: 45), certain foreigners in Mexico called *engañabobos*(tomfoolery) to be a bias exploited in *The most transparent region* to draw the secondary characters classified as "the foreigners", reminiscent of the comedies of tangles filmed during the so - called Golden Age of National Theater, with performances full of grace and humor of Germán Valdés Tin-Tan and Joaquin Pardavé, among others.

It has been documented that during that time foreign visitors went to Mexico who sported fake noble titles to abuse the naive.

They took advantage of the welcome extended to the exiles to commit fraud. Not only in movies, but also novels used this situation as a theme, as seen in *The most transparent* region of Fuentes, where a cook is passed by as an Italian nobleman, a Texan adventurer is called an aristocrat and the self-named Conte Lemini, and another who states he is the third cousin removed of King Alexander assassinated in Marseilles. As you may recall, also by Luis Spota is the novel already mentioned, *Almost Paradise*, published a year after *Autopsy*, which manages to make a mural of the Mexican bourgeoisie in the fifties to tell the story of a character who impersonates a member of Italian nobility, a Neapolitan who actually is the son of a prostitute and takes the name of prince Ugo Conti, specializing in conquering the most beautiful girls, and does the same with the daughter of an ambitious upstart Mexican businessman.

Before publishing their first books, Carlos Fuentes and Pablo Palomino were part of a group calling itself the *Basfumistas*, kind of exclusive social circle of the late forties, according to what critic Richard Reeve wrote (1982: 40). Its members gave follow - up to the European vanguards that were booming in Europe during the twenties, but really only formed a group of young people who shared ideas about contemporary art and music, had fun making intellectual jokes, imitating foreigners from different backgrounds, were dreamers and made not too realistic projects like filming a movie with the collaboration of each of the members. Reeve continues in the same space:

> *They possessed the means among themselves to produce the film: one of their close friends had practical filming experience, and they would be the actors. Later it was decided that Fuentes and Creel de la Barra would write a play rather than a film script. Ernesto de la Peña put forth a name of the group.*

Both writers are twinned by a similar training, common interests, intentions and political affiliation, as is common among members of the same generation, besides having a close friendship cultivated through the years of their youth. The literary success radically distinguishes and separates them. Just look at the editorials published about the first novel of each author: the modest Editorial Obregon, who printed few examples of *Autopsy*, and the most prestigious of the moment editorial, the *Fondo de Cultura Economica*, in its collection Mexican Letters, which, as he said, the same year of its publication launched the second edition of *The most transparent region*.

Autopsy is an urban novel that precedes the first novel of Fuentes in various technical and thematic aspects, among the latter, the treatment of the Mexican Revolution as the origin of the country's modernity, its transformations and institutionalization. Under this budget, it presents a society of newly rich, in power replacing the old Frenchified families of the former regime of Porfirio Diaz, now reduced in number.

The novel by Palomino is peppered with allegations of an ideological type, which will be seen at every step during the reading of *The most transparent region* - say when Sergio B., one of the protagonists of *Autopsy*, says: "I want to make the historical moment of my country, even if it means trampling hundred years of history "(Palomino, 1955: 13), or as a cosmopolitan view of the intellectual of the era, personified by Luigi, stereotype of young man, a cultivated and traveler ,:" at least five years ago I do not see. A rainy afternoon in Rome are my last memories (Palomino, 1955: 17).

The environments in which the characters are developed in *Autopsy* are set to a calculated counterpoint, as in the novel by Carlos Fuentes; in one as in another, certain actions are performed in the slums of Mexico City, for then presenting a radical turnaround of environments refined by gentry and politics.

In between, intellectuals roam as a critical consciousness that observes their surroundings with skepticism.

In one part of the story, Palomino's actions have their development in the richest areas of the Mexican bourgeoisie, in whose meetings "talking about golf, [...] the last friendship in presidential circles, and occasionally let go some word in a foreign language, in order not to appear too parochial "(Palomino, 1955: 39). Elsewhere, a tour of the popular neighborhoods of Mexico City, La Merced and La Lagunilla, is then delayed in Tepito, "the district for forced gangland meetings of the metropolis". The appears Body Street (Calle del Organo) ,where prostitution operates, flourishing in the capital of the Republic midway through the twentieth century and where customers and the poorest women wandered, and other nearby sites offering cabaret shows to the very poor. The forgotten and the outcasts of society of the time are also exposed, beggars, scavengers, pimps, transvestites and homosexuals, while showing the police and prison corruption, circulation and consumption of different types of drugs (Palomino, 1955: 120-135).

Amid this novelistic freedom *Autopsy* includes among its protagonists a young homosexual upper class capital native, Clara, from which her lesbian initiation and views advocating for a modern society is told which begins to just release certain prejudices, which puts into question traditional schemes. Clara has no problem confessing her sexual preferences or telling how he became the lover of the central character, Persons, nor, at the time, to say how she went to a clandestine clinic to have an abortion. Her views show a rare lack of inhibition in the characters in the novels from then, let alone its female characters. He says that "the mission of women has changed, but few understand. They believe they have acquired rights but not obligations. They are considered equal to men, socially, but are unable to deal with any problems "(Palomino, 1955: 147).

As seen three years after the much wider in *The most transparent region*, Autopsy gives reference to the life of the politicians who made themselves and made a fortune when political power changed hands, to appropriating the leaders of the revolution initiated with the slogan 'Effective Suffrage no Reelection' of Francisco I. Madero in 1910, an administration and devout aristocratic French culture is supplanted by a pragmatic, admiring and follower of the *American way of life*.

Persons explains: "We advance politically, and even more, I have almost done away with the Communist Party" (Palomino, 1955: 14). Of course, as the son of a revolutionary leader type of Federico Robles, the crucial protagonist in *The most transparent region*, Persons cannot see politics from a different perspective than that of his personal interests.

It is also interesting to observe how dialogues criticizing the Mexican reality of that time of expansion and urban growth are constructed, which had begun in the period of President Miguel Aleman, by 1946, explains Luigi Persons in his own words:

> *-The City lacks a plan and architectural unity of criteria in the field. To the old colonial houses calls the center of the city, to join now skyscrapers that break the harmony and turn the show into a chaos of styles, intentions or motives. The new neighborhoods, villages of expensive homes, are located in the hills and nearby hills to the city, where the great plutocracy lies that dominates the country since 1946, demonstrates is royalty (Palomino, 1955: 115).*

Here and there phrases and words of psychoanalytic jargon starting to become fashionable among the middle and upper class fifties are included, for example: "unconsciously tried to create you an inferiority complex" (Palomino, 1955: 149) . Terms of this type appear as part of the everyday language of these intellectualized protagonists, Clara, Sergio, and Luigi. The latter , as the Prince Vampa and others shown in The most transparent region - is a foreign resident in the capital of the Republic, which

each time reiterates his view on paranoia, traumas and complexes, among other terms of this species.

The capital 's modernity is presented through a series of symbols and images from the start of actions: Clara rises inside a bucket of luxurious wood in a building that rises at least 18 floors above the muddy ground of the ancient city of Mexico: "The elevator was exasperating. 15th floor, 16. 17 ... finally 18 "(Palomino, 1955: 7). This urban modernity forms an aspect that precedes the first novel by Carlos Fuentes and manifests throughout the story to show the deep crisis caused by the large cities in the characters of the contemporary novel.

As for the technique of composition, it may be noted how the narrator abandons its role and the character assumes the voice of the story as the so - called stream of consciousness, the way it does with Molly Bloom during the final chapter of *Ulysses* by James Joyce. Persons thoughts flow freely, as did his predecessors, in a lengthy monologue that does not use punctuation:

> *At least we will try in any case abbreviating many battles are won and becomes less heavy time naturally Luigi and Clara will be the most upset but I think Sergio to take things calmly that door has always creaked when opened must send that you aceiten hinges for that sharp that messes up the eustachian tube in order myth and really meet more than once in a hug purple of falling frost and so on until other stronger arrive (Palomino 1955: 120).*

The *Dictionary of Mexican Writers*, as quoted above, reports that Pablo Palomino trained as an architect and later studied literature at the Faculty of Philosophy and Letters of the UNAM. He was a music critic and collaborated in *El Universal*, and with cultural supplements in *Mexico in Culture* and *Diorama of Culture*, *News* and *Excelsior* respectively.

He also worked in Mexican Telesistema, this according to Vicente Leñero says in an article published many years later. The author *Los albañiles* (The Masons) says in that space that

responsibility for Palomino in the company that would later be called Televisa "was to oversee that the scripts [programs] did not contain scenes that can be then censured by the Interior". This activity became important in decision-making, since even the producer Ernesto Alonso wanted to "ingratiate [with him] lest you [put] obstacles to their soap operas".

Little more can be added to his profile – personal or professional of Pablo Palomino. The columnist Mario de la Reguera said in his weekly collaboration that his friend had died at home relaxing in a spa in Cocoyoc, where he had been living recently.

Palomino wrote one book, while Carlos Fuentes published over fifty. [3] He died a year after the author of *Terra Nostra*, but preceded it in his date of birth, which was in 1926; publishing his first novel in 1955, and married the first actress Rita Macedo, in 1956.

3. In its extensive publishing activity there was very fertile periods. In less than three years 8 of his books appeared, for example from 1969 to 1971: *Cumpleaños*; *El mundo* de José Luis Cuevas; *La nueva novela hispanoamericana* (1969); *Cantar de ciegos*; *Todos los gatos son pardos* (1970); *El tuerto es rey*; *Los reinos originarios*, and *Tiempo mexicano* (1971).

BIBLIOGRAFÍA

Azuela, Mariano (1969). *Tres novelas: La Malhora, El desquite, La luciérnaga*. México, FCE. Col. Popular.

Carballo (1986). *Protagonistas de la literatura mexicana*. México FCE/ SEP. Col. Lecturas mexicanas No. 48.

----- (1955). "Autopsia". *México en la Cultura, Suplemento Cultural de Novedades*. 30 de octubre de 1955.

De Campo, Ángel (1979). *Ocios y apuntes. La Rumba*. México. Pomexa Editores.

Fell, Claude (1976). *Estudios de literatura hispanoamericana contemporánea*. México SEP. Col. SepSetentas.

De la Reguera, Mario (2013). "Falleció nuestro colega Pablo Palomino de Uriarte", Revista *Actual*, el 13 de marzo de 2013 Editorial Contenido.

Fuentes, Carlos (1982 [1958]). *La región más transparente*. Madrid. Ediciones Cátedra. Col. Letras Hispánicas. Edición de Georgina García Gutiérrez.

Gamboa, Federico (1979). *Santa*. México, Promexa Editores.

Joyce, James (1989). *Ulises*. Barcelona. Editorial Lumen. Col., Palabra en el tiempo. Prólogo y traducción de José María Valverde.

Leñero, Vicente (2007). "Lo que sea de cada quién. Un favor para Julio Alejandro". *Revista de la Universidad de México*, 2007, p. 92 www.revistadelauniversidad.unam.mx/4107/pdfs/92.pdf Consultado el 28 de julio de 2015.

Ocampo, Aurora (2000). *Diccionario de Escritores Mexicanos*. UNAM. Instituto de Investigaciones Filológicas. 9 vol.

Palomino, Pablo (1955). *Autopsia*. México. Editorial Obregón.

Reeve, Richard (1982). "The making of La regiónmástransparente: 1949:1974", en Robert Brody y Charles Rossman, eds. *Carlos Fuentes, A Critical Vew*. Austin. University of Texas Press.

Revueltas, José (1979). *Los días terrenales*. Obras Completas,Vol. 3. México Ediciones ERA. 18 vol.

Reyes, Alfonso"Entrevista". *México en la Cultura*,Suplemento Cultural de Novedades, 2 de marzo de 1958.

Salazar Mallén, Rubén (1944). *Soledad*. México, Edición del autor.

Spota, Luis (1987 [1956]). *Casi el paraíso*. México, Fondo de Cultura Económica. Col Lecturas Mexicanas No. 71.

INSTITUTIONAL MANAGEMENT FOR DIGITAL LITERACY OF THE UNIVERSITY

Rebeca Garzón Clemente
rebeca.garzon@gmail.com

Faculty of Accounting and Administration, I Campus
Undergraduate degree in Computer Systems, Autonomous University of Chiapas

ABSTRACT

This paper presents a proposal for institutional management for digital literacy of university teachers, carried out from the results of documentary research on the status of the Autonomous University of Chiapas on public and institutional policies to integrate information and communication technologies to raise the quality of education.

This model is complemented with the results of a second empirical investigation on professors from the institution about their knowledge, skills and assessment of technology in their classrooms, and a response to comments and suggestions for their improvement.

Keywords: *Digital literacy, university teachers, higher education institution, information and communication technologies (ICT)*

The route to generate this proposal was made from two previous investigations: the balance of managing the integration of information and communications technology (ICT) at the Autonomous University of Chiapas (UNACH) and a diagnosis of knowledge and skills of UNACH faculty about ICT and its impact on educational practice, which were registered with the General Direction for Research and Graduate Studies of this institution. This framework provides the tools to form a model of digital literacy to university professors that proposes a project management from a conceptual and empirical approach, placed in the context of higher education in Mexico, but above all, with the knowledge of the UNACH vision and its actors on the integration of ICT in their academic processes.

Through the first investigation, it appears that this vision is linked to the recommendations on the quality of education issued by international and national bodies, which implies the finding of relevance and equity of opportunity for all Mexicans.

The UNESCO (United Nations Educational, Scientific and Cultural Organization [UNESCO], 1998) refers to it as the adequacy of being and doing of higher education- it is their duty. Quality, then, is a dynamic concept that integrates its particularities according to local, regional, national and international contexts, which in turn is formed as a product of agreements between actors, environments and institutional projects, and values and visions that guide their activities. It is, therefore, an important point of reference for higher education institutions (HEIs) to conduct their substantive and adjective functions in order to make progress in fulfilling its social purpose.

From this perspective, each institution should seek ways to socially construct their own concept and quality model that they can apply, which not necessarily needs to be useful for other organizations with different or even equivalent missions, because the context determines the collective project that it has to take as a social body.

There are differences in the concept of quality according to the approaches of interpretive currents in education. Thus, for humanists it is "the development of the capacities of learners to construct meaning and make sense of what they learn" being the teacher as a mediator in the process. Behaviorists, however, believe that the teacher "directs learning, controlling stimuli and responses , " while critics seek the contribution to social change (UNESCO, 2007, p. 25). These approaches are still valid and are faced in academic debates on policy and pedagogical practices.

In 2001, UNESCO issued the Universal Declaration on Cultural Diversity, which explicitly presents itself as one of the main thrusts of action plans to improve the quality of education,

> *"promoting 'digital literacy "and ensuring greater mastery of the new technologies of information and communication, to be considered at the same time educational disciplines and as pedagogical tools capable of enhancing the effectiveness of educational services. (UNESCO, 2001, Annex II, 10)".*

A preparatory meeting for the World Summit on the Information Society, the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), in Bavaro, Dominican Republic took place in January 2003. As a result of the The "Declaration of Bavaro" , it was formulated as one of the priority topics:

> *"Emphasizing the education of key technologies of information and communication, including but not limited to teachers, civil servants, doctors, nurses and community leaders users. Incentives should be established to encourage adaptation to new forms of communication and interaction. It is necessary that countries must endeavor to minimize the common problem of 'skills mismatch', by actively seeking out suitable professional profiles and constantly updating textbooks. (ECLAC, 2003, Priorities, 11)".*

This is the trigger to strengthen efforts to promote, from public action in all areas, the acquisition of basic knowledge in ICT, especially from the ministries of culture in several countries in Latin America, (Silvera, 2005) and in the case of Mexico, from the Ministry of Public Education (SEP).

DIGITAL LITERACY AS PART OF IMPROVING EDUCATIONAL QUALITY

Education faces significant challenges right now, one of them has to do with those arising from the so - called *knowledge society* which poses new social, economic and cultural scenarios.

These challenges involve reorganizing the way we think and interact with the environment, which certainly involves a process of *audiovisual, digital, informational* or *technological literacy*, allowing learning to read and write in a new language, "know how to read technology and audiovisual media, (...) and know how to write and communicate with it "(Prats, 2005, fig 3) as part of a new process of improvement of cognitive, emotional and social abilities of man. UNESCO sees literacy as:

> *"Diverse practices embedded in socioeconomic, political, cultural and linguistic contexts, acquired in and out of school, also involves the context of family and community, the media through various technologies, skills to continue learning, the world of work and life in general. (UNESCO, 2009, quoted in Vega, 2011, p. 3)"*

The inclusion of technologies in this definition is particularly noted, which contextualized in education systems could be complemented by

> *"mastering lots of skills, behaviors and ways of thinking associated with a context that allows people to use proper procedures to deal critically with*

any text, appreciate and improve it to the extent possible, whatever the present medium . (Garzón, 2015, p. 28)".

The *digital* adjective refers not only to the skills to use the Internet, but also to use *hypertext* documents. According Gilster (1997, cited in Gomez Licea, 2002, p. 4) "one who is literate, is able to assess Internet, not only from the point of view of medium for communication, publication and dissemination, but also as a resource to get information and use it".

This statement is effective in studies like Gallardo-Echenique *et al* (2015) which mentioned that the knowledge society requires educated citizens able to access, evaluate, organize, interpret and disseminate information in various digital formats through any kind of technology.

UNESCO (2011) frames this need in the field of higher education, annotating that teaching competence is required in the basic knowledge of digital technology, communication tools, the use of a wide range of texts to express ideas through diverse media and to search for information and understanding of the purposes of young people in the use of Internet.

The recognition of the collaborative nature of these forms of reading and writing allows the creation and interpretation of existing texts in various social contexts, conditioned by their own realities, where not only skills or specific skills to meet the world through technologies is required, but to know how to read with new eyes, values and attitudes.

STUDIES ON DIGITAL LITERACY IN MEXICAN IES

Institutions of higher education have worked in the innovation of processes and educational programs in order to improve quality, such as the systematic training of their teachers, the design and implementation of new educational models based on theories

and new pedagogical techniques, including new training options, areas of expertise, flexibility and curricular updating, introduction of compulsory language and computer courses with the latest technology in its educational programs, the development of mechanisms to facilitate the mobility of students and diversification of degree options .

In North America, some countries in Europe and even in Latin American countries like Chile, Colombia, Brazil and Argentina that have national digital literacy programs, have conducted extensive research on the academic use of ICT in higher education institutions (Silvera, 2005), but not in Mexico, where there are only isolated studies related to the use of ICT for teachers, or in particular a tool to support learning such as collaborative online environments for authoring texts.

UNESCO (2011) refers to the importance of conducting research projects and hypermedia literacy in countries around the world, however, we refer only to Latin American countries that have national digital literacy programs within the framework proposed in this document.

For purposes of contrasting results of observations of the diagnosis of teachers of the UNACH, research has been conducted in Mexico, such as *Digital literacy of teachers at the University of Guadalajara*, by Carmen Rodriguez and Ruth Padilla in 2007 were reviewed; *Diagnosis on access, use and appropriation of ICT in the UNAM*, Delia Crovi; . and Luz Maria Garay, and *Access, use and appropriation of ICTs among the teaching staff of the UPN Ajusco*, published in 2008. In 2009, there came to light: *Teaching and ICT in higher education: the central role of didactic teacher conception*, by Dr. Alma Beatriz Rivera who worked at the Universidad Iberoamericana, and *Knowledge and teaching skills in ICT teachers in the Bachelor of Science in Education*, by the teachers of the Technological Institute of Sonora- Alma Villa, Ana Argüelles and Lourdes Acosta.

The most recent publication of research results in this framework, dating back to 2013 with article Lopez de la Madrid and Chavez, *The training of university teachers in the application of ICT*, conducted with faculty of the Autonomous University of Sinaloa.

Of these, the Iberoamericana University is distinguished by its character of a private higher education institution, in addition, the research approach is qualitative and uses Grounded Theory as the methodology of data collection and analysis. Other studies correspond to public higher education institutions where the methodology was the application of diagnostic questionnaires among teachers.

Of all the studies it can be concluded, first, that the vast majority of teachers have available at least one computer at home or at the workplace; second, that most teachers make use of ICT tools with focuses on research, teaching and outreach; third, the tools used are e - mail, general Web pages and institutional portals; Fourth, there is a high percentage of a lack of exclusive means of educational technology, with almost no development of it.

The self - perception of the specific skills that teachers attributed to ICT is presented at high levels and attitudes towards the use of technology in classrooms are also mostly positive. Teacher appreciation is observed as a general trend to the results that a greater knowledge and use of ICT indicates better learning, a better way of teaching, and for research collaboration.

Other interesting indicators in the reviewed studies is that the type of appointment (contract) does not affect usage levels or skills, although there are significant differences among teachers according to area of knowledge in which classes are taught. In the case of the UNACH, it must work on the equalization of opportunities for access to technology, which are not the same at all campuses, as major differences present themselves in the use of technology and teacher training, what impacts the valuation of

their personal, professional and teaching practice, and use and attitudes about their impact on teaching / learning.

The findings of all of the studies points to the need for the necessary institutional infrastructure to strengthen the pedagogical use of ICT, in addition to the general request to include training programs in order to develop skills in handling technologies for teaching and strengthening of the curriculum to involve learning strategies that include them .

This suggests the need to program specific objectives for the promotion of ICTs within universities as part of a strategic plan to promote the quality of education and the use of investment in renovation or upgrading of infrastructure.

Generally, teachers have a positive perception of their training in ICT, reinforcing the idea of the development of digital literacy. However, beyond the acquisition of skills in handling technologies, it will be important that training programs include daily exercise in their educational practice, knowledge, abilities, skills and experience gained by teachers with immediate use of ICT for the benefit of university.

This training process personally allows teachers to generate self - learning provisions, as opposed to a teacher who, interested in ICT training, is required for each innovation that technologies offer.

It is considered important to mention that in Mexico there is a study which extended the use of technology by teachers of higher education systems. In fact, research referenced in this section is the only ones to date on digital literacy. As said before, there are isolated studies on their use and technological training, however, the concept of digital literacy referred to in this article implies indicators that have not been contemplated, making it impossible to think about standardizing variables .

At the international level, there is currently work on an empirical investigation that aims to determine the degree of digital literacy of teachers of higher education in the countries of Peru,

Colombia, Costa Rica, Spain and Mexico, which will be able to be shared once results emerge.

THE AUTONOMOUS UNIVERSITY OF CHIAPAS TODAY

The UNACH is the main institution of higher education in the Mexican state of Chiapas. It serves more than twenty one thousand five hundred students, has 63 undergraduate programs , 8 Unconventional (remote) programs and 50 graduate programs spread over nine campuses and two headquarters of the Virtual University in eight of the nine regions of the state, attended by 25 academic departments. 78% of students are enrolled in quality programs, 18% have scholarships and 94% have optional insurance (UNACH, 2015).

The institution has the recognition of the SEP for its quality, and it has 46 programs at level 1 of the Inter - institutional Committees for the Evaluation of Higher Education (CIEES) and 14 accredited programs by the Council for Accreditation of Higher Education Programs (COPAES).

The academic ability of the university is made up of 2,149 professors and researchers, 919 of whom are full time. Of these, 72.3% have graduate studies and 46.7% have the recognition of the Professional Development Program for Teachers (PRODEP) profile. The institution has 70 faculty members of the National System of Researchers and 119 of the State System of Researchers. The academic staff is organized into 65 Academic Bodies of which 62% are in the *bound* and *consolidation* levels (UNACH, 2015).

The Virtual University was founded in the year 2006 in order to expand the coverage of higher education and continuing education, and began its work with programs and associated professional degrees. At present, two degrees and a master ‘s program serving 304 students are offered. They have also trained more than 80% of university professors and 200 doctors of the

Mexican Social Security Institute for the use of virtual learning environments and ICT. The institution recently joined the Common Higher Distance Education [1] (ECOESAD).

Teacher Linking Units (*Unidades de Vinculacion Docente, UVD*) perform the vital function of merging institutional goals with social and professional goals and demands in the region , and are based on the principles of relevance, while allowing the articulation of the basic functions of the university with situated learning in real contexts . Some of them, through academic bodies and students of educational programs related to information technology, have conducted research relating to the use of ICT for the economic development of indigenous communities.

The UNACH (2007), in its *Institutional Development Plan 2018* takes up the challenge to integrate and optimize the application, use and consumption of ICT to their activities and processes, so that it can provide services and educational programs, upgrading, professional improvement, academic advising, scientific and technological culture, promotion of culture and arts, and quality and relevance.

In the 2014-2018 academic project, the UNACH (2015)was inserted into the axis of management and consolidating institutional assessment of the universities physical and technological infrastructure, ensuring their availability to the academic environment.

In educational innovation, it is currently working on creating support centers for the implementation of the new educational model, modernization and expansion of the technological infrastructure and training in new information and communications technology, among other challenges such as consolidation of institutional mentorship program.

1. Consortium that integrates public higher education institutions that offer distance programs.

DIGITAL LITERACY MODEL FOR UNIVERSITY TEACHERS

The Autonomous University of Chiapas maintains at this time a scheme that separates academic computing support missions of teaching, learning and research, and administrative computing that supports the management of the institution itself. Each process is responsible for reporting to the Rector in the first case, and with the Administrative Secretary of the UNACH in the second.

Our research does not proposes a new organizational design to the academic process, but rather suggestions for actions that serve this sector of the institution , allowing for future study in the university on integrated management of ICT .

TRAINING PROGRAMS

From the results, there was a need to design a training scheme of multilevel digital literacy, involving teachers in the same process, so that this "appropriation of ICT" is not only an external matter but is observed to produce its internalization to be the ones who at any given time schedule requirements according to their educational needs.

The professional knowledge of teachers integrates a variety of knowledge: about curriculum content, pedagogy and didactics, within which knowledge and technological field procedures are involved. Thus, teacher training in ICT should include not only knowledge and educational use of tools, but a reflection of their potential, their limitations and their impact on learning in specific contexts, focusing on the goals to the significant appropriation of tools in learning contexts.

Scheme 1. Training programs for digital literacy.

Source: Garzón, 2015, p. 229

As for the university educational model, the absolute inclusion of ICT in the curriculum is transversal, that is, treating them from all disciplines and in different fields of action, rejecting approaches of instrumentation biased towards the uncritical use of resources without articulation with educational objectives, content and context (Perazzo, 2008).

In this process of formation, the development of activities that allow the study of texts in different media or devices is considered, so that teachers reflect on the many forms of representation of information that lead to the construction of knowledge.

Thus, the proposal regarding teacher training includes a first level referral to teachers who demand continuous assistance or guidance to acquire basic skills in the use of learning ICT; a second level for serving teachers who have acquired the ability of autonomous creative learning using ICT in their daily work; a third level to support teachers to project their knowledge among the university community, to generate a new cycle of training, for strengthening digital literacy within the institution.

INSTITUTIONAL ACADEMIC COMPUTER MANAGEMENT

For a model of digital literacy, one must have the right technology which has to operate efficiently with high levels of commitment from institutional managers- the education authorities and those responsible for computer services.

The attitude towards technology means that for those leading a higher education institution it is vitally important to ensure the quality of services and distribution of resources. This facilitates the integration of ICT such as seeking the necessary infrastructure and promoting digital literacy training and organizational actions. The UNACH considers this line from the rectory and through responsible university departments, not only as a measure to give attention to the guidelines of the evaluation bodies, but by the certainty of the opportunities offered by ICTs to achieve proposed management goals .

Gros (2000) tells us about the "the invisible computer" as an overview within education institutions where those who work with computers require it without worrying about the availability of technology, its proper functioning or quality of Internet connectivity. Their flaws, slow Internet access, complexity in the use of platforms or interfaces, produces a digital divide that increases the resistance for their use.

To enable students to assume a new role on the responsibility for their learning in the process of dipping into the knowledge society, it is also necessary to transform the traditional role of the teacher, bringing new educational possibilities of communication and access and dissemination knowledge in all its forms.

ICT also open up possibilities in the mentoring process that should not be missed. As noted by Marques (2000), communication channels can be much more comfortable to bring teachers with students and even families to enjoy accessible procedures for

negotiations with the agencies or teachers, as well as collaboration with the institution.

The features offered by ICT also allow contact centers with other social institutions: the websites of the institutions provide insight into their activities and telecommunication services enable contact and interaction with people who cannot travel to school at a specific time.

The scheme proposed below summarizes the proposed management level, which is explained in more detail in the following sections, according to their scope: teachers, technology infrastructure, ICT and curriculum.

Scheme 2. Institutional responsibilities for digital literacy

Source: Garzón, 2015, p. 232

Teacher Support

Teachers are the cornerstone of all innovative process in education such as concepts, knowledge organization, and the teaching process which in turn creates opportunities for learning, come from teachers and it is this sector that indicates the direction and priorities of an organization dedicated to education, which is strengthened by its institutional leadership.

It is therefore important that the management of university computer systems includes the choice, application , and integration of infrastructure, policies and services that support teaching / learning supported by ICT.

It is transcendental to provide support services to teachers so that they learn to effectively use the available tools and moderate setbacks that arise when things do not work as expected, with special attention to work on materials dedicated to distance education and online learning.

The demands of time and effort of teachers who design materials for modalities supported by technologies are much greater than those of a classroom course, and they serve as a teaching resource. It is expected that the institution values in its stimulus policies the performance of academic staff regarding these activities.

Technological infrastructure

The integration of ICT in schools has an important base in the availability of infrastructure that the university population and educational programs and resources is provided with a corresponding service for teachers who use them.

The Internet is an important means of access to knowledge and dissemination. Interconnection policies of the centers that integrate the University should be strengthened to add wireless capability to the entire data network, following the trend towards

mobility instruments and multiple accesses (Spicer, 2006). The UNACH has served the convergence of voice, video and data, with appropriate organizational implications of infrastructure and service, as a basic policy that strengthens a better service to the university community.

The secure access to computer services in the institution can establish a gap for the desired digital literacy. It is substantial to propose alternatives to the university community for the acquisition of computers and work towards national indicators of access to technology by students and teachers from their schools. This implies a significant increase in requests for support, resulting in the need to strengthen the care of areas such as the online university and asynchronous systems.

Far from being a service, the university community should view ICT as a strategic element of development, seeking funding under this approach. The impact can be seen as indicators of technological innovation, better learning and new activities of great didactic and pedagogical potential.

ICT in the university curriculum

Until recently, teachers were in a process of hasty integration of ICT in their teaching and were trying to meet the need for training in the field of office automation tools and skills for network access, with short courses detached from the contents of educational programs, completely forgetting the pedagogical use that ICT could have for their professional practice.

In the educational model of the UNACH proposed in the year 2002, ICT are included as strategic tools in all curricula, however, there prevails the formulation of isolated academic units, complementary to the curriculum, addressing knowledge and skills that students should work in a couple of semesters of their university education without making contextualized inclusion in the rest of the courses that make up each program as an option for obtaining

significant learning or acquiring the necessary skills in information for inclusion in the *knowledge society* .

This proposal includes a comprehensive integration of ICT in the curriculum at several levels:

- Literacy or digital: learning, practices and attitudes related to the use of ICT as an important source of access to information or knowledge.
- Application of ICT as a pedagogical resource in the subjects: explicitly promote the programs in the application of ICT with specific functions to assist in the acquisition of the skills required in each course, as a transversal content and professional tool. At the same time promoting the didactic use of ICT to facilitate the teaching/ learning processes.
- Using ICT as cognitive tools for collaborative learning: promoting interaction of the symbolic systems of representation of the knowledge with the cognitive structures of students supported by the technology as tools for the cognitive process of information.

AXLES MODEL. SYNTHESIS

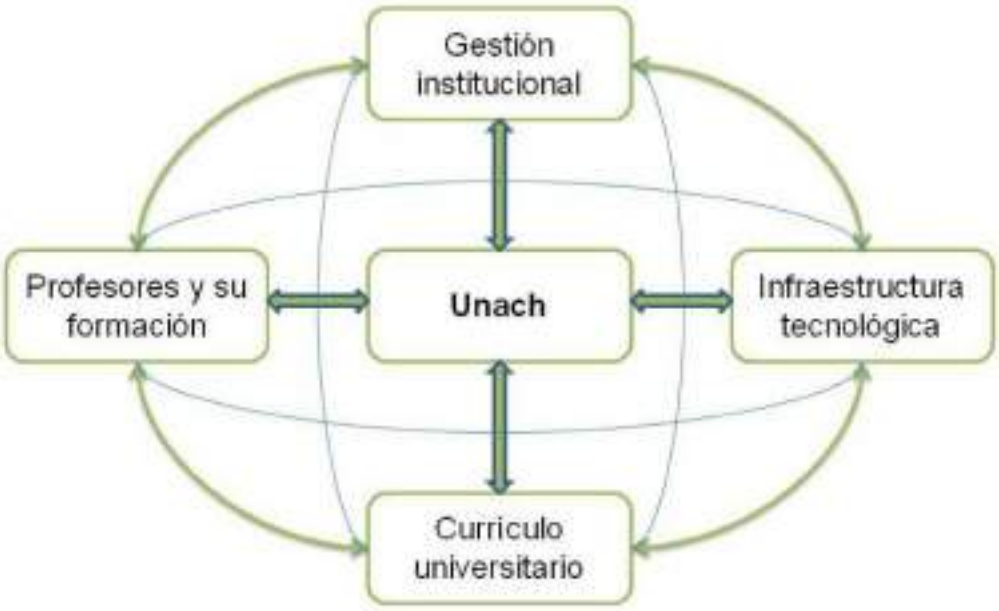
To achieve effective digital literacy of teachers within the institution, the following scheme is proposed.

The institutional management serves the administrative, educational and technical leadership required by the authorities of the institution, to propose the necessary changes in its organizational culture.

The technological infrastructure refers to model resources and support services , where management functions to be performed by those responsible for the computer systems are addressed.

The curriculum includes comprehensive integration of ICT in several levels that allows the university community to learn about ICT.

Scheme 3. Model of digital literacy for teachers UNACH



Source: Garzón, 2015, p. 235

The appearance of teachers and their training, deals with the knowledge and skills of teachers to use ICT in their educational practice, in addition to supporting the process of generating knowledge about their area and in terms of technologies applied to education.

These are the key to effective appropriation of ICT in the teaching process elements.

CONCLUSIONS

ICT changes the schemes; they reorganize structures and change perceptions, while offering opportunities to access new learning through them.

Although teachers have a positive perception of their knowledge and favorable attitude towards technology, training programs in ICT have neglected the context and objectives of integration and use of knowledge in the pedagogical level, as it is located in the instrumental teaching process, it is necessary to have a situation of change to transcend a learning process resulting in the development of a self-learning teacher around ICT, which allows, in turn, transforming its role within the institution and strengthening its link with students.

Higher education institutions have the important challenge of significant incorporation of ICT in their formation processes, not only in the acquisition of infrastructure, but about literacy processes, or re-literacy, considering especially the integration of ICT in the educational experience of teachers at various levels: practical application in the classroom, innovation in processes of knowledge dissemination through electronic means, development of ICT-supported training materials, routine use of knowledge management platforms, participation in academic exchange experiences and contributions to knowledge networks in educational technology.

REFERENCES

Comisión Económica para América Latina y el Caribe CEPAL (2003). Declaración de Bávaro. Conferencia Ministerial Regional preparatoria de América Latina y el Caribe para la Cumbre Mundial sobre la Sociedad de la Información. *Revista Iberoamericana de Ciencia, Tecnología, Sociedad e Innovación* 5. OEI. Consultado el 30 de mayo de 2015 en http://www.oei.es/revistactsi/numero5/documentos2.htm

Crovi, D. (2008). *Comunidades universitarias y TIC. Diagnóstico realizado en la UNAM*. Consultado el 09 de mayo de 2015 en http://comunicacionyeducacionamic.blogspot.com/2008/05/comunidades-universitarias-y-tic.html

Gallardo-Echenique, E., Minelli, J., Marquès-Molias, L. y Esteve-Mon, F. (2015, March). Digital Competence in the Knowledge Society. *MERLOT Journal of Online Learning and Teaching*. Vol. 11, No. 1. Consultado el 27 de septiembre de 2015 en http://jolt.merlot.org/vol11no1/Gallardo-Echenique_0315.pdf

Garay, L. (2008). *Acceso, uso y apropiación de las TICs entre la planta docente de la UPN Ajusco*. Consultado el 10 de julio de 2015 en http://comunicacionyeducacionamic.blogspot.com/2008/05/acceso-uso-y-apropiacin-de-las-tics.html

Garzón, R. (2015). *Modelo de alfabetización digital para profesores universitarios*. Chiapas: UNACH. [Versión Electrónica]. Consultado el 30 de junio de 2015 en http://www.espacioimasd.unach.mx/docs/libro_modelo_de_alfabetizacion_digital_para_profesores_universitarios.php

Gómez, J. A. & Licea, J. (2002, febrero). La alfabetización en información en las universidades. *Revista Investigación Educativa* 20 (2) (p. 469-486). Extraído el 21 junio de 2015, de http://eprints.rclis.org/19478/1/gomezylicea2002rie.pdf

Gros, B. (2000). *El ordenador invisible. Hacia la apropiación del ordenador en la enseñanza*. Barcelona: Gedisa.

López de la Madrid, M., Chávez, J. (julio - diciembre, 2013) La formación de profesores universitarios en la aplicación de las TIC. *Sinéctica*, 41. Consultado el 27 de septiembre de 2015 en http://www.sinectica.iteso.mx/?seccion=articulo&lang=es&id=609_la_formacion_de_profesores_universitarios_en_la_aplicacion_de_las_ti

Marqués, P. (2000). Cambios en los centros educativos: construyendo la escuela del futuro. Consultado el 14 de julio de 2015 en http://ddd.uab.cat/pub/dim/16993748n0/16993748n0a5.pdf

Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura. (1998). *Declaración mundial sobre la Educación Superior en el Siglo XXI*. Consultado el 20 de julio de 2015 en http://www.unesco.org/education/educprog/wche/declaration_spa.htm

Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura. (2001). *Declaración Universal de la UNESCO sobre la Diversidad Cultural*. UNESCO. Consultado el 30 de julio de 2015 en http://portal.unesco.org/es/ev.php-URL_ID=13179&URL_DO=DO_TOPIC&URL_SECTION=201.html

Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura. (2007). *Educación de calidad para todos: un asunto de derechos humanos*. Consultado el 27 de septiembre de 2015 en http://unesdoc.unesco.org/images/0015/001502/150272s.pdf

Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura. (2011). *Alfabetización mediática e informacional. Curriculum para profesores*. Consultado el 27 de septiembre de 2015 en http://unesdoc.unesco.org/images/0021/002160/216099S.pdf

Perazzo, M. (2008). La ruta de la alfabetización digital en la educación superior: una trama de subjetividades y prácticas. *Revista de Universidad y Sociedad del Conocimiento*. Barcelona: UOC. Consultado el 2 de octubre de 2009 en http://rusc.uoc.edu

Prats, M. A. (2005). ¿Qué implica la alfabetización digital? ¿Qué competencias debe proporcionar y cómo debe adaptarse a los diferentes colectivos de la sociedad? Consultado el 27 de septiembre de 2015 en http://www.educaweb.com/noticia/2005/06/20/implica-alfabetizacion-digital-competencias-debe-proporcionar-como-debe-adaptarse-516/

Rivera, A. (2009). Docencia y TIC en educación superior: el papel central de la concepción didáctica del docente. En *Consejo Mexicano de Investigación Educativa. X Congreso Nacional de Investigación Educativa*. Memorias electrónicas. México: COMIE.

Rodríguez, C. & Padilla, R. (2007). La alfabetización digital en los docentes de la Universidad de Guadalajara. *Apertura*. 7 (6). (pp.49–62). México: Universidad de Guadalajara. Consultado el 14 de julio de 2015 en http://www.redalyc.org/comocitar.oa?id=68800605

Silvera, C. (2005). La alfabetización digital: una herramienta para alcanzar el desarrollo y la equidad en los países de América latina y el Caribe. *Acimed: Revista Cubana de los Profesionales de la Información y la Comunicación en Salud*. 13 (1). Consultado el 30 de julio de 2015 en http://bvs.sld.cu/revistas/aci/vol13_1_05/aci04105.pdf

Spicer, D. (2006). La práctica cotidiana: perspectiva de un responsable de los servicios informáticos en el campus. En M. Serbin (Comp.), *La Universidad conectada. Perspectivas del impacto de Internet en la educación superior*. (pp. 117-141). España: Aljibe.

Universidad Autónoma de Chiapas. (2007). *Proyecto académico 2006-2010.*Universidad para el desarrollo. México: UNACH.

Universidad Autónoma de Chiapas (2014). *Anuario estadístico 2013*. México: UNACH.

Universidad Autónoma de Chiapas (2015). *Proyecto Académico 2014-2018*. México: UNACH.

Vega, A. (2011, junio). Propuesta integral de alfabetización digital para el siglo XXI (Artículo de reflexión derivado de investigación o de tesis de grado) *Revista Q*, 5 (10), 15, enero-junio. Disponible en: http://revistaq.upb.edu.co

Villa, A., Argüelles, A. & Acosta, L. (2009). Conocimientos y habilidades docentes en TIC de profesores de la Licenciatura en Ciencias de la Educación. En *Consejo Mexicano de Investigación Educativa. X Congreso Nacional de Investigación Educativa*. Memorias electrónicas. México: COMIE.

THE PHENOMENON OF MIGRATION FROM THE MEANING OF FOREIGNERS

Arturo Gerardo Ruiz Utrilla
argeruiz@live.com.mx

Autonomous University of Chiapas, School of Humanities, Campus IV

ABSTRAC

The immigrant experience is contradictory: on the one hand, it is exposed to discriminatory treatment, to vulnerability- in short, it is *rejected*. On the other hand, there are a number of international treaties that call for non - discriminatory treatment and a minimum of inalienable rights, trying to *take care* of their human condition. This paper aims to find the philosophical basis of the condition of the migrant, which we have called *the experience of rejection-care*. To respond to this problem, we proceed in a hermeneutical manner, supporting the etymological and historical analysis, and finally present the representative authors of the phenomenology such as Husserl, Heidegger, Levinas and Waldenfels. Although the response by the dual experience of the migrant (rejection-care) is our immediate objective, we believe that our results can be considered as contributions to the development of a *philosophical anthropology of the migrant*.

Keywords: *Migrant, foreigner , xenia, hostis, rejection-care experience, phenomenology.*

Love ye, therefore, the stranger;
for you were strangers
in the land of Egypt.
Deuteronomy 10:19.

Currently, the phenomenon of migration has taken great relevance at all levels: social, economic, political, and cultural. It is a field that is being explored with great effort from the academy. It is a central theme in academic events and publications in the social sciences and currently occupies an undisputed place in the academic bodies of universities and research centers.

Human sciences also deal with this phenomenon, although with less emphasis, perhaps because the social impact of migration urges practical solutions and the work of the humanities does not always go that direction. Just for this instrumental treatment which dominates the issue of migration, it the reason why some have identified the need to return to the basic discussion of ideas to generate less ossified conceptual and theoretical transformations that are at the height of the times and changes in migration and its subjects. This is why Bonilla (2007, p. 27) states that: "The current state of migration studies often shows signs of an epistemological and methodological profound crisis; to this the almost total absence of philosophical production on the topic is added". The work that follows is exploring the philosophical path, starting from a hermeneutical - phenomenological treatment, supporting the contributions of Husserl, Heidegger, Levinas and Waldenfels.[1]

1 Bonilla (2007) has investigated the development of a nacent philosophy of migration that is based on the work of Lévinas, Derrida, Habermas, Taylor, Ricoeur, Kymlicka, Zambrano, and Waldenfels, who are among the most notable. In an indirect manner, the contributions of Husserl, Heidegger and Ponty, have intervened in this approach to the philosophy of migration. Specifically, the phenomenology of the stranger of Waldenfels supports the work of the aforementioned authors. As so far as it can be appreciated, the phenomenology has been an important contribution to the theme of migration.

This treatment of the subject, as part of the assumption, that behind the social, political, cultural implications, among others that are empirically evident, there are profound anthropological and philosophical questions that may give other interpretations to migration. At the same time it is considered that this way of interpretation of the phenomenon of migration and of the migrant can reveal the ontological character of the human condition.

Which brings us to this philosophical foray which emerges from the contradictory status of the migrant. We refer to the experience of *rejection-care*. That is, being a migrant means, in an essential way, marginalization, exploitation, "garbagization" and undervaluation. All these processes are shades of what we recognize as ontological *rejection*. Empirically, *rejection* has been expressed, for example, in the massacre of San Fernando, Tamaulipas, where organized crime exposed 72 bodies of migrants to the weather, 58 men and 14 women, in 2010 (Mancillas Lopez, 2015, p . 9). The *rejection* to which we refer to is expressed in the condition of labor over-exploitation suffered by the migrant, which is not from a certain context but occurs in general: " It is the case of *Gastarbeiter* in Germany, the *lavoro nero* in Italy, the *Chicano* in the United States, the immigrant in Eastern Europe (Polish, Hungarian, Albanian, etc.), in Western Europe, the *dekassegui* in Japan, the Bolivian (among other Latin Americans) and the African in Brazil "(Antunes, 2014, p. 23).

It's the same *rejection* that Basso expresses to describe the condition of migrants in Europe, which we broadly reproduce given the value of the testimony:

> *In Europe, the whole existence of immigrants and their children are marked by* ***discrimination****. There is discrimination at work, access to work, unemployment insurance, retirement, discrimination in access to housing, more expensive rents in more deteriorated homes in degraded areas. Discriminated, in fact, in schools (in Germany there are very few immigrants who arrive to University. In Italy, 42.5 percent of the children of immigrants are behind in their studies). They are*

> *discriminated in the possibility of maintaining one's family together, especially if they are of Islamic origin, which are discriminated to profess their own religious faith (Antunes, 2014, p. 24).*

For its part, the ontological term *care is* manifested, for example, in public policies that revolve around the protection and defense of all migrants. We can precisely cite as an example - that is repeated in other geographies - the "indisputable objectives" in public policies on migration from the Mexican government:

> *Contribute to national development, through proper migration management based on a legal framework to facilitate migration flows* ***with respect for human dignity****.*
> ***Ensure the protection and defense of human rights of migrants****, as well as their* ***physical integrity and patrimony****, regardless of their nationality and their condition as documented or undocumented in which the three levels of government participates (Lothar & Chaltelt, Peter, 2011, p. 18).*

The care, we are talking about refers to all those behaviors that try to preserve the integrity and human dignity of migrants. It is protection, hospitality, care, custody, assistnance, among others. All of these are manifestations of what we call ontological *care*.

Thus, the migrant is subject to marginalization, which is synonymous with cheap labor, vandalism, prostitution, etc., and at the same time it is intended to assess its human condition, the ultimate expression of their existence. This condition of migration constitutes the *rejection-care experience* that we have already defined and exemplified above. The question that interests us is to find out how this double meaning arises, and how to explain it . We can say that it is kept (cared for) both because it is simply a vulnerable subject. This response, which is obvious and naive, opens up at least two situations: the first is the vulnerable status of the migrant, i.e., being a migrant means in itself being marginalized and

vulnerable? Is marginalization essential to migration? On the other hand, why you should the condition of vulnerability be imported? Who should import the vulnerability of migrants and why? That is to say, why meet the condition of vulnerability? Is it a matter of sociability? It is that instinctive or biological issue to defend the similar? Put another way: is it the instinct to care for the species which leads us to protect others? Or, is it politics? Is it because of civility? Is there an answer to this that can be corroborated?

The simple question that we have discussed, as we can see, leads to deeper issues and problems. Now, the question of "dual status of the migrant" involves, as a first methodological step, the question of the identity of the migrant. This is the task that will occupy us in the following section.

MIGRANT

Evidently, we know that migration and migrants have specific characteristics depending on location, policy, history and so on . However, the method of asking in philosophy does not go in this direction but, rather, in a general sense. That is, when asked by the migrant and migration *we do not* ask the question from a certain place, we do not ask: what does being a migrant from this or that place signify? Instead, we ask: what does it mean, in general, to be a migrant?

From an etymological point of view, migration is derived from Latin *migratio*: more or less permanent shift of residence; *migratio* is derived from *emigrare* which *means go out of their village* (Corominas, 2008, 371 p.). This etymological sense is the current reference used in social studies. Bonilla (. 2007, p 28) also believes that this is most commonly shared use:

> *Starting from a definition of the term 'migration' among social scientists, I understand it as the residential displacement of a population from one sociospacial area to another (the areas where humans reproduce,*

and produce and exchange material and symbolic elements necessary for the satisfaction of their vital needs and concerns).

This definition is fully operational, because through it you can study migration from a statistical approach: what are the emigration and *im*migration rates? How many immigrants and emigrants are there?....which is necessary to investigate the state of the phenomenon with political, social, economic, demographic, etc. purposes, which serve for the decision-making process . This definition is also behind investigations questioning the causes and effects of own internal and external displacement of migration: unemployment, poverty, marginalization, violence, including traditional associations.

While this approach is useful in a practical sense, it does not help us answer our question: From what horizon of meaning can we understand the migrant rejection-care condition? The traditional definition of migration and migrant does not go in that direction. But then what other definition of migration and migrant exists that can be a hermeneutical way to answer our questions? The truth is that there is no other definition of such phenomena, therefore we must momentarily step away from it and find another path.

Examining the exposed definition we realize that the nuclear point of migration is displacement, which means moving from one place to another. This phenomenon of spatial mobility is what produces, so to speak, migrant status. But the migrant condition, although it is displacement, is not simply a physical move, but essentially is a *being-outside of their place of origin*. This is because the migrant condition is also *inhabited*- outside the place of origin. So we can say that migration is mobility, but remains in the "inhabit"; both, "mobility" and "inhabit" refer to the "place of origin"- moving out of the place of origin, living outside the place of origin. The *displacement of migration comes from the sense of moving and being in a foreign place*.

The foreign, meanwhile, is something that is not itself, which goes beyond oneself. In Latin, what comes from outside, which is alien, was known by the term *extraneus*, which translated into Spanish as *foreign*. *Extraneus* consists of the prefix *extra and suffix aneus*. *Extra* means made *outside*, *containing from the outside, apparently containing of being from outside*; meanwhile, the suffix *aneus* is lengthening of *eus* denoting a composition of materials: *made of, contains or it appears* (Corominas, 2008, 242 p.). Strange, *extraneare* means *made outside, contains the external, it appears to contain or be outside*. When we meet someone who comes from another place we use a word that is closely linked to the strange, we say that person is a foreigner (*extranjero*) . With him, coming from outside, you have a relationship from beyond the usual for their rarity and unfamiliar condition, i.e. the foreign is strange.

Now, in an either factual or customary manner, the same sense of strangeness entails a practical relationship of distrust, care, suspicion, containment or surprise. But what happens when "this" strange thing is another human being? Here a tense before this phenomenon of complex reality occurs: on the one hand, it comes from outside, It is not familiar, it is alien to me; yet "this" strange thing is another human being: It is like me! That which lies before me is strange because I cannot identify my customs, yet is radically family, because he shares with me my humanity. Is not this strange-like condition, which is located in the same experience of meeting with *the foreign*, comprises the foundation of the double meaning of the migrant experience: rejection-care?

From this tension it seems to be that the experience of the *foreign* is closest to our hermeneutical-philosophical work on the proposed problem. We will unreservedly take the pathway of the foreigner to study the effect of the double experience of migrants (rejection-care). This would not move us away from the "migrant", because in any case the migrant and the foreigner are two ways to interpret the physical displacement which arises from both

conditions. However, the migrant and foreigner are simply not synonymous, they are two ways of calling the same thing; They are interpreted as two different interpretive horizons of a single phenomenon. In this sense, the category of the foreigner has a conceptual closeness that makes their interaction possible. In that sense, the category of the foreign, we believe, can help us find new elements to understand the experience of migration and migrants.

At this point we should outline basic questions: our goal is to give a reasoned hypothesis that responds philosophically about the dual experience of migration: rejection-care. The phenomenon of access has been the migrant; however, the traditional definitions of migration and migrant do not serve us directly by the traditional management that has made these categories framed in more empirical questions, and because our question is rather philosophical-hermeneutical. To seek another path we explored the effect of migration, and from this has emerged a semantic relationship to the term foreign. In this category we find, in a preliminary and speculative way, a path that seems more suited to the nature of our investigation. In the following we will explore the meaning of foreigner from different perspectives to see if from their interpretation we can answer our basic question: the underlying reason for migrant rejection-care.

THE MEANING OF IMMIGRATION ORIGINATING IN GREECE AND THE BREAKDOWN OF ITS MEANING IN ROME

Preliminarily, we can say that migration is when a person moves from their home to another abroad, i.e. stranger, “one who comes from outside”. But this “come-from-outside” has a character of grace, “the host, the king, the lord, the power, the nation, the state, the father, etc.” (Derrida, 1998, p.21)- forced to speak a language that is not his. In that sense, the first violence that the foreigner

is exposed to is to seek hospitality in a language that is not his. Lacking is not only not speaking the same language, but not having access to the cultural capital of the place from where they come. [2]

But this deficiency was not always synonymous with marginalization against him. In Greece the phenomenon of the foreigner was known abroad as *xenos*, which grouped everything together that was not Greek (Buttini, 2014). In Homeric times *xenon* was subject to the hospitality of the *polis* because of religious anthropomorphism that governed their lives: they believed that the gods were presented as people coming from outside. Zeus, the most important figure in Greek deities, "plays a central role as protector - and guest from abroad, generally from the first Homeric testimony" (Oller, 2013, p. 75). [3]

The stranger in Greece did not always speak the same language, "he is not asked where he comes from or where he goes or who he is or what he does ... the host even offers up his wife for the rest of the solitary wanderer" (Giaccaglia, *et al*, 2012, p. 118). Some sources also believe that this hospitable relationship (*xenia*) had commercial and political reasons (Santiago Alvarez, 2010, 2013, Oller Guzmán, 2013; Piñol Villanueva, 2013; Ginestí Rossel, 2013). From this type of act comes the experience of *Filoxenia*, friendship from hospitality (Chirinos, *2007*).

The act of welcoming the stranger in the house (*Oikos*) and private life evolved into a form of public institution of *póleis* , as Araceli Santiago (2013) realizes in the philological and historical study carried out by the text of Aeschylus, The *Supplicants*. *The Iliad, The Odyssey and Works and days* are other works that testify to the cultural importance that the *xenia* had (Piñol, 2013). For the Greeks, hospitality was not an afterthought, rather it is an

2. To know what we are referring to regarding cultural capital, see Bourdieu, 1987

3. Although the role of Zeus was dominant in the xenia, Oller (2013) mentions that there was sufficient evidence that it was Aphrodite that had the protection of foreigners as one of her most ancient functions, and with the passing of time it was taken over for the loving relationship in general.

essential character of the human being. For this reason the Cyclops (representation of men without laws, without rules or under) do not know hospitality, the *xenia* (Chirinos, 2007). Cyclopes, therefore, represent a lower level of freedom, virtue and humanity (*Ibid*; 8).

Another consideration involved in the sense of *xenia*, along with the theological and commercial, is the anthropological:

> *To this we must add another consideration, perhaps more implicit in the Greek world, but which is clearly present: the conviction that human beings and also, though to a lesser extent, the gods, are vulnerable and fragile, and may need some care and some material and body goods to be provided as a duty of justice (Chirinos, 2007, p. 10).* [4]

This vulnerability that man is exposed to by nature and is based on *xenia* constitutes the corporeality. The *xenon* is subject to "do good" in the sense of causing welfare. The type of "care" of this productive act is material; "Doing good also must be understood as producing or manufacturing welfare, so then we are facing a positive assessment of basic, every day, material and corporal, circumstances of human existence" (Chirinos, 2007, p. 10).

It is not necessary to understand this "doing good", an essential sense of *xenia*, as an act of expected remuneration. In other words, one does not do good to expect a type of reward. The *xenia* is an act of one direction, so to speak; it is an obligation rather than a right that is born of the vulnerable state of xenon. Chirinos (2007, p. 15) says that it is "a duty that morally perfects those who exercises it."

The study of *xenia* has led some specialists, such as Chirinos, to track an anthropological sense anchored in the idea of humans as lacking and incomplete beings. The answer to this anthropological conception of ancient Greece that remains in the classical

4. Later we retake this anthropology, when we analyze migration in its actual sense

(with some present contradictions, such as domestic slavery) is the *xenia*: the "doing good", produces wellbeing in the pilgrim, the strange or stranger, *xenon*.

Something very similar has been traced back to the Celts who developed two forms of hospitality (Kortanje, 2012, p.15):

> *The first is linked to receiving a pilgrim and accept him as an envoy of the gods. It was understood that the traveler should be assisted and hosted since this act stemmed from a divine mandate; the root of this ritual was purely religious. By contrast, the second meaning was purely legal and could only be agreed by agreement between the parties. In this case, the hospice represented and ensured the political balance of the Celtic peoples and through these agreements a nonaggression pact between them.*

However, in Rome there was already a rupture from the sense of xenia and *xenon*. This change of direction is with the Latin word *hostis,* guest or host. This first historical sense of *hostis*, gives meaning to our words of accommodation, hospitality, hospice. The foreigner is not inferior or superior person, the *hostes* has the same rights as the Romans and a relationship of equals (Chirinos, 2007) was established. We can interpret that, relatively speaking, the Greek *Filoxenia* remains in practice. But the historical changes of Rome were leading to a totally different experience; that experience is known by the word of hostility. Being a guest, the *hostis* becomes a threatening person, *hostile*, unwanted, viewed with suspicion, which will have to be monitored, conditioned and controlled. That is, both hospitality and hostility share the same root: *hostis- which* came to mean both friend and foe. "The most widely accepted explanation is make them arise from a common meaning: the strange person. The positive expression of strange - strange good – will become the guest; the negative - the bad strange - as an enemy "(Chirinos, 2007, p . 5).

Benveniste explains, beyond the etymological, that the reasons that led to this ambivalent meaning has to do with the violent and expansionist policy of the Roman Empire. From this process comes a more rigorous sense of self and others, i.e., the *civitas* and *barbaric*:

> *From the Roman Empire the word* ***hostis*** *and the custom of hospitality began to lose its strength because it presupposed a relationship that is no longer compatible with political developments. Specifically, when ancient societies began to form nations, relations between people and between clans were to weaken.* ***Civitas*** *persisted and for her, the condition of being outside or inside. Thus , for a development we do not know exactly, the word* ***hostis*** *assumed the sense of hostile and since then began being applied to enemies "(Chirinos, 2007, p.5).*

Migration is not a phenomenon unique to our times. Since its inception , humanity moved for vital purposes (Sutcliffe, 1998) and much evidence shows that the negative sense of the migrant, in the history of the West, intensified when Rome established as a major violent political and military expansion, conquest, an event that intervened for the *hostis – hospitality* became *hostis-hostility*. With this event, the experience of Ancient Greece, xenia, decomposes into two antagonistic phenomena. From that moment, the appearance of a late sense of *hostis* (foreigner-hostile), the old idea of *being a citizen of the world* of the Stoics is forgotten, a narrative resource that has now been recovered (Cf: Cattafi, 2014). Likewise, the anthropological emphasis of foreign vulnerability disappeared, which was the compression of the background of xenia and is supplanted by a sense of the hostile, the enemy.

THE HUMAN THAT UNDERLIES THE CHANGE IN THE MEANING OF GUEST TO ENEMY AND THE FUNDAMENTAL RELATIONSHIP OF REJECTION-CARE

Recalling the examples presented above regarding the status of migrants and the example on public policies towards migrant rights, we ask again: how to understand that the *hostis* while it is treated as external, dangerous to or simply lacking good manners, are the subject of international policies that seek to remedy these living conditions that are understood as vulnerable ? Why at the same time they are vulnerable we exclude them from policies and international agreements? Why this "double standard"?

We do not consider that the change of direction from *host* to *threat* has been produced because of the emergence of an imperialist policy in Rome as we discussed, and this is the underlying cause of the double experience *threat-care*. We believe that the underlying reason of this semantic and factual change is because of deep anthropological issues. That is the underlying reason we believe it is the experience of *strangeness* and *otherness* as an anthropological condition in which forms of social, imaginary, political relationships that are only ways in which such a condition is expressed are based: the experience of strangeness. That is, "there is something" in the essence of the human being which allowed the semantic and factual change in the relationship with foreign and migrant. Arnaiz has spoken in the same sense: "The issue of immigration is an occasion to have to rethink the margins and limits of a human condition linked to universal and unconditioned characteristics" (Arnaiz, 1998, p.121). Waldenfels (1998) has expressed the same sense: the foreigner is an issue that goes beyond foreign policy.

The experience that presents the encounter with the foreign falls within an area of experience that is more original than the enactment of laws, and has to do with the essence of being human: " It all starts with the fact that there is a being that departs

from *itself*, it exceeds *itself*, overflows *itself* and therefore discovers otherness (*Andersheit*), also of animals, of *itself* and the strangeness (*Fremdheit*) of other cultures than their own" (Waldenfels, 2005, p. 43).

Waldenfels conducting a study of the experience of the strange and lays the groundwork for a possible phenomenology of the foreign. Waldenfels refers to the experience of strangeness in his first area of its appearance: world-of-life. In his later work , Husserl, better known as *La krisis*, the philosopher uses the term life-world (*Lebenswelt*), designating the level of everyday life, primitive "space" where the "I" that I am in each case. It is the area where I appropriate "reality" immediately from a pragmatic perspective (Husserl, 2008).

In particular, I understand that in this world of the familiar, life gives me at different levels. The first in being familiar with is to me, myself, my factual being and being in the world ways, my ways to understand and relate to reality. The familiar first is my "style" to be myself. The next is given from the environment. Within the environment I find familiar things and other selves; selves and things which I have established a relationship of closeness and, therefore, have assimilated as part of my everyday life, my world. Those other "I" I find have their own chains of experiences, which, perhaps, may not match with mine and therefore exceed my world of life. The inter subjectivity exposes my limits. This limitation coincides with the finiteness of my own *incarnate possibilities*. [5]

5. Edmund Husser, for several lectures, has been represented as a philosopher of conscience, inheritor of Cartesian philosophy. However, the theme of the body appears in a significant manner in an active role in the acts of conscience and is not filling a "container". In this sense, Xavier Escribano (2011, p.88) tells us " As it is well known, the systematic analysis of the experience of corporality entered philosophy in the XX century through the hand of Husserl, who carefully distinguished the double way in that the body is made for conscience: on one side, the body (Körper) as a material thing that, from its special characteristics, participates in the qualities of extension, color, etc., of its own other material realities; and on the other hand, the body (Leib) as has been internally experienced, that is, the completely original living experience that we have of the body as a field of localization of the senses, as an organ of will and carrier of free movement, and as the means through with the subject experiences the outside world".

It is from this finitude from where the possibility of an encounter with the strange is possible. The strange does not break the from the everyday, but the sense of ones own experience of the everyday and habitual "belonging, reliability, availability" (Waldenfels, 2011, p.122). In Husserl this break is exceeded when the ego assimilates otherness (*cfr*: Waldenfels, 2011, p.123). The strangeness, from Husserl 's position (in consideration of Waldenfels) is a deficit of consciousness that tends to level off. In fact, from the very moment that the sense of "strangeness" appears in the intentional act, a consciousness is referring to it in an assimilating way. The strangeness is thus a conquest of ego, omnipotent and founding. The otherness is yoked to the ego by its founding power and thus "lost" to the same otherness.

Although with Husserl we can penetrate to the original place where the "strangeness" is based, it is with Heidegger that we can know the meaning with which the strange and foreign is presented, that from the analysis of the tempers of the mind that he makes.

In the existential analytic of the Dasein developed in *Being and Time* (2009), Heidegger analyzes the constitution of the original place where existence unfolds, that place is the *there*: "This being carries its own being the character of not-being-closed. The expression That lies about this essential openness. Through it, this entity (*Dasein*) is the 'there' for himself to the living-being-there of the world "(Heidegger, 2009, p.153). This openness occurs in *affective* disposition and the *original understanding*. The affective disposition is the existential explaining that Dasein finds tempered in the world, that is, always be willing in an affective manner. The world, then, appears in moods while at the same time is existentially to the being of the *Dasein* in its capacity as cast away (*Cf.* Heidegger, 2009, pp.153-59).

As exemplification of the affective disposition, Heidegger makes a phenomenological examination of fear: "Fear as an affective disposition." This analysis aims to expose not only the structure of the temple of "fear" but that, through the analysis of this

temple “comes to light the structure of the affective disposition in general” (Heidegger, 2009, p.159).

For our work, the analysis of fear is enlightening. Fear has a “to-do” which is that of which the fear of fear, the “object of fear”, so to speak. That which appears, which can be any useful or another *Dasein* , has the nature of *threat* . In other words, fear fears what threatens the *Dasein* and appears in the respective conditional as detrimental: the compression of my own existence is threatened because within a state of affairs it can be harmful. This harmful, insofar as it tends to be approached, is experienced as disturbing, it disturbs the stillness, familiarity. We come up to here with the analysis of fear in Heidegger and return to our main theme: the migrant.

The analysis of fear by Heidegger points to the central characters of experience with foreigners / migrants: the migrant, while abroad, is something that comes from outside, it is something *strange*. As a stranger it does not belong to the realm of the familiar, it breaks with the constitutive familiarity of “normality”. In this “comes from outside”, it becomes disturbing and its proximity takes on the character of threatening, as it may prove harmful. In this experience, the *Dasein* is willing psychically from fear, he is afraid. The rejection suffered by the migrant, the stranger, is the form of dealing with fear. The foreigner is something that can prove to be harmful, threatening me or mine, so I fear and finally reject it, although it can also control, monitor, exploit, and kill, among other relationships that I establish with him. Border policies are institutional developments that have deployed the possibilities of this experience that was originally generated from the everyday and they find their reason to be in the consistency of human beings in terms of *Dasein* , being-in-the-world (*In-der- Welt-Sein*), open soul-compressively .

Finally we can say the following: if we take as a basis the phenomenological analysis of the tempers of mind that Heidegger makes, where fear comes as a break of stillness and familiarity,

we realize that the presence of the foreign is based on the threat aroused by their strangeness: his condition come from outside. This threat is not real, but felt as mere possibility that it becomes harmful. This is the understanding of the foreigner's background and experience that awakens the soul.

THE BODY AS ESTABLISHING THE SCOPE OF THE HUSSERLIAN WORLD-OF-LIFE AND HEIDEGGERIAN THERE

But "where" does fear arise? Both the *world-of-life* of Husserl and *there* of Heidegger presuppose a body. Waldenfels refers to this original field of the "I" as the "*here*". In this sense, identity becomes a phenomenology of moles and body. The I self-refers from a spatial experience: I'm here. This *here*, is not the *there* of Heidegger that only appoints the state of openness of *Dasein*. The here is a busy place from the body, it is where I am and I am I. This place is a physical guiding principle, which makes sense since one right and one left, down and up, one in front and behind. But at the same time our here is a cultural orientation and physical extension and is not an anonymous, undifferentiated place in the infinite space of geometry. On the contrary, this *here* has a story; the space it inhabits is my body and is culturally constituted. The body and *here* are a synthesis of materiality and symbolism.

At the same time the body is presented as the first boundary of the interior and exterior: what I am immediately and what is not and, in that sense, of the self and others: "The delimitation inward begins, again, in your own *body*, with the skin as a superficial contact limit "(Waldenfels, 2004, p. 28). In the contact of my body (which includes both my flesh as well as what I am experientially) with their environment, it extends towards its outer -escaping the limits of the skin and taking its belongings as their own, their homes, their region, their country, taking all as something internal,

something his that identifies him.. How far does the experience go and where does the next begin? Until the geographical boundary where identity is recognized. And when we talk about identity, right there is the body, such as the synthesis of carnality and symbolism that is recognized as self.

Waldenfels accuses the experience of strangeness from the original appropriation of space by the body. This material and symbolic appropriation enables the body what is and is not, at the same time, in its place. Spatially you may be outside of the same, as a migrant, but symbolically you continue in the same site of reference. Somehow his "home" accompanies it. German explains as follows: "If we designate the here body as the place from which parts all motion in our space and as the place in which it is anchored any orientation, then we must add that, as corporeal beings, we must simply never weigh anchors, ever "(Waldenfels, 2004, p. 29).

What interests us from our subject is that the body, from the position of Waldenfels, is the original area where states the self and others, for this is from that dimension where the strange experience lives. If it is so, it is the body located in its physical-experiential space which feels threatened in his carnality and symbolism. Both the world-of-life of Husserl, as the *there* of Heidegger, presuppose the area of the body. [6]

Now, Heidegger opens us to the strange and thereby, the foreigner as an experience of fear, shown in its sense as a threat. What foreign threat? From the analysis of Waldenfels, we can say that fear is born of the body, since this is precisely the scope founder of finitude and human vulnerability. The material-experiential body founded the fearful-being of the *Dasein* .The body fears for his carnality or symbolization, in short, it fears what it is.

6. In the previous note we clarified that Husserl, from his own philosophical interests, opens the theme of the body with the notion of the lived body. In this same sense, Adrian Escudero (2011) considers that in Heidegger there exists the principals or fundaments of a phenomenon of the body without the same philosophy that has been developed in an explicit manner. It is Ponty that develops this phenomenology with all his creative and original strength, without omitting the debt with his teachers

In a factual or usual way, we act against the threat in very specific ways: distrust, care, suspicion, repression, and containment. All of these ways of relating to the strange share, finally, an urgency: that of assimilation. You can assimilate the experience of strangeness by pushing it away or by integrating it. Each of these forms of assimilation are political forms: pushing away, namely in exile, closing borders or killing them, which is the radical intensification of remoteness. Integrating them, to the extent that it is "part of the landscape", in the voice of Alain Badiu: "Be like me and I'll respect your difference" (2004, p.51). But where is their care? Both distance and integration are forms of rejection of the foreign and its otherness: the distance, from a physical point of view; integration, from a kind of symbolic exorcism that tries to despoil their external ingredients and become more like me. Integration is a way of *rejecting* their difference and thus, their otherness.

If you recall, what becomes complex and contradictory of the migrant, which at the end is a foreigner, is the integration of two opposing ways that make the experience of foreignness and migration. That pair has been formulated as rejection-care. We have given the hand of Husserl, Heidegger and Waldenfels' arguments to understand the origin of rejection, but where does their care come in? To answer this we must go in another direction.

INSTRUMENTAL RATIONALITY AS THE COVERS OF THE LEVINASIAN *FACE*

Levinas makes a comprehensive study of the experience of otherness and humanism. In the *Humanism of the other man* (2009), he mentions that there is a phenomenon that connects us to the other without any mediation: the face. The way the face is presented is through the word, from silence you say "thou shalt not kill". The face speaks ethical sense.

The face in Levinas represents humanity. A humanity that is understood from the face, appears fragile, exposed, threatened, "as inviting us to an act of violence" (Levinas, 1991 in Diez, 1992, p. 23). However, it is this same insecurity which prevents the violent act. The word that the face opens, the meeting, remember, is to not murder. This word is the only way community, knowledge and history exist, so Levinas does not speak in an "ideal" sense (*Cf.* : Ten, 1992).

> *Thou shalt not kill is not as a simple rule of conduct. It appears as the beginning of the speech itself and spiritual life. Since then, language is not only a system of signs in the service of preexisting thought. The spoken word is the order of morality before belonging to the order of the theory (Levinas, 2008, quoted in Ten 1992, p.26).*

Levinas tells us that the face appears naked. This nudity says this is a face and nothing else, no phenomenal content that reaches an intentional act clear in its mystery. Its nudity also says it is "before all culture, which affirms the independence of ethics regarding history" (Ten, 1992, p.24). With the nudity of the face, Levinas locates ethics, understood as the relationship established from the "thou shalt not kill" as independent of the "ethics" of different cultures in which good and evil is a historic and capricious building. Where the killing may well be an act of supposed kindness or "holy cross". So the face leaves no room for interpretation, first, because it is not phenomenon and in that sense "disarms intentionality of what it says" (Ten, 1992, p.25); secondly, by their nakedness and insecurity: "The face is meaning without context. I mean, the other is not a character in a context "(Levinas, 1954, quoted in Diez, 1992, p.23).

The sense of human beings, their vulnerable condition, thought from the face, do not give excuses or reasons for their death, although these excuses or reasons come from the culture of knowledge or any other field. "Thou shalt not kill" is a *conditio*

sine qua non of humanity. This means, in turn, that humanism is set to the other.

However, that the face disarms all intentionality does not mean that the I does not try to integrate through his volitional acts. When the Self is returned to another to know and represent, it makes the human face as a subject or an object. Just when you look at the color of eyes, skin, sex or what the other carries in his hands, whether he has lost the ethical relationship, since what is behind the "recognition" is an instrumental act. When the ethical relationship becomes instrumental the face suffers a covering that conceals his nakedness and power: thou shalt not kill.

Levinas tries to find a new beginning beyond the ontological, which he sees as the way of knowledge of power relations, taxation and violence, since all otherness is subsumed into being. Ontology "hates" the other; from it all it is to be. In that sense the other disappears into anonymity and becomes a Cartesian subject, pure *cogito* , without narrative identity, i.e. without biography or life story. The other loses his time and living spaces that constitute it as what it is: its identity, in a word, loses his humanity. In this conversion, which is changing its ethics to its ontological constitution, it becomes subject –even object- to integration, domination and annihilation. The new beginning beyond ontology and being is the beginning of ethics as a first philosophy, where the other is another and nothing else, where their humanity is sheltered behind his face, that is, in its mystery. However – distancing ourselves from Levinas- the face is sullied and factual. This act of defiling can be violent through the skinning[7] or covering by certain rationality.

The face in Levinas is a reflection of humanity; thus it contains the face of humanity, which always occurs in face - to - face. This

7.The skinning of a face is not only an act of physical torture, but at the same time is a symbolic act: it is the removal of humanity. The skinning of the face of Julio Cesar Mondragon in Iguala is a warning in a time without humanity in a mere period of civility, modernization, human rights, etc. It is rather a period of nihility. Everything disappears in time, the nation state, ethics, face to face relationships, the truths disappear and everything loses consistency. Nietzche said nihilism, Husserl the forgotten world of life, Heidegger the forgetting of being, Levinas the forgetting of ethics; while in the narco culture and the growing violence as well as the disappearances by criminals or the state.

face says the philosopher, "is presented in its nakedness, not in a hidden way ... not a phenomenon that hides" (Levinas, 2009, p.73). But where the face is the ethical that challenges the exploitation of the laborer, when one plays the other as its capital, as property, as a generator of surplus value, as cheap labor, etc. Don't indigenous women and men who cross the border from Guatemala to be exploited on coffee farms have faces? Don't Central American women who are left to trade only their love because they aren't given other work have faces? Don't children working all day shining shoes and selling gum, have faces? Doesn't the migrant-foreigner have a face when they become *hostile*, the enemy (*hostis*)? And the Jews, the same as Levinas himself, how and when did they lose their face that made the Nazi death camps possible?

Levinas lived the Holocaust in first person, so he knows that the power of the face and the lordship of the other has not stopped genocide, or Auschwitz or America, the latter has been the greatest of all time, "For homicide is actually possible "(Levinas, 2004, p.27). The bottom line is that the nudity of the face, while it puts it beyond history and culture, enables it coating. Western history has been forged from the history of being, thanks to the thorough analysis of Heidegger we know that the platonic *eidos* has been opened and reaches our days as technoscience, *Gestell* . Western history is the transformation of the Greek techne, as a mode of human action *according* to the *physis*, becoming independent of the *physis* to become operation and performance of the entity (typical of the industrial era) and evolving to the modification of nature (part of the advances in genetic engineering), ending their journey in danger of planetary annihilation.[8] In this story, in which the nuclear issue is the change in the direction of truth and being,

8 The lecture that Heidegger made of western history taken the forgotten history as a path of the being is part nuclear in the stage of its thinking known as the spin (kehre). The ideas about transformation of the Greek techne until modern technology together with a great number of works, seminars or personal documents of Heidegger, among which the following stand out: Letter about humanism, From the essence of truth, and The memory that is internalized in metaphysics. In Nietzche II, the doctrine of Plato comes close to the truth, the age of the image of the world, the question for the technique, Fundamental questions about Philosophy, where maybe the most paradigmatic is Donations to Philosophy.

man strongly developed its instrumental characters (instrumental rationality) to undermine the ethics of openness to otherness. In *Totality and Infinity* (2002, p.67), Levinas posed as follows:

> *Knowing ontologically is to surprise, in being addressed, that for which he is not this body, this stranger, but that for which he is somehow betrayed , given to the horizon that is lost and appears, admits , and becomes concept. Knowing comes from the apprehended being from nothing or take it or nothing, take their otherness.*

The imperial phase of Rome is an important development of this instrumental hubris, so it is no coincidence that at this stage there has concluded the institution of Greek hospitality which came to Rome at an early stage. And it is that only the power of instrumental rationality, expressed as means to an ends, investment-profit, has been able to cover and hide the original nakedness of the face, the nakedness of humanity. Only the instrumental rationality from centuries of enslavement of the human spirit, has been coated and has transformed the ethical call for a possibility and opportunity of exploitation and death.

This coating of the face by instrumental rationality functions as a mask, a coating, which means that the face has more originality than its coating: All masks reveal a face, any mask is possible from a previously existing face. That is, you can only reject that to which it is already open. In this sense the coating is not complete; the face can be seen from the mask that it conceals. That is why while the migrant, while *hostis*, is treated in a marginalized manner, it is also subject to counter-vulnerable politics. It is a tense movement between the instrumental and ethical, between rejection and care, where care and ethics are more original than their peers.

CONCLUSION

Migration is now changing the global landscape. There are major political, social, and geographical concerns, involving discourses about the migrant. However, the exploration and research on the subject has forgotten to rethink the basic questions. It is important to continue to raise questions because migration, like any historical phenomenon, reinvents itself, reconfigures and demands that to the extent, there are new answers.

Migration and foreignness is an opportunity to follow the philosophy of thinking about human nature and also provide new theoretical hypotheses to explain the nature of this phenomenon; explanations that could be legitimized or rejected by the social empirical sciences. In that sense, this exercise reveals that the migrant experience of *rejection-care*, has deep anthropological conditions that have to do with the very essence of being human.

The results listed below may represent *notes preliminaries* of a philosophical anthropology of migrants:

- In the experience *rejection-care* , it is revealed that the most original pair is caring . Rejection can only be possible on something which, from the start, we are already open to. Care is therefore the first experience of our encounter with foreigners. This means that originally man lives from an opening ethic . Therefore you have to reformulate the *rejection-care* experience, for one of care-rejection according to genetic levels.
- However, the original experience of care is modified by *rejection* , in Levinasian terms represents the concealment of the face starting from the colonization of the world-of-life from instrumental rationality and processes of idealization or concomitant in science, which has resulted, among other things, the domination of the logic of the market on ethics . The experience of the migrant / foreigner of

care-rejection is a tense relationship between the ethical and instrumental.

- Compressive animi-sense that is found behind this rejection is the *fear* in Heideggerian terms: the foreigner is presented as a *threat* , as a factor in its closeness may be *harmful* .
- How damaging speaks about my state of being-vulnerable which is constituted by the fragility of being-for-death, *Dasein* , man. It is from this vulnerability that the foreigner can be presented as a threat.
- The experience of foreigners or migrants is in an area of original experience, the encounter with the strange, the foreign. This experience, in turn, is incorporated from the first embodiment as a scope of the *external* and the same.
- The above results should be thought of as ontological expressions of man that manifest in the meeting with the migrant. The border and migration policies are expressions of historical and factual practices of this ontological ambit. That is, the encounter with the foreigner / migrant falls within an area that is deeper than political borders.

REFERENCES

Antunes, R. (2014). La nueva morfología del trabajo y sus principales tendencias: Informalidad, infoproletariado, (in)materialidad y valor. En J. Estrada Alvarez, *América Latina en medio de la crisis mundial. Trayectorias nacionales y tendencias regionales*. Buenos Aires: CLACSO.

Arnaiz, G. (1998). La condición de extranjero del hombre (Apuntes para ética de la diferencia). *Logos*, 121-141.

Badiu, A. (2004). *La ética*. México: Herder.

Bonilla, A. (2007). Ética, mundo de la vida, migración. En R. Salas Astrain (Ed.), *Sociedad y mundo de vida a la luz del pensamiento Fenomenológico-Hermenéutico actual* (págs. 27-58). Chile: Ediciones Universidad Católica Silva Enríquez.

Bourdieu, P. (1987). Los tres estados del capital cultural. *Sociológica*, 11-17.

Buttinni, M. (2007). Lo extranjero. *Nadie duerma*.

Cattafi, C. (2014). Las acepciones del término cosmopolitismo: una aportación a la taxonomía de Keingeld. *CONfines*, 9-33.

Chirinos, P. (2007). Hospitalidad y amistad en la cosmovisión griega. En D. y. Acerb, *Philia: riflessioni sull'amicizia* (págs. 43-48). Roma: DUSC.

Coromines, J. (2008). *Breve diccionario etimologico de la lengua castellana*. Madrid: Gredos.

Derrida, J. (1998). *La Hospitalidad*. Buenos Aires: Ed. de la Flor.

Diez, M. (1992). *Introducción al pensamiento de Levinas*. Madrid: I.E.M.

Escribano, X. (2011). Fenomenología y antroplogía de la corporalidad en Bernhard Waldenfels. *Etica y Política*, 86-98.

Escudero, J. A. (2011). Heidegger y la cuestión de la corporalidad. En Á. Xolocotzi, R. Gibu, & R. Santander, *Ámbitos fenomenológicos de la hermenéutica* (págs. 75-108). México: Colección miradas del centauro.

Federación, D. O. (30 de Abril de 2014). *DOF*. Obtenido de http://www.dof.gob.mx/nota_detalle.php?codigo=5343074&fecha=30/04/2014

Giaccaglia, M. A., Méndez, M. L., Candioti, M. E., Ramírez, A., Cabrera, P., Barzola, P., . . . Farneda, P. (2012). Razón moderna y otredad. la interculturalidad como respuesta. *CienCia, doCenCia y TeCnología* , 111-135.

Heidegger, M. (2009). *Ser y Tiempo*. Barcelona: Trotta.

Husserl, E. (1991). *Crisis de la humanidad europea y la filosofía*. Barcelona: Crítica.

————(2008). *La crisis de las ciencias europeas y la fenomenología trascendental*. (J. V. Iribarne, Trad.) Buenos Aires: Prometeo.

Kortanje, M. (2012). Bajo trinchera, el rol de la hospitalidad en los espectaculos futbolísticos en Argentina. *OBETS*, 215-239.

Lévinas, E. (1954). Le Moi et la Totalité. *Revue de Métaphysique et de Morale* .

————(2002). *Totalidad e Infinito. Ensayos sobre la exterioridad*. Salamanca: Sígueme.

————(2004). *Difícil libertad* . Madrid: Caparrós Editores.

————(2009). *Humanismo del otro hombre*. México: Siglo XXI.

Lothar, T., & Chaltelt, Pedro. (2011). *México. Políticas públicas beneficiando a los migrantes.* México: OIM.

Mancillas López, Y. (2015). Narrativas corporales de la transmigración centroamericana en Méxic. *CLACSO, Serie Documentos de Trabajo, Red de Posgrados*, no. 6, 1-17.

Martínez, E. (8 de Julio de 2015). Las Huacas, el burdel en Tapachula donde 40 niñas y 45 niños son prostituidos y condenados a la barbarie. *Revolución tres punto cero.*

OIM. (02 de Agosto de 2015). *Conferencia Regional sobre la Migración*. Obtenido de http://www.crmsv.org/documentos/IOM_EMM_Es/v1/V1S06_CM.pdf

Oller Guzman, M. (2013). Xeíne/Xéne y Xenía: dos epíclesis mal conocidas de afrodita. *Faventia*, 75-86.

Onfray, M. (2006). *La filosofía feroz.* Buenos Aires: Libros del Zorzal.

Piñol, A. (2013). Hesiodo: de una hospitalidad heróica a una hospitaldad pragmática. *Faventia* , 47-56.

Sutcliffe, B. (1998). *Nacido en otra parte. Un ensayo sobre la migración internacional, el desarrollo y la equidad*. Bilbao: Hegoa.

Waldenfels, B. (1998). La pregunta por lo extraño. *Logos*, 85-98.

————(2004). Habitar corporalmente en el espacio. *Daimon*, 21-37.

————(2011). Mundo familiar y mundo extraño. Problemas de la intersubjetividad y de la interculturalidad a partir de Edmund Husserl. *Ideas y Valores*, 119-131.

————(2005). El hombre como ser fronterizo. *Thémata*, 43-54.

MODIFICATION OF AGRICULTURAL LAND TO URBAN IN THE TOWN OF TEXCOCO, STATE OF MEXICO

Juan José Soto-Cortés
ekiz25@hotmail.com

National Autonomous University of Mexico

ABSTRACT

The change of use land from agricultural to urban in the municipalities in the metropolitan area of Mexico City promotes the disappearance of this natural resource and worsening of environmental problems. The urbanization of agricultural land promotes the saturation of existing infrastructure and basic services, shortages of food and water for the population, increased heat, and the disappearance of biodiversity that characterizes this soil and the region where it is located - the municipality of Texcoco, State of Mexico. By allowing local authorities the change of use of agricultural land to urban the devaluation of this resource that provides benefits for the people is promoted. Population growth and expansion of the urban area of Texcoco show that a reevaluation must be made to encourage the preservation of this land and the work activities done on it.

Keywords: *agricultural land, urbanization, natural resources, population increase.*

The change of use of agricultural land to urban in the municipalities located on the outskirts of Mexico City deepens environmental problems, saturation of infrastructure, lack of food due to the reduction of agricultural areas, among other problems, altering the rate of development and stimulating migration to urban centers. The urbanization of agricultural land acquired greater dynamism during the 1950s and 1960s by the forming of shantytowns by people with limited income and which are characterized by the lack of basic services. This intensified with the amendments to Article 27 of the Constitution by allowing the sale of this land.

People who cannot find a place to live within Mexico City are based in the eastern municipalities of the State of Mexico. There is the existence of affordable lots and the building of dwellings through the process of self - construction by limited resources. The process of invasion-expropriation-regularization, due to the sale of agricultural land, creates and promotes the formation of popular human settlements, and their regularization by government agencies drives the informal market characterized by a supply of land and lack of services, and urban anarchic growth.

In addition to the urban increase is the generation of illegal settlements and implementation of public policies that tolerate such colonies. The agrarian law gives room for the formation of interests ranging from the *ejidatarios* themselves to the same real estate that feeds political clientelism. This condition makes clear that poverty affects society, to devote part of the population to underemployment or informal employment, who can only acquire a property that does not have basic services and infrastructure.

CONSTRUCTION OF AGRICULTURAL LAND

Between 1940 and 1975, Mexico experienced an industrialization process that promoted the urbanization of agricultural land located on the outskirts of Mexico City. Due to the farmers with

a significant presence during this period, food prices remained low. At this stage there was the creation of numerous companies in the municipalities of the State of Mexico, near Mexico City, which resulted in the development of agricultural areas located near these industrial zones. A rapid increase in the population by the rural-urban migration of people who wanted a safe job or a better job occurred, generating the expansion of the urban area which absorbed the rural populations in its path.

In the neoliberal phase of the development model implemented by the Mexican authorities changed. It currently favors an economic sector (construction companies) to acquire large agricultural areas which promotes the reduction of this resource through the changing of land use. The State Auditor in the late 1970s and early 1980 period opened the way to a free housing market. It was argued that the state should withdraw their social functions so the market would regulate itself, and there was the imposition of particular interests between the companies that promote health services, education, and transport , among others.

The implementation of the neoliberal model in Mexico shows that much of the population cannot afford housing with all services, and food and quality services need to be relegated to a base that has no infrastructure. Neoliberal policies promote a new vision of development in urban areas. The opening of the agricultural sector allowed for the acquisition of this land by construction companies, or low - income people who cannot access a dwelling that has the necessary infrastructure, those who demarcate this economic activity and devoted it to urban use, compounding the urbanization in the municipalities located in the metropolitan area of Mexico City.

The metropolitan area is identified as a city, regardless of size, beyond its territorial administrative political boundary to form an urban area located in two or more municipalities (Sobrino, 2003: 183). Peri - urbanization is the creation of crowns or concentric peripheral areas, where economic activities and lifestyles

that show characteristics of both urban and rural areas (Ávila, 2001: 110) intertwine.

The neoliberal state allows the change of use of agricultural land to urban use through plans and government programs that do not categorize it as a natural resource and does not identify its significance of being located in the biosphere and interacting with energy. In the State of Mexico, mainly in the municipalities in the east of this state, the building of houses for real estate, low - income people or political and social groups, is authorized, encouraging an underdeveloped urbanization and peri - urbanization in municipalities located in the outskirts of Mexico City.

Political patronage, in the process of urbanization, are when human settlements are absorbed and official documents substantiating the legal possession of the land where the inhabitants reside are presented. Under these conditions, it is common for a political-social group to get the infrastructure they require, and they are used as a means of pressure by the leaders of the community.

The urbanization of agricultural land demonstrates the existence of diverse interests within the process of change of use of agricultural to urban land. Some are landowners, the settler leaders, bureaucracies of the three levels of government, the people 's representatives, such as local councilors and deputies, and the (Trujeque in Gonzalez, 1998: 292-293). It is noteworthy that neoliberal public policies do not promote the welfare of the population and exacerbate inequality and marginalization among people to not meet basic needs and the preservation of natural resources. This development deepens environmental problems exacerbating conflicts related to the lack of jobs, demand for basic services, request for food for the population and water scarcity, among others.

THE AGRICULTURAL LAND IN THE STATE OF MEXICO

The basis of this problem lies in the type of development that was executed and predominant in the stage of the war, by prioritizing the industrial sector and neglecting the agricultural sector. A migration that was initially rural-urban was promoted and is now urban-urban through the creation of human settlements and the reduction of this natural resource. At this stage they focused farmers to supply food to people that was sold at low cost, and did not take into consideration the potential in this soil to produce food and benefits for the population.

During this period, as a result of agrarian reform, ranches that were located on a lands near cities and suburbs that changed the link between Mexico City and rural areas were formed. The commercial economy was no longer based on the estates, but in agriculture it was maintained by state agencies. After the 1940s, the industrial fields were promoted due to the centralization of political and administrative power.

The rise of industrialization in Mexico City led to an arrival of people as a result of higher wages that were perceived in this economic environment, compared with agricultural work. This process prompted the creation of human settlements by people who wanted a place to live and that was near industrial areas. This created slums that were located mainly in the municipalities of Ecatepec & Chimalhuacán, and by people occupying uninhabited areas.

This shows that the urbanization of agricultural areas were located on the outskirts of Mexico City, and were characterized by the creation of a belt of suburban misery compounded by the problems in urban areas such as the provision of public services , environmental degradation, social inequity, waste of local potential, among others (Serrano, 1996; Pérez, 2010). This situation was aggravated by the amendments to Article 27 of the Constitution, which allows the sale of *ejido* land and authorizes the change of land use. The development was very dynamic in the

eastern municipalities of the State of Mexico , where low income immigrants found properties that were economically accessible to them, which generated a rapid increase in the population that resulted in the early conurbation of that territory.

An example of this situation is the municipality of the Valle de Chalco ,which experienced a rapid population increase due to the earthquake of 1985. People residing in parts of Mexico City migrated to this town and built their self-constructed homes due to their limited salaries. The Valle de Chalco was a place where there was space to settle as a result of rising education. By having economically accessible land, the low - income people settled there, driving the process of invasion-expropriation-regularization through the sale of agricultural land, the formation of neighborhoods and their regularizing by the authorities (Hiernaux, 2000).

This was possible largely thanks to the existence of an illegal market for cheap land lacking infrastructure that belonged to *ejidatarios*, middlemen or shell companies that made false sales. This market satisfied the need for people to get a home and increased the disorderly expansion of urban areas and the property market.

This coupled with urban growth results in the formation of illegal human settlements and the implementation of public policies that enable the creation of neighborhoods that are formed on non - productive agricultural land that usually is *ejidal* (Cruz, 2011). The owners of this land choose to work in jobs located in urban areas and create the conditions for a multiplicity of actors such as landowners, settlers, the real estate sector, state and local authorities and peasant groups, that benefit from the messy process of urbanization which is closely linked to political patronage.

The amendments to the laws relating to agricultural land encourages that this natural resource is drastically reduced and together with it the environmental goods that can be generated. Reforms to agricultural legislation does not promote development that supports people who are immersed in this economic sector, and relegates the extent of forcing them to migrate to the cities

and join "moonlighting" jobs, which only allow them to survive. The application of neoliberal public policies of peri urbanization deepens the process in the municipalities in the metropolitan area of Mexico City, promoting the urbanization of agricultural land and environmental problems.

Human, legal and illegal settlements, have been established as the main risks that clear agricultural land located in these municipalities, and where shortages of food and drinking water for the population, among others, become more acute . Poverty is shown as a problem affecting the whole society, finding much of the population in informal employment or underemployment and illegally settling on land that lacks basic services and infrastructure. Public policies allow the change of use of agricultural land to urban use by real estate companies or by low - income people.

The development of plans of government for a certain period of time, either three years or six years, promotes the lack of a project that explicitly recognizes the need for sustainable management of natural resources. This process is clearly presented in the peri urbanization of municipalities in the eastern part of the State of Mexico, such as Texcoco, where passive houses were built in a scattered manner, starting a rural-urban migration, which is currently urban-urban.

This development promotes urban conurbation areas, the deterioration of the living conditions of the population and environmental problems. By allowing state and municipal authorities the building of dwellings on agricultural land, this natural resource is reduced. The demand for services and infrastructure expands, and water shortages and increased heat worsens because agricultural land is covered by asphalt.

The revaluation of land in these areas should be broader and inserted into a multifunctional perspective based on the importance of agricultural activities in the periphery of urban areas. Clearly, the weakening of the productive capacity of agricultural areas is a favorable condition for development. These processes

encourage the creation of populous human settlements and encourages its incorporation into a political patronage, promoting the expansion of metropolitan areas across the conurbation of rural areas by generating more settlements through this political tactic, aggravating the saturation of existing services and infrastructure.

By authorizing the change of use of agricultural land to urban through plans and programs of urban development, the neoliberal state promotes human settlements that lack basic infrastructure and services, showing an increase in the peri urbanization and underdeveloped urbanization in neighboring municipalities of Mexico City .

This type of development is closely related to the existence of an oligopolistic market in real estate, which does not take into account the limitations of the population to obtain housing that has basic services because of the smallness of their income, and promotes excluding certain parts of the population. Unable to meet the requirements set by real estate companies to buy a home, this population sees this as the only alternative or irregularly established on agricultural land. Since there are certain gaps in plans or urban development programs, and the absence of public policies that consider agricultural soil as a natural resource, state and local authorities allow its development through such settlements, promoting inequality among the population , and saturation of infrastructure and services.

These conditions worsen environmental problems and promotes demand for services by allowing the change of land use, as well as the constraints that prevent farmers to cultivate. This situation encourages the reduction of this natural resource and the benefits provided by not considering their potential, and allow land use change and reducing its environmental goods.

By allowing the neoliberal state urbanization of agricultural areas located on the periphery of cities, because of the free market , it is expected that population growth and their conurbation will be encouraged. A process characterized by the fusion of an urban

area with one or more urban areas, that is, a set of urban areas linked to a central city, with the characteristic that these urban areas not only can be linked to the central city but also to other cities (Morales, 2005: 26).

The application of neoliberal public policies of peri urbanization deepens the process in the municipalities in the metropolitan area of Mexico City, the same that encourages changes in agricultural land to urban use and environmental problems. Both legal and illegal human settlements set the main risks to clear agricultural land located in these municipalities, same as exacerbate food shortages and drinking water for the population.

The main features of the functions of the state are currently: a) Financial: The State provides loans but does not offer housing, which are now offered by construction companies; b) Construction: Construction companies use low quality materials; c) Monitoring: The State allows builders to offer homes that do not meet the minimum requirements set by international institutions; d) Utilities: The State must provide infrastructure to new abodes no matter where they are located, creating a double investment in infrastructure to connect with urban centers; e) Urban planning: The State allows that the urban area is increased haphazardly due to urban sprawl by construction; f) Organization; housing demand, housing construction, intermediaries and political and social organizations; g) regulatory legal framework tenure of rural and urban land: 1) The State has granted the *ejidatarios* the power to sell agricultural land (Amendment of Article 27 of the Constitution); 2) The agrarian law allows the participation of private investment in agricultural activities; 3) The Regulatory Commission Land Tenure (CORETT) is limited to demarcate agricultural land that has been invaded, and channels to urban use; 4) The Institute of Urban Action and Social Integration (AURIS) were merged into the Mexican Social Housing Institute(IMEVIS) which promotes, plans, organizes, coordinates and regulates matters relating to social housing and land.

Examples of this process are the following processes of urbanization that have occurred in the State of Mexico: 1. The development that took place in the municipality of Ecatepec, located north of Mexico City, because of its location relative to Mexico City . An increase of homes by real estate or land sales through intermediaries, a situation that increased with the earthquake of the year 1985; the filling of the hills (belonging to the Sierra de Guadalupe) was generated, showing they were invaded.

This has encouraged the shortage of water, increased heat, saturation of infrastructure and shortage of public services, rising crime, and marked reduction in the agricultural area, among others. This town is nationally the most populated, because according to the National Institute of Statistics and Geography (INEGI, 2015), in 2010 it had 1,658,806 inhabitants, which is only after the Iztapalapa Delegation of Mexico City, which had 1,815,786 residents.

2. The complex which was raised in the city of Chimalhuacán, which is east of the City of Mexico and south of Texcoco, which was made through political patronage. The process that formed human settlements through this political activity and the sale of land by trade unions, such as the 100 (SUTAUR 100) (Gonzalez, 1988: 72). It is emphasized that due to the neglect of this municipality by the State government, a fusion of about 60 social organizations created *Antorcha Campesina*, which organized and endowed services and infrastructure to the people (Perez, op. *Cit*was *generated*.), thus increasing the population to generate the same degree of problems that arise in Ecatepec.

3. Rapid urbanization takes place and may become worse in the municipality of Texcoco, State of Mexico, located east of Mexico City, which went from 204.102 inhabitants in 2000 to 235.315 inhabitants in 2010. If this development continues social and environmental problems will worsen just as happened in the first two municipalities.

THE REDUCTION OF AGRICULTURAL LAND IN THE STATE OF MEXICO

In Mexico, the urbanization of agricultural areas by low - income people has occurred principally since the 1950s , and increased during the 1960s and 1970s-a process characterized by the migration of people from rural to urban areas who wanted a better life. Today it is a result of migration of an urban area into an urban situation, since the 1990s, has been mainly to outlying areas which are near large cities. Internal migration has occurred in two directions, in the seventies it moved from rural areas to urban areas, and in the nineties it became urban-urban (Escobar *et al* . , 1999: 95).

The existence of a large number of poor or low - income people living around Mexico City encourages a process of underdeveloped urbanization on its periphery, characterized by the creation of popular human settlements on areas destined to agricultural use that promote the peri urbanization of large cities. The real estate sector has not been indifferent to the free market process to promote issues related to the desire to obtain housing by low - income people, by those who create the popular human settlements and political patronage.

The exclusion of a certain type of population does not meet the requirements established that housing is mainly based on the cost of homes they offer. By not having the required amount of money, or not having a guarantee to support the buyer, these companies indirectly promote these difficulties. Progress in the process of urbanization is reflected in three basic aspects: increase in urban population, increasing number of cities and concentration of population in large cities (Garrocho *et al* . , 1995: 24).

When people get a credit, they seek in the great housing market a house that fits their budget. Sometimes they decide to acquire a farm near urban areas and then opt for self-construction, as the costs of these houses are very high and do not meet their needs. *Ejido* members are jointly responsible for the process to

the extent that, for various reasons, has allowed illegal divestiture and payment for their land. However, it is a semi - passive intervention, as the group-player dynamic undoubtedly constitutes fractionators (Schteingart, 1991: 293). In Mexico the following circumstances for the *ejidatarios* would push them to sell their agricultural land: 1. The cultivation of agricultural areas is no longer well paid, due to the lack of economic resources to plant, together with the governmental program guidelines focused on this activity (which typically require many documents, are very strict, and even use many technicalities).

2. In the event that the farmer can grow and "achieve" his crop, he faces the problems of the market, since in most cases buyers are hoarders of the region in which they live, who are forced to sell their harvest at a price they don't decide.

3. Given the lack of resources to plant, as well as the problems of the market, the *ejidatario* chooses to sell their property to the real estate market, which offers a certain amount, but to meet the construction requirements established by the Secretariat Agrarian reform owning agricultural areas, multiply the "tired" amount in buying this land, because they are easier to mark agricultural use with a focus to urban use.

This allows the owners (*ejidatarios*) from nearby agricultural areas close to the cities to encourage the development of these areas. When it is stated that the proliferation of spontaneous settlements is strictly related to the urgency of finding a reasonably priced home, there is evidence to say that many invasions are stimulated by people who are instructed by landowners who have not obtained permission to urbanize or they are simply devoted to speculation and exploitation of a poor city (Montano, 1976: 109). The urbanization of agricultural land encourages the agglomeration and exclusion in the periphery of cities, promoting a saturation of services and roads.

In Mexico in 2010, according to the National Population Council (CONAPO, 2015a), there were 59 metropolitan areas,

which include the Valley of Mexico, Guadalajara and Monterrey, where there were sources of employment primarily related to the tertiary sector (services), transportation and schools, among others. These places were centers that attracted low - income people who wanted a better quality of life and settled on its periphery forming irregular human settlements. Public policies geared towards urban development by the governments of the municipalities in the region of Cuautitlan-Texcoco Valley allow changes of use of agricultural land to urban use by real estate or political and social groups.

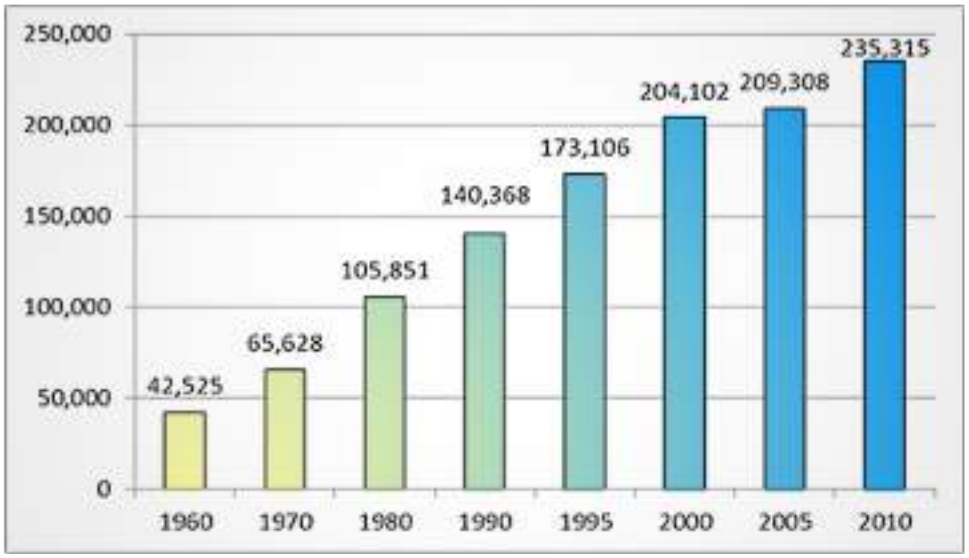
THE AGRICULTURAL LAND IN THE MUNICIPALITY OF TEXCOCO

The municipality of Texcoco, State of Mexico, has been considered a center of attraction for a large number of people, for those being unable to settle within the City of Mexico, who settled in this town which is close by . Texcoco had an increase in its population since the 1960s, a process that accelerated in the period 1980. The population growth fostered urbanization of agricultural land due to the expansion of the urban area. In 1960 it had a total population of 42,525 inhabitants and for 2010 it was increased to 235,315 inhabitants (INEGI, 2015). The following table shows the population growth of Texcoco, according to censuses and population counts conducted by the INEGI.

Texcoco has an area of 418.69 km^2 which is distributed from the flat areas of the old basin of former Lake Texcoco to the west, and to the east of the Sierra Nevada (H. Ayto Texcoco, 2015: Docto.Elect.)The National Institute for Federal and Municipal Development indicates that the surface is divided as follows: irrigated agriculture 4210.0 m 2; rainfed agriculture 7890.0 m^2; forest 13,556.0 m^2; livestock 3347.0 m^2; Urban 3.400 m^2; Industrial

90.8 m²; waterbodies 25.4 m²; eroded land 7026.4 m²; other uses 4596.0 m² (INAFED, 2015: Page. Elect).

Figure I. Increase of the population of the municipality of Texcoco, from 1960 to 2010.



Source: Prepared based on censuses and population counts from 1960 to 2010, INEGI.

The municipality is located in the eastern portion of the State of Mexico, 25 kilometers from the Federal District, adjacent to the North with the municipalities of Atenco, Chiconcuac, Papalotla, Chiautla and Tepetlaoxtoc; South: with Chimalhuacán, Chicoloapan, Ixtapaluca and Netzahualcóyotl; the East: with the state of Puebla; to the west: the municipalities of Ecatepec and Nezahualcoyotl (H. Ayto Texcoco, 2015. *op . cit.*). The following image shows the location of Texcoco in relation to the City of Mexico, which promotes their development and consequently, their agricultural land disappears.

Image I. Location of the municipality of Texcoco in the nation.

Source: Municipal Development Plan 1997-2000, H. Ayto Texcoco.

Texcoco is an example of public policy that allows the development of existing agricultural land, contributing to its devaluation through the marked expansion of the urban area by increasing human settlements that promote environmental problems. The decrease in agricultural land located on the outskirts of Mexico City, mainly in the municipalities located east of the State of Mexico, was made through illegal human settlements due to the invasion of this land by political and social groups or clandestine sales through its owner, possessor or intermediaries. The process of invasion-expropriation-regularization promoted the reduction of agricultural land to more settlements of this type.

The lack of basic services and infrastructure is because the population is not immersed in any political and social group to acquire a property through fraudulent fractionators, exposing their disorganization. Of those who desire services, most of the inhabitants of these settlements are incorporated into a political-social group, which are used for their demands to be heard. This type of policy strategies promotes obtaining supporters who

support a particular leader and the formation of more populous human settlements.

These political groupings have people in their ranks living in certain municipalities that are characterized by low-income residents, a population that is brought to settle in the periphery of the city, in areas considered as high risk, or neighboring or distant municipalities where political grouping process expands and installs in other localities or municipalities. The creation and incorporation of other irregular human settlements promotes political patronage that is also characterized by the occupation of private land or agricultural areas almost immediately.

The urbanization of the areas near the cities promotes inequality among the population by excluding or limiting access to homes that have certain types of characteristics, promoting the exclusion of people of limited income. Everyone knows the great dependence of construction regarding the availability and price of land for building as well as land speculation derived from this, it is the articulation of territorial income with the capitalist profit; Two factors underlie this speculative strategy: 1. The shortage of housing, which ensures the possibility of realization of the land, and this combines with a super profit such that the housing shortage is accentuated; 2. Demand for certain locations, which are socially valued and / or functionally desirable (Castells, 1976: 184).

Multiplying the initial investment made in the purchase with the sale of dwellings, is an economic amount that can rise to millions of pesos. They are given to real estate companies that obtain basic services to locate its buildings near areas that have them, such as transport, major roads or the construction of a shopping mall, increasing its speculative value and excluding the low-income population.

Migration aggravates the lack of potable water and drainage in popular settlements that are formed in the periphery of urban areas. The expansion of urbanization through housing developments generates reduction of agricultural land next to cities,

promoting their conurbation as the inner city tends to expand by absorbing the closest suburbs to turn them into a solid mass of buildings (Ward and Dubos, 1972 : 145). The generation of popular human settlements on the peripheries of cities encourages population growth and the conurbation in these areas, and encourages the oversubscription of jobs, food and services for residents, among others.

Texcoco has become an attraction for people who want to get a place to live. By belonging to the metropolitan area of Mexico City, it was raised in a moderate growth in its population during the years of the 1930's and 1950's. In the period 1960 to 2010 , an increase occurred, highlighting the increase in the 1980 which was a situation that worsened the conurbation of the municipality and the issues that are formed due to the demand on existing infrastructure and the lack of public policies that incorporate the perception of agricultural land as a natural resource.

When there is no value to agricultural soil as an element that produces goods for the population, the construction of houses by construction companies and political and social on the same groups will be allowed and overpopulation will worsen, increasing the agglutination of people in the periphery and encouraging the reduction of agricultural areas, food shortages and the destruction of soil suitable for cultivation.

Job creation unrelated to agricultural land will encourage development within Texcoco. Companies settle in this county near human settlements belonging to political-social groups, focusing on the construction of homes to people from higher income groups. Peri-urbanization exacerbates environmental problems. Human settlements, followed by invasions or illegal sales of land and changes in land use are the main threat of agricultural land in the Valley of Mexico, causing a loss of the ability to capture water and suffer a total lack of the vital liquid in very few years. This is evident in the expanded periphery which has deteriorated and the occupied area in the process of expanding urban sprawl

and densification of urban settlements has increased (Delgadillo, 1999: 304).

The information handled in censuses and population counts of the INEGI (2015) show that Texcoco has experienced an increase in its population significantly. In 1960 , it had 42,525 inhabitants; in 1970 it reached 65.628 residents; in 1980 it had 105.851 inhabitants; in 1990 it had 140.368 people; by 1995 it had reached 173.106 occupants; in 2000 it housed 204.102; in 2005 there were 209, 308 residents; and for 2010, it reached 235, 315 inhabitants. The preservation of this land for its labor activities may allow its valuation as a natural resource. The National Population Council (CONAPO, 2015b) projected that Texcoco would have a natural population increase in 2005 and would have 210.411 inhabitants; in 2010 it would have 217.260 inhabitants, in 2015 there would reside 221.829 people, in 2020 there would be 224.482 people, in 2025 it would reach 225.403 occupants, and in 2030 it will reach 224.563 residents.

The implementation of economic support through government programs have limited resources that encourage the creation of jobs not related to agricultural land. Links between the rural economy and the market have increased and intensified. Today there predominates pluri activity and in many cases non-farm income of farm households are greater than income derived from agricultural production. Much of the non-agricultural income comes from the sale of the labor force of some of the family members: working as employees in a multitude of activities either in large capitalist farms, construction in rural areas and / or migrating to cities and even other countries (Breton, 2007: Learned Elect.).

To disassociate this agricultural land use , there must be a focus on the urban construction of dwellings by construction companies and occupation through political and social groups must not be allowed. Both developments demonstrate the urbanization of agricultural land and promote peri urbanization in the

municipalities located in the east of the State of Mexico, such as is the case of Texcoco.

The dynamics of the physical expansion of the urban area of the metropolitan area of Mexico City has major changes due to several factors, among which is a changing population by migration to the capital and its own process of land occupation. Demonstrating the clear distinct tendency of clearing inhabitants of the historic core areas and excessive population increases in unsuitable peri pheral settlements for urbanization, especially in the municipalities of the State of Mexico, where they express the highest rates of demographic growth and are consequently representing a change in the model of population occupation (Perez Gonzalez, *op . cit.* : 352). This assists in perpetuating an urbanization process that has been played out for decades, initially promoted the rural-urban migration, which responded to import substitution, job creation and industrial areas around Mexico City.

CONCLUSIONS

The municipality of Texcoco has the infrastructure and necessary location to attract people who want better employment options and meet the basic needs of their families, who will settle legally or illegally on agricultural land , worsening environmental problems and its peri urbanization. The transformation of the type of development implemented by the Mexican authorities encouraged the creation of jobs that are not related to the agricultural sector, the construction of homes near workplaces ,and the reforms of agricultural laws in the 1990s- a situation that continues rural-urban migration and urban-urban migration which is for people who want a better standard of living and move to other urban areas.

Regular environmental urbanization criteria of agricultural land in Texcoco is important. There are areas of this natural resource that are in danger of disappearing due to the changes

made in the laws concerning this economic sector, promoting environmental problems by becoming a suitable place to reside. The existence of constraints that prevent the owners of this land to cultivate, as well as factors that influence the arrival of people from other municipalities to live in Texcoco, encourages development by changing the use of agricultural land to urban use. Agglutination of inhabitants in the municipality of Texcoco and municipalities in the area where " moonlighting " is located incentivizes the forming of populous human settlements by people migrating to urban centers.

By identifying the importance of that agricultural land for the population, benefits can be obtained, otherwise it will continue with the reduction of this natural resource by not perceiving the value that exists in this soil by small land holders. The municipality of Texcoco has not kept the margin with respect to urbanization of agricultural land , and large areas of this soil that can be incorporated into urban use. The situation aggravates the supply of basic services such as: a) garbage collection; b) public lighting; c) green areas, among others-functions that local government must meet. The urbanization of agricultural land will worsen not only in Texcoco but also in the municipalities belonging to the region, boosting the problems in the environment.

The reappraisal of agricultural land in Texcoco must be made by state and local authorities, through government plans to encourage its multi functionality based on agricultural work, to promote productivity and obtaining its environmental benefits-a resource which can generate jobs and prevent the increased urbanization of agricultural land.

The aspects that should be encouraged in this revaluation are: 1. To promote respect for the environment through proper use of natural resources; 2. Promote the rescue, presentation and visiting of colonial areas and towns of Texcoco; 3. Promote an economy based on the cultivation of agricultural land and livestock production goods economy; 4. Assisting farmers to obtain official

support for the agricultural land and encourage the development of environmental goods; 5. Integrate students from universities and institutions related to agriculture to support farmers in projects obtaining the environmental benefits of this soil; and 6. Encourage organic farming and certification of products through consulting, technical assistance and agro-industries.

Otherwise it will continue its devaluation and reduction due to population growth, and job creation unrelated to this natural resource, aggravating environmental problems in this county. Much of the surface of Texcoco is focused on forestry and agricultural use, the areas where these uses are located are the east, north and west, and the most vulnerable soil is the one located next to the urban area.

REFERENCIAS

Ávila-Sánchez, Héctor, (2001) Ideas y planteamientos teóricos sobre los territorios periurbanos. Las relaciones campo-ciudad en algunos países de Europa y América. México, Ed. UNAM - Investigaciones Geográficas, Boletín del Instituto de Geografía, UNAM, Núm. 45, 2001, Pp. 108-127.

Bretón, Víctor, (2015, 1 de julio) "La cuestión agraria y los límites del neoliberalismo en América Latina". Facultad Latinoamericana de Ciencias Sociales, México. Obtenido de http://repositorio.flacsoandes.edu.ec/handle/10469/617#.VZciBht_Oko

Castells, Manuel, (1976) La cuestión urbana, México, Ed. Siglo XXI, 515 Pp.

Consejo Nacional de Población, (2015a, 30 de junio) Delimitación de las zonas metropolitanas de México 2010. CONAPO, México. Obtenido de http://www.conapo.gob.mx/es/CONAPO/Zonas_metropolitanas_2010

Consejo Nacional de Población, (2015b, 30 de junio) Proyecciones de la población, 2005-2030 (Municipales). CONAPO, México. Obtenido de http://www.conapo.gob.mx/es/CONAPO/Proyecciones_Analisis

Constitución Política de los Estados Unidos Mexicanos, (2015, 29 de junio) "Artículo 27 de la Constitución Política de los Estados Unidos Mexicanos". Cámara de Diputados, H. Congreso de la Unión, México. Obtenido de http://www.diputados.gob.mx/LeyesBiblio/pdf/1_07jul14.pdf

Cruz-Rodríguez, María Soledad, (2011) Propiedad, poblamiento y periferia rural en la zona metropolitana de la Ciudad de México, México, Ed. Red Nacional de Investigación Urbana, 356 Pp.

Delgadillo-Macías, Javier, (Coord.), (1999) Volumen 2 Desarrollo regional y urbano en México a finales del siglo XX, Tomo V Democracia y federalismo. ¿Hacia una nueva política territorial? México, Ed. Asociación Mexicana de Ciencias para el Desarrollo Regional, A.C., 375 Pp.

Escobar-Latapí, Agustín, Bean, Frank D., Weintraub, Sidney, (1999) La dinámica de la emigración mexicana, México, Ed. CIESAS, 141 Pp.

Garrocho-Rangel, Carlos Félix y Sobrino, Jaime, (Coords.), (1995) Sistemas metropolitanos: Nuevos enfoques y prospectivas, México, Ed. Colegio Mexiquense, 574 Pp.

González, Ovidio, (1988) El metro de la ciudad de México. Revista EURE Vol. XIV. No. 42, 63-82 Pp.

González-López, Sergio, (Coord.), (1998) Volumen 2 Desarrollo regional y urbano en México a finales del siglo XX, Tomo II Análisis y planeación del desarrollo urbano, regional y municipal. México, Ed. Asociación Mexicana de Ciencias para el Desarrollo Regional, A.C., 527 Pp.

H. Ayuntamiento Constitucional de Texcoco, (1997) Plan de Desarrollo Municipal de Texcoco, 1997-2000, México, Ed. H. Ayto. Constitucional de Texcoco, 284 Pp.

H. Ayuntamiento Constitucional de Texcoco, (2015, 30 de junio) "Bando de Policía y Gobierno del Municipio de Texcoco, Estado de México". H. Ayto. de Texcoco, México. Obtenido de http://www.edomex.gob.mx/legistelfon/doc/pdf/bdo/bdo101.pdf

Hiernaux-Nicolás, Daniel, (2000) Metrópoli y etnicidad: Los indígenas en el Valle de Chalco, México, Ed. El Colegio Mexiquense, 174 Pp.

Instituto Nacional de Estadística y Geografía, (2015) "Censos y conteos de población y vivienda" (Varias páginas electrónicas), México, Ed. INEGI. Obtenido de http://www.inegi.org.mx/est/contenidos/proyectos/ccpv/default.aspx

Instituto Nacional para el Federalismo y el Desarrollo Municipal, (2015, 28 de junio) "Enciclopedia de los Municipios de México, Estado de México, Texcoco". INAFED, México. Obtenido de http://www.inafed.gob.mx/work/enciclopedia/EMM15mexico/municipios/15099a.html

Montaño, Jorge, (1976) Los pobres de la ciudad en los asentamientos espontáneos, México, Ed. Siglo XXI, 224 Pp.

Morales-Sánchez, Lucia, (2005) El transporte en la alternativa de desarrollo urbano de Cuautitlán Izcalli, México, Ed. Tesis de Maestría ESIA-IPN, 192 Pp.

Pérez-Zambrano, Abel, (2010) Marginación urbana. El caso del oriente mexiquense, México, Ed. Miguel Ángel Porrúa, 281 Pp.

Schteingart, Martha, (Comp.) (1991) Servicios urbanos, gestión local y medio ambiente, México, Ed. COLMEX, 479 Pp.

Serrano-Moreno, Jorge R., (Coord.) (1996) De frente a la ciudad de México ¿El despertar de la Región Centro?, México, Ed. Centro Regional de Investigaciones Multidisciplinarias (CRIM/UNAM), 257 Pp.

Sobrino, Jaime, (2003) Competitividad de las ciudades en México, México, Ed. El Colegio de México, 619 Pp.

Ward, Bárbara y Dubos, René Jules, (1972) Una sola Tierra: El cuidado y conservación de un pequeño planeta, México, Ed. F.C.E., 278 Pp.

VIRTUAL ENVIRONMENTS LEARNING, SUPPORTING ELEMENTS FOR UNDERSTANDING LITERARY TEXTS

Raxiel Martínez Pedraza
raxielp@ucp.vc.rimed.cu

University of Pedagogical Sciences “Félix Varela Morales”

ABSTRAC

Cuba is undergoing a series of transformations resulting from the economic model which requires improving the quality of education. The students who are in classrooms were born in a digital era, with new codes of interpretation of reality, supported by Information and Communication Technology (ICT). This presents new challenges for education, impacting personal and non-personal components of the educational process, giving way to virtual learning environments. The objective of this work is to address the use of these environments in the teaching-learning understanding of literary texts.

Keywords: *environments, virtual, learning, comprehension, literary texts.*

The current scientific-technical revolution puts man in the spotlight, to address the scientific problems related to the formation of personality, creating a worldview on the individual, the generation and acquisition of scientific knowledge, and the development of intellect and creativity in the teaching-learning process.

As a result of the scientific-technical revolution, there emerges information and communications technology (ICT), defined as "*... a set of tools, support and channels for the treatment and access to information, specifically the hardware, software, and communication (Internet, web, email). These tools record, store and disseminate informational content* "(Augusto: 2013, p.18).

This technological evolution has impacted education, with the appearance of different theoretical approaches associated with the use of ICT in teaching and learning. For example: Barron (1998) considers the "webs" created by teachers as resources to support learning; Ronteltap and Eurelings (2002) argue that these new technologies have made multiple materials available to the teachers for the self-assessment of their knowledge.

Moreover, Salinas (2004) believes that ICT has produced methodological changes in teaching-learning and Garcia (2012) evidences the process that despite the many actions developed in recent years, teachers integrate some technologies in their teaching.

The use of ICT enables the emergence of new spaces for the realization of educational processes, lacking spatiotemporal limitations, and therefore become another means by which the student acquires knowledge, thus guaranteeing more integral training.

DEVELOPMENT

General considerations on teaching literature to the pre-university student

The end of the pre-university education in Cuba focuses on achieving the integral formation of youth from the development of a comprehensive, policy and pre-professional culture, to ensure continuity of higher education careers as a territorial priority.

In analyzing the program of pre-university Spanish-Literature from a methodological point of view, it is suggested to take into account in each grade "*... the extent of the works under study and the time the course being studied and the importance of the historical-cultural aspects, indispensable for the understanding of information*" (Education, 2006, p.214).

In addition, different methodological variants for the study of literature are recommended such as the use of active method like varied and dynamic kinds of different forms of organization of teaching and independent work, where the student participates either individually or in a team, promoting the search for information and identifying problems. From the above it follows that the teaching of literature in this process cannot be enumerative information of works, authors and movements with consecutive character.

The teaching of literature at this level focuses on skills development and discursive skills, ensuring that the study of language and literature provides the student a greater ability to make speeches externally and to formalize their own material.

Moreover, it aims to raise the level of knowledge and thinking skills in students to consolidate literary competence through the study of works of world literature belonging to different periods of history, the characterization of these works and their authors, predominantly from the twentieth century which correspond to the three main genres: epic, lyric and dramatic.

The current model for the subject of Spanish-Literature is accurate to the teaching-learning process with a training, educational, instructive and developer character in order to meet the needs and demands of Cuban society, a comprehensive organization that conceived the knowledge, skills, feelings, values and attitudes of the literary text as a crosscutting curriculum design in the University.

Therefore, the teaching of literature occupies a major place in the curriculum of pre-university education, because it contributes to the development of communication skills in oral and written form and to the formation of an intelligent reader, able to perceive every time a wealth of literature and encourage the development of language skills, especially communication work.

The teaching-learning process of understanding of literary texts

The teaching-learning process can be defined, according to Alvarez de Zayas (1989) as cited by Valiente (2001, p.25), as "*the activity aimed at completing the social custom that takes place in a conscious and planned manner. Its specificity lies in the interaction of two types of activity: teaching and learning, from where its fundamental contradiction arises*".

Seeing this process in a narrower sense, it leads to prepare students systematically and continuously for efficient text comprehension, which involves directing the process towards the strategic objectives and projections of education in Cuba generally , and in particular, compliance with the model of graduates of a particular school.

By directing the teaching and learning of understanding of literary texts, it is necessary to take into account the activity of the teacher, who teaches; and the student, who learns. "... *Teaching in its fully intrinsic state form part of the educational process and has as its basic core learning*" (Chavez, 2000, p.35).

A literary text without understanding is meaningless, therefore, an interaction between what the text says and what the person reading knows and looks for is necessary. Understanding a literary text is signaled by the development of skills and abilities to construct meaning through the teaching-learning process.

There are several researchers who bring their knowledge regarding this text. For example: Roméu (1987), cited by Báez (2006, p.138) considers that in the literary text, "the literal or explicit interest only momentarily gives way to the discovery of the intentional or implied. More than the word, it denotes, connotes what interests us".

This author refers that the reader must discover the meaning that lies between the words that make up a literary text, since it goes beyond what is seen or heard, leading to a higher level of mutual understanding with other texts. Sales (2007) understands that literary texts belong to the artistic functional style, where communication is oriented towards aesthetic effect; the author uses specific means of expression, and media can combine with belonging to other functional formations. In addition, each genre has its own characteristics that differentiate them from one another, even if it is sometimes integrated with each other (p.137).

This investigation coincides with other authors argue that the literary text is often inaccurate and imprecise, and it is full of creativity and expressiveness, from the aesthetic effect that manifests the author in the text, who uses literary resources based on each gender allowing a number of interpretations depending on the cultural level of the reader.

As expressed, it can be considered that the literary "... *text conveys an intentional reflective self-ambiguous and complex aesthetic message, projecting beyond its time and promoting the internal development of reader-listener in historically conditioned sociocultural contexts*". (Hernandez, Diaz, & Garcia, 2011, p.38)

Understanding this type of text creates an unlimited number of arguments, as reading becomes a dynamic, flexible and productive process for the student. Therefore, in the way that they build their ideas and personal rewriting, you can bring great wealth to its interpretation.

The virtual learning environments as support for understanding literary texts

According to McCormack & Jones (1998); cited by (Marcelo, 2002, p.25), virtual learning scenarios are currently recognized as:

> *...An environment created on the Web where students and teachers can perform learning tasks. It is not just a mechanism for distributing information to students, is also related to communication tasks, student assessment and classroom management.*

Other authors give different definitions to this new educational opportunity, including "virtual learning environments" (Mendoza, Alvaro & Galvis, 1999), "teaching and distance learning through the web" (Romiszowski, 1999), "training through Internet and distance learning "(Marcelo, 2002) and more recently "new scenarios for learning "(Espinoza, 2014).

Among the virtual learning environments, includes:

- The "e - learning" (Electronic Learning), aimed at improving the quality of learning through the Internet, accessing resources, services and long - distance collaborations.
- The "b- learning" (Blended learning), combines education and distance education or face to – face learning, considering the advantages of both methods, thus improving student learning.
- The "m- learning" (Mobile- learning), "*is a methodology to learning based on wireless technologies where there*

> *is an expansive relationship of a character of geography and time*" (Hernandez to, 2008, p.5).

The use of these environments impacts all the elements of the educational process (objectives, content, teachers, students, family), facilitating or hindering formal education.

In the study of its use in teaching and learning comprehension of literary texts, Rodriguez (2006, p. 161) outlines that "*modern information and communications technology have opened horizons that were unsuspected only a few decades ago. But modern knowledge society needs (...) a solid learning related to reading skills*" (Rodriguez, Lopez & Gayoso, 2010), an avocation of the intelligent use of ICT as a special form of promoting the habit of reading. Lozano (2014) presents a work related to the use of virtual learning scenarios, related to innovative teaching practices with ICT mediation, generating creative learning environments in teaching Spanish and literature, but which does not address the understanding of literary texts.

The revised bibliographies sufficiently address reading skills, however the use of virtual learning environments for understanding literary texts rests in the spontaneity of teachers and students.

The understanding of literary texts is an educational activity that is taught through different processes, from the three levels of understanding given by Roméu (1999) and cited by (Montano & Abello, 2010, p.89): "*Level of translation, level of interpretation and level of extrapolation or creative reading"*.

These levels of understanding can be developed through the use of virtual learning environments, therefore the students that are in the classroom are different from those of the last century in interests and peculiarities, because they were born in a digital age with skills developed for the management of these tools; the rate and amount of knowledge currently generated does not guarantee that the printing of books is topical and that the personal

elements involved in the teaching-learning (teacher and student) process are not analogous to those of the last century and therefore their roles in the classroom have changed.

In addition, from the use of virtual learning environments students acquire new knowledge of the text which includes developing skills individually or in groups; breaking with the conception of the traditional classroom, where time and distance are no longer a problem when using these technological means, becoming a precious resource in the collection, organization and management of information acquired from the text.

DIAGNOSTIC OF THE CURRENT STATE OF THE PROBLEM

Pre university study unit "Osvaldo Herrera"

The pre-university "Osvaldo Herrera" is a school that corresponds to Higher Secondary Education (10th, 11th, 12th grade). It is located in the center of the city of Santa Clara with more than 600 students' enrolled. This center is chosen precisely because it is where the author works, allowing for systematic accompaniment during the investigative process. It is also is an institution that has Internet connectivity both within the institution and in their areas surrounding by Wifi.

Instruments used in the diagnosis and results

Different instruments were applied in correspondence with empirical methods:

- *Educational testing* (*instrument input*) to ascertain the difficulties presented by students in understanding literary texts. (Appendix 1)

- Observation: For information on the conditions presented by the Pre University "Osvaldo Herrera" and its students in using virtual learning environments in understanding literary texts. (Annex 2)
- Interview: For information on the knowledge students have about virtual learning environments and their use in understanding literary texts. (Annex 3)

In reviewing the educational testing that was applied, it is found that students have difficulties at all three levels of reading comprehension, mainly in the level of interpretation. It is also generally seen that they do not know how to understand it creatively, which does not favor autonomy, and the flexible development of the meaning of these texts according to the level of demand that is required in pre - university education. These difficulties are manifested concretely in the insufficient interpretation of written thought, and scarce evidence in the production of meaning.

It is noted that in the Pre University "Osvaldo Herrera, "students have the minimum technology to use virtual learning environments (computer labs, Intranet connectivity). They demonstrate good conditions for using virtual learning environments, present knowledge and skills to work with ICT, and a large percentage of students have surfed the Internet and have laptops in addition to cell phones and tablets with Android technology.

A total of 45 students of different grades from pre - university education (10th, 11th and 12th grade) obtaining that 15 students,(33.3%) responded that they always have difficulty understanding this type of text, 18 students (40%) say they sometimes have difficulties and (26.7%) acknowledge that they have difficulty understanding literary texts.

Mostly have a vague idea of what are the virtual learning environments, and always link them with computer use. It was inquired if they seek help in a virtual learning environment when they are oriented in activities to understand a literary text, 31.1%

of students, that is, 14 students answered yes, specifying that generally use Wiki or Encarta.

The absence of practical experiences in the methodological treatment of comprehension of literary texts using virtual learning environments was also noted, as well as a lack of knowledge by the student community of the role of the use of virtual learning environments in teaching and understanding of these texts.

In essence, this study has verified that there are difficulties with understanding literary texts and the use of virtual learning environments for its possible solution.

Proposed activities for the development of understanding of literary texts through virtual learning environments

Given the problems diagnosed in the previous section, a proposal for activities to develop understanding of literary texts from the use of virtual learning environments is used for the purpose of achieving an adequate level of development in reading comprehension, as constructed for students of pre - university education.

This proposal will apply during a school year to 10th graders at the Pre University of "Osvaldo Herrera" precisely because of their greater difficulty in understanding literary texts and the resolving of the shortcomings identified in the diagnosis.

General objective: To contribute to the development of understanding of literary texts using virtual learning environments through a proposal of activities.

Activity # 1- Web pages

Objective: To strengthen the acquired knowledge and involvement of students with the literary work, as understood from the use of virtual learning environments.

Methodology: To provide students with addresses of Web pages that are related to the literary text ; encourage discussion in the classroom about new information learned on the literary text, and the exchanging of experiences and different views of students.

Activity # 2- chat and discussion forums

Objective: To strengthen the acquired knowledge and involvement of students with the literary work, from the use of chat and discussion forums.

Methodology: Rate, by the teacher and students, the views offered in virtual learning environments, based on the literary text.

Activity # 3 Virtual libraries

Objective: Interact with the literary work in virtual libraries

Methodology: Provide the student the direction of virtual libraries where the literary text is understood, or create virtual libraries with the texts to be understood in this teaching; encourage debate on what is read.

Activity # 4 Exchange via the Web

Objective: Exchange ideas and thoughts with the author or analyzed by literary text specialists.

Methodology: Develop, through videoconferencing or e - mail exchanges between the student and the author, or specialists in literary text.

Activity # 5- The virtual classroom

Objective: To develop an understanding of literary texts from the use of the virtual classroom and virtual learning environment.

Methodology: Enroll students; observe the proper material content area being studied; exchanges among students regarding the work that includes interactive forums; solving guided activities based on literary works; evaluation, by the teacher, of the activities that are oriented in the guidelines; describe and evaluate the activities carried out in the virtual classroom.

These proposed activities are designed to contribute to the development of understanding of literary texts using virtual learning environments, thereby raising not only the amount of knowledge, but the quality to reach out more effectively to students.

CONCLUSIONS

The use of ICT impacts education, providing multiple and diverse virtual learning environments that enrich the knowledge and skills of students in pre-university education.

In the Pre University Institute "Osvaldo Herrera" there are the minimum conditions to use virtual learning environments in order to develop the different levels through which passes a student to understand a literary text.

With the proper use of virtual learning environments, students will be motivated and will be empowered in their creative abilities, creating a cultural change through an interactive and participatory process, mediated by a shared social construction, influencing the correct understanding of literary texts.

The proposed activities designed here contribute to the development of the understanding of literary texts using virtual learning environments.

—ANNEXES—

Annex 1 - Educational Test (input)

Objective: To verify the difficulties presented by students in understanding literary texts.

Read the following story taken from "*Tell them not to kill me*!" a fragment from the Mexican writer Juan Rulfo.

> "He walked among men silently with his arms folded. The morning was dark, starless. The wind was blowing slowly, carrying the dry land and brought forth that smell like urine that comes from dusty roads.
>
> His eyes, which had fallen over the years, watched the land, here, under his feet, despite the darkness. There on the ground was all his life. Sixty years of living on her, imprisoning her between his hands, having tasted her as one tastes meat. Passing a long time crumbling it with his eyes, savoring each piece as if it were the last, knowing it would be the last.".

a) The characteristics of the character are given in the fragment. Identify them and through a text describe how you image them.

b) Interpret the underlined text in the fragment through a sentence.

c) From reading this passage, what do you imagine that could happen to this character? If you were in his place, how would you act?

Annex 2 - Observation Guide

Objective: To observe the conditions that present the Pre University "Osvaldo Herrera" and the students who are studying at that institution for the use of virtual learning environments in understanding literary texts.

- The conditions at the Pre University to use virtual learning environments; knowledge and skills that students demonstrate to manage virtual learning environments.

Annex 3 - Interview students

Objective: To obtain information on the knowledge that students have regarding the use of virtual learning environments in understanding literary texts.

Questions

1. Do you present difficulties in understanding literary texts?
2. Do you know what are virtual learning environments?
3. Do you look for help in a virtual learning environment when you are guided in the activities to understand a literary text?

REFERENCES

Augusto, B. (2 de septiembre de 2013). *Los-Nuevos-Escenarios-Del-Aprendizaje*. Obtenido de Los Nuevos Escenarios Del Aprendizaje. Referentes de caracterización de ambientes de aprendizaje: http://es.scribd.com/doc/8976198

Báez, M. (2006). *Hacia una comunicación más eficaz*. La Habana: Pueblo y Educación.

Barron, A. (1998). Designing Web-based training. *Brritish Journal of Educational.Technology*. Vol. 29, nº 4, 355-370.

Chávez, J. (2000). *Acercamiento necesario a la Pedagogía General*. La Habana: Instituto Central de Ciencias Pedagógicas. ICCP. Libro en Soporte Digital.

Educación, M. (2006). *Programas duodécimo grado*. Ciudad de la Habana: Pueblo y Educación.

Espinoza, J. (2014). Hacia una educación abierta. Nuevos escenarios para el aprendizaje en red y ubicuo . En *Blanco & Negro. Revista de docencia universitaria* Vol. 5 N° 1 .

García, M. (2012). *Ensinando a Ensinar: as quatro etapas para uma aprendizagem*.Curitiba: Universidad Tecnológica de Paraná.

Hernández, J., Díaz, J., & García, J. (2011). *Introducción a los Estudios Literarios*. La Habana: Pueblo y Educación.

Hernández, T. (2008). *Erevistas*. Recuperado el 8 de enero de 2014, de http://erevistas.saber.ula.ve

Lozano, S. (2014). Prácticas innovadoras de enseñanza con mediación TIC que generan ambientes creativos de aprendizaje. *Re-*

vista Virtual Universidad Católica del Norte. Nro. 43, 147-160. Obtenido de Revista Virtual Universidad Católica del Norte, 43, p.147-160.

Marcelo, C. (2002) Conceptos en torno a la teleformación. En Marcelo C. y otros (Eds.) *E- learningteleform@ción*. (págs. 19-38). Barcelona: Ediciones Gestión 2000.

Mendoza, P., Álvaro, B., & Galvis, P. (1999). Ambientes virtuales de aprendizaje: una metodología para su creación. *Informática Educativa* Vol 12, No, 2 , 295-317.

Montaño, J.R. & Abello, A. (2010). *(Re)novando la enseñanza-aprendizaje de la lengua española y la literatura*. La Habana: Pueblo y Educación.

Rodríguez, L. (2006). Lectura, comprensión, cultura: el largo camino de la escuela. En L. Rodríguez, *Español para todos. Otros temas y reflexiones acerca del Español y su enseñanza* (págs. 161-165). La Habana: Pueblo y Educación.

Rodríguez, L., López, A., & Gayoso, N. (2010). El desarrollo de los hábitos de lectura,hoy. En J. R. Montaño, & A. M. Abello, *(Re) novando la enseñanza – aprendizaje de la lengua española y la literatura* (págs. 159-193). La Habana: Pueblo y Educación.

Romiszowski, A. (1999). Ensenyament i aprenentatge a distancia per mitjà del web:intent revolucionari o reacció davant de la necessitat? En A. Sangrá, *Aprenentatge i Virtualitat*. (págs. 17-34). Barcelona: Universitat Oberta de Catalunya.

Ronteltap, F., &Eurelings, A. (2002). Distance Education. Vol. 23, nº 1. Activity andInteraction of students in anelectronic learning environment for problema- based learning", 11- 22.

Sales, L. (2007). *Comprensión, análisis y construcción de textos*. La Habana: Pueblo y Educación.

Salinas, J. (2004). Cambios metodológicos con las TIC. *Estrategias didácticas y entornos*, 3-4.

Valiente, P. (2001). *Concepción sistémica de la superación de los directores de Secundaria Básica*. Tesis en opción al grado de Doctor en Ciencias Pedagógicas. Universidad de Ciencias Pedagógicas "José de la Luz y Caballero". Holguín. Cuba.

APPLICATIONS OF NANOPARTICLES IN TEXTILES FOR INTERIOR DESIGN

Martín-Adrián Melchor-Alemán
martin_melchor21@hotmail.com

Laura Mesta-Torres
laura_mesta@hotmail.com

Santos Adriana Martel-Estrada
adriana.martel@uacj.mx • mizul@yahoo.com

Coordination of Industrial Design. Design Department. Institute of Architecture, Design and Art. Autonomous University of Ciudad Juarez

ABSTRAC

Textiles are a material widely used in interior design and in everyday life. Advances in nanotechnology have achieved a significant impact in the textile industry, resulting in intelligent fiber with great benefits for the user. This investigation aims to review the state of the art applications of nanotechnology in textiles in the field of interior design , as well as its many features. The main properties of these fibers that have allowed other opportunities for the textile industry were also analyzed.

Keywords: *Nanoparticles, silver, zinc oxide nanoparticles, gold nanoparticles, Nano textiles, interior design.*

The textile industry is very important in our country because it has a rich history, not only as a productive sector, but also for its involvement in historical deeds (García-Serrano, 2010). The importance of the Mexican textile industry is such that only in the period between 2011 to 2012 there was an increase in gross value from 14,002,703 pesos to 15,078,276 pesos. In other words, in only one year there was an increase of 7.68% (INEGI, 2013). Today, textiles are one of the most widely used materials within the interior design and technology has not neglected the textile industry through the renovating, merging and creating of innovations that have enabled new features with the introduction of nano metric materials (Quispe-Chejo, 2010).

Nanoscience is the study of the phenomena and manipulation of materials at the atomic, molecular and macromolecular scales, where properties differ significantly from those which are large - scale (European Commission, 2013). Nanotechnology and nanoscience have emerged as opportunities for the application of the development of materials into new products (Tolfree, 2008). This has allowed attention to be focused on the introduction of nanoparticles that are endowed with properties and features that provide users with benefits and solutions to common problems that a conventional textile cannot solve (Wing, 2006). Thus, by means of nanoparticles or nano coatings, they have achieved improved and more complex textiles and hydrophobic and super hydrophobic finishes, self - cleaning and antibacterial properties (Gulrajani, 2013).

Nanoparticles are material of 1 to 100 nm in diameter (El-Drieny et al., 2015). These dimensions give specific properties and behaviors that the macroscale may not have, such as magnetic, optical, mechanical and electrical and quantum behaviors due to its configuration and confinement which allows for continuously or abrupt changes in accordance with its size in the nanoscale (Sayes and Santamaria, 2014). These particles can exist in aggregate form or discreetly and may be hexagonal, spherical, tubu-

lar, or irregularly shaped (Gaillet and Rouanet, 2015). It can be considered that research in this area is recent and because of the physical, chemical and biological properties of nanoparticles, it is considered to be an area of opportunity that is still expanding. Nanoparticles have been used in consumer products, construction materials, in the medical, pharmaceutical and agricultural fields, as well as for water remediation technologies, etc. (Filella, 2012).

Although there are the common requirements in most textiles, such as high levels of strength, durability, tear resistance fabric, etc., depending on the application there arises other non-traditional qualities such as flexibility, softness, breathability, optical properties, fire retardants, etc., that are only possible through recent advances in materials (M. Ashby, Ferreira, and Schodek, 2009). It has been reported that silver nanoparticles have been used in products such as cosmetics, disinfectants, medical devices and food packaging (Wasmuth, Rüdel, Düring, and Klawonn, 2016). These nanoparticles have shown antimicrobial activity on cotton fabrics against *Pseudomonas aeruginosa, Staphylococcus aureus, Escherichia coli* and *Candida albicans* (Bera et al., 2015) and antifungal effects against *Fusarium solani (El-Rafie, Mohamed Shaheen, and Hebeish, 2010).* Other nano-metric compounds such as zinc oxide (ZnO) have been used as blockers of UV light in cosmetics, as well as for its antibacterial properties in the food industry and cotton fabrics (Padmavathy, 2008; Pandurangan and Kim, 2015), giving the textile antibacterial properties and the function of UV (El-Rafie, Shaheen, Mohamed, and Hebeish, 2012) protection. Similarly, nanoparticles of silicon oxide SiO 2 and silver (Ag) are used to provide properties of super hydrophilicity, antibacterial wool (Mura et al., 2015) and super hydrophobicity to cotton fabrics to give best water repellency properties (Xu, Cai, Wang and Ge, 2010). The nanoparticles of titanium oxide (TiO 2) have been used to achieve high hydrophobicity on silk surfaces (F. Chen et al., 2016) and self - cleaning properties of polyester

fabrics (Pasqui and Barbucci, 2014) and cotton fabrics (Wijesena, Tissera, Perera, Nalin de Silva, and Amaratunga, 2015) The demand for these materials is increasing. In a publication from 2012, it was estimated that 55 tons of nanoparticles of silver, 3000 tons titanium oxide and 550 tons of zinc oxide (Piccinno, 2012) were produced annually. In general, these particles are used for the production of cosmetics (Katz, Dewan, and Bronaugh, Lu, Huang, Chen, Chiueh, and Shih, 2015; Sierra-Rodero, Fernández-Romero and Gomez-Hens, 2011) , cleaning agents (Nosrati, Olad, and Nofouzi, 2015; Pinho, Rojas, and Mosquera, 2015; Virovska, Paneva, Manolova, Rashkov, and Karashanova, 2016), plastics (. Zanetta et al, 2009), painting (Elhalawany , Mossad, and Zahran, 2014; Herea et al, 2015;. Hu, Pfirman, and Chumanov, 2015), cement (Liu, Li, and Xu, 2015; Shen, Ng, Dong, Ng and Tan, 2016; Soltanian , Khalokakaie, Ataei, and Kazemzadeh, 2015) catalysts (Ahmed, Senthilnathan, Megarajan, and Anbazhagan, 2015; Da Silva Pereira et al, 2015;. Ye, Liu, Lai, Lo, and Lee, 2016), layers for ultraviolet protection (Girigoswami, Viswanathan, Murugesan, and Girigoswami, 2015; Lodeiro, Achterberg, Pampín, Affatati, and El-Shahawi, 2016, Shaheen, El-Naggar, Abdelgawad, and Hebeish), textiles and medical products (Gaillet and Rouanet, 2015 ; Piccinno, 2012).

With regard to textiles, applications of nanotechnology have led to the emergence of a new term: smart textiles. Smart textiles are grouped into five main areas: adaptive systems, transfer systems, smart clothes, transponder systems, micro technology and nanotechnology (Tolfree, 2008). The intelligent textile term derives from the term intelligent material. A smart material is defined as a highly engineered material that responds to environmental stimuli (Addington, 2005). This term was defined in Japan in 1989 (L. Van Langenhove, Hertleer, C. Catrysse, M., Puers, R., Van Egmond, H., Matthijs, D., 2004). A smart textile is one that is able to identify environmental stimuli, react and adapt to them through integration of features in the structure of the textile. Stimuli and

responses can be electrical, thermal, chemical, magnetic or other origin (L. Van Langenhove, Hertleer, C., 2004).

It has been observed that the demand for smart fabrics for indoor, outdoor, sports and work has increased remarkably. Only from 1995 to 2011, global growth was 70% in technical textiles, with sales reaching 133 billion US dollars (Gugliuzza and Drioli, 2013).

Undoubtedly, one of the main impacts of the textiles can be appreciated in its aesthetic use for interior decoration. From this point of view, the profession of interior design has been seen as an aesthetic practice to provide an interior space for a client (Hayles, 2015). Thus, the spaces must meet the personal needs, and have functional characteristics. The spaces are designed and trained with the most appropriate materials and technology that must be in line with social, physiological and psychological terms to meet user needs while performing their function in the light of fundamental aesthetic principles (Fitoz, 2015). Thus, it has been related to fashion and luxury design in small spaces. Recently this practice has also focused on providing a space with a healthy and sustainable environment for individuals to live, work or play in (Hayles, 2015). In order to achieve these objectives, textiles have important applications in interior design, among which include textiles that have properties for repelling stains and having a cleaning effect, similar to the lotus or wings of some insects, or antibacterial textiles (MF Ashby, Bréchet, Cebon, and Salvo, 2004).

For all the above, this investigation is intended to review the state of the art application of nanotechnology in textiles in the field of interior design , as well as its many features. As a result of this investigation, nanotechnology types used in textiles are described, the main features that provide different types of nanoparticles to the fibers are discussed, as well as different types of fibers that have been used are explained. This allows a framework to compare the benefits nano textiles can provide, including self-cleaning, hydrophobicity, antimicrobial resistance to ultraviolet rays, fire retardants, among others. Since this is an expanding

field, textile fibers that were analyzed included both commercial products and those that are still under investigation but which promise short - term marketing in terms of their properties.

METHODOLOGY

This investigation is exploratory in nature, where 91 sources of information that included articles published in international journals and books were considered. Through this investigation the different types of particles used for functionalizing textiles, uses and benefits thereof were classified. Possible applications that these textiles have for interior design were also discussed. Finally, the results of tests that were conducted on hydrophobicity on commercial textiles are included. Thus, a state of art use of nanoparticles in textiles for interior design was developed.

Types of nanometric materials used in textiles

Nanotechnology as an emerging science deals with nanometric dimensions. Nano is a prefix derived from the Greek word meaning *νανο ς* tiny, dwarf, small (M. Ashby et al., 2009). This prefix is used in the international system (IS) units to indicate a factor 10-9 (ie, multiply something by 0.000000001, or billionth of something). Generally, you could define nanotechnology as the manufacture of materials, structures, devices and functional systems through control and assembly of matter at the nanometer scale. ISO defines a nano-object as a material with at least one external dimension in the nanoscale, in the range of 1 nm to 100 nm. If there are three external dimensions in the nanoscale, the conditions for being a nanoparticle are given (ISO 2008). Nanotechnology as a science has tried to solve many problems of everyday life. Textiles have been no exception.

A fabric or fiber is each filament arranged in bundles, in the composition of yarns and fabrics, whether, artificial, plant or ani-

mal minerals. Etymologically the word textile, from Latin "*textilis*" and derivative "*texere*" meaning knitting, is defined as all fabrics, framed or woven, used as raw material (Diaz, 2013)

Therefore a nanotextil can be defined as textiles which are formed by some material which external dimensions or structures are on the nano-scale and allow for the obtaining of different structures of the same material at a larger scale with the same features.

Types of intelligent textiles with applications of nanoparticles

Textiles electro-active. Electronic textiles are also called e-textiles. These kinds of textiles have strong demand in transportation, communication, aerospace, military, biomedical and the sports industry. Incorporating electro-active materials can convert electrical energy into mechanical energy to allow biomimetic movements (Gugliuzza and Drioli, 2013; Jinlian, 2011). In general, these materials act according to melting or glass transition temperature (Jinlian, Harper, Guoqiang, and Samuel, 2012).

Memory shape membranes. There are other materials with high potential for application in textiles. The basic function of this type of textile is that is temporarily deformed and then returns to its original shape under the influence of external indicators of temperature, pH, light or chemicals (Gugliuzza and Drioli, 2013). These kinds of textiles have emphasized aesthetic aspects of interior fabrics, detecting and reacting to temperature changes in the prescribed form (Chan Vili, 2007).

Intelligent gels. The use of smart gels as sensitive membranes in textiles is a particular area of application in clothing for adjusting temperature, regulating permeability, antibacterial covering

and for the capture of odor, or release of nutrients or drugs (Gugliuzza and Drioli, 2013; Jinlian et al, 2012).

Self-cleaning textiles. These durable textiles are able to preserve their duties after being washed or cleaned, while offering resistance to dirt and chemicals. For this reason, they have created a self-cleaning cover capable of removing organic and inorganic contaminants by two different mechanisms, either the contact angle between droplets of moisture, or by photo catalysis (M. Ashby et al, 2009; Gugliuzza and Drioli, 2013). Self-cleaning is the first mechanism, which is based on the hydrophobicity of natural surfaces, but artificial surfaces can be made hydrophilic by photo catalysis (Nosrati et al., 2015).

Antimicrobial textiles. Antimicrobial agents are used to prevent undesirable effects on textiles: degradation in coloring, pigmentation , and fiber damage; odor and increased potential health risk. For this purpose inorganic nanoparticles have been used with great potential for antimicrobial application (Dastjerdi and Montazer, 2010).

Types of treatments for textiles

Nano layers. There has been a major scientific effort to modify the surfaces after treatment which are capable of changing or confer different properties to textiles. These treatments include the formation of micro and nano layers. These treatments can be developed through various approaches (Alongi, Carosio, and Malucelli, 2014):

- **Absorption of nano particles:** This method is the immersion of the textile in a suspension of aqueous nano particles to promote their absorption on the surface of the fiber.

- **Assembly layer by layer.** This process is an evolutionary process of the absorption of particles. It consists of building a film step by step through electrostatic interactions until you get what is known as poli electric multilayers.
- **Sol-gel and dual cured process.** This method is the synthesis of new materials with a high degree of homogeneity at a molecular level (Dastjerdi and Montazer, 2010). It is based on a synthetic route between two steps in a reaction called hydrolysis or condensation. With regard to the field of textiles, this process has received special attention on the development of smart textiles which protect from or inhibit microbial development and ultraviolet radiation. In parallel, the evolution of the sol-gel process has led to the dual cured process, which is used to prepare organic and inorganic protective layers through a photo polymerization reaction followed by a thermal treatment to promote the formation of phases of silica.
- **Plasma treatments.** The cold plasma technique is a surface treatment thru which small functional groups and macromolecular compounds can be linked to different substances. This technique does not modify or alter the properties the bulk properties of the treated material. Through this process there can be a) impregnating of the structure surface and / or its function in the presence of non polymerizable gases such as N2, H2, O2, Ar, NH3, CO2 , etc.; b) performing a deposition of thin particles on the surface of the material; c) performing a polymerization process just when the plasma is activated on the surface d) performing an induced polymerization by low pressure plasma.
- **Deposit of bio macro molecules.** The possibility of using “green” retardant systems to replace traditional chemicals continues. Systems based on the isolation of proteins, caseins, and nucleic acids have been used.

From the standpoint of applications, nanowires, nanotubes and spherical nanoparticles have been detected. These nanomaterials have applications in curtains, tablecloths, upholstery, carpets, bedding, medical uniforms, and in the aerospace and military industry (Table 1).

Table 1. Different types of nanoparticles used in the textile sector.

Nanoparticle	Fiber	Characteristcs	Application in interior design	source
Nanowires Silver (silver nanowires)	Cotton	High electrical conductivity, UV light resistant, antibacterial, superhydrophobicity	curtains Table linen Upholstery	(Nateghi y Shateri-Khalilabad, 2015)
Nanopartículas Titanium dioxide	Cotton Wool	Semiconductor, photocatalytic, Antibacterial, self - cleaning surface	Rugs upholstrey	(Bozzi, Yuranova, y Kiwi, 2005; Clouser, Samia, Navok, Alred, y Burda, 2008; Montazer, 2011; Nosrati et al., 2015)
Copper Nanoparticles	Nylon	Antifungal and antimicrobial	Cushions Curtains	(Komeily-Nia, Montazer, y Latifi, 2013)
Gold Nanoparticles	Wool	Resistant to ultraviolet light and stable colors	Upholstery Rugs Bedding	(Johnston y Lucas, 2011)
Silver Nanoparticles	Cotton Polyester Polyamide Silk Nylon other synthetics	Antibacterial activity, antifungal	Bedding rugs curtains	(Dubas, Kumlangdudsana, y Potiyaraj, 2006; Durán, Marcato, De Souza, Alves, y Esposito, 2007; Lee, Yeo, y Jeong, 2003; Sataev et al., 2014)
Nanoparticles of titanium dioxide and silicon oxide	Polyester Cotton	Excellent optical properties, thermal stability surface, long lifetime, low toxicity and UV protection.	Making furniture, curtains, carpets, car interior decoration and thread	(Erdem, Cireli, y Erdogan, 2009; Fakin, Stana Kleinschek, Kurečič, y Ojstršek, 2014; Hashemikia y Montazer, 2012)
Nano aluminum oxide	Polyester	Superior mechanical strength, high load capacity and wear resistance	applications in aerospace, automotive, naval and other industries	(Sun, Yang, y Li, 2008a, 2008b)
Silver nanoparticles with chitosan	Cotton	Antibacterial and comfortable	Applications in medical scrubs	(Abdel-Mohsen et al., 2012)
Zinc oxide, titanium dioxide, and silver nanoparticles	Cotton Wool	Antibacterial	Children 's clothing, textiles and clothing wear applications, medical applications	(Becheri, 2008; Selvam et al., 2012)

NANOPARTICLES MOST OFTEN USED IN TEXTILE DESIGN

Silver nanoparticles-Silver is one of the most widely used antibacterial and therapeutic agents because their mechanism of action acts with about 650 species of bacteria, while the rest of antibiotics may have a more limited spectrum of healing, around only 5 to 10 species of bacteria (Sataev et al., 2014). This material has wide applications because of its low toxicity to human cells (Dastjerdi and Montazer, 2010).

Titanium dioxide nanoparticles- These nanoparticles are a very attractive, multifunctional material due to its high stability and its potential for application in self - cleaning, as an antibacterial agent and for protection against ultraviolet light (Dastjerdi and Montazer, 2010; McIntyre, 2012).

Zinc oxide nanoparticles-This material has been used as an antibacterial agent in cotton fabrics (Dastjerdi and Montazer, 2010). It is characterized by optical, electrical, dermatologic and antibacterial properties (F. Zhang, Yang, J., 2009).

Silicon oxide nanoparticles- This material is mainly used as a fire retardant (Erdem et al., 2009).

BENEFITS OF NANOTEXTILES

Nanotextiles provide solutions to various problems to which users are faced with the use of conventional textiles. Some of the benefits nanotextiles have are (Roya Dastjerdi, 2010):

- To prevent uncontrolled and unwanted reproduction of microbes that can lead to serious health problems while using textiles.
- Decrease in degradation or less or no discoloration.
- Avoidance of the production of unpleasant odors.
- Reduce potential health risks.
- To maintain adequate moisture and temperature.
- Prevent dust or dirt.
- Prevent stains on textiles due to food spills liquids.
- Avoid mites in textiles.

However, obtaining these benefits in textiles faces the challenge of cost and reproducibility of the fibers at an industrial level. However, currently they are existing varieties of nanotechnology textiles with built – in services for users for interior decoration. From the standpoint of marketing textiles with nanometric properties, there are significant attempts being made around the world. The U.S. company Nano-Tex has developed and patented many fabrics such as Nano -Care®, Nano-Dry ®, Nano-Pel-TM, and Nano-TouchTM which rely primarily on hydrophobic properties like the lotus effect (Gasman, 2006; Tolfree, 2008). Nano Care and Nano Dry fabrics offer anti-wrinkle cotton fabrics (Sawhney et al., 2008). In the same vein, the company Nano-Pel has developed technology with stain resistance and oil repellence that uses the concept of surface energy and develops hydrophilic fabrics that are complemented by other attributes such as breathability, softness and comfort (Sawhney et al., 2008).

In this sense we can highlight the Aitex company, which was established in 1985 as an initiative of the Spanish government in Valencia. This is one of the companies engaged in the development of nanotextiles. It is now a center dedicated to research, innovation and advanced technical services in the area of textiles. For this company, the purpose of the application of nanotechnology is to create an outstanding performance in everyday items:

clothing, fabrics for home furnishings and interiors, industrial fabrics, etc. Some of these innovations include the benefits of self - cleaning fabrics, virus and bacteria repellency, fire retardants, temperature regulation, odor, even up to properties such as color change. This allows the use of nanomaterials in textiles for interior upholstery furniture such as chairs, sofas, curtains, tablecloths or wall coverings (Aixtex, 2015).

The company Aitex provided this research group a sample of fabrics with hydrophobic properties. Such fabrics were analyzed for the purpose of verifying the functional properties they have. Figure 1 shows a) the hydrophobicity test developed for use in a textile table linen, b) test to a carpet fiber and c) test to an upholstery textile. As can be seen, water is unable to penetrate the fiber.

Figure 1. Hydrophobicity in textiles.

CHALLENGES OF USING NANOPARTICLES

Finally, it is important to note that the evaluation of the toxicological effects of particles continues to be essential, as it has found evidence of a possible interaction of silver nanoparticles with the kidneys, lungs, bone marrow, brain, skin, spleen, eyes, muscles, blood, small intestine, stomach, lungs, bladder, prostate, tongue, teeth, salivary glands, thyroid, parathyroid, heart, pancreas and duodenum (Gaillet and Rouanet, 2015). However, it is important to note that this interaction will not necessarily be linked to di-

sease. Nanoparticles can be used in a controlled dose for diagnostic imaging (Lo, Wu, and Wu, 2015; Luo et al, 2015; Stone et al, 2015; F. Zhang et al, 2016.), Controlled drug release for various diseases (Agiotis et al, 2016. X. Chen Yao, Wang, Chen, and Chen, 2015), treatment of infections (Allaker and Memarzadeh, 2014; Baelo et al, 2015;. d'Angelo et al. , 2015) and tissue repair (Albrecht, Evans, and Raston, 2006; Jayaraman et al .; Raftery, Tierney, Curtin, Cryan, and O'Brien, 2015).

CONCLUSIONS

Currently, there are several enhanced textiles with nanoparticles that could be used within interior design with the ability to solve the most common problems that decrease the life of textile fibers. In addition, it should be noted that research in the area of nanotextiles still has many development opportunities that will allow through the interdisciplinary work of materials science, production processes of textiles and interior designers can provide better user comfort and a longer life time for decoration products, as one of the major causes of wear of the fibers are UV light, microbes, bacteria and fungi. However, one of the main challenges is still assessing the toxicological effects of different nanoparticles used for this purpose.

REFERENCES

Abdel-Mohsen, A. M., Abdel-Rahman, R. M., Hrdina, R., Imramovsky, A., Burgert, L., y Aly, A. S. (2012). Antibacterial cotton fabrics treated with core-shell nanoparticles. *Int J Biol Macromol*, 50(5), 1245-1253. doi:10.1016/j.ijbiomac.2012.03.018

Addington, M., Schodek, D. (2005). *Smart materials and new technologies*. Burlington, MA, USA: Elsevier.

Agiotis, L., Theodorakos, I., Samothrakitis, S., Papazoglou, S., Zergioti, I., y Raptis, Y. S. (2016). Magnetic manipulation of superparamagnetic nanoparticles in a microfluidic system for drug delivery applications. *Journal of Magnetism and Magnetic Materials, 401*, 956-964. doi:http://dx.doi.org/10.1016/j.jmmm.2015.10.111

Ahmed, K. B. A., Senthilnathan, R., Megarajan, S., y Anbazhagan, V. (2015). Sunlight mediated synthesis of silver nanoparticles using redox phytoprotein and their application in catalysis and colorimetric mercury sensing. *Journal of Photochemistry and Photobiology B: Biology*, 151, 39-45. doi:http://dx.doi.org/10.1016/j.jphotobiol.2015.07.003

Aixtex. (2015). Aitex: RyD an innovation. Retrieved from http://www.aitex.es/en/home-ingles/about-aitex

Albrecht, M. A., Evans, C. W., y Raston, C. L. (2006). Green chemistry and the health implications of nanoparticles. *Green Chemistry*, 8(5), 417-432. doi:10.1039/B517131H

Allaker, R. P., y Memarzadeh, K. (2014). Nanoparticles and the control of oral infections. *International Journal of Antimicrobial Agents,* 43(2), 95-104. doi:http://dx.doi.org/10.1016/j.ijantimicag.2013.11.002

Alongi, J., Carosio, F., y Malucelli, G. (2014). Current emerging techniques to impart flame retardancy to fabrics: An overview. *Polymer Degradation and Stability, 106*, 138-149. doi:10.1016/j.polymdegradstab.2013.07.012

Ashby, M., Ferreira, P., y Schodek, D. (2009). *Nanomaterials, nanotechnologies and design*. Burlington, MA, USA: Elsevier.

Ashby, M. F., Bréchet, Y. J. M., Cebon, D., y Salvo, L. (2004). Selection strategies for materials and processes. *Materials y Design*, 25(1), 51-67. doi:10.1016/s0261-3069(03)00159-6

Baelo, A., Levato, R., Julián, E., Crespo, A., Astola, J., Gavaldà, J., . . . Torrents, E. (2015). Disassembling bacterial extracellular matrix with DNase-coated nanoparticles to enhance antibiotic delivery in biofilm infections. *Journal of Controlled Release*, 209, 150-158. doi:http://dx.doi.org/10.1016/j.jconrel.2015.04.028

Becheri, A., Dürr, M., Lo Nostro, P., Baglioni, P. (2008). Synthesis and characterization of zinc oxide nanoparticles: application to textiles as UV-absorbers. *Journal of Nanoparticles Research, 10*, 679-689.

Bera, A., Garai, P., Singh, R., Prakash Gupta, P., Malav, S., Singh, D., . . . Vaijapurkar, S. G. (2015). Gamma radiation synthesis of colloidal AgNPs for its potential application in antimicrobial fabrics. *Radiation Physics and Chemistry, 115,* 62-67. doi:http://dx.doi.org/10.1016/j.radphyschem.2015.05.041

Bozzi, A., Yuranova, T., y Kiwi, J. (2005). Self-cleaning of wool-polyamide and polyester textiles by TiO2-rutile modification under daylight irradiation at ambient temperature. *Journal of Photochemistry and Photobiology A: Chemistry, 172(1)*, 27-34. doi:http://dx.doi.org/10.1016/j.jphotochem.2004.11.010

Chan Vili, Y. Y. F. (2007). Investigating Smart Textiles Based on Shape Memory Materials. *Textile Research Journal, 77*(5), 290-300. doi:10.1177/0040517507078794

Chen, F., Liu, X., Yang, H., Dong, B., Zhou, Y., Chen, D., . . . Xu, W. (2016). A simple one-step approach to fabrication of highly hydrophobic silk fabrics. *Applied Surface Science, 360*, Part A, 207-212. doi:http://dx.doi.org/10.1016/j.apsusc.2015.10.186

Chen, X., Yao, X., Wang, C., Chen, L., y Chen, X. (2015). Mesoporous silica nanoparticles capped with fluorescence-conjugated cyclodextrin for pH-activated controlled drug delivery and imaging. *Microporous and Mesoporous Materials, 217*, 46-53. doi:http://dx.doi.org/10.1016/j.micromeso.2015.06.012

Clouser, S., Samia, A. S., Navok, E., Alred, J., y Burda, C. (2008). Visible-light Photodegradation of Higher Molecular Weight Organics on N-doped TiO2 Nanostructured Thin Films. *Topics in Catalysis*, 47(1-2), 42-48. doi:10.1007/s11244-007-9037-0

D'Angelo, I., Casciaro, B., Miro, A., Quaglia, F., Mangoni, M. L., y Ungaro, F. (2015). Overcoming barriers in Pseudomonas aeruginosa lung infections: Engineered nanoparticles for local delivery of a cationic antimicrobial peptide. *Colloids and Surfaces B: Biointerfaces, 135*, 717-725. doi:http://dx.doi.org/10.1016/j.colsurfb.2015.08.027

Da Silva Pereira, B., Silva, M. F., Bittencourt, P. R. S., de Oliveira, D. M. F., Pineda, E. A. G., y Hechenleitner, A. A. W. (2015). Cellophane and filter paper as cellulosic support for silver nanoparticles and its thermal decomposition catalysis. *Carbohydrate Polymers, 133*, 277-283. doi:http://dx.doi.org/10.1016/j.carbpol.2015.06.108

Dastjerdi, R., y Montazer, M. (2010). A review on the application of inorganic nano-structured materials in the modification of textiles: Focus on anti-microbial properties. *Colloids and Surfaces B: Biointerfaces, 79*(1), 5-18. doi:http://dx.doi.org/10.1016/j.colsurfb.2010.03.029

Díaz, L. (2013). Trapitos al arte. *Revista Mundo FESC*, 5, 52-56.

Dubas, S. T., Kumlangdudsana, P., y Potiyaraj, P. (2006). Layer-by-layer deposition of antimicrobial silver nanoparticles on textile fibers. *Colloids and Surfaces A: Physicochemical and Engineering Aspects, 289*(1–3), 105-109. doi:http://dx.doi.org/10.1016/j.colsurfa.2006.04.012

Durán, N., Marcato, P. D., De Souza, G. I. H., Alves, O. L., y Esposito, E. (2007). Antibacterial Effect of Silver Nanoparticles Produced by Fungal Process on Textile Fabrics and Their Effluent Treatment. *Journal of Biomedical Nanotechnology, 3*(2), 203-208. doi:10.1166/jbn.2007.022

El-Drieny, E. A. E. A., Sarhan, N. I., Bayomy, N. A., Elsherbeni, S. A. E., Momtaz, R., y Mohamed, H. E.-D. (2015). Histological and im-

munohistochemical study of the effect of gold nanoparticles on the brain of adult male albino rat. *Journal of Microscopy and Ultrastructure, 3*(4), 181-190. doi:http://dx.doi.org/10.1016/j.jmau.2015.05.001

El-Rafie, M. H., Mohamed, A. A., Shaheen, T. I., y Hebeish, A. (2010). Antimicrobial effect of silver nanoparticles produced by fungal process on cotton fabrics. *Carbohydrate Polymers, 80*(3), 779-782. doi:http://dx.doi.org/10.1016/j.carbpol.2009.12.028

El-Rafie, M. H., Shaheen, T. I., Mohamed, A. A., y Hebeish, A. (2012). Bio-synthesis and applications of silver nanoparticles onto cotton fabrics. *Carbohydr Polym, 90*(2), 915-920. doi:10.1016/j.carbpol.2012.06.020

Elhalawany, N., Mossad, M. A., y Zahran, M. K. (2014). Novel water based coatings containing some conducting polymers nanoparticles (CPNs) as corrosion inhibitors. *Progress in Organic Coatings, 77*(3), 725-732. doi:http://dx.doi.org/10.1016/j.porgcoat.2013.12.017

Erdem, N., Cireli, A. A., y Erdogan, U. H. (2009). Flame retardancy behaviors and structural properties of polypropylene/nano-SiO2 composite textile filaments. *Journal of Applied Polymer Science, 111*(4), 2085-2091. doi:10.1002/app.29052

European_Commission. (2013). *Nanotechnologies: principles, applications, implications and hands-on activities*. Luxemburgo: Publications Office of the European Union.

Fakin, D., Stana Kleinschek, K., Kurečič, M., y Ojstršek, A. (2014). Effects of nanoTiO2–SiO2 on the hydrophilicity/dyeability of polyester fabric and photostability of disperse dyes under UV irradiation. *Surface and Coatings Technology,* 253, 185-193. doi:10.1016/j.surfcoat.2014.05.035

Filella, M. (2012). 1.07 - Nanomaterials. In J. Pawliszyn (Ed.), *Comprehensive Sampling and Sample Preparation* (pp. 109-124). Oxford: Academic Press.

Fitoz, I. (2015). Interior Design Education Programs during Historical Periods. *Procedia - Social and Behavioral Sciences, 174*, 4122-4129. doi:http://dx.doi.org/10.1016/j.sbspro.2015.01.1248

Gaillet, S., y Rouanet, J. M. (2015). Silver nanoparticles: Their potential toxic effects after oral exposure and underlying mechanisms - A review. *Food Chem Toxicol, 77C*, 58-63. doi:10.1016/j.fct.2014.12.019

García-Serrano, L. (2010). *Influencia de la nanotecnología en el sector textil*. (Doctorado), Instituto Politécnico Nacional, México, D.F.

Gasman, L. (2006). *Nanotechnology applications and markets*. Norwood, MA, USA: Artech House, Inc.

Girigoswami, K., Viswanathan, M., Murugesan, R., y Girigoswami, A. (2015). Studies on polymer-coated zinc oxide nanoparticles: UV-blocking efficacy and in vivo toxicity. *Materials Science and Engineering: C,* 56, 501-510. doi:http://dx.doi.org/10.1016/j.msec.2015.07.017

Gugliuzza, A., y Drioli, E. (2013). A review on membrane engineering for innovation in wearable fabrics and protective textiles. *Journal of Membrane Science, 446*, 350-375. doi:http://dx.doi.org/10.1016/j.memsci.2013.07.014

Gulrajani, M. L. (2013). 12 - The use of nanotechnology in the finishing of technical textiles. In M. L. Gulrajani (Ed.), *Advances in the Dyeing and Finishing of Technical Textiles* (pp. 280-308): Woodhead Publishing.

Hashemikia, S., y Montazer, M. (2012). Sodium hypophosphite and nano TiO2 inorganic catalysts along with citric acid on textile producing multi-functional properties. *Applied Catalysis A: General*, 417–418, 200-208. doi:http://dx.doi.org/10.1016/j.apcata.2011.12.041

Hayles, C. S. (2015). Environmentally sustainable interior design: A snapshot of current supply of and demand for green, sustainable or Fair Trade products for interior design practice. *Internatio-*

nal Journal of Sustainable Built Environment, 4(1), 100-108. doi:10.1016/j.ijsbe.2015.03.006

Herea, D. D., Chiriac, H., Lupu, N., Grigoras, M., Stoian, G., Stoica, B. A., y Petreus, T. (2015). Study on iron oxide nanoparticles coated with glucose-derived polymers for biomedical applications. *Applied Surface Science,* 352, 117-125. doi:http://dx.doi.org/10.1016/j.apsusc.2015.03.137

Hu, L., Pfirman, A., y Chumanov, G. (2015). Stabilization of 2D assemblies of silver nanoparticles by spin-coating polymers. *Applied Surface Science*, 357, Part B, 1587-1592. doi:http://dx.doi.org/10.1016/j.apsusc.2015.10.029

INEGI. (2013). *La industria textil y del vestido en México 2013*. Retrieved from México, D.F.:

ISO, I. O. f. S. (2008). *Technical specification ISO/TS 27687:2008* (E). París Francia: International Organization for Standardization ISO

Jayaraman, P., Gandhimathi, C., Venugopal, J. R., Becker, D. L., Ramakrishna, S., y Srinivasan, D. K. Controlled release of drugs in electrosprayed nanoparticles for bone tissue engineering. *Adv Drug Deliv Rev*. doi:http://dx.doi.org/10.1016/j.addr.2015.09.007

Jinlian, H. (2011). *Adaptive and Functional Polymers, Textiles and Their Applications*. London: Imperial College Press.

Jinlian, H., Harper, M., Guoqiang, L., y Samuel, I. I. (2012). A review of stimuli-responsive polymers for smart textile applications. *Smart Materials and Structures, 21*(5), 053001. Retrieved from http://stacks.iop.org/0964-1726/21/i=5/a=053001

Johnston, J., y Lucas, K. (2011). Nanogold synthesis in wool fibres: novel colourants. *Gold Bulletin, 44*(2), 85-89. doi:10.1007/s13404-011-0012-y

Katz, L. M., Dewan, K., y Bronaugh, R. L. Nanotechnology in cosmetics. *Food and Chemical Toxicology*. doi:http://dx.doi.org/10.1016/j.fct.2015.06.020

Komeily-Nia, Z., Montazer, M., y Latifi, M. (2013). Synthesis of nano copper/nylon composite using ascorbic acid and CTAB. *Colloids and Surfaces A: Physicochemical and Engineering Aspects, 439*, 167-175. doi:http://dx.doi.org/10.1016/j.colsurfa.2013.03.003

Lee, H. J., Yeo, S. Y., y Jeong, S. H. (2003). Antibacterial effect of nanosized silver colloidal solution on textile fabrics. *Journal of Materials Science, 38*(10), 2199-2204. doi:10.1023/A:1023736416361

Liu, J., Li, Q., y Xu, S. (2015). Influence of nanoparticles on fluidity and mechanical properties of cement mortar. *Construction and Building Materials, 101*, Part 1, 892-901. doi:http://dx.doi.org/10.1016/j.conbuildmat.2015.10.149

Lo, S.-H., Wu, M.-C., y Wu, S.-P. (2015). A turn-on fluorescent sensor for cysteine based on BODIPY functionalized Au nanoparticles and its application in living cell imaging. *Sensors and Actuators B: Chemical, 221*, 1366-1371. doi:http://dx.doi.org/10.1016/j.snb.2015.08.015

Lodeiro, P., Achterberg, E. P., Pampín, J., Affatati, A., y El-Shahawi, M. S. (2016). Silver nanoparticles coated with natural polysaccharides as models to study AgNP aggregation kinetics using UV-Visible spectrophotometry upon discharge in complex environments. *Science of The Total Environment, 539*, 7-16. doi:http://dx.doi.org/10.1016/j.scitotenv.2015.08.115

Lu, P.-J., Huang, S.-C., Chen, Y.-P., Chiueh, L.-C., y Shih, D. Y.-C. (2015). Analysis of titanium dioxide and zinc oxide nanoparticles in cosmetics. *Journal of Food and Drug Analysis, 23*(3), 587-594. doi:http://dx.doi.org/10.1016/j.jfda.2015.02.009

Luo, Y., Yang, J., Li, J., Yu, Z., Zhang, G., Shi, X., y Shen, M. (2015). Facile synthesis and functionalization of manganese oxide nanoparticles for targeted T1-weighted tumor MR imaging. *Colloids and Surfaces B: Biointerfaces, 136*, 506-513. doi:http://dx.doi.org/10.1016/j.colsurfb.2015.09.053

McIntyre, R. A. (2012). Common nano-materials and their use in real world applications. *Science Progress, 95*(1), 1. Retrieved from

http://ezproxy.uacj.mx/login?url=http://search.ebscohost.com/login.aspx?direct=trueydb=edbyAN=73822846ylang=esysite=eds-live

Montazer, M., Seifollahzadeh, S. (2011). Enhanced Self-cleaning, Antibacterial and UV Protection Properties ofNano TiO2Treated Textile through Enzymatic Pretreatment. *Photochemistry and Photobiology*, 87, 877-883.

Mura, S., Greppi, G., Malfatti, L., Lasio, B., Sanna, V., Mura, M. E., . . . Lugliè, A. (2015). Multifunctionalization of wool fabrics through nanoparticles: A chemical route towards smart textiles. *J Colloid Interface Sci, 456*, 85-92. doi:http://dx.doi.org/10.1016/j.jcis.2015.06.018

Nateghi, M. R., y Shateri-Khalilabad, M. (2015). Silver nanowire-functionalized cotton fabric. *Carbohydrate Polymers, 117*, 160-168. doi:http://dx.doi.org/10.1016/j.carbpol.2014.09.057

Nosrati, R., Olad, A., y Nofouzi, K. (2015). A self-cleaning coating based on commercial grade polyacrylic latex modified by TiO2/Ag-exchanged-zeolite-A nanocomposite. *Applied Surface Science, 346*, 543-553. doi:http://dx.doi.org/10.1016/j.apsusc.2015.04.056

Padmavathy, N., Vijayaraghavan, R. (2008). Enhanced bioactivity of ZnO nanoparticles—an antimicrobial study. *Science and technology of advanced materials, 9*(035004), 1-7.

Pandurangan, M., y Kim, D. H. (2015). ZnO nanoparticles augment ALT, AST, ALP and LDH expressions in C2C12 cells. *Saudi Journal of Biological Sciences, 22*(6), 679-684. doi:http://dx.doi.org/10.1016/j.sjbs.2015.03.013

Pasqui, D., y Barbucci, R. (2014). Synthesis, characterization and self cleaning properties of titania nanoparticles grafted on polyester fabrics. *Journal of Photochemistry and Photobiology A: Chemistry, 274*, 1-6. doi:10.1016/j.jphotochem.2013.08.017

Piccinno, F. G., F., Seeger, S., Nowack, B. (2012). Industrial production quantities and uses of ten engineered nanomaterials in Europe and the world. *Journal of Nanoparticles Research, 14*, 1109.

Pinho, L., Rojas, M., y Mosquera, M. J. (2015). Ag–SiO2–TiO2 nanocomposite coatings with enhanced photoactivity for self-cleaning application on building materials. *Applied Catalysis B: Environmental, 178*, 144-154. doi:http://dx.doi.org/10.1016/j.apcatb.2014.10.002

Quispe-Chejo, V. H. (2010). Aplicaciones industriales de la Nanotecnología. *Revista de Información, Tecnología y Sociedad(5)*, 58-61.

Raftery, R. M., Tierney, E. G., Curtin, C. M., Cryan, S.-A., y O'Brien, F. J. (2015). Development of a gene-activated scaffold platform for tissue engineering applications using chitosan-pDNA nanoparticles on collagen-based scaffolds. *Journal of Controlled Release, 210*, 84-94. doi:http://dx.doi.org/10.1016/j.jconrel.2015.05.005

Sataev, M. S., Koshkarbaeva, S. T., Tleuova, A. B., Perni, S., Aidarova, S. B., y Prokopovich, P. (2014). Novel process for coating textile materials with silver to prepare antimicrobial fabrics. *Colloids and Surfaces A: Physicochemical and Engineering Aspects, 442,* 146-151. doi:http://dx.doi.org/10.1016/j.colsurfa.2013.02.018

Sawhney, A. P. S., Condon, B., Singh, K. V., Pang, S. S., Li, G., y Hui, D. (2008). Modern Applications of Nanotechnology in Textiles. *Textile Research Journal, 78*(8), 731-739. doi:10.1177/0040517508091066

Sayes, C. M., y Santamaria, A. B. (2014). Chapter 5 - Toxicological Issues to Consider When Evaluating the Safety of Consumer Products Containing Nanomaterials. In M. S. Hull y D. M. Bowman (Eds.), *Nanotechnology Environmental Health and Safety (Second Edition)* (pp. 77-115). Oxford: William Andrew Publishing.

Selvam, S., Rajiv Gandhi, R., Suresh, J., Gowri, S., Ravikumar, S., y Sundrarajan, M. (2012). Antibacterial effect of novel synthesized sulfated beta-cyclodextrin crosslinked cotton fabric and its improved antibacterial activities with ZnO, TiO2 and Ag nanoparticles coating. *Int J Pharm, 434*(1-2), 366-374. doi:10.1016/j.ijpharm.2012.04.069

Shaheen, T. I., El-Naggar, M. E., Abdelgawad, A. M., y Hebeish, A. Durable antibacterial and UV protections of in situ synthesized Zinc oxide nanoparticles onto cotton fabrics. *Int J Biol Macromol*. doi:http://dx.doi.org/10.1016/j.ijbiomac.2015.11.003

Shen, S.-C., Ng, W. K., Dong, Y.-C., Ng, J., y Tan, R. B. H. (2016). Nanostructured material formulated acrylic bone cements with enhanced drug release. *Materials Science and Engineering: C, 58*, 233-241. doi:http://dx.doi.org/10.1016/j.msec.2015.08.011

Sierra-Rodero, M., Fernández-Romero, J. M., y Gómez-Hens, A. (2011). Photometric determination of thioglycolic acid in cosmetics by using a stopped-flow reverse flow-injection system and the formation of gold nanoparticles. *Microchemical Journal, 97*(2), 243-248. doi:http://dx.doi.org/10.1016/j.microc.2010.09.011

Soltanian, H., Khalokakaie, R., Ataei, M., y Kazemzadeh, E. (2015). Fe2O3 nanoparticles improve the physical properties of heavyweight wellbore cements: A laboratory study. *Journal of Natural Gas Science and Engineering, 26*, 695-701. doi:http://dx.doi.org/10.1016/j.jngse.2015.06.004

Stone, R. C., Fellows, B. D., Qi, B., Trebatoski, D., Jenkins, B., Raval, Y., . . . Mefford, O. T. (2015). Highly stable multi-anchored magnetic nanoparticles for optical imaging within biofilms. *J Colloid Interface Sci, 459*, 175-182. doi:http://dx.doi.org/10.1016/j.jcis.2015.08.012

Sun, L.-H., Yang, Z.-G., y Li, X.-H. (2008a). Tensile and tribological properties of PTFE and nanoparticles modified epoxy-based polyester fabric composites. *Materials Science and Engineering: A, 497*(1–2), 487-494. doi:http://dx.doi.org/10.1016/j.msea.2008.07.049

Sun, L.-H., Yang, Z.-G., y Li, X.-H. (2008b). Tensile and tribological properties of PTFE and nanoparticles modified epoxy-based polyester fabric composites. *Materials Science and Engineering: A, 497*(1-2), 487-494. doi:10.1016/j.msea.2008.07.049

Tolfree, D., Jackson, M. (2008). *Commercializing micro-nanotechnology products*. Boca Ratón, FL: CRC Press.

Van Langenhove, L., Hertleer, C. (2004). Smart clothing: a new life. *International Journal of Clothing Science and Technology, 16*(12), 63-72.

Van Langenhove, L., Hertleer, C. Catrysse, M., Puers, R., Van Egmond, H., Matthijs, D. (2004). *Smart textiles*. Amsterdam: IOS Press.

Virovska, D., Paneva, D., Manolova, N., Rashkov, I., y Karashanova, D. (2016). Photocatalytic self-cleaning poly(l-lactide) materials based on a hybrid between nanosized zinc oxide and expanded graphite or fullerene. *Materials Science and Engineering: C, 60,* 184-194. doi:http://dx.doi.org/10.1016/j.msec.2015.11.029

Wasmuth, C., Rüdel, H., Düring, R.-A., y Klawonn, T. (2016). Assessing the suitability of the OECD 29 guidance document to investigate the transformation and dissolution of silver nanoparticles in aqueous media. *Chemosphere, 144*, 2018-2023. doi:http://dx.doi.org/10.1016/j.chemosphere.2015.10.101

Wijesena, R. N., Tissera, N. D., Perera, R., Nalin de Silva, K. M., y Amaratunga, G. A. J. (2015). Slightly carbomethylated cotton supported TiO2 nanoparticles as self-cleaning fabrics. *Journal of Molecular Catalysis A: Chemical, 398*, 107-114. doi:10.1016/j.molcata.2014.11.012

Xu, B., Cai, Z., Wang, W., y Ge, F. (2010). Preparation of superhydrophobic cotton fabrics based on SiO2 nanoparticles and ZnO nanorod arrays with subsequent hydrophobic modification. *Surface and Coatings Technology, 204*(9-10), 1556-1561. doi:10.1016/j.surfcoat.2009.09.086

Ye, J.-S., Liu, Z.-T., Lai, C.-C., Lo, C.-T., y Lee, C.-L. (2016). Diameter effect of electrospun carbon fiber support for the catalysis of Pt nanoparticles in glucose oxidation. *Chemical Engineering Journal, 283*, 304-312. doi:http://dx.doi.org/10.1016/j.cej.2015.07.071

Zanetta, M., Quirici, N., Demarosi, F., Tanzi, M. C., Rimondini, L., y Fare, S. (2009). Ability of polyurethane foams to support cell proliferation and the differentiation of MSCs into osteoblasts. *Acta Biomater*, 5(4), 1126-1136. doi:10.1016/j.actbio.2008.12.003

Zhang, F., Kong, X.-Q., Li, Q., Sun, T.-T., Chai, C., Shen, W., . . . Zhang, Y.-K. (2016). Facile synthesis of CdTe@GdS fluorescent-magnetic nanoparticles for tumor-targeted dual-modal imaging. *Talanta, 148*, 108-115. doi:http://dx.doi.org/10.1016/j.talanta.2015.10.046

Zhang, F., Yang, J. (2009). Preparation of Nano-ZnO and Its Application to the Textile on Antistatic Finishing. *International Journal of Chemistry, 1*(1), 18-22.

ACADEMIC

PAPERS

PROCEEDINGS OF THE REGIONAL SYMPOSIUM

"LINKING, COMMUNITY AND KNOWLEDGE"

Part 2

Compilers

Dr. Jorge Antonio Velazquez Avendaño
Dr. Aníbal Cánchez Cordova

***

— Evaluators and Deciders —

Rosalva Pérez Vazquez
Aníbal Sánchez Córdova
María Cristina Rangel
María Patricia Pérez Moreno
Sandra Atondo
Marisol García Robles
Jorge Antonio Velazquez Avendaño

Yajalón, Chiapas.

PRESENTATION

The process of community engagement from the perspective of intercultural universities is shaped as a centerpiece of its paradigm; the spirit that animates it is rooted in the dialogue of knowledge, and is therefore a prerequisite for the Intercultural University philosophy to develop relevant spaces that permit the expression of the wisdom of the indigenous people and academic knowledge.

The Intercultural University of Chiapas, through its Yajalón Multidisciplinary Academic Unit, promotes opportunities for reflection, exchange of knowledge and experiences for linking the different actors interacting in the region, called XIV Tulijá-Tseltal-Chol. This is done in order to generate an exchange of experiences and knowledge between the Intercultural university community with university communities of the region and the diverse communities of local producers, midwives and traditional doctors and the various social actors dedicated to the languages and culture of the region.

The **COMMUNITY ENGAGEMENT, COMMUNITY AND KNOWLEDGE** symposium places a value on the academic and social importance of a regional university capable of creating links with society and communities in the region and encourage the incorporation of more students to vocational training with a university profile who are committed to the natural and social environment from which they come.

This symposium allowed for the first hand expression of social actors who are in the daily life of community engagement, recognizing from the academic viewpoint a such complex reality that allows students and academics to deepen the analysis about the very concept of community engagement .

It is to celebrate the promotion of such academic events that contribute to the educational development of peoples and communities, particularly those who have been excluded and marginalized due to

not having the resources to enter the universities where they could complete their academic and professional training.

Dr. Jorge Antonio Velazquez Avendaño
Dr. Aníbal Sánchez Córdova

THE FAMILY ORCHARD AS A SYSTEM OF ANIMAL AND VEGETABLE PRODUCTION

By Ana Sthepanie Ruiz Sánchez, Elvira Patricia Vazquez Trujillo and Nelvi Gabriela Torres Vazquez

Students of the multidisciplinary academic unit of Yajalón, Intercultural University of Chiapas

INTRODUCTION

The subject of study focused on "recognizing the backyard or home garden as a system of plant and animal production.". As a study should be much deeper, deeper about the use and management of medicinal plants, the subject is derived from research conducted with midwives in the second semester since we had the concern to know more about this topic.

The result of the research, the product of interviews, observations and discussions with people who know that the backyard or kitchen gardens are certain areas that are located behind the house with planted vegetables (onions, basil, cilantro, radish, mustard, yerba mora, parsley, sweet potatoes, chayote, chaya and cassava), fruit trees (orange, lime, lemon, guava, banana, banana, tangerine, nance, avocados, cacate, achiote), and with the farming of animals (chickens, turkeys, pigs , ducks and rabbits) that serves as an economic savings and for family consumption.

FIELDWORK. RESULTS.

The existence of medicinal plants that were found included: basil, wormwood, garlic, marigolds, *chanita*, peppermint, fennel, purple maguey,

chaya, licorice, arnica, *yäxbak*, oregano, pennyroyal, rue, lemongrass, aloe vera and parsley. These plants have great relevance since they are planted in backyards and have different uses and functions, are used by midwives and people from the same community.

The importance of the study of medicinal plants is very important, as they are a natural resource that is obtained in backyards and are used to maintain good health in rural communities. Through structured interviews, participant observation and dialogue, it was identified that there is no registration and identification of diversities of medicinal plants in this community, but we knew that these are preserved in backyards and sometimes are used for example when there is a woman in labor or for newborn care.

From the previous and with the help of men and women in the community, each plants medicinal use was identified and recorded in a table, identifying how it was used and what functions they have, which are listed in the following table:

Table 1. Registration of major plants found in the backyards of Amado Nervo, Municipality of Yajalón, Chiapas. (Own design, October 2012).

NAME OF THE PLANT	SCIENTIFIC NAME	WHAT IS IT USED FOR?
BASIL	*Ocimum bacilicum*	To cure "fear" and headache.
WORMWOOD	*Artemisia absinthium*	Stomach ache.
GARLIC	*Allium sativum*	To cure tooth pain, for uric acid and as de-wormer.
MARIGOLD	*Tagetes erecta*	For headache, gastritis, conjunctivitis.
CHANITA	*It does not have a name*	Cough.

PEPPERMINT	*Mentha sativa*	For vomit.
FENNEL	*Foeniculum vulgare miller*	Headache, ear and eyes.
PURPLE MAGUEY	*Tradescantia spathacea*	For kidney pain, stomach and cough.
CHAYA	*Cnidoscolus chayamansa*	For menstrual cramps
LICORICE	*Glycyrrhiza glabra*	Cough.
ARNICA	*Artemisia mexicana*	Muscle pain.
YÄXBAK	*does not have*	Bone pain
OREGANO	*Origanum vulgare*	Earache and parasites.
PENNYROYAL	*Mentha pulegium*	Baby fever and the evil eye.
RUE	*Ruta chalapensis*	For fever, stomach ache.
LEMONGRASS	*Cymbopogom citratus*	Cough
ALOE	*Aloe vera*	For heartburn or for healing wounds.
EPAZOTE	*Chenopodium abrosioides*	Stomachache and as a de wormer.
PARSLEY (ROOT)	*Petroselinum crispum*	Facilitates birth.

The main uses that are given to medicinal plants are for cough, stomach pain, headache, muscular pain, fear, colds and as a de wormer. Their mode of preparation is carried out by boiling with water and some combinations with other plants. Another way to use the plants, such as their

leaves or roots, which are crushed and roasted, because this releases their healing properties.

The medicinal plants with a greater presence in the backyards of the community of Amado Nervo are basil and rue with 35%, while Chanita, Epazote, Momo, Parsley, Licorice and K'umaty'e (written in the Ch' ol language) are less frequently planted. 31% of our respondents mentioned that the seeds used to grow medicinal plants come from the same plants, and that they do not buy them. 26% of people mention getting the seeds with neighbors from the same community, and 17% buy them in the county seat of Yajalón, Chiapas, because they get them easily.

According to interviews, the observation and dialogue held with midwives and healers (who have handled medicinal plants), we identified the type of soil used for planting medicinal plants which are black soil, a product of a compost, since for them this type of soil is fertile for the production of either corn, beans, vegetables and medicinal plants. They use coffee husks, animal droppings and fruit skins for fertilizer production.

Other knowledge gained in this town is that 39% of people use medicinal plants while they are also using allopathic medicines. According to the people, the combination of the drugs help the healing process and there are good results. In addition to this method, it helps to save money for the family economy. It is noteworthy that the plants are not processed or sold, because it is only for family use.

It is important to note that women are the ones most involved in planting medicinal plants, because they spend more time at home in roles as housewives, and based on that, growing in their backyard is a good hobby because they get what is necessary for their own consumption.

Some people in the community mentioned preserving a balanced relationship with nature, so for them the land is sacred and has great importance because from it they get the products they need for their use, thus avoid burning where they will plant their crops and avoiding the use of agricultural chemicals on their crops because they have a

clear understanding that the use of chemicals causes harm to human health and to the soil.

As for planting products, 90% of people are guided by the astronomical indicators (cycle of the moon). When it is full moon (*chämel uj*), crops grow better and seed production is best.

CONCLUSION

The application of intercultural dialogue in this work was of great importance, because we had the tools of how to make the approach to the community to obtain adequate results, which allowed an understanding of the real social and cultural issues that exist. Dialogue begins when the subject in charge of approaching the community recognizes being part of a culture that has the same opportunities as others, as well as that there are other cultures with different values and characteristics than theirs. That recognition and measurement allows for the meeting on cultural diversity.

In this sense, the idea of dialogue between cultures enables the relationship and understanding between the two, generating the dialogue of knowledge, thus it will be an exchange of knowledge and this knowledge grows because people will have the confidence to generate more dialogue and everyone gains new friendships.

As a team, the experience we had is that dialogue with respect is the main way to carry out good communication with people, so we always start with a good relationship, based on mutual respect and an exchange of ideas with the community. Therefore, we believe that the study results of the backyards of these people were very positive because we learned to apply these tools.

AN EXPERIENCE OF COMMUNITY EXTENSION. THE CASE OF AURORA GRANDE, CHILON MUNICIPALITY, CHIAPAS

By Gabriela Figueroa Sanchez and Mariano Perez Gomez

Undergraduate students of sustainable development,
Intercultural University of Chiapas.

In this case, the initial proposal was to conduct a Participatory Rural Diagnostic with people in the community with the theme: Backyard agro systems of Aurora Grande (A Participatory Rural Diagnostic), in order to identify the issues, needs and potential within the community.

The first thing we did was analyze the situation of how we were going to bring people together, since they did not want to join us. As we mentioned, some colleagues who had already tried to do the same in other communities had called for the workshops and people did not attend. For this reason, we decided to carry out the aforementioned diagnostic of midwives from this place since during previous semesters we had worked with them and we had achieved their confidence.

Determined to achieve our purpose, we looked for the nurse Estela Perez Capetillo, to whom we presented our proposal to develop a participatory rural diagnostic which consisted of workshops with midwives, but as long as the nurse would be present during the activities. She gladly accepted and promised to talk to the commissioner, so that he would convene a meeting with the midwives and thus present the activities and talk about specific dates.

At the next visit the nurse confirmed to us the acceptance by the midwives and at the same time gave directions about the dates that they had agreed on with 5 auxiliary nurses and 9 midwives affiliated to the IMSS, and then did the planning of the activities to be performed.

APPLICATION OF PARTICIPATORY RURAL DIAGNOSTIC

The participatory rural diagnostic was conducted through three workshops dealing with different issues and activities within the backyards, such as family involvement, types of animals present, plant species, classification of soil type, traditional knowledge, the main problems, needs and potential of the agricultural system, deepening of the problems encountered in the backyard, flora and fauna in the community and the situation of institutional discrimination according to gender.

In the first stage, the first thing that was done was the presentation by a dynamic (the cob) consisting of each of those present removing the kernels of the cob during her presentation, in order to gain confidence. Then the group was divided into five teams of 4 members to answer questions that were developed on poster paper, based on three main themes: social, economic and environmental.

At the end, a 10 - minute break was given where biscuits and horchata water were provided, then we restarted the activities. What followed was that each team presented the different activities, and questions were supplemented with those generated in group participation. The topic was about the work they do as nurses.

The second stage, just before starting the activities, was a dynamic (the broken telephone), to break the ice and to engage the participants. This was then followed up by activities pending from the first phase, where the poster paper was finished, and consisted of one hour, then a 15 - minute break was provided and a sandwich and soda was given. Subsequently, the activities were resumed, and each team discussed different issues regarding backyards.

Finally we reached the third stage of the diagnosis, in this case giving priority to the problems and needs that were identified, and problem trees were developed to identify the causes and effects of the problems. After the workshop, there was a small fellowship with all of the midwives, assistants and nurses. In addition to this, it was planned with the midwives that they were going to meet. They were very happy, ordered the tortillas, and we had pozol and other food and drink.

Honestly, this act of participation and organization left us very happy, and in the end we wholeheartedly thanked the auxiliary care provided by the midwives, nurses and those who helped us achieve our activities. We said goodbye with a hug. It was the last time we got to make our academic activities in the community.

RESULT OF PARTICIPATORY RURAL DIAGNOSTIC

What was obtained as a result was that agro systems in backyards are certain areas that are behind the house, which develop different activities like planting vegetables: onions, basil, cilantro, radish, mustard, yerba mora, parsley, sweet potatoes, chayote, cassava and Chaya; as well as the planting of fruit trees such as: orange, lime, lemon, guava, banana, plantain, tangerine, *nance*, avocados, *cacaté*, and *achiote*. It is also used for the breeding of farm animals: chickens, turkeys, pigs and ducks. They are the main sources of livelihood in the family and also serve as a means of economic savings.

As a result of the second stage, and also considering the interviews and observation, it was found that 90% of the backyards of the community have a rectangular shape; However, 10% of the backyards do not have the same structure because of the terrain, the location of the houses that have to do with building and settlement customs, although the overall settlement pattern is colonial.

PROBLEMS, NEEDS AND POTENTIAL SYSTEMS OF TSELTAL BACKYARDS. THE CASE OF NUEVO PROGRESSO

Juana Gabriela Hernandez Chulin, Daniela Domínguez Cervantes, Soledad López Kolp, José Guadalupe Pérez Pérez

Undergraduate students in the Development program, Intercultural University of Chiapas

The work done in the community of Nuevo Progresso, located in the municipality of Chilon, refers to the problems that were identified through interviews that were applied to people who are responsible of their backyards. One of the problems that is contrary to sustainability and opposed in the community is the use of chemicals in the backyard, such as: Karate, Gramoxone, Foley, and chemical fertilizer (urea), which affect the soil as well as the air and water, causing illness in people (even in those who do not use them), such as problems with the nervous and respiratory system and eyes, among others. These problems are identified as negative externalities, as it affects third parties who are not involved in these activities.

However, the people who use fertilizers do so unconsciously since they do not know the damage they cause to the environment. They use them for the benefit that they get, which includes good products that they benefit from economically. However, there are a certain amount of fruit trees in the community which provide oxygenation, a microclimate, and which conserve soil moisture, contributing to favorable production known as positive externality.

Similarly, one of the problems that were found regarding backyard animals was the plague in chickens, turkeys, and ducks, and diseases in pigs. Another factor is the carnivorous animals that occasionally devour backyard birds. Some problems relate to public health problems,

which is linked to poor health management, such as: a lack of latrines in some households limits the breeding of these animals because sometimes they consume human excreta and drink polluted water. All of these factors cause disease and parasites in animals, hurting their growth and development and sometimes causes mortality, thus causing an economic loss for the people.

Furthermore, one of the advantages obtained from these animals, is the use of waste as compost, for best agricultural products within the yard; however, when using excrement presents a disadvantage odor that spreads inside the home.

On the other hand, it was observed that in this community there is a gradual destruction of the flora and wildlife of the community, especially those found living in the mountains. Deforestation causes animal migration to other places, looking for a new habitat. Another factor of extinction is the hunting animals for consumption. All of these factors have led to a gradual decline of these wild animals and a limiting effect on their reproduction.

Some types of trees that can be found within the same community are already preserved in the coffee fields or backyards because they have an easy and rapid growth. Above all, they are useful and can be exploited, being suitable for selling as in the case of oranges, lemon, sapodilla, soursop, etc., which allows them to cover any economic need that presents itself. They also contribute to the cultural identity and many of them (such as the cacaté, sapodilla, etc.), which cultivation has been practiced by their ancestors.

In the case of trees found in the mountains such as: pine, cedar and others, they have been put at risk due to several problems: (a) by high population growth, (b) excessive logging of trees for either for use as wood for building houses and for firewood, (c) implementation of agriculture using large tracts of land and (d) another factor that threatens the life of the flora (trees) are forest fires during the process of burning the cornfields. It is important to mention that logging for domestic household use as firewood is an essential activity within the home.

ALTERNATIVE SOLUTIONS

It was considered that the alternative solutions, proposed by the people themselves, during the implementation of the participatory diagnosis workshops were:

- Give awareness workshops about the problems caused by the use and management of agrochemicals on the soil, the environment and people.
- Impart animal health workshops on the handling of backyard animals.
- That people make their corral so that their animals aren't stolen or eaten by carnivorous animals.
- Raise awareness through workshops about the importance of the flora (trees).
- Promote the practice of zero tillage.
- If this cannot be implemented, then during the process of burning cornfields be more careful, carry water pumps for emergencies, properly define the "line" (totally clean zone which serves as a border that extends throughout the burn area) so that the fire doesn't get out of control.
- During the felling of trees, plant another one to avoid loss of biodiversity.

FAMILY PARTICIPATION IN THE BACKYARD. THE CASE OF LA LIBERTAD

By María Esther Pérez Osuna, María Guadalupe Gómez González, Macario Núñez Kante

Students from the multidisciplinary academic unit of Yajalón.
Intercultural University of Chiapas.

It is important to note that it is the women who carry out activities for the maintenance of backyards, because women spend more time at home in roles as housewives. Therefore, they are responsible for: cleaning the area, planting and harvesting vegetables (onion, cilantro, radish, chili, creole tomato, among others.), As well as care for the ornamental plants (roses, *chinitas*, bougainvillea, *mañanitas*, tulip, etc.) and planting medicinal herbs (rue, basil, pennyroyal, wormwood, purple maguey, among others.). They are also in charge of raising and caring for farm animals. The work of women is essential as it is everywhere, and they never rest.

Similarly, they accompany their husbands to support the work in the field, planting and harvesting beans, corn and squash, cutting firewood, and select and shell the seed that is used during planting. In the case of harvesting, the whole family participates: husband, wife, children, and grandparents, depending on how this family is formed.

Men are engaged in field work (cleaning the cornfield, growing corn, weeding, harvesting and carrying the corn, cutting coffee and firewood). Sometimes they go hunting for personal gain- a man's work is outside the home and he is not involved in housework because they think it is women's work.

BACKYARD ANIMALS

What was obtained as a result is raising more chickens because they adapt better to the climate, require less care and are tastier. Hence, they are followed by turkeys, ducks and pigs as they need more care and are more likely to get sick. Chickens, turkeys and ducks are vaccinated against the diseases Newcastle and avian pox. The most common diseases in pigs are Cysticercosis, fever, diarrhea and parasites. These are cured with natural remedies such as lemon with salt. The diseases often occur when the weather is cold or because they do not have adequate space.

Women and their daughters look after the animals, large animals are fed corn twice a day and only small chickens are fed cornmeal every once in a while. These animals are essential in the food consumption of the family because they can grow in the backyard and thus people can consume them at any time they want without any economic cost. In the matter of trade, they sell these animals when the interested buyer arrives to the house that is raising the animals.

PLANT SPECIES IN THE BACKYARD

In the backyards of the community there are a variety of plant species. The most frequent are ornamental plants (bougainvillea and lilies), medicinal plants (wormwood, garlic, purple maguey and aloe vera), fruit trees (orange, tangerine and lime), and vegetables (onion, cilantro, yerba mora, among others).

The main uses given to backyard plants are: provide shade, feed the family and animals, family medicine, decorate the houses and flavor food.

SOIL TYPE

The soil type of the community is black, which can be seen with the naked eye as being composed of organic fertilizer with more fertilizer from the traditional viewpoint.

TRADITIONAL KNOWLEDGE OF THE BACKYARD

Through the participatory rural diagnostic that was applied in the community, information about traditional knowledge and practices was obtained which people still practice in their backyards.

As for the planting and care of fruit trees, they are guided by the astronomical indicators (full, waning and waxing moon). For planting, they are guided by the waning moon- in the Chol language it is known as *chämel uj*, in order to have good development and bear abundant fruit. According to people, if fruit trees are planted in a crescent moon (tsi'jib uj) they grow tall, and bear little and damaged fruit.

As for planting vegetables, they are guided by the full moon (pomol uj), in order to grow strong and in abundance. For fertilizer production they use organic materials such as coffee husks, poultry manure, fire ash and fruit peels. Women have extensive knowledge about the breeding of animals, and an example of this, the person placing the eggs under the hen for them to brood has to be fasting to prevent the eggs from becoming water or what they are commonly called, *puque*.

COMMUNITY EXTENSION EXPERIENCE. THE CASE OF TIERRA Y LIBERTAD, MUNICIPALITY OF YAJALON, CHIAPAS

by Celsa Leidiana Gutiérrez Urbina

Undergraduate student of the sustainable development program of the Intercultural University of Chiapas

This work began with the first contact , who was the agent of the community who discussed with the community the goals of our work. Although his response was telling us about the difficulties of working with people, because they were unfulfilled, since the convoking of meetings were given no importance and interest. However, a meeting with local people to speak with them about the implementation of participative diagnostic workshops was achieved; his response was negative as they had no time for it. The alternative was talking to the nurse from the IMSS, to present the purpose of the research to be performed, which were health talks for a group of midwives, and thus we managed to conduct the workshops.

One of the problems we identified in the community, is the paving of the streets; also some of the people previously mentioned that people were not so interested in defining their property or land, because there were only roads or paths as they mentioned, but the arrival of paving delimited people who then put a fence around their property, individualism was reinforced and communication between neighbors was cut that previously existed before the barriers.

Another problem that was observed was that people who are engaged in raising pigs had no fencing in their backyards, and this resulted in pigs entering other backyards and destroying their crops, with the neighbors getting disturbed and acting aggressively, hurting the animals. All of this is due to the lack of communication and organization

among neighbors, so it is important to implement a dialogue, including a way to reach an agreement and avoid these problems.

The adversity that we faced, among others, were: (1) people who we tried to interview closed the door of their homes thinking that we were *Opportunidades* (a government program) technicians, (2) in some cases they wanted to charge for giving information, perhaps because they mistook us for organizations that provide money, (3) some people already had too much distrust because they thought that the information they provided us was going to be used to manage projects for our benefit.

AFRO-CHIAPAN CULTURE. CUISINE AND ORALITY

By Joshua Martin Lopez Reyes

CANTO NEGRO
—Nicolás Guillén—

¡Yambambó, yambambé!
Repica el congo solongo,
repica el negro bien negro;
congo solongo del Songo
baila yambó sobre un pie.

Mamatomba,
serembe cuserembá.

El negro canta y se ajuma,
el negro se ajuma y canta,
el negro canta y se va.
Acuememe serembó,
aé
yambó,
aé.

Tamba, tamba, tamba, tamba,
tamba del negro que tumba;
tumba del negro, caramba,
caramba, que el negro tumba:
¡yamba, yambó, yambambé!

Sóngoro Cosongo, 1931

This poem, entitled "Canto Negro" appears in the poem book *Sóngoro Cosongo* , was written by the Cuban poet Nicolas Guillen in 1931, a poet who defended negritude, which was also his color, as a form of identity and resistance .

It is known that blacks began to be taken to America as slaves in the late fifteenth century, following the conquest of these lands by Spanish and Portuguese captains. Blacks were hunted like animals in Africa, with nets, dogs, and guns, and were transported in inhuman conditions: piled on top of each other in small rooms of ships, among urine, excrement and sweat; shackled, starved, and sent to the ports of the west indies and Veracruz, to name a few. From there they were sold to the highest bidder, or already came on behalf of an owner, transferred to the cotton and tobacco plantations, mines, and sugar mills, which began to flourish just are the initiation of the European invasion, and spread throughout the islands of the Caribbean, and the mainland of Central, North and South America.

The blacks died in the new continent, never again to see her mountainsides, seas and coasts, its skies nor clouds. Never to return to kiss their loved ones, to mourn their dead; they were outcasts and torn from their families, their children, parents, grandparents, mothers, friends, wives and husbands died with them when they were taken. But there were other poor unfortunates who became ill during the nearly four-week journey across the Atlantic Ocean, and were thrown alive into the sea from the slave ships of Portugal, Holland, France and England, the naval and economic powers that took control of the trade of black flesh at the time that Europe saw itself as the most civilized of the known world. Europe became immensely rich at the expense of others' pain, the sweat of others, the work of others at the expense of thousands of human deaths in America and Africa.

> *"Father Alonso de Sandoval tells a witness that blacks" are chained six by six with shackles on the necks, filthy and ill - treated, and then joined in pairs with shackles on their feet. They are under the deck [of boats], where they never see the sun or the moon. You cannot be there for an hour without*

serious risk of disease. They eat once every 24 hours a bowl of corn or raw millet and a small jug of water. They receive much stick, whip and bad words from the only person who dares to go down to the cellar, the overseer "(http://www.mgar.net/var/trata.htm).

Haiti, Martinique, Jamaica, Dominican Republic, Cuba, Colombia, Ecuador, South America, and the coasts of Veracruz, Acapulco and Chiapas, were the forced households of blacks torn from Angola, Congo, and Mali, among other African nations, to populate and grow the wealth of the earth. This happened once almost all American inhabitants living there had been killed. In the first hundred years of the conquest, almost 75% of the original population of the Americas died. And in the 300 years from the XVI to the VIII centuries, Eric Hobsbawm calculated that there were an estimated 11 million blacks taken from Africa, and millions of them died after being exploited, abused and mistreated. Today, Africa is the poorest continent on earth, where more than one million children die each year from hunger and malnutrition, and much is due of the fact that European countries were not only destroying their population, but also their riches ; America is not so far from the same.

Blacks not only brought a work & strength to America. They did not only flourish with their sweat and their tears the fertile lands that were not theirs; they did not only kill their children and themselves with their own hands to avoid the suffering; they not only suffered the lashes on the back, the pain of stocks, burning with hot irons on their bodies, as if they were beasts; they also brought their memories, their dead, their joys, excitement, traditions, dances, gods and rituals, language or languages, food, music and musical instruments (in Chiapas we have the melodic sounds of the marimba, evoking African and Chiapas jungles, a rudimentary marimba in Chiapas sprout legs, to quote the felicitous expression of Eraclio Zepeda).

All of these contributions the blacks recreated and mixed with what was found in these strange lands, where today they rest eternally under the hot lands of the coast or under the cold mountains, for

example, in San Cristobal de las Casas. In this city, in all of the houses of the conquistadors, there lived black people, black women and boys, as servants, and there was such a large population, who had their faith in the Christian God, that the Spaniards, in order to keep their black servants mingling with them , built the church of St. Nicholas, their patron saint, behind the beautiful cathedral which stands proudly in the center of the city. A single church only for blacks. Humble, like them.

Blacks settled here and left their genes in us. They not only left their blood mixed with ours, but also their cultural traits, so that today, more than 500 years later, their presence is still alive. Like ghosts, blacks are installed in our imaginations, they sit at the table with us, slipping through some chinks in our memory, which is also the memory of our indigenous heritage. The indigenous, fearful of blacks who fled slavery and lived hand to mouth, were not only astonished by the color of ebony, but because they also stole their things, or raped their women, composed legends about them and they gave them names: hairy, black cimarron.

Of the latter, one can learn in the book *Cultura Afrochiapaneca. Gastronomía y oralidad*, (Afro Chiapanecan Culture: Food and Orality) whose authors are: Baltasar Ramos Martinez, Raquel Jimenez de la Cruz, Viridiana Cristel Cano Diaz, Antonio Guzman Gómez Pérez and Maria Patricia Perez Moreno. It was published in 2010 by the PACMYC, CONACULTA and CONECULTA. It integrates four chapters: Chapter 1. Food and afro chiapanecan myths-stories. Ideas and empirical references for study. Chapter 2. The pig: metaphor and reality of blacks. Chapter 3. Black hand in the kitchen: to sample, a recipe book. Chapter 4. myths-stories. The faces of blacks. Testimonies and narratives. In total, they make up 251 pages of ancient and recent history that bear witness to this third black race, unknown and denied, which together with the indigenous and Spanish (and many more unrecognized roots) are present in our dialectal variant of Castilian Spanish that we speak in words like ... *mondongo* (tripe) , *guineo* (banana) , *tambo* (drum), *bomba* (pump) in the preparation of many foods we eat every day and that more than one has made us salivate: *chanfaina, morcia, butifarra, tachigüil* ... the

traditions and customs that we have: the black fiesta , black Christs, and at carnivals as the maxes of Chamula. They also live in our social and cultural imagination, for example, who has not heard the legends of the black bighorn, and the black *sombrerón* , with eyes of fire.

— REVIEW —

THE OTHER WORD.

Stories, projects and testimonials from the Faculty of Humanities

Agustín López Cuevas and Hugo Fonseca León

Autonomous University of Chiapas

The Other Word has the vicissitudes of the now Faculty of Humanities at the Autonomous University of Chiapas, from humble beginnings and almost at the point of dying before growing, until now, has become one of the most important academic bodies of the institution. Browsing these vicissitudes may be compared to submerging oneself into them- when you finish reading, it seems the ones expectations are not met. Something has to follow. Something else has to come. And something will come because Humanities should be the heart of the university: the reason of making the university, with all the depth of making full and comprehensive awareness that an institution of this nature means.

Reading *The Other Word* pushes you to think, but also to remember, to go chasing the adventures of a school in development. Home of young people who want to find their place in the world: those who want swim over the great general wave to get his own spark, the spark of genius that only takes place in the atmosphere of freedom, the freedom to seek and find the youth portrayed in the pages of this publication.

The Other Word is a document prepared with the tools and the material that academic life gives and is perfected in the daily work of the use of the word as the main source of intellectual work; and above all, picking up *The Other Word*, that is to be reeled out there, slowly and then, piling up a little, becomes visible to transform it into stories, projects and testimonials from a community of restless youth.

It is the attempt to recall through a text written in six chapters, concatenated and bound to the time and circumstances throughout the institutional life, made with more significant dates and events and often rescued from the institutional trash or university archives and shelves forgotten in some old warehouse.

It is a retelling of stories, projects and testimonials from many people, especially young students who populated the walls of the campus of the Faculty and through *The Other Word*, expressed their ideas and let their emotions be seen. Words, ideas and emotions that for being far from power, from the medulla of political decisions, of financial control and the command center, are converted, not into the

word that incarnates force, but rather the conscience of those that know and have something to say, but don't have the place to say it and many times are not allowed to. It is the voice of those that do not have voice, the word of those that have no word and that sometimes is torn away to make it their own.

Link:
http://www.conecultachiapas.gob.mx/publications/view/137