

## Reflexiones sobre la educación ambiental en la formación profesional. El caso de la Universidad Autónoma del Carmen

*Reflections on environmental education in vocational training. The case of the Autonomous University of Carmen*

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### Resumen

En el presente trabajo se reflexiona y analiza el panorama de la educación ambiental actual. Se pone en entredicho la responsabilidad que la educación superior en México ha adquirido en el contexto de las demandas internacionales sobre el cuidado del medio ambiente. Se aborda de manera crítica el ideario de considerar a la universidad la responsable de formar profesionales que garanticen y sostengan la sustentabilidad del entorno, sin considerar los aspectos que le anteceden en esta materia, tanto al estudiante como a la comunidad a la cual pertenecen. Se propone problematizar y complejizar la relación subjetiva que el alumno puede establecer con su entorno y sus consecuencias en la conservación de un medio sustentable.

Por último y en el ámbito de las consideraciones anteriores se contextualiza el caso de la Universidad Autónoma del Carmen a partir de los resultados obtenidos en un estudio de investigación realizada sobre la actitud de los estudiantes hacia la educación ambiental

**Palabras clave:** Educación ambiental, Formación profesional, subjetividad, sustentabilidad

## Abstract

In this paper reflects and analyzes the environmental education landscape Current. It calls into question the responsibility of higher education in Mexico acquired in the context of international demands care environment. It critically discusses the ideology of considering college responsible for training professionals to ensure sustainability and sustain environment, without considering the preceding data in this area, both the student and the community to which they belong. Proposes to trouble and complicate the subjective relationship that the student can establish with their environment and their implications for sustainable conservation half. Finally and in the scope of the foregoing case is contextualized Autonomous University of Carmen from the results obtained in a research study on the attitude of students towards the environmental education

**Key words:** Environmental Education, Vocational Training, subjectivity, sustainability

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## Introduction

Since the last century concern for environmental sustainability has increased dramatically, however, and contrary to this has extended the technological use, industrialization and consumption of non-biodegradable products, impacting on environmental degradation. In short the concern for the environment is directly proportional to the events taking place in your favor, just look around us to account for this effect, as in the case of contamination of rivers, seas, mangroves, etc.

Overall we will see in recent years abrupt and irreversible consequences environmental changes, however they were thought it was from these circumstances that some international organizations began to take action on the matter, for it UNESCO in 1949 conducted a comprehensive study which revealed his interest in environmental degradation, one of the main innovations of this work was to give environmental education protagonism (Novo, 2003). In the same vein, but in 1968 several international bodies agreed to include in sustainability-oriented, so that humanity through education to take ownership for the proper use and balance environmental elements educational systems. (Batllori, 2008). Years later the United Nations (UN) as part of the "Conference on the Human Environment" held in 1972 in Stockholm, Sweden conviction proclaimed the imperative goal for mankind as the improvement of the human environment. Furthermore, the World Health Organization (WHO) promoted that for the period 2005-2014 education is the basis for generating a more viable society and booster integration of sustainable development to formal education system at all levels (Novo, 2009).

As noted, has promoted education as the remedy for all environmental ills, however, this position despite the excessive promotion has had little effect, although it is a speech commonly used few are circumscribed this direction, in the case of Mexico in some areas of education still has a marginal character, economic and educational policies regarding environmental matters are incipient, universities competence based model even discussed, coinciding with Leff thought "the environmental education has been oriented and understood as an externality in the economy and as everything that is unknown and denied by the rationality of modernity "(Leff, 2007,1 3). So before thinking about a possible solution to our educational ecosystem that will be put on the table the issue of education

## **Content**

Environmental education in Mexico.

The environment in our country has been long considered a serious problem for the 70s, coinciding with international demands agreed that environmental degradation was the result of a lack of knowledge about it, so education institutions superior had to have the main role (Avila, 2008). Following this idea, the Association of National Universities and Institutions of Higher Education (ANUIES) in 2002 under the framework of the seminar of Education,

Science and Technology, organized by the National Preparatory Committee for the World Summit on Sustainable Development held in Guadalajara, reiterated that universities should be considered as a primary group for the protection of the environment, since these have shown their interest in having action towards sustainability. The framework of this meeting provided the elements for the commitment made by the UN, on the one hand, at all levels to implement environmental education and on the other, seen as a principle the responsibility for different sectors and social groups were assumed.

The dynamic that has arisen in our country with regard to environmental sustainability is no stranger to that shown by international organizations, it was felt that the solution lies in the acquisition and transmission of knowledge at all levels, thus some authors agree and consider it necessary "a path to sustainability with a strategy for education and communication to promote knowledge, values and attitudes necessary to achieve new standards of social coexistence with nature" (Sosa, 2010, p. 34). However, Morales (2010) notes that for many years there have been intensive and costly in mass media campaigns and this has not been successful, however in national policies intensify you think.

Other roads that have been taken against environmental degradation, is to consider that by bonding with the environment has to produce a defense of it, hence that universities promote education in natural areas. This position may be favorable can simultaneously considered off course, since the socio-capitalist context based logic in wasteful consumption, considering the environment as indifferent to their activity, the call makes education is loving character without consider shorting which develops (Arenas, 2010).

The ideas outlined above converge as a whole showing the links between environmental sustainability and university, however, the results obtained so far have not been significant in its purpose, much less have the pace to challenge the improbable that this relationship could result. We can account that the university has imposed the strategic responsibility for the development of environmentally active and engaged in analyzing citizens and solving environmental problems (Leff, 1993, cited by Sosa, 2010), it has achieved many educational programs in the country have been established as a central focus in their curricula subjects and activities that promote awareness and sensitivity to their environment (González, 2000). What has not been achieved is assessing the impact that these reforms

have had, just as a lack of studies in higher education on the results of this pro-environmental strategy, in other words, so far this has become repetitive speech demagoguery, does not have any element that could allow us to assert that higher education has fulfilled the responsibility "adopted."

### **Environmental education at the Universidad Autonoma del Carmen.**

The Autonomous University of Carmen is located in the town of Carmen in the southern state of Campeche, the southeast of the Mexican Republic, is an island with a population of approximately 199, 988 inhabitants (INEGI, 2008). The main economic activity of the region revolves around agriculture, commerce, mining, and tourism services (INEGI, 2008). In the years after 2008 has dramatically improved the economics of the industry, services and tourism, declining fisheries and agriculture, in this sense the increase in hotels, shops supermarkets and others have generated important processes of pollution discharge wastewater at significant points in the city (Sánchez, 2012). For lack of wastewater treatment companies and hotels settled in this town have elevated levels of air pollution (Barreda, 2008, March 16). This is how important spaces have served as outfalls of these wastes.

One of the main sources of contamination that exist within Ciudad del Carmen, is undoubtedly the creek, observable to the naked eye throughout his career ... going from the large amount of solid waste, mainly plastic, nylon, remains organic wastewater discharge of irregular settlements, devastation of mangroves, etc., (Secretary of Environment and Natural Resources [SEMARNAT], 2009, 8)

In this vein SEMARNAT (2011) stated one of the most important beaches of this city "Manigua II" as a health risk, by finding high levels of pollution. (Sosa, 2011, January 20). However, history tells us that we have been blind to our reality, so much so that by the 2007 the same instance reported that they had detected 9 points of oil pollution in the Campeche and indicated that actions were analyzed to decontaminate the area (Chim, 2007, October 31).

Another environmental effects locally and coupled with an emerging tourism development has been the deforestation of mangroves in most of the coast. Ever since ancient times

fishing activities had led to overexploitation of resources like shrimp that has virtually disappeared. (Sosa, 2010).

### **Environmental Vocational Education**

The Autonomous University of Carmen committed to sustainability of their environment and consistent with the guidelines of the national higher education policies, the priorities of the Federal government with proposals for the future of ANUIES, decided in its development plan "Faro U -2010 "promote environmental education and environmental preservation (Autonomous University of Carmen [UNACAR], 2000).

Later in 2002 under a system based on "learning experiences" model was proposed that these were organized in such a way as to allow the student to develop knowledge, skills, attitudes and relationships that serve him for life, so, under the framework this model institutionally established the UNACAR the subject "Introduction to sustainable development" as a strategic way to solve the avatars and attributed to the University requirements regarding environmental education.

For the year 2010 without assessing progress in this area and with a competency-based, which he called "Acalán" the UNACAR in the context of vocational training established to promote the participation of their students in activities that promote the culture of the environment model (Acalán, 2012). To this end acquires within their responsibility for the ecological sustainability of the community it serves as an institution (Acalán, 2012), under these guidelines the UNACAR determined within the curricular structure of its educational programs incorporate generic competition called Education for sustainability and it transcends throughout the entire curriculum, to its achievement (Acalán, 2012).

For proper implementation of this competition the institution will focus mainly on two proposals on the one hand, a compulsory basic course belonging to the second cycle called: Sustainable Development, and on the other, a number of optional actions corresponding to the "Training Courses Integral ", these students can perform them from first to seventh cycle, correspond to hours of participation in various activities and DE16 can be up to 48 hours, ie 1 to 3 credits. Now, as for the course "Sustainable Development" its purpose is to: Analyze and reflect on environmental issues and their implications in dimensions of

sustainability to achieve a "behavioral" significant change in relation to complex global challenges "(UNACAR, 2010).

Roughly we may think that these claims have a major university sui generis problem, on one hand, the University has implemented certain curricular strategies based on some national and international demands and not by a tacit concern about the environment.

There has not been at our institution that profound and complex discussion by teachers, students and other IES allowing glimpses clearly the way forward regarding this issue. On the other hand, it is illusory to think that the "institutionalization" of some pro-environmental aspects in essence information results in a significant change in the students and therefore in their community.

### **Proposal and current discussions**

As discussed above invites us to reflect on the reality of our institution, community and society, with respect for the environment. We think it is necessary to complicate the environmental problem, the ways to address it, and proceed to understand if we are to result in significant aspects in the medium and long term and thus achieve the aim of environmental education.

First would be prudent to establish a direction our thinking based on our unique problems, secondly, it would be meaningful to conduct research in the various fields of knowledge are there in college that would generate empirical evidence on the relationship between subjects and the place they live in and ambient environment.

We reiterate that the Universidad Autonoma del Carmen has joined uncritically and accountable to established discourses around environmental way, before this curriculum reform is nascent, inadequate and unable by themselves, so impeding changes idealized.

In this context and under the current model of "competencies" that the university has established as part of vocational training and thus the mechanism for achieving significant rafter towards the environment, we decided to conduct our research and generate results that would allow us to establish at least one point of discussion, analysis and game.

Our study consisted of a questionnaire to measure the attitude of the students of the Autonomous University of Carmen, to environmental education. This population belongs to a competency-based in that it considers one of its' generic skills in students achieve through environmental education the need for behavior change regarding sustainability and it proves his mastery through resolution model environmental issues. "The sample selection was for convenience, the instrument is made up of demographic questions, followed by 4 blocks of items where the following were explored: 1) Knowledge and environmental interest, 2) Importance of environmental problems and liability protection, 3 ) pro-environmental behaviors, and 4) The importance of environmental education and environmental attitudes.

Another thing that we must emphasize is that in our theoretical investigation with regard to the environmental education we realize that there are an infinite number of conceptions and orientations, so we decided to revive the proposal by Trellez in 2006 which reads as follows:

Environmental education is education to form a critical, creative and forward-looking, able to analyze the complex relationships between natural and social processes, to act on the environment with a global perspective thinking, but differentiated by various natural and cultural conditions that define . (Trellez, 2006, 3)

Following this, in most cases it is assumed that an environmental attitude is possible through education, to the extent that this is capable of producing in the student's interest, concern and awareness of self and environment. It is also necessary that this environmental attitude this an appropriate ethical aimed at inducing large-scale generation of educational policies and principles for the future (Arenas, 2009). Put another way, is intended as a primary objective of environmental education to produce the knowledge, attitudes and pro-environmental behavior to act accordingly (Arenas, 2009). These arguments we decided that our goal would be to basically identify prospects that students of the Universidad Autonoma del Carmen have on the sustainability of the environment, after two and a half years of work in which the institution is environmental education. Our work only covered a sample of 30 university students from a population of approximately 550 students, the selection of the sample was not random. We believe our study relevant to the extent that do



not have similar research in our country. In Spain Unable to find an investigation that yielded few references to it, including the questionnaire applied and adapted to our population.

### **Methodology**

As in all scientific research for us is critical that the facts and relationships established with the results obtained with accuracy and reliability, so that for our study, was defined as subject to the students of the Unit for Higher Education, Area Health Sciences of the Universidad Autonoma del Carmen, which is made up of students from five races: Clinical Psychology, Physical Education and Sports, Nutrition, Physiotherapy and Nursing. Finally in the selection of the sample assets belonging to university income generation 2010 being the part of the new model of competency-based UNACAR was considered.

#### Population and sample

Having defined the criteria for the target population and the criteria for inclusion and exclusion proceeded to the selection of the sample of total students DES Health Sciences at the Autonomous University of Carmen, by a non-probability sampling convenience where directly selected a group of 30 students from 5 races already mentioned that at the time of the investigation were in college in a summer course. The other students were in the holiday period which prevented the sample was selected randomly.

#### Instrument

Having defined the population and the study sample on which the research was conducted the data collection technique based on a questionnaire used previously in research done at universities in Spain is defined. The questionnaire in its constitution through a rigorous process step (Arenas, 2010), our population will be made some syntactic and editorial adjustments.

One advantage that gives us the questionnaire is the possibility of being answered in a fairly short time, it is an impersonal and anonymous instrument allowing subjects will answer more freely without being constrained in their assertions.

Two problems with the instrument were observed: 1) were not considered questions regarding the residence time in the city, could have consequences if those who had little time to live in Ciudad Del Carmen not adequately identify the environmental problems facing the community.. 2) questions about the areas of residence of respondents were omitted, it is likely that this factor will also affect environmental perception, since there are underserved areas housing located in uneven settlement in areas highly contaminated as garbage and other residential areas of level middle socioeconomic high where systems and services are provided by individuals.

It was suggested that the questionnaire for your out impersonal application, the application form should be in writing and the type of response to be considered should be structured or closed. In this model the subject responds to questions with a series of alternatives established which subsequently promotes data analysis and statistical treatment. The questions are dichotomous, sometimes the respondent answers yes or no, in other cases they are multiple choice questions, present a set of alternatives from which the respondent must choose the one that is closest to your opinion. It is clear that for the original questionnaire, a pilot test was conducted to 40 students to register if they had difficulties in answering (Arenas, 2009). The final version of the questionnaire consists of 60 questions divided into 4 sections that were presented in 3 sheets to students. In the first part of the title, then the header with instructions where the objectives were explained, the type of information requested, motivating and ensuring respondent anonymity, later paragraph of sociodemographic data is placed between which are: age, sex, marital status, race and other studies. In questions two formats, one consisting of a space and corresponding brackets, and one in which they responded in correspondence to a nominal scale used.

As it relates Arenas in 2009, the instrument consists of 4 blocks determined as follows:

Block I: Interest and knowledge about the environment and environmental education. Block II: Liability protection. The questions were related to knowing the responsibility that assign students to public and private institutions and government agencies in relation to environmental protection.

Block III: pro-environmental behaviors. This section will be established which activities performed by university more often were, they could be considered as an ecological behavior actions for the environment.

Block IV: Importance of environmental education and environmental attitudes. This section assesses the perceptions of students about the importance of environmental education in the training of future professional, aspects which must be assumed by the university and also the importance of environmental education was undertaken to contribute to solve environmental problems. In the case of environmental attitudes with these questions the moral beliefs, motivational readiness and knowledge expressed in actions to be undertaken by university students in environmental protection that could be reflected in ecological behavior was assessed.

## **RESULTS**

The survey population consisted of a total of 30 students of the 5 races that make up the Unit for Higher Education, (70%) and women (30%) men. In the case of age, the highest share consisting range between 18 to 20 years, ie 43%, then 23% for those who are in the range of 21 to 23 years, only 10% are students under 18 and finally those located in an older age to 27 years represent only 6% of the total. With regard to marital status according to the data 86.6% of them are single, 9.9% were married and only 3.3% are divorced.

According to hard data that shed surveys; we have: 63% of the population reported having little interest in news (on any system) which emphasize on the environment, this result is consistent with the question asked about How informed is considered with respect to environmental problems? Where 63% responded feel uninformed. When they were questioned about the current state of the environment in Cd. Del Carmen 47% rated it as bad.

With regard to assistance a course, workshop etc., where it would offer some information about the environment 44% of them said that has never attended, 53% usually. If the item referring to knowledge about local policies regarding the environment, 87% of students said they did not know them. Upon questioning about their perception of environmental

improvement in Cd. Carmen, 57% replied that the situation has not changed, while 43% perceive that the situation has worsened

When they questioned students about the importance of the environment has for them, 53% say it is very important and 47% said that important.

Following the description of the results, we will now present the II part of the questionnaire where they were asked about those responsible for pollution in Cd. Carmen. The items are designed to meet the responsibility assigned students to public or private institutions and government agencies such as those responsible agents in environmental protection. In the first question asked about the degree of commitment of the federal government, local government, businesses and UNACAR most respondents considered from their perception that the responsibility for the said regular agents is low, so that none of them have a highly significant responsibility.

Now describe the results belonging to the block number III, focused on pro-environmental behavior. Thus were established which activities performed by university more often, these actions could be considered as an ecological behavior to the environment were. 80% of respondents claimed not throw polluting materials in improper locations, 66% considered wasting water while performing personal hygiene activities, 89% said they usually performed activities that promote noise pollution, 73% answered sometimes when they were asked frequency respect to household waste recycling and switching off lights when not needed, and finally university with 90% saying they regularly consume products with reusable packaging.

Finally we show the results of the block (IV) where the assessment of the perceptions of students about the importance of environmental education in the training of future professional, aspects which must be assumed by the university made and the importance having environmental education to help solve environmental problems. 77% of students said they strongly agree that environmental education is important for the training of academics, 70% felt totally agree that students should have adequate knowledge about the sustainability of the environment, in this under 56% answered fully agree that environmental education helps to solve environmental problems, while 60% inferred totally

agree to dispense with some amenities if that helps protect the environment. Regarding the last item, specifically on awareness and attitude to environmental pollution have students surveyed 54% felt exaggerated assessment regarding the current environmental pollution.

### **Conclusion**

Based on our study we can conclude that the surveyed students belonging to the Unit for Higher Education Area, Health Sciences of the Universidad Autonoma del Carmen, almost three years of vocational training mostly held little interest and knowledge about the environment despite regularly attend courses related to sustainability, the perception of change on environmental improvement in the last 5 years was rejected, so that for them the environment in the city has worsened, despite this considered mostly very important to the status of the environment at all levels.

So far we have an alarming setback on one side, regular access to environmental information and therefore no greater knowledge and interest thereon, their perception regarding the environmental improvement of city Carmen was dismissed, however, no agent attributed a substantial responsibility, it allows us to think that this is a response based on a more widespread and uncritical view that a unique construction to the seriousness of the problem.

Although the information and activities offered throughout the years by the UNACAR towards the environment that has not allowed students to do something positive about it, quite the contrary continue to make a intemperate use of disposable products, even Although the consequences are reflected in environmental degradation.

Arguable that it shows is that even though most students consider very important the role of the university in environmental education for professional development and teaching of sustainability, which are mostly exaggerated confess concerning current approaches the status of the environment, said so, we show the disconnect between the purpose of the University and the assessment made by the student based on his experience, hard match, so that the efforts of higher education do not have the results ideally expected. We made it necessary to link each student set with the surrounding environment is not subject to information acquired in college because, as we show does not generate any significant

change towards the environment. The training does not have to carry all the weight for the conservation of environmental sustainability, an articulation of all areas of human development is required. We argue that the subject is not only reservoir of accumulated knowledge as the University has considered if meaningful and unique relationships with the surrounding medium (Sanchez, 2009).

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