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Environmental education with ethics and sustainable and sustainable responsibility: The case of the Instituto Tecnológico Superior de Alvarado (ITSAV)

Educación ambiental con ética y responsabilidad sostenible y sustentable: El caso del Instituto Tecnológico Superior de Alvarado (ITSAV)

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Abstract

The present research work entitled "An Environmental Education with a Vision of Ethics and Sustainable and Sustainable Responsibility", was carried out with the purpose of promoting an environmental education from the teaching practice in subjects of Sustainable Development and Ethics Workshop, taught in all Federal and Decentralized Technology Institutes of Mexico. The subjects undoubtedly contribute an added value to the engineering profile, since through these the construction of environments with ethics and social responsibility begins, concluding that these actions limit the teaching-learning process, taking into account how Key elements for ecosystem sustainability. Therefore, the general objective is to promote environmental education for the students of the Higher Technological Institute of Alvarado (ITSAV, by its Spanish acronym) through proposals of what to teach and how to teach the sustainable and sustainable development of human-natural systems based on learning significant. In this way generate awareness in students to apply it in daily life and professional fostering sustainable and sustainable culture with a holistic vision, ethical practice and social responsibility.

Environmental education, Ethics and sustainable responsibility, Ethics and sustainable responsibility, Significant learning

Resumen

El presente trabajo de investigación intitulado "Educación Ambiental con Ética y Responsabilidad Sostenible y Sustentable", se realizó con la finalidad de fomentar una educación ambiental desde la práctica docente en asignaturas de Desarrollo Sustentable y Taller de ética, impartidas en todos los Institutos Tecnológicos Federales y Descentralizados de México. Las asignaturas sin lugar a dudas aportan un valor agregado al perfil de las ingenierías, ya que a través de éstas se inicia la construcción de entornos con ética y responsabilidad social, concluyendo que estas acciones limitan el proceso de enseñanza-aprendizaje, tomándose en cuenta como elementos clave para la sustentabilidad del ecosistema. Por lo tanto, el objetivo general consiste en fomentar una educación ambiental a los alumnos del Instituto Tecnológico Superior de Alvarado (ITSAV) a través de propuestas de qué enseñar y cómo enseñar el desarrollo sostenible y sustentable de los sistemas humano-naturales basado en el aprendizaje significativo. De esta manera generar conciencia en los alumnos para que la apliquen en la vida cotidiana y profesional fomentando la cultura sostenible y sustentable con una visión holística, práctica ética y con responsabilidad social.

Educación ambiental, Ética y responsabilidad sostenible, Ética y responsabilidad sustentable, Aprendizaje significativo

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Introduction

The present research work entitled "An Environmental Education with a Vision of Ethics and Sustainable and Sustainable Responsibility in the Higher Technological Institute of Alvarado (ITSAV)", was carried out with the purpose of promoting an environmental education through the teaching practice and propitiate in the student a change of attitude and conscience. The teaching practice will be carried out through subjects such as Sustainable Development and Ethics Workshop, both taught at the ITSAV, and in turn at all the Federal and Decentralized Technological Institutes of Mexico.

The aforementioned subjects contribute added value to the profile of engineering, since through these the construction of environments with ethics and social responsibility towards society begins, concluding that these actions limit the teaching-learning process, when taken into account as key elements for the sustainability of the ecosystem; Therefore, some proposals of what to teach and how to teach to achieve the sustainable and sustainable development of human-natural systems based on meaningful learning are presented.

It is important to mention that the human being has contaminated the air, water, soil, etc.; resources such as forests, raw materials, fossil fuels, etc. have been overexploited, and species of flora and fauna disappear, thus threatening the survival of the human being on planet earth.

For this reason (Stern, 2009: 06) mentions that it is necessary to raise awareness in the human being to achieve "a development that responds to the needs of the present without compromising the abilities of future generations to respond to theirs". Likewise, sustainable development necessarily associates good economic management, the social process and the protection of the environment.

Environmental awareness is increasingly important in our lives, but many people have not yet realized what they, as individuals, can do in favor of the environment.

Therefore, the general objective of this research is to: promote environmental education to the ITSAV students through teaching practice with proposals of what to teach and how to teach the sustainable and sustainable development of human-natural systems based on the significant learning. To achieve this, practical activities are proposed inside and outside the classroom that leave a real meaningful learning in the student and apply it in daily and professional life fostering a sustainable and sustainable culture with a holistic vision, ethical practice and with social responsibility.

The central hypothesis is: with the proposals of what to teach and how to teach to achieve the sustainable and sustainable development of human-natural systems based on meaningful learning, environmental education will be promoted in the ITSAV students with a sustainable and sustainable culture with holistic vision, ethical practice and with social responsibility.

The structure of the article consists of the following sections: introduction, problems, methodology (analysis, general proposals to achieve environmental education, Proposal I: Bali Green School, Proposal II: Sustainable development within your reach, Proposal III: Proposal based on significant learning), environmental education in the ITSAV, results, thanks, conclusions and references.

Problematic

The lack that has from the teaching practice is the motivation in the student to generate a change of attitude and environmental awareness, since the teacher through the teaching-learning process exerts a great influence in the formation of the students, being able to generate the change to the great affectations to the nature. That is why teachers should work hand in hand with the student training them in environmental education, because it is lacking in the ITSAV, being some of the reasons the shortage of the following aspects:

– Involvement of teachers in the training on content related to environmental education for the teaching and projection of the subjects of Sustainable Development and Ethics Workshop.

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- Content of the subjects addressed in a theoretical and impractical way without transcending the region.
- Participation at the local and regional level in events about care and conservation of the environment and therefore in sustainable projects.
- Activities that encourage environmental education.
- Awareness of the care of the environment, and transmission of sustainable culture to society.
- Knowledge about private institutions or governments that have implemented actions for the care and conservation of the environment.
- Participation of the personnel of the institution for the promotion of campaigns in promotion of environmental education.
- Awareness of the staff and students on the importance of the certification of the standard on the care of the environment "ISO: 14000" that the ITSAV has.
- Inclusion of students in sustainable projects that serves as a means of certification.
- Participation with students in calls for sustainable development and / or care and conservation of the environment.

With the passing of time, human beings organized in society have achieved great advances in industrial and technological development, positively influencing the economic development of the world society. However, this has also brought great effects on nature, its structure, its dynamics and its evolution (Toledo, 2000).

Currently, it is public knowledge that the planet Earth is undergoing serious changes in the environmental aspect. Some of these changes have brought about side effects such as: the deterioration of the ozone layer of the atmosphere, producing skin cancer or blindness in animals and humans; deforestation, causing global warming; the pollution of the oceans by industrial waste, causing the death of marine species, among many others. These affectations to nature occur in two ways: by appropriating natural elements and by expelling elements already socialized, by producing, circulating, transforming and consuming, producing waste towards the sphere of nature (Toledo, 2000).

Thus, nature has a triple value for society, being the primary source of all production and the final reservoir of waste we produce, while providing us with the ecological services necessary for human beings (Toledo, 2000). This assertion confirms the importance of preserving natural resources for the benefit of society. In this context, we believe that in order to conserve our ecosystems, the best strategy is undoubtedly to focus on production guidelines and processes and, therefore, on the use of natural resources and spaces (Challenger, 2001).

That is why a holistic vision of the environment must be incorporated, where the ecological ordering, conceived as the guiding guide for strategic planning of land use, includes strategies for the conservation of ecosystems.

In the particular case of natural ecosystems that are used directly to sustain extractive activities, the ecological ordering must guarantee the persistence of at least the minimum extension of the ecosystem that is required to maintain all of its biota and ecological services in optimal conditions. Obviously, for this as for other strategies mentioned below, it will be essential to have the close collaboration of ecologists and biologists, in order to link the knowledge on the carrying capacity and the ecological and biotic characteristics of the terrain with the process of ecological ordering itself (Challenger, 2001).

In the case of ecosystems that are eliminated or completely transformed to make way for different special uses of the soil, it is essential to calculate the aptitudes of the ecosystem to assign its vocation for land use. (Challenger, 2001).

In this new millennium, and despite the difficult moments that the world is experiencing today, we can perceive the near possibility of a new beginning, to build a planetary economy where the production and exchange of products and services do not exceed the true and limited capabilities of the biosphere. This means that if a nation or company extracts any product or raw material from an ecosystem, at a rate above that of its natural replacement, it would be producing an ecologically unsustainable production that sooner or later would end the resource and weaken the economy and with it the welfare of those who depend, directly or indirectly, on this activity (Challenger, 2001).

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As described by the World Commission on Environment and Development in the Brundtland Report (1987):

"Sustainable development is one that meets the needs of the present without compromising the ability of future generations to meet their own needs".

To achieve this, a holistic vision of land, biodiversity and land uses is required, and not only to utilitarian perspective, in which everything depends on the aptitudes or vulnerabilities of the soil, topography, vegetation, etc. (Challenger, 2001).

Methodology

This research takes as reference the significant learning, because it is within the framework of the constructivist psychology, which emphasizes to stop being passive receivers and to be active constructors of the reality and their experiences that one can generate in their environment. (Ponce, 2004) mentions that: "Significant learning requires the student to carry out various activities to establish relationships between what is new and what he already knows, that is, nuance, reformulate, differentiate, discover, order, classify, hierarchize, relate, integrate, solve problems, understand a text, etc.".

That is to say, learning means that the new learnings connect with the previous ones; not because they are the same, but because they have to do with these so that a new meaning is created.

(Galagovsky, 2004) notes that the meaning of the adjective "significant" is related to something close to the interests of the student.

The immediate consequence is an association of premises that establishes: if the content to be taught is related to the interests of the students, they will be motivated and the learning will be significant.

See in Figure 1, the abstraction on The Theory of Meaningful Learning by David Ausubel.

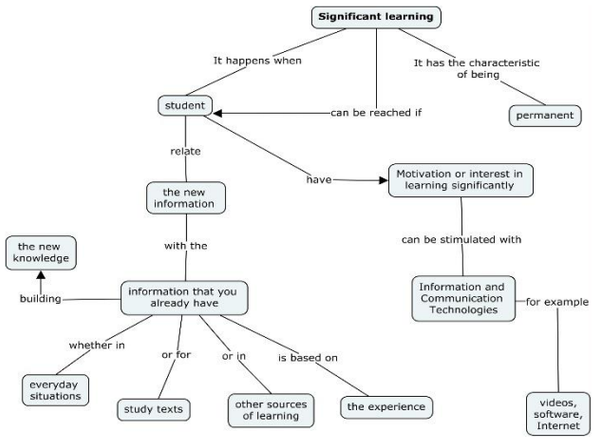

Figure 1 Meaningful learning by David Ausubel
Source: Self Made

A proposal was designed in accordance with the needs and perceptions detected in the environmental diagnosis applied to the collaborating teachers of this project and who have teaching experience as well as being knowledgeable about the subject. A checklist was used as an instrument; As a result of this proposal, below are some key elements that represent the guideline for the realization of the same:

– Lack of interest in carrying out activities for the care of the environment.
– Lack of updating in environmental knowledge by students.
– Lack of environmental awareness
– Lack of knowledge about environmental aspects linked to their graduation profile.

And as he said (Hardy, 2010) in his conference on the "Green School of Bali". Thinking about the development of sustainable projects involves three aspects:

1) Stay local
2) Let the environment send.
3) Think about how your grandchildren could build it to have a better future in life.

Analysis

The General Assembly of the UN "emphasizes that education is an indispensable element to achieve sustainable development" (Carranza, 2007). Therefore, an institution committed to sustainable development must induce in all its members the new awareness of species and the new ethic of solidarity with all the members of the planet and the cosmos (Toledo, 2000).

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The initiative of education for sustainability has an ambitious, complex and reforming character, whose purpose is to prepare all people, regardless of their profession and social status, to plan, face and resolve the threats that weigh on the sustainability of our planet (UNESCO 2005).

Enrique Leff states in his article "Environmental education and sustainable development" that environmental education is based on two basic principles: 1. A new ethic that guides values and behavior towards the objectives of ecological sustainability and social equity; 2. A new conception of the world as complex systems, the reconstruction of knowledge and the dialogue of knowledge. In this sense, interdisciplinarity became a privileged methodological principle in environmental education.

That is why ITSAV's mission is to train competitive professionals at the undergraduate and graduate levels that will allow them to become future generators of sustainable development in the region, the state and the nation, as well as being the promoter of development economic, technological, research and humanistic thinking that contributes to the improvement of the quality of life of society.

General proposals to achieve environmental education

The Secretariat of the Environment (SEDEMA, 2017) in Mexico City (CDMX) through the Directorate of Environmental Education (DEA) defines environmental education as: "A training process that allows awareness of the importance of the environment, promotes in the citizenship the development of values and new attitudes that contribute to the rational use of natural resources and to the solution of the environmental problems that we face in our city".

(Martinez, 2010) mentions that sustainability means more than recycling paper, separating waste or turning off the tap while we wash our teeth. It means finding solutions that improve people's quality of life without degrading the environment, accumulating problems for the future or transferring them to other parts of the world. It is an innovation agenda that invites us to rethink how we organize our lives and our work.

For everything described in the previous sections, this research paper presents three general proposals that must be considered in any sustainable project, whether educational or otherwise to achieve an environmental education with a holistic vision with ethical sense and sustainable responsibility and sustainable.

Proposal I: Green school in Bali

The proposal is abstracted from John Hardy in his conference on the "Green School of Bali" where he "teaches children to build, cultivate, create (and prepare to go to college). The central building of the campus, in the shape of a spiral, is the Heart of the School, perhaps the largest bamboo building in the world "(Hardy, 2010). The green school of Bali, is a project with a truly sustainable education that every teacher should know and pass on to students.

The following sustainable ideas are abstracted from this conference and it is very important to analyze and consider those that can be applied in the ITSAV region and thus put them into practice, both at school and out of school. For this reason, the teacher must propose activities that involve government agencies, competent authorities, internal teachers and other educational institutions, etc., succeeding in promoting environmental education in the first instance to students, teachers and secondarily to society in general.

- They must form integral people. If educated people are full, most likely they require a whole world to live.
- You should practice holism. Therefore, it is the system as all integrated and global, which determines how the parties behave.
- Green projects should be created where local people participate.
- Materials from the region must be used to work on the livelihood of green projects.
- It must be taught that the world is destructible if sustainable resources are exploited irrationally.
- We must teach not to damage their sustainable resources, and if they are damaged they must learn to repair them, so that they endure.
- Let the students know that they can control their world.

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- Promote the green model in the community.
- Respetar las áreas verdes, adaptando la estructura de la institución al ecosistema.
- Respetar los ciclos de vida de la flora y la fauna de los alrededores para no alterar el ecosistema.
- Instill in the student not to go against the environment or nature itself, so that they use the natural resources within their reach, but without harming or modifying the characteristics of it.
- Promote ecological awareness in students, so that they use the resources they have, but without going beyond the limits of sustainability.
- Teach how to plant, care for, cultivate and cook a product to help them in the future.
- Propose an alternative for the institution to create its own electric power (for example, using a vortex turbine).
- Teach how to use technology to not depend on it.
- Introduce composting toilets in the institution to reduce the consumption of drinking water.
- Commit to educating a new generation of global green leaders.
- Reinvent new ways to meet their needs in the region.

(Martinez, 2010) mentions that the school has an important role to play in two fundamental aspects: increase the awareness and learning of children and adolescents about sustainability -providing them with the skills they need to participate, now and in the future, in projects designed to achieve it - and develop sustainable habits.

As a place of learning, the school can help students understand their impact on the planet, value the evidence for themselves, and give them the knowledge and skills they need to be active members of society.

The NATIONAL DEVELOPMENT PLAN (2007) mentions that: "environmental sustainability refers to the efficient and rational administration of natural resources, in such a way that it is possible to improve the welfare of the current population without compromising the quality of life of the generations future".

That is why in the ITSAV subjects are taught Sustainable Development and Ethics Workshop (under the competencies approach), with the purpose of achieving the sustainable and sustainable development of local and regional human-natural systems. It should be noted that these subjects are taught to all the careers offered not only by the ITSAV, but in all the Federal and Decentralized Technological Institutes of Mexico that depend on the National Technological Institute of Mexico (TecNM).

The subject of Ethics Workshop is very important in the student's training to apply sustainability in professional life with an ethical and responsible sense. It is about getting used to recognize in professional practice that ethics is a dimension always present in these activities. In addition, it must be recognized that any professional decision admits other alternatives, and that the option for one or the other depends on the ethical values from which it is decided and acts. Likewise, create a positive attitude towards the values that should preside over the activity of our professionals. Ethics is part of philosophy and as such consists essentially in a constant questioning of the moral realm. His conceptual framework, methods and the diversity of theoretical orientations allow him not only to question the different morals but also to be able to think and analyze moral concepts, to study what values are, how they arise and why; and in general you can investigate any fact related to the moral. (Del Rivero, 2004).

The subject of Sustainable Development has as a central core that the student acquires humanistic values and attitudes in daily and professional life, and thus exercise his profession tomorrow according to principles oriented towards sustainability; Likewise, it is promoted to train individuals who make the culture of sustainability their own and transmit it to society in general. It is proposed that the teacher establish constructivist strategies in the teaching-learning process for sustainable regional development but with a multidisciplinary approach, while developing the competence to work in an interdisciplinary manner. It is intended, then, the formation of citizens with values of social justice, equity, respect and care of the physical and biological environment, capable of facing, from their professional field, the emerging needs of development and the challenges that arise in the natural scenarios. , social-cultural and economic.

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The challenge is to form individuals who make the culture of sustainability their own and in a short time transfer this culture to society in general.

Proposal II: Sustainable development at your fingertips

There are positive actions with which it has contributed inside the ITSAV and in some cases in collaboration with society, but they are not enough to generate significant learning, which will last over time. (Stern, 2009: 8) mentions: "For sustainable development to become a reality, solidarity and global management are necessary". Therefore, we must stop thinking that we are alone on the planet earth and that there will be no one to come after us. Caring for the planet is not difficult, and practicing with daily activities for the care and conservation of our environment, will soon become a habit.

Table 1 contains the content abstraction of the topics found in the book (Stern, 2009), which describes actions that should be considered to achieve sustainable development within your reach. These actions should be carried out with activities according to the needs of the area of influence of each academic unit of the ITSAV.

Topics	Actions
Principle of participation	* For sustainable development to become a reality, it is necessary for all of us to participate. * It is necessary to be informed to understand the threats that fall on the planet and our future.
Replace fossil fuels with renewables	* In order not to depend more on fossil energies that are exhausted, it is necessary to replace them with renewable energies. There are many and also do not pollute: water, sun, wind, wood, Earth. * **Solar energy** is produced by the Sun. With it, both heat and electricity can be produced. * **Biomass**, known for millennia, is the energy stored in the materials that form living beings, especially plants. It consists, for example, in burning wood to warm up. * **Wind energy** is produced from wind that uses wind turbines to produce electricity in regions with more wind and some installed even in the sea. * **Geothermal** energy seeks heat inside the Earth to generate electricity.
Una montaña de residuos	* We produce more and more waste and it is urgent to reverse this trend. For example: * Avoid buying individually packaged cookies in a plastic wrap and then tucked into another aluminum wrap, and all inside a cardboard box. * Instead of buying precooked dishes, ask your parents to prepare fresh products.
Long live Selective collection!	* For recycling, let's use **glass, plastic, cardboard, paper** and **metal containers**.
Protect the water: it's your turn!	* We can take actions to take care of the water when bathing, brushing our teeth, watering plants, washing clothes, etc.
Stop the disappearance of forests!	* The consequences are dramatic, as it affects the disappearance of flora and fauna, and its decline contributes to the current climate warming. * Use recycled paper notebooks and write on both sides of the sheets; That will avoid cutting down trees. * Adopt a tree to help the ecosystem. Giving a little money, you will help local people to replant trees.
The price of cheap or ethical consumption	* Buy products of biological origin that do not pollute the planet and that, in addition, are of better quality. * Checking how the products you purchase have been manufactured. * Ethical consumption means that we must ask ourselves before buying if what we have acquired has been manufactured in good working conditions and in a fair way.
The bad reasons for not doing anything	* I can not do anything. My action will not help. * I'm too small * My neighbors do nothing. Why do I have to bother myself? * It is the government and the companies that must act, not the children. * It's late. Nothing can be done. Everything is lost! * It's too hard to change my habits.

Table 1 Proposal for sustainable development at your fingertips
Source: Book (Stern, 2009)

For the authors (Fox-Davies and Davies, 2012: 6) environmental awareness is increasingly important in our lives, but many people have not yet realized what they, as individuals, can do in favor of the environment. So it is everyone's responsibility to safeguard the health of the planet. Because it is in homes where the greatest amount of CO_2 emissions are generated, that is where you should start. It is enough to change some habits, which collectively, will give positive results and will save money and reduce CO_2 emissions. Pay attention to the materials used in homes, will help reduce the amount of chemicals in our environment and will also benefit our health.

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Proposal III: Proposal based on meaningful learning

UNIVERSIA (2015) mentions that the role of the teacher in meaningful learning, should take into account some steps, such as: worry about the qualities of the content to teach more than the amount of content, identify the prior knowledge that the student should have to acquire the new ones that it is intended to teach, to ensure that teaching is carried out as a knowledge transfer and not an imposition and to teach the student to put into practice what has been learned to assimilate knowledge, among other characteristics.

Then, to promote meaningful learning the teacher must propose activities that awaken the interest and curiosity of the student through a harmonious and innovative climate, where in addition to acquiring knowledge, the student feels that he can express his opinion and exchange ideas, being guided in his cognitive process UNIVERSIA (2015).

In addition to the two previous proposals, a third proposal is presented to reach the general objective of this research work. This last proposal contains indisputable elements from the teaching practice with a constructivist approach to the teaching-learning process when teaching the subjects of the Ethics and Sustainable Development Workshop, and thus achieve an environmental education from the teaching practice with a vision of sustainable and sustainable ethics and responsibility in the ITSAV, as shown in Table 2.

Elements to be considered of significant learning	Teaching-learning proposal
It produces a cognitive change, it goes from a situation of not knowing to know, where, the teacher will design learning activities on the care of our ecosystem and thus, raise awareness in the students about the care and conservation of our planet.	* The teacher must propose activities in which the student knows the ecosystem of their environment to raise awareness to the detriment of their environment and thus avoid damage to the flora or fauna. * The teacher must propose activities to the students so they can not damage their sustainable resources, and if they are damaged they must learn to repair them, so that they endure. * The teacher must propose to promote ecological awareness in students, that they use the resources they have, but without going beyond the limits of sustainability. * The teacher should look for teaching-learning strategies that truly generate awareness among students about the importance and use of technology so as not to depend on it. * The teacher should propose activities such as planting, caring, cultivating and cooking a product to help them in the future. * The teacher must teach the students the secondary effects produced by the lack of awareness of an environmental education.
It is permanent: The learning we acquire is long-term, where a teacher guides the student to generate their own learning.	* Reinvent new ways to meet their needs in the region. * Inquire about the sustainable activities of daily life such as: save resources by applying the four Rs (Reduce, Reuse, Repair, Recycle). *Visit government or private agencies dedicated to the conservation and care of the ecosystem, flora and fauna of the region. This with the purpose of participating in programs either reforestation, adoption of trees, care of species, etc. * Go to seminars and talks about the care of our planet.
It is based on experience, it depends on previous knowledge, where the teacher evaluates the learning that the student has acquired.	* Create green projects where local people participate. * Apply sustainable activities of daily life such as: save resources by applying the four Rs (Reduce, Reuse, Repair, Recycle). * Use materials from the region. * Create your own energy and / or use technology that helps in the care of the planet. * Respect the green areas preaching with the example, and adapting the structure of the institution to the ecosystem. * Respect the life cycles of the flora and fauna of the surroundings so as not to alter the ecosystem. * Promote sustainable culture and transmit it to society. * Encourage participation in forums to carry out talks with the student community and society in general. * Teaching-learning practices must respond to the needs and interests of students, and offer opportunities to explore real-life issues in local contexts related to global.

Table 2 Proposal based on meaningful learning
Source: Self Made

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Environmental education at the ITSAV

All these actions carried out by the institution, without doubt contribute to the care of the environment, but it should be clear that this does not mean that they are working in a "green" or sustainable way, nor are they creating awareness in the students about sustainable development, and consequently, the sustainability of the human-natural systems is not achieved.

It is necessary the participation of the whole planet to generate an ecological conscience that resides in the reintegration of our environment in our anthroposocial awareness and in the complexity of the idea of nature through the ideas of ecosystem and biosphere (Morin, 1996).

The teaching actions used in the ITSAV with the purpose of achieving an environmental education with a vision of ethics and sustainable and sustainable responsibility that has been done so far, is described below:

– The courses on ethics and sustainable development are taught by teachers with a pedagogical profile according to these subjects. However, it is necessary to involve more teachers in the training for the teaching and projection of the same.

– Participation at the local and regional level of teachers and students in the week of Science and Technology, tackling different topics each year. Said event has the attendance of students from preschool, primary, secondary and high school, with the purpose of publicizing the projects that are worked internally. However, there is a lack of presence with activities that impact or leave significant learning in the region and in basic education schools.

– Before the holiday period of Easter, workers of the municipality of Alvarado in collaboration with teachers and students of the ITSAV clean the beaches of the area. However, there is a need to raise awareness about the care of the beaches and their environment, as well as not knowing if there are private institutions or governments that have already implemented actions for the care and conservation of beaches.

– Administrative staff, teachers and students participate in planting trees with workers and staff from the areas of the municipalities of Lerdo de Tejada and Tlalixcoyan. However, this type of actions must be done frequently and in all the extensions of the ITSAV, missing promotion and the participation of all students and staff of the ITSAV

– The ITSAV has the certification of the environmental care standard "ISO: 14000" that specifies how to establish an environmental quality management system. However, it is necessary to take this culture to the areas of influence. Some measures used within the institution to promote the care and conservation of the environment are:

a. It has a deposit for batteries that no longer serve.

b. Recycling of leaves in the administrative area (elaboration of trades, didactic planning and programmatic advances) and teaching staff (exams); as well as inculcate in the student the use of recycled sheets for work and tasks.

c. There is a deposit for plastic boats.

d. Trash cans are classified as organic and inorganic. ITSAV maintenance staff is responsible for taking it to their respective destination.

e. Students are asked once a year to bring electronic equipment (computers, TV, radio, cell phones, etc.) that they do not use to the school so that they can give special treatment for garbage.

– Teachers deliver programmatic advances and didactic instrumentations and partial grades through digital media, achieving much saving in the use of paper and ink to report partial evaluations, in addition to saving the transfer of teachers from various academic units to the central unit from Alvarado.

– Teachers exercise an educational participation of students in sustainable development:

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a. Industrial visits: Teachers along with students visit the industries and take a tour of the companies to learn about the manufacturing process of products or services offered. However, this knowledge must be applied in everyday tasks.

b. Professional residences: Students propose solutions to the problems they detect in the companies to which they have decided to offer their service.

c. Projects for subjects: Teachers request students at the end of the semester of Sustainable Development subject the generation of multidisciplinary or individual projects but always for the benefit of the region and the environment. However, it is necessary to take them to the real practice, the vast majority of the projects remain in the prototype version and do not transcend in projecting the works in academic events.

d. Thesis: Generation of a thesis of a project with a principle of sustainable development. However, the lack of educational profile and constant training by teachers limits the development of sustainable projects in collaboration with students.

e. Participation in calls for projects on sustainable development: Teachers and students must be aware of the calls that exist on sustainable development. However, greater participation on sustainable projects that detonate in the region is lacking.

Results

In addition to the actions described in the section "Environmental education in the ITSAV", a new stage is being initiated with an environmental education with meaningful learning that will continue to grow with more actions that involve the students, teachers, staff of the institution and impacting in the areas of influence in each and every one of the academic units of the ITSAV, to mention the 1st. Great Environmental Forum ITSAV Lerdo, held in the City of Lerdo de Tejada on May 24, 2017.

In the news section of the ITSAV website ("1st Great Environmental Forum ITSAV Lerdo," 2017) it is mentioned:

"With the aim of raising awareness in the community in general with issues related to the preservation of the environment, students of the 4th semester of the Degree in Public Accountant of the Higher Technological Institute of Alvarado Academic Unit Lerdo de Tejada, held an event called "**1st Great Environmental Forum**" in the facilities of the Theater of the City of Lerdo de Tejada".

"Various institutions of the city of Lerdo de Tejada attended this event in order to learn about the different proposals to improve the deal with the ecosystem that the young people of ITSAV had to make known".

"The people who attended were interested in this topic, and through their participation, they showed that they are not indifferent to the care of the environment".

"With this type of actions, the ITSAV demonstrates that in addition to forming successful professionals, it also trains people interested in the welfare of their environment and who are capable of taking measures in favor of the environment".

In the 1st. Great Environmental Forum ("1st Great Environmental Forum ITSAV Lerdo", 2017), 4 teachers and 12 students from the ITSAV academic unit Lerdo de Tejada participated, as shown in Figure 2.

Figure 2 1st great environmental forum ITSAV Lerdo
Source: Recovered from http://itsav.edu.mx/2015/news/noticias/24May17-ambiental/

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Conclusions

In order to carry out an environmental education with a vision of ethics and sustainable and sustainable responsibility in the ITSAV, it is necessary to know the sustainability of the ecosystem, its qualities and its characteristics of the area of influence of the region, as well as to approach the institutions of government and private sector to know the actions that exist regarding the conservation and care of ecosystems and the environment. Likewise, it is necessary to involve students in the realization of projects that truly leave them meaningful learning both inside and outside the school and that can generate awareness in their professional training and transmit this culture towards society with ethical and sustainable principles. It is important to make this type of actions in each semester, in order to make them a habit in our way of life and not only to accredit the subjects.

There are many ways to live a lifestyle that respects the environment, it is not necessary to make radical changes, it is enough with small modifications that, collectively, will give positive results that will allow us to save money, reduce CO2 emissions, and improve our quality of life, both short and long term.

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