

Promotion of Sustainability with University Students

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ABSTRACT

Like other universities in the world, Autonomous University of Guerrero (AUGro) in Mexico is committed to contributing to sustainability. This study was developed between January-September 2019 and its objective was to promote sustainability through non formal environmental education course aimed to students of sociology, (UAGro). The Educational Model of the university establishes sustainability as a guiding principle, however, the *curriculo* where this study was done contemplates very little the sustainability. A mixed study was done, focused on action and descriptive research, were contemplated three phases, a diagnosis to identify the sustainability into the *curriculo*, and for this reason an interview was applied to students, with dimensions on (Inclusion of environmental at study plan, perception of socio-environmental problems and Environmental Education), the next part included the elaboration of a didactic planning of the workshop-course based on constructivist and competency and finally, the third phase included the application and evaluation. The results gave to know the *curriculo* integrates scarcely the sustainability, an educational workshop-course with scientific foundation was obtained, the course was developed, evaluated and we realized students acquired sustainable learnings.

Keywords: Sustainability, environment, Environmental Education, students.

INTRODUCTION

Environmental issues

Global environmental crisis, with its variables such as climate change and the loss of biodiversity, among others, is the “greatest threat” that affects humanity throughout its history, this crisis It is real and serious [1]. According to Garrido et al. (2007), [2] this crisis is expressed in concrete events such as the greenhouse effect, the ozone hole, the emptying of fossil fuels, deforestation, overexploitation and depletion of water resources, air pollution, acid rain, erosion, among other phenomena at different scales. Biodiversity is threatened by several processes, mostly anthropogenic, that transform the environment in which we live; Among them we can mention the following: 1) the loss and fragmentation of habitats, considered the primary cause of the loss of biodiversity at all levels, which is mainly due to changes in land use for agriculture, livestock , aquaculture, etc., caused by the expansion of human populations and activities; 2) Invasive species are considered the second largest threat to biodiversity [3]. Environmental problems are driven by driving forces such as land use changes (livestock, illicit crops and infrastructure), the decrease, loss and degradation of elements in native ecosystems and agro ecosystems (agribusiness, mining, hydroelectric, urbanization and overexploitation of fish), water pollution (mining and pesticide use) and climate change (MADS and UNDP 2014) cited in [2]. Arroyo, Camarero and Vasquez, Carsien point out that "man while remaining an element of the natural environment is becoming a factor on which the functioning of most ecosystems and even their conservation depends" so, the living and enjoying a natural environment makes the neighbor who sees it day by day in an ecological entity, and as such, must preserve this environment. Alvarez and Vega, referring to individuals, point out that they only develop environmentally consistent behaviors if they are trained “on environmental issues, are motivated towards it and, in addition, are able to generate qualitative changes, are convinced of the effectiveness of their action and that this will not generate significant difficulties” (p. 248), if it is assumed that the training referred to by the author is to acquire knowledge [4].

Sustainability

Sustainable development implies a new vision of the world, new ways of relating to nature, which involve transformations in different areas, such as scientific, technological, social, political, economic, cultural and educational. From the agreements of the Earth Summit of Rio de Janeiro (UNESCO, 1992), sustainable development, in the last 25 years has had a strong growth in the educational field. The perspective of sustainability entails the understanding of environmental behaviors, to generate educational proposals that influence the construction of an environmental citizenship, which prioritizes knowledge, knowledge, attitudes and sustainable values. Education is crucial to foster the ideals of sustainability. [Education for sustainability] ES is a learning process on how to make decisions that consider the long-term future of

the economy, ecology, the equitable development of all communities, as well as the promotion of their Besong and Holland cultures [5]. Vega *et al.* The model for environmental training must be based on principles of sustainability and for this, it is necessary to understand the connections between economic, political and socio-environmental conflicts [6].

Environmental and Sustainability Education

Education means a process of continuous socio-cultural development of the capacities that people in society must generate and that is carried out both inside and outside their environment, throughout their lives. Education implies promoting cognitive skills and structures, which allow sensory stimuli and world-reality perception to become meaningful information, knowledge of its construction and reconstruction, as well as values, customs, which determine our behaviors or ways of acting, Alvarez [7]. The environmental crisis has reached such an alarming degree that it is now necessary, through education, to become aware of the importance of changing the forms of production and social welfare, as well as respect for cultural diversity and conditions that enable the existence of life on the planet. In this context, the importance of environmental education becomes evident, as one of the alternatives for the recognition of the conservation value of the planet's natural conditions [8]. At present, environmental education is spoken of as the most effective means to raise public awareness about the need to preserve the environment with a view to achieving a better quality of life in current generations and to come. The term "Environmental Education" was used for the first time in 1972, in Stockholm, during the International Conference on the Environment and since then it has been given the preponderance to generate the changes, through the acquisition of knowledge, attitudes and values, that allow to face seriously the environmental crisis of the world with a view to achieving a better quality of life for current and future generations, Vega and Alvarez; Gutierrez and Well; Zabala and Garcia; Ortega et al; Sosa et al., 2010; Sandoval [9]. The final years of the eighties and the first half of the nineties are years in which the E.E. It comes into relationship and is linked to sustainable development. In this sense, in the Rio meeting it is defined as «... lifelong learning process, based on respect for all forms of life ... such education affirms values and actions that contribute to human and social transformation and ecological preservation It stimulates the formation of socially just and ecologically balanced societies, which retain a relationship of interdependence and diversity among themselves" [10]. Environmental Education must teach how to continue development while protecting and conserving the life support systems of the planet. The culture for the conservation and rehabilitation of mangrove forests requires more attention. Education is an integral strengthening agent that promotes knowledge of the problems of the natural and social environment and links them solidly with their causes. Through education, residents can be taught to make rational use of the ecosystem. Environmental education is necessary to help raise awareness about the problem facing mangrove forests today [11]. Taking into account that there is a small environmental dimension,

a fundamental element of sustainability in the curriculum where the study was conducted, the objective of this was to promote sustainability through non formal environmental education course aimed to students of sociology dependent on the Autonomous University of Guerrero (AUGro).

MATERIALS AND METHODS

This research was conducted under a mixed approach to fulfill its purpose. Osses, Sanchez and Ibañez [12] qualitative research, is oriented to the in-depth study of the complex social reality. Due to the fact of making revisions in printed materials, electronic or other types of documents and the fact of collecting data in the place where it is carried out, this research is documentary and, secondly, in the field. In this investigation, there are participating subjects that are part of the object of study, for this reason, the research was focused on action research. Martinez [13] states that this research method is the only one indicated when the researcher not only wants to know a certain reality or a specific problem of a group, but also wants to solve it. Colmenares y Piñero [14] Action Research is a qualitative methodological option in education. It is important to emphasize that in this study quantitative methods are contemplated because instruments were applied and, therefore, a process was followed accordingly.

Population and sample

Table 1 describes the population and sample considered in this research process:

Table 1. Population and selected sample

General Population at the Autonomous University of Guerrero.		Study Universe.	Population of the School of Sociology.	Sample (Participants in the diagnosis, prior to the workshop-course).	Sample (participants in the course-workshop of Environmental Education to promote sustainability.	Focus on sample selection and age of participants.
Autonomous University of Guerrero, Mexico.	* Teachers (1162) 383 women 779 men.	School of Sociology.	** 17 (15 men, 2 women) professors and 238 (96 men-142 women) sociology students.	115 students of the groups, 201, 202, 401,402, 601, 602, 801, 802. (shifts, morning and evening).	70 students from groups 201, 401,601 and 801 of the morning grades.	Qualitative and for convenience. The age of the students ranges between 18-23 years.

Source: Own elaboration with data from: * Statistical Yearbook 2013-2014, 2014-2015 and ** 2016-2017 of the Autonomous University of Guerrero.

Techniques, procedure and instruments used, the research was developed in three phases:

- a) Phase a: A Diagnosis to identify the inclusion of environmental issues with a sustainable focus in the study plan. A diagnosis was made with students of sociology to identify the inclusion of sustainability in the sociology study plan and, therefore, on the perception of environmental problems and the care they have about environmental issues. An interview was carried out with variables and indicators (Inclusion of environmental at study plan, perception of socio-environmental problems and Environmental Education) and which was applied to 115 students, including men and women of different academic degrees.
- b) Phase b: Pedagogical-didactic design of the course-workshop. The didactic sequence that established the planning on the set of educational strategies, didactic activities and learning evaluation methods for the workshop course “Environmental Education for Sustainability” was designed.
- c) Phase c: Application and evaluation of the workshop course. The course-workshop Environmental Education for Sustainability was applied and evaluated. During the workshop application, diagnostic, continuous and final evaluations were carried out, this let to know facilitators the learning and skills acquired by the students.

RESULTS

Diagnostic results to identify the environmental dimension element of sustainability in the study plan.

Considering the sample selection approach (qualitative and convenience), 115 students were chosen for the interview with men and women, the school has two groups per grade, one in the morning and one in the afternoon (in each semester of the year), those who answered the survey were, 22, students of group 201 of the morning shift, 13 of 202 of the evening shift, 14 of group 401 of the morning shift, 13 students of group 402 of the evening shift, 18 of the group 601 of the morning shift, 10 of 602 of the evening shift, 10 of 801, morning shift and 15 of 802 of the evening. The objective of the interview was to promote sustainability through non formal environmental education course aimed to students of sociology, (UAGro). There were about 17 questions contemplated in the interview and were answered for 115 students. After analyzing the questions, these were the results:

Most say they don't know what sustainable development or sustainability refers to. Some relate their response to the environment or take care of the environment and resources, however, some also comment that it is something that remains, however, they mention aspects that have no relation to the concepts, few, very few relate these terms to development, environment and social issues. Regarding the incorporation of the environmental or environmental dimension in the study plan, most commented that it is not incorporated. Few commented that through conferences or taking them to presentations. When asked if the subjects they study are related to the environmental dimension, almost everyone answered that the learning units they take do not relate to the environment, however, very few said that sometimes and in some cases when they study a discipline Research related.

When asked, do you explain how environmental issues affect social development and, therefore, sustainable? Almost all said they did not know that affecting the environment implies a stagnation of development in all areas. Very few perceive environmental issues as an urgent matter to address. Very few students relate the affectation to the environment with health, with residues on streets, with the existing contamination, therefore, they are clear that it is the man who causes these affectations. Almost all said that the learning units or subjects are not linked to the environmental crisis or transversally with the environmental dimension.

With regard to questions aimed at knowing the level of importance they give to the care and protection of Environmental Education to protect biodiversity., All said they agreed and agreed that it is very important to care for and preserve plants and animals because they are becoming extinct. One question that led the researcher to know the interest that students have in promoting competencies in Environmental Education for Sustainability was, do you consider if it is important to promote Environmental Education competencies? Do you consider if it is important to take courses - Workshops that address environmental issues? All the students answered affirmatively because the career they are taking does not touch on these topics and it is important to have such knowledge, skills and values to incorporate them into their academic training, likewise, they all state that the environmental dimension must be present in the school curriculum because it is necessary today to have competences of that nature since environmental issues could affect social development.

Results of pedagogical-didactic design of the course-workshop.

The Environmental Education to promote Sustainability contemplated four phases as shown in the next figure.

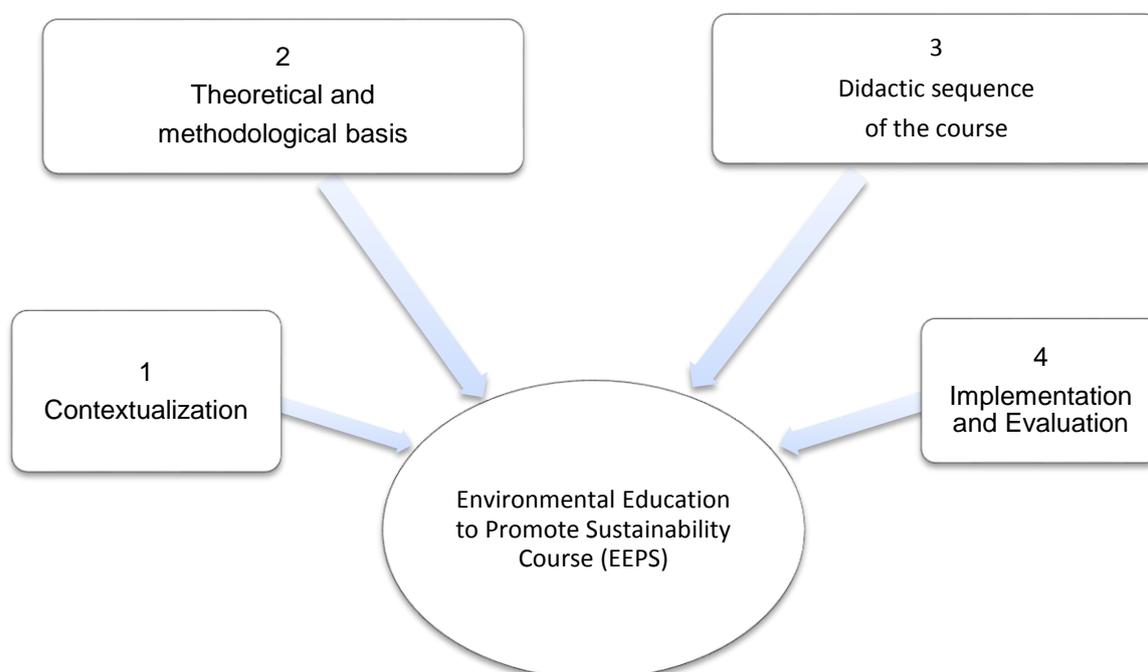


Figure 1. General design of EEPS course.

Nieto and Buendia [15] establish that one of the phases of the design of an Environmental Education for Sustainability project is contextualization, this is to characterize the network of the most significant relationships between: 1) The project environment where it is expected have a certain contribution and impact and 2) The basic elements of the educational project such as: objectives, contents, activities, materials, etc. Once the contextualization is available, one of the following stages is carried out, such as programming (the planning of specific activities), in this stage the didactic sequence is carried out. The design and elaboration of a didactic sequence implies adopting a didactic-pedagogical and methodological approach to plan the development of themes that correspond to the course or workshop to be taught, the strategies, forms of evaluation, etc.). Oxford Dictionaries [16]. defines the word design as making a detailed plan for the execution of an action or an idea: designing a strategy;

design a study program; It also defines the word design as a creative activity that aims to project objects that are useful. When designing the design of any EA activity or program, the first thing we should do is plan. Planning is the rational and structured development of what is going to be done, determining what is to be achieved, what is intended to be transmitted, how it is going to be done, how to react in the event of any unforeseen event, what resources will be needed, and how the activity will be evaluated, Ruiz [17]. The elaboration of the didactic sequence of this course-workshop is also based on Tobon, Pimienta and Garcia [18]. because they offer a general standard methodology for planning didactic sequences by competences from a socioformative approach. The format that used the didactic sequence of the course that was implemented in this research was adaptation of the didactic sequence format used by the Autonomous University of Guerrero in didactic level planning. The course-workshop mentioned in this research was based theoretically and methodologically on constructivism and skills education. This constructivism has its origin in the works of Lev S. Vygotsky and postulates that knowledge is acquired and proposes to a person who constructs meanings acting in a structured environment and interacting with other people intentionally. based on competences based on a holistic approach that emphasizes the constructive development of students' abilities and skills. The competencies build the best performance in the students to respond to the demands of the environment [33].

Considering the following statements, the design and preparation of the course, Environmental Education to promote sustainability is embodied in the following didactic sequence:

 AUTONOMOUS UNIVERSITY OF GUERRERO HIGHER SCHOOL OF SOCIOLOGY Educational Sociology of Communication and Education Program Educational sequence by competence Sequence title: Environmental Education to Promote Sustainability		
Identification of the teaching sequence		
Course-workshop: Type of course in the curriculum: Duration of the teaching sequence: Number of sessions: Session Length Facilitator teacher Teaching hours (face-to-face and / or virtual) Independent hours (autonomous learning) Total, hours Teaching sequence number	Environmental Education to promote sustainability No formal education 2 days 2 sessions 4 hours Dr. Ramón Bedolla Solano / with the support of PhD students in Environmental Sciences of the CCDR-UAGro. 4 hours 2 6 1/1	
Significant context problem: Students understand the importance of Environmental Education to promote Sustainability. Competence of Course-workshop: Understand the conceptualization of Environmental Education through a constructivist perspective and competencies to promote sustainability		
Elements of the competition		
Knowledge	Abilities	Attitudes and Values
Understand the role of Environmental Education to promote Sustainability.	Analyze the importance of Environmental Education to promote the sustainability.	-Promotes responsibly analytical and identifies actions to care for the environment.
Integrating axis: Environmental Education and sustainability.		



AUTONOMOUS UNIVERSITY OF GUERRERO
 HIGHER SCHOOL OF SOCIOLOGY
 Educational Sociology of Communication and Education Program
 Educational sequence by competence

Session Date Integrating shaft	Learning activities		Evaluation			Learning resources
	Activities with the teacher (time)	Independent learning activities (time)	Criteria (Expected Learning)	Evidences	Weighing	
Session 1 May 28, 2019 Environmental Education for Sustainability	<p>Technique: Brainstorm:</p> <p>The facilitator asks the students to mention the environmental problems they know. Time: 15 minutes</p> <p>The facilitator asks what they understand about Environmental Education. Time: 15 minutes</p> <p>The facilitator exposes the Environmental Education conference (environmental issues, Environmental Education, its history, methodological approaches and strategies and sustainability), the facilitator</p>	<p>Students research in reliable internet sources, more about the relation of environment and sustainability.</p>	<p>Understanding analysis and identification of environmental education strategies to intervene in the face of an environmental problem.</p> <p>Promote the sustainability.</p>	<p>Questions about environmental issues.</p> <p>Questions about Environmental Education, its history, approaches and strategies).</p> <p>Sociodrama practice on an environmental problem.</p> <p>Final evaluation of session 1.</p>	50%	<p>Books, scientific articles, documentaries, official pages of governmental and non-governmental institutions, etc.</p>
	<p>asks questions about the above.</p> <p>Weather. 1 hour.</p> <p>A didactic strategy is developed consists of integrating into teams to carry out a socio-drama about some environmental problem inside or outside the school. They will perform the socio-drama and record it on video with their cell phone, the videos are sent to the facilitator, they are presented in the class and comments are made. Time: 2 hours</p> <p>Students answer an assessment instrument about lessons learned during the session. Time: 30 minutes</p>					
	Time: 4 hours	Time: 2 hours				

Figure 1. Didactic sequence of the Environmental Education to promote sustainability.

Application and assessment of the workshop course.

The didactic sequence was fundamental in the course to be implemented because there was already a didactic organization and planning, as well as a methodological and pedagogical approach. The workshop-course was called: Environmental Education to promote Sustainability. There was only one session with four classroom hours and two independent work hours.

Results of the application and evaluation of the session:

It was held on May 28, 2019, with the assistance of 70 students considering men and women. Regarding the facilitators, there were three students from the Doctorate in Environmental Sciences of the Autonomous University of Guerrero and two professors participating in this research work. The name given to this session of the course was, Environmental Education to promote Sustainability, the duration of the session was four hours (10:00 am to 2:00 pm), it was developed in a classroom of the High School

of Sociology.

During the 10:00 am to 10:30 hours, the brainstorming technique was developed, in this part the facilitators were presented, the attendees or students were also asked to mention the environmental problems they knew, presented what was requested and made reference to solid waste observed in school, problems with water pollution, on plants or trees in general, etc. They also questioned previous knowledge regarding Environmental Education in general. The answers students gave to the questions were grouped into the following criteria and evaluated with Excellent, Satisfactory, Unsatisfying and Totally unsatisfactory as described at the next table:

Table 2. Group assessment of previous knowledge of environmental issues and Environmental Education (EE).

Criteria	Excellent	Satisfactory	Unsatisfying	Totally unsatisfactory
Recognize environmental issues.			X	
Understand the concept of Environmental Education.			X	
Identify global and local environmental issues.			X	
Relates Environmental Education only with nature.	X			
Relates the environmental problem as an element that affects the environment and prevents sustainability.				X
Link Environmental Education with as a tool to achieve sustainability.				X
Final result: The answers given in previous knowledge were superficial.				

At 10:30 to 11:30 a.m., the facilitators presented the conference, Environmental Education (environmental issues, Environmental Education, its history, methodological approaches and strategies, sustainability) at power point. The conference had three phases, at the end of each phase questions and comments were made. In the first part of the conference, a general reflection on Environmental Education was offered, mainly on (environmental issues, Environmental Education, its history, methodological approaches, strategies and the relation to sustainability) regarding this, an approach was made to the issue of Environmental Education (EE), based on its conceptualization, its

background, the main approaches and strategies that can be implemented to act responsibly, it was also announced that the EE has stood out as one of the main topics in international forums held since the 70s to 2018. As explained in this part, there was a brainstorm based on the question: What do they now understand about Environmental Education and its importance), what work approach does it pose and what strategies and actions could be implemented to have a healthy environment? Environmental problems at global and local level and its impact on development and sustainability? How important do they consider a healthy environment both natural and urban? With respect to these questions, ideas such as, now I understand the purposes of the EE and that the environmental problem was the cause of its origin in the last century, regarding the approaches commented that this education today focuses on educating not only to educate to take care of nature also to contribute to sustainable development. Regarding the care of a healthy environment, they hinted that very important for humans, plant and animal species because both are part of the environment, they finally commented that clean spaces should be preserved and avoid contaminating them, for this, the strategies offered by Environmental Education.

The second part of the conference focused on the causes of environmental problems and the identification of strategies, commented on some problems that have their origin in anthropogenic activities, it was also exposed that there are methods, actions or strategies that can be implemented to reduce or minimize the effects that man produces on the environment. At the end of this part of the conference, the attendees were asked the question: What do you think are the main causes of pollution? In this regard, the following responses arose, plastics, overpopulation, consumerism, fires and deforestation by felling trees. Some of the doubts that arose among the students were: How can we stop the activities carried out by man on the environment? What can we do as individuals before the big corporations? How can consumerism be reduced if we are bombarded with products? How to make politicians change and enforce environmental laws? The answers to their questions were cleared, identifying the strategies that can be carried out, an example of this, was the participation of a group of students who raised the following "If trees are felled, reforestation must be implemented", or if they contaminate the factories, cars, etc. that the government design policies that regulate that situation.

The third part of the conference focused on an introduction to the topic of Urban Solid Waste (USW), its regular management and its desired management. For this, the importance of Environmental Education was highlighted and how to develop it, taking as an example a study carried out in Cuba entitled "Strategy for environmental education in Cuban communities" by Rodriguez, Barroto, Gutiérrez, Talabera and Nuñez (2011). The stages of an Environmental Education program (diagnosis, strategy definition, planning and evaluation) were analyzed. Likewise, an analysis was made of

the principles of the strategies, the structure of an Environmental Education program and the main trends and models of Environmental Education in the school system. At the end of this part, the following questions were asked to the attendees What are the USW and what do they do with them, the management and disposal and about the importance of recycling? What are the Environmental Education programs and what is the purpose of they? The answers allowed to know that the students do not have an adequate culture on the management of the USW, however, with the information provided in the conference, their answers focused on the importance of the management of the USW and its final disposition, commented that It is important to leave the garbage or waste in its places where it belongs, avoid littering on the street or somewhere, sorting the waste before taking it to the deposit or to the collection car, also commented on the importance of recycling and that the programs EE are necessary to be implemented within the school or in the community. At the time of 11:30 a.m. to 1:30 p.m., based on the information from the conference held, a practical activity was carried out that consisted of joining teams to carry out a socio-drama about some environmental problem inside or outside the school, as well, they should also present the solution strategy for this problem. They were asked to perform the socio-drama and record it on video with their cell phone, and that these videos were sent to the facilitator, and that they should be presented in the course and comments would be made. Only three teams could be formed because the rest of the students preferred to observe the participation of their classmates. The teams were made up of five members, each with a different problem: Group 1. Air pollution, Group 2. Urban Solid Waste Generation. Group 3. Improper use of water. The teams left the classroom where the workshop-course was developed to locate the problem, dramatize and record it. Once the activity was over, they returned to the classroom and sent their videos to the facilitators to be screened. In general, a lot of creativity was observed by the participants when presenting their socio-dramas differently, two of the teams represented the work requested through reports and the socio-drama that took the water problem represented it as a situation of day by day at your school (lack of guidance, waste, etc.). The argument was totally consistent with the theme developed in the session, the principles of the strategies were properly applied, in addition to presenting well-organized videos. The students during the presentation of the videos reflected on the problems, made comments and questions. This activity was evaluated through a rubric that defined criteria such as collaborative work, plot, dramatization, creativity and presentation, each of the criteria was evaluated with Excellent (4), Good (3), Regular (2) and Bad (1). The intervals measured from points 20 to 19 indicated 10, from 18 to 17, indicated 8, from 16 to 15 indicated 8, and so on. The team, with the problematic “air”, obtained 20 points because it was observed they took into account the five points to be evaluated properly. Group two, with the problematic “USW”, also obtained 20 points for properly integrating the five points in

their sociodrama. The third group obtained 19 points out of 20, as it was not observed that the five members participated orally in the performance, however, all were active in the video. It is generally understood that this activity fulfilled its purpose. At the time of 1:30 p.m. to 2:00 p.m., the students answered a group assessment instrument about acquired learning. Some questions were asked about the topics that were developed in this session to get general information about the learning and skills developed in the students attending the course. The results are described below:

Table 3. Group assessment of knowledge acquired in the first session of the program.

Criteria	Excellent	Satisfactory	Unsatisfying	Totally unsatisfactory
Recognize environmental issues.	X			
Understand the concept of Environmental Education.	X			
Identify global and local environmental issues.	X			
Relates Environmental Education only with nature.			X	
It relates the environmental problem as an element that affects the environment and prevents sustainability.	X			
Relates Environmental Education as a tool to achieve sustainability.	X			
Relate Environmental Education to promote sustainable learnings to people	X			
Promotes responsible attitudes and skills towards the environment.	X			
I will implement strategies to take care of the environment.	X			
It is important to implement Environmental Education programs.	X			
Know now the purpose of Environmental Education.	X			
Final result: The answers given in previous knowledge were overcome, it is now understood that the students managed to acquire learning and skills on promote sustainability.				

At the end of this session, a task was left to students, the work requested was to research about sustainability to complete the information given and put into practice to take care of the environment.

Considering the purpose of this study, the three moments or phases that were developed to fulfill the proposal and, therefore, the results obtained, the discussion is oriented in:

The inclusion of the environmental dimension and sustainability in the curriculum is scarce, the subjects are not related to environmental issues and the relationship with the social, economic and environmental aspects. A transversal methodology is not applied to develop this dimension. As far as possible, it is perceived also that learning units related to research take into account the environmental dimension. The incorporation of the environmental dimension in the tasks of the curriculum implies practically promoting Environmental Education and therefore sustainability. Regarding the above, it is important to mention that the Educational Model of the Autonomous University of Guerrero [20] establishes as principles; social responsibility, sustainable development and training, as well as in the transversal axes of training as a methodological perspective of learning. With respect to the principle of sustainable development, it is understood that the education provided by this institution should contribute to sustainable development. The educational model mentioned refers mainly to sustainable development with the “The environmental crisis that is observed throughout the world and that constitutes one of the great and serious problems of our time”; Given this situation, the UAGro, as an institution committed to the sustainable development of its environment, must develop proposals for sustainable development that are contextualized regionally for this reason, one of the main proposals is “to incorporate new concepts, skills and attitudes in all Educational Programs linked to sustainable development”, a proposal that offers as a methodology to incorporate this principle is transversality. One of the transversal themes that are proposed to be incorporated transversally is environment. In this study it was found that the study plan barely integrates the environmental dimension with issues related to research, however, the transversality of the environmental dimension is weak. In order to promote environmental issues with a transversal approach, it is necessary that the institution or professors belonging to it, at least promote non-formal workshops or environmental education programs for students to form competences and acquire lessons in this area and another case would be, integrate the environmental dimension into the formal curriculum as a cross-cutting theme for students to form competencies in EE. The results found in this phase coincide with an investigation carried out that focused on a methodology to identify the presence of the environmental axis in Bachelor's degree educational programs at the Autonomous University of Guerrero, where it concludes that regarding the UAGro, the Educational and Academic Model dates from 1999, even though it contemplates environmental issues, these have not been mainstreamed in the undergraduate and postgraduate curricula. It is worth mentioning that the 2013

Educational Model does not provide guidelines for mainstreaming. The universe where this research was conducted is an institution belonging to the UAGro, therefore the results found in 2014 and currently have a high degree of relationship (21). Carrasco, Ramón (22) an investigation conducted with students of the Bachelor of Science in Education of the Autonomous University of Tlaxcala which consisted of identifying their training in environmental knowledge in order to analyze how they are preparing professionally to act in the face of the global environmental crisis, the results revealed little training in EE to contribute from its profile to the understanding and solution of the environmental problem. The lack of transversalization of curricula in universities influences students not to form competencies, skills, attitudes and values to act from their professional field in the face of the environmental crisis. Given the scarcity of the environmental dimension in the curriculum and the learning units, students hardly perceive responsibly what happens with the environmental crisis at local and global level, however, they may possess superficial knowledge of this subject. Finally, the students mostly agree that the EE is integrated in some way into the curriculum because it is very important today to know and act on environmental issues. In relation to the latter, if the study plan does not include the EE either as a subject or transversally, it must be acted upon accordingly, that is, initiating projects, implementing courses-workshops or EE programs with non-formal approaches, while environmentalizing the educational project in a formal way. About pedagogical-didactic design of the course-workshop, in this part there is not much to discuss, but to make known that the course-workshop was implemented had theoretical, methodological and didactic foundations, as stipulated in educational theories, for this, the contributions of [15] were considered, [16], [17], [18], [23] and [19]. The course-workshop on Environmental Education to promote Sustainability was applied with the Non-Formal Education method, if there is no mainstreaming of Environmental Education in the formal curriculum, it must be started with the implementation of courses-workshops, EE programs or other activities that lead to promoting environmental competencies in university students. In the first activity of session was found students had ambiguous and superficial knowledge about EE, environmental issues and strategies to face the environmental crisis., With the activities and assessments were done during the course development was possible to perceive the interest and also the knowledge and skills, for this reason the final assessment let to know students achieve to acquire sustainable competences.

CONCLUSION

The research fulfilled its purposes, it was possible to implement a course-workshop on Environmental Education to promote Sustainability with university students of the Higher School of Sociology of the Autonomous University of Guerrero (AUGro). This research complies with the principles of the AUGro Educational Model due to the fact it establishes in its guiding principles the implementation of sustainability and

therefore, the environmental problem with a transverse method in curricula, since the plan has no environmental dimension study where the research was conducted, contributed to the implementation of a course-workshop of this nature so that students are acquiring sustainable learning and skills to face the environmental crisis and thus propose, solution strategies to minimize environmental problems in the context. Thinking about implementing a course-workshop that aims to educate for any subject in any area, as it was in this case EE to promote sustainability, is because the facilitators or those who intend to implement a course, should know the methodology for its design and elaboration, likewise, to base on the pedagogical and didactic assumptions. Developing a course is not a mere technical matter, it is also to know the methodology for its design and to have sufficient professional preparation. Having the aforementioned guarantees its effectiveness and development, also guarantees that those who will receive the information will acquire learning and skills because the design has a scientific basis.

The university must implement in its curricula EE as a cross-cutting theme or any other method to link the environmental crisis with the disciplines that are addressed there and thus, be able to educate about the need to environment and promote sustainability.

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