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ENVIRONMENTAL ATTITUDES IN UNIVERSITY STUDENTS IN MEXICO

ACTITUDES AMBIENTALES EN ESTUDIANTES UNIVERSITARIOS EN MÉXICO








Saldaña, Mirella | Sampedro, María | Carrasco, Katya | Rosas, José | Maldonado, Yan | Juárez, Ana

RESUMEN
El propósito de esta investigación fue determinar las actitudes ambientales de los estudiantes de la Universidad Autónoma de Guerrero, México (UAGro). Se utilizaron los aportes teóricos de Cortes, Cabana, Vega, Aguirre y Muñoz (2017). Se aplicó una metodología de enfoque cuantitativo y alcance descriptivo. Se administró un cuestionario con 25 ítems para determinar las actitudes ambientales de los estudiantes. Los resultados obtenidos evidencian que solo el 59% de los estudiantes realiza actividades que promueven la conservación del ambiente. Por lo tanto, se concluye que es necesario crear estrategias que ayuden a fortalecer la cultura ambiental de los universitarios.
Palabras clave: Actitudes ambientales, Universitarios, Universidad Autónoma de Guerrero, México.

ABSTRACT
The purpose of this research was to determine the environmental attitudes of the students of the Autonomous University of Guerrero, Mexico (UAGro). The theoretical contributions of Cortes, Cabana, Vega, Aguirre and Muñoz (2017) were used. A methodology of quantitative approach and descriptive scope was applied. A questionnaire with 25 items was administered to determine the environmental attitudes of the students. The results obtained show that only 59% of students carry out activities that promote environmental conservation. Therefore, it is concluded that it is necessary to create strategies that help strengthen the environm ental culture of university students.
Keywords: Environmental attitudes, University students, Autonomous University of Guerrero, Mexico.
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1 Doctor in Environmental Sciences from the Regional Development Unit of the Autonomous University of Guerrero, Mexico; Email: msaldana@uagro.mx. ORCID: https://orcid.org/0000-0001-8995-1803
2Doctor of Science, Plant Pathology area. Professor-Researcher at the Autonomous University of Guerrero. Email: laura_1953@live.com.mx. ORCID: https://orcid.org/0000-0001-7966-8190
3 Doctor in Educational Sciences. Professor-Researcher at the Autonomous University of Juarez City. Email: kcarrasc@uacj.mx.ORCID: https://orcid.org/0000-0002-1376-0477
4 Doctor in Biotechnology. Professor-Researcher at the Autonomous University of Guerrero. Email: jlrosas71@yahoo.com. ORCID: https://orcid.org/0000-0003-2744-7454
5Doctor of Administrative Sciences. Professor-Researcher at the Autonomous University of Guerrero Email: yanpallac@hotmail.com. ORCID:https://orcid.org/0000-0001-9760-0376
6Doctor in Environmental Sciences. Professor-Researcher at the Autonomous University of Guerrero Email: analaura43@hotmail.com. ORCID: https://orcid.org/0000-0003-1020-7198

INTRODUCTION

Currently, environmental education takes on greater importance in urban public policies of municipalities, states, and Latin American countries. The importance of this topic is due to a deeper understanding of environmental issues in order to make responsible decisions about the deterioration of the environment (Sarango, Sanchez and Landivar, 2017).

The origins of environmental education originate in the 1970s; it is around that time when the world concern arises about the serious destabilization of natural systems, which leads the international community to the need for changes in the Sciences, among them, the Educational Sciences, with the aim of responding to the growing problems facing humanity (Hernandez, 2014; Antunez and Diaz, 2018).

Education is called to look after both individual and social interests. Education has the following functions: a) to allow the socialization, transmission of culture, and the development of personality; b) as training for work, the school being the training entity of employability, and c) to train citizens committed to scientific and technological development.

The concept of "Environmental Education" has been included in national and international congresses and meetings. Although the response has been uneven, the different Educational Reforms that have occurred in the countries have incorporated environmental protection and the construction of a model of society in accordance with sustainability to their objectives, fundamentally at the corresponding educational levels to compulsory education. Although the objectives and methodologies applied in its development have evolved at the same time as conceptions about the environment and the perception of the environmental crisis did, and they translate into environmental attitudes (Liens, 2014; Gil, Guerra and Olivares, 2017).

Attitudes are ways in which an individual adapts actively to his/her environment and is a consequence of a cognitive, affective and behavioral process, are the result of learning carried out when responding to stimuli, and they manifest themselves in the form of a positive or negative tendency towards people, objects and situations (Casa, Mamani and Cusi, 2019).

However, Environmental Attitudes in students will not be visualized in their behavior, so they must be analyzed about environmental education and be able to obtain the changes that must be developed in the different areas of knowledge, attitudes and behaviors through strategies that involve society and that students are aware and responsible with the care of the environment (Spinzi, Aquino, Gonzales, Wehrle, Scribano and Jara, 2018).

The Autonomous University of Guerrero is the highest university in the state of Guerrero and plays an important role in the state's environmental culture, with more than 80,000 students distributed in the seven regions, so it is committed to training students to be environmentally responsible professionals.

At UAGro, most of its study programs do not have a transversal axis on environmental matters, which is reflected in the lack of programs on urban solid waste (USW) management, energy, water, among others. Likewise, environmental education is promoted through activities such as debates, forums, action-research, workshops, fieldwork, and ecological campaigns.

Therefore, the following question is asked: How are the environmental attitudes of the undergraduate and graduate students of the Autonomous University of Guerrero? Thus, the objective of this research is to determine the environmental attitudes of students at the Autonomous University of Guerrero, Mexico (UAGro).

LITERATURE REVIEW

ENVIRONMENTAL ATTITUDES

University training on environmental education will result in students gaining analytical skills when undertaking actions that help generate environmental attitudes. For Paramo (2017), Environmental Attitudes are predispositions to act in favor of the environment. Attitudes are very difficult to notice; behavioral checklists reveal that attitudes can be very useful for evaluating environmental education or for evaluating the attitude of individuals towards their environment, just like game roles and simulation exercises (Caldas y Terrones, 2014). However, attitudes are only an indicator of behavior, but they do not constitute the behavior itself, so measurements of attitudes are usually interpreted as «signs» and not as «facts» (Ramirez, 2014).

Thus, if we detect that a group's attitudes towards environmentalism are favorable, this does not mean that people are adopting measures to protect the environment, but it is an indicator that they can gradually implement them (Casa, Mamani and Cusi, 2019). Cortes, Cabana, Vega, Aguirre, and Muñoz in 2017 mention that there are four variables that influence environmental attitudes: *Values*, are thought structures that remain pre-configured in the brain for our survival as a human species. *Beliefs*, the individual can be a person aware of the consequences that their behavior could have on the environment. *Knowledge,* it makes it possible to reduce damage while favoring the achievement of environmental motivation. *Motivation,* it has been understood as something located within the person that could explain some behaviors and have a causal role in the overt behavior of the change.

ENVIRONMENTAL ATTITUDES IN UNIVERSITY STUDENTS

The study of the environmental attitudes of undergraduate students is important to solve environmental problems that arise today, such as environmental pollution, global warming, indiscriminate logging, human overpopulation, among other problems. Many studies have determined that environmental attitudes in humans towards environmental problems are important to conserve and preserve the environment.

Taking as a reference the contributions of the authors, the environmental attitudes in this research are defined as the sense of belonging and concern for the care of the environment or the problems related to it that must be developed by the university students of the Autonomous University of Guerrero.

MATERIALS AND METHODS

To achieve the research objective of determining the environmental attitudes of students at the Autonomous University of Guerrero, Mexico (UAGro), a methodology with a quantitative approach was used and the scope was descriptive. This research was carried out with graduate and undergraduate students from the Autonomous University of Guerrero in Acapulco de Juárez, Mexico. Table 1 shows the total number of students surveyed for each UAGro academic unit, 773 undergraduate and 68 postgraduate; the sample size was 841 students.

Table 1 Number of students surveyed by school

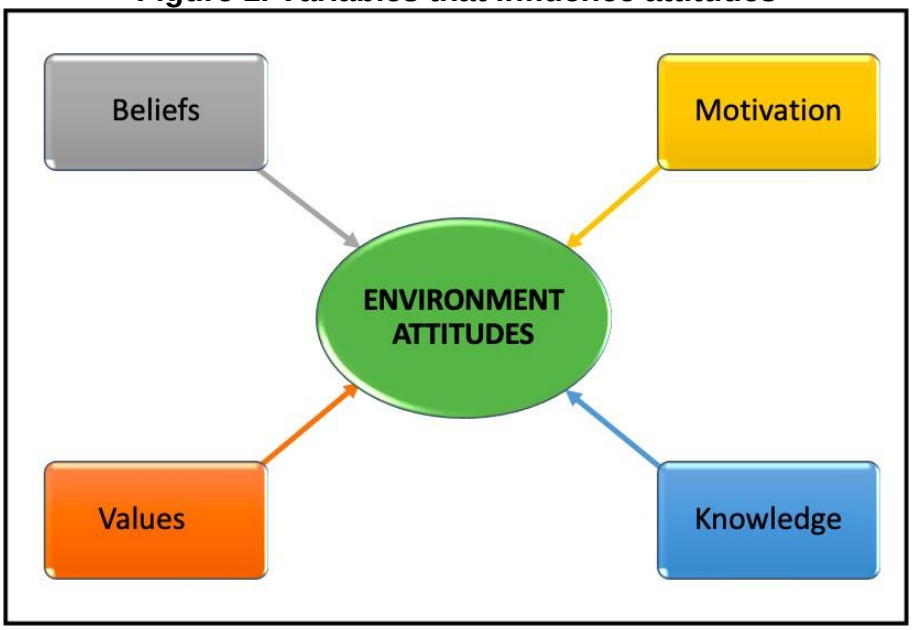
Level of Study	Name of the school	N# Students
Superior	Law School	59
	School of Marine Ecology	38
	School of Economics	36
	School of Nursing 2	60
	School of Nutrition and Food Sciences	36
	School of Psychology	50
	School of Sociology	37
	School of Dentistry	40
	Faculty of Accounting and Administration	55
	Faculty of Foreign Languages	38
	Faculty of Mathematics	36
	Faculty of Tourism	40
	International Institute for Advanced Political Studies	38
	Academic Unit of Sciences and Information Technology	36
	Academic Unit of Environmental Sciences	50
	Academic Unit of Educational Sciences	36
	Academic Unit of Medicine	52
	Academic Unit of Physical Culture and Sports	36
Postgraduate	Research and Postgraduate Center in Socio-territorial Studies	5
	Postgraduate Studies and Research Unit	10
	Development Management Center	9
	Tropical Diseases Research Center	9
	Faculty of Tourism (Master)	8
	Regional Development Science Center	10
	Faculty of Accounting and Administration (Master)	9
	Faculty of Mathematics (Masters)	8
	TOTAL	841

Source: Authors, (2018)

To obtain the information, a questionnaire-type instrument was applied with 25 Likert scale questions with four options to answer from never to always. This instrument is based on the variables that allow determining the environmental attitudes in the students: Values, Beliefs, Knowledge and Motivation.

Figure 1 shows the variables that establish environmental attitudes in students according to Cortes, Cabana, Vega, Aguirre, and Muñoz in 2017.

Figure 1. Variables that influence attitudes



Source: Authors, (2020)

For the application of the instrument, each of the previously mentioned academic units was visited and the managers assigned a group with availability at the time. Students were informed of the purpose of the investigation and the questionnaire was self-administered.

To validate the instrument, the support of 28 undergraduate students corresponding to two academic units and 13 graduate students was requested through a pilot test, in which only one of the 25 items that caused inconsistency in its wording was modified; in addition, the instrument was validated by five experts in the field, and it was tested for statistical reliability as shown in Table 2. The analysis of the data was carried out in the IBM SPSS Statistics Program version 24 and Microsoft Excel version 16.38, descriptive and frequency analysis, personalized tables, and the use of pie and bar charts were performed.

Table 2 Results of Cronbach's Alpha of the poll

Cronbach's Alpha	No. of items
0.772	25

Source: Authors, (2018)

RESULTS

Of the total of the surveyed students of the UAGro, 739 are in the age range of 18 to 25 years old, and 63 students are over 25 years old. 39 students did not mention their age.

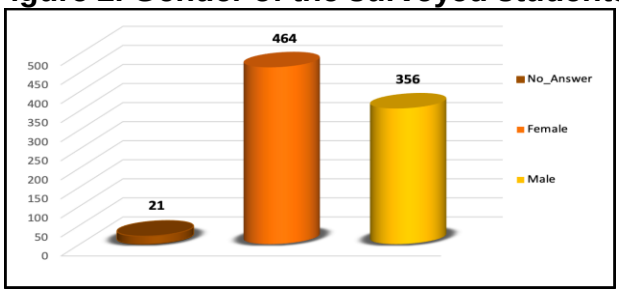
Table 3. Number of students according to their age

Rank	Frequency	Percentage
18 - 25 years old	739	88%
>25 years old	63	7%
No answer	39	5%
Total	**841**	**100%**

Source: Authors, (2019)

Regarding gender, the results obtained are as follows: of all the respondents, 55.17% were female and 42.33 were male, 2.49% did not answer (Figure 2).

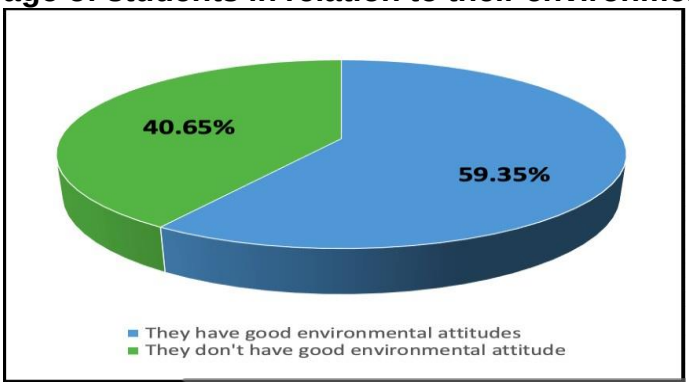
Figure 2. Gender of the surveyed students



Source: Authors, (2020)

In this sense, a general analysis was made on the attitudes that students have; the same results are observed in Figure 3; where 59.35% of the students stated they do not have favorable attitudes towards the environment and 40.65%, if they have good environmental attitudes.

Figure 3. Average of students in relation to their environmental attitudes.

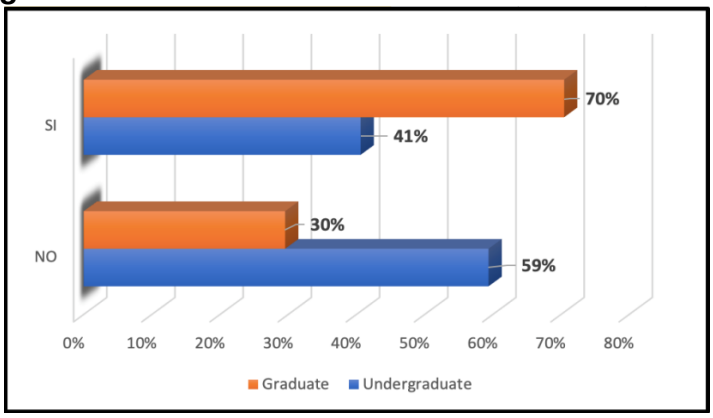


Source: Authors, (2020)

Figure 4 shows the comparison of environmental attitudes that graduate and undergraduate students have.

The students with the most favorable attitudes in the environment are the postgraduate students, of whom 70% correspond, and only 41% of the graduates have good environmental attitudes.

Figure 4. Average of students in relation to their environmental attitudes.



Source: Authors, (2020)

The following table shows the overall score of the 841 students for each question and the average obtained. The questions that obtained the best score above 90% on average were 10, 1, and 12, respectively, the highest was 10: At home, respect between the family is important with 94.12%. Below the average of 90 were 10 questions the 2, 5, 6, 9, 11, 17, 18, 19, 24 and 25. The remaining 12 questions their average was below 80%, the question where the students self-assessed lower was: When washing a car, we use the hose with 52.31%.

Table 3. Average per question.

Questions asked	Points earned	Average
1. While I brush my teeth, I turn off the sink.	3081	92.36
2. When I take a shower, while I place soap over my body I keep the shower faucet closed.	2978	89.27
3. When washing a car, we use the hose.	1745	52.31
4. I unplug electrical appliances that are not used at home.	2785	74.19
5. At home, we use saving light bulbs.	3062	84.29
6. When leaving the room I check if I turn off the light.	2196	86.9
7. At home, we separate the waste (garbage).	2311	54.77
8. When we do home shopping we avoid using plastic bags.	2475	55.4
9. At home, I help to pick up my room.	2812	88.16
10. At home, respect among family is important.	2899	94.12
11. At school, when I leave the toilet, I check that the toilet lever returns to its place.	2188	83.48
12. If I see an open faucet that is not being used, I close it.	2528	91.79
13. I report water leaks to a teacher or administrative	1827	65.83
14. When we leave the room, we turn off the fan and the light.	2882	65.59
15. If the air conditioning is on, we keep the living room door closed.	2006	75.78
16. I use a reusable canister to bring water to school	1848	69.27
17. I put the trash in its place	2330	86.39
18. I respect my colleagues, teachers, and administrators	1819	89.51
19. I respect the green areas	2464	88.68
20. In my community, I report fleeting water, gas, fires or environmental problems	2982	69.84
21. I separate my trash	2941	60.13
22. I participate in environmental campaigns or activities	3140	54.53
23. I practice road respect	2986	73.86
24. If I visit a recreational place, I pay attention to the signs	2957	84.77
25. I am willing to learn more about good environmental practices	2828	89.39
Total	**64070**	**76.18**

Source: Authors, (2020)

DISCUSSION

The results obtained show that the institution's undergraduate and graduate students do not have good environmental attitudes since the general average of their responses was 76.18. Only 59.3% have environmental attitudes that help preserve the environment.

In this sense, 13 out of 25 questions had a score above 80%, the activities where they obtained favorable responses and these are based on respect for the family, they close the tap while washing their hands and the lowest responses are about the use of plastic bags when going to the supermarket, it is noted that this survey was applied before the law prohibiting the use of plastic bags in Mexico was implemented. Another activity they do not do is, using a bucket to wash their cars.

It is necessary to implement didactic strategies through courses or workshops that help strengthen environmental attitudes in students; based on the topics in which they expressed that they do not participate: the separation and reuse of waste, proper management of water and electricity.

Environmental education should be approached in a transversal manner, since it plays a decisive role in the formation of university students to be responsible and committed to the care and conservation of the environment.

As for the issue of caring for water while washing the car, the importance of this element is appreciated because of the scarcity and access to it.

Another issue where students scored few points was in the participation of environmental campaigns or activities, this may be because they are raising awareness of what they are doing right or wrong. They also expressed a willingness to learn more about environmental issues.

CONCLUSIONS

The objective of this research was to determine if university students had good attitudes towards the environment and the results obtained allow us to establish that less than 60% of students take actions that help to improve and conserve the environment.

Based on the above, it is concluded that it is essential to create environmental education programs to improve environmental attitudes through values, knowledge, motivations and beliefs.

Although UAGro does not have a transversal axis in its curricula, strategies should be implemented with the objective of continuing to educate students to improve their environmental culture and practices; based on the results of this research and strengthening the areas where students expressed not having good environmental attitudes.

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