Article

University as Change Manager of Attitudes towards Environment (The Importance of Environmental Education)

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Abstract: The university is an essential participant in education, a key place where societal change processes are developed. So, it must be a place to bring up current challenges and social requirements. That is the reason why it holds the responsibility to assure the creation of knowledge, skills, attitudes, and values in the students to achieve an effective solution to environmental issues. The objective of this research was the assessment of the attitudes, knowledge, and pro-environmental behavior in university students from different faculties, studies, and degrees, as well as their influence in this group. The results show that most of the students have previous concepts of environment, and they consider that a good environmental education is necessary to solve the environmental issues that they have around. This proves that key factors in attitudes become essential elements for changing them. The differences made by gender and studies in several fields in attitudes (cognitive and emotional levels) are also confirmed.

Keywords: attitudes; university students; environment; environmental education; management

1. Introduction

Universities hold a privileged position within society. They have an indisputable prominence in knowledge creation and spreading [1]. At the same time, they have been long-time promoters of global, national, and local innovation, economic development, and social welfare. That is why universities have a fundamental role in the education of alumni and a commitment to education from a social approach.

The institution must never forget its educational/formative objective: Look for the all-round development of the individual. In this context, it is necessary to consider the way of being and the way of interacting with the environment (fields where there are attitude processes) to achieve changes in the students and the society in which they live. Attitudes predispose and lead us with respect to the facts of reality; they represent a personal synthesis that filters our perceptions and guides our thinking, facilitating the adaptation of the individual to the context [2]; hence, the importance of the link between the process, the attitudes, and environmental education.

Higher Education Institutions (HEIs) have a pivotal role in disseminating and mainstreaming sustainable thinking within society [3]. Universities educate people with personal and professional skills and abilities. They have access to a great number of young, enthusiastic, and creative minds with curiosity and the wish for a better world. Therefore, universities must guarantee the formation of present and future leaders, the people in charge of the decision-making processes, teaching staff,

innovators, entrepreneurs, and citizens with the knowledge, skills, and motivation to finally help them become better individuals.

One of the university's purposes is to undertake research investigations to produce new knowledge in order to solve the complex problems of a society in particular and mankind in general [4]. For this and other reasons, the university is expected to answer this issue with projects focused on the crisis' details and come up with solutions from a solid and precise scientific analysis. It also has to include in its curricula the development of the environmental dimension in the whole academic community so its competence in protecting and preserving the environment is guaranteed. To achieve this idea, we assume that, nowadays, environmental training in higher education has multiple shapes, mechanisms, and methodologies as a result of occasionally specific policies and criteria. The identification and classification of these concepts will allow the proposition of the necessary actions to certify that training. Furthermore, it will establish that environmental training implies the building of structures of thought that create attitudes and behaviors for this purpose.

Moreover, we want to emphasize the research investigations on the objective of environmental education to transform values and practices, paying special attention to achieving favorable attitudes towards the environment and moving from talk to action if we want to change the context. Environmental education is a tool for becoming aware and taking responsibility for finding a solution for environmental issues [5]. Therefore, we must highlight that environmental education has to promote positive changes in conducts and attitudes towards the environment and modify the behavior of the subjects involved.

Following this path, we consider that university students should be connected with nature and must be aware of sustainability problems. This has to be one of the objectives of the university.

This approach must be carried out through the governance, management, and culture of the universities, although they are complex and diverse institutions. The inclusion of this idea should start in its staff, students, campuses, neighborhoods, and supply chains, because they have a huge social, economic, and environmental impact in the university campus. The implementation of environmental topics in the government's structure and the management of its philosophy will lead to a direct contribution of the university to the achievement of environmental attitudes among the staff of these wide areas. At the same time, universities have the ability and responsibility of guiding and leading the local, national, and international response towards environmental education through cross-cutting dialog and the building of partnerships.

2. Attitudes, Environment, and University

In the last decades, several research investigations have been undertaken to answer the environmental problems of our present time, looking for a change in the attitude towards the relationship between human beings and nature, considering that education is a key discipline for spreading the ideas of sustainable development [6–11].

The current environmental issues, like marine pollution, ozone layer depletion, global warming, deforestation, resource depletion, climate change, etc., are catching on very slowly in the community. The signal is the attitude change in favor of the environment, as well as the behavioral change towards one that is more pro-environmental and sustainable [12–15].

It is also important to indicate that the assessment of the environment is always linked to its historical circumstances, as well as social and cultural factors [16], which determine how we think and take action about the environment. We know little about young people's perception of the environment, what they like and dislike, their preferences, and satisfactions. Do students have a positive attitude towards the environment? Do they connect global ecological issues to what is happening in their country, city, or neighborhood?

In order to do this, it is essential to undertake research to assess the attitude towards the environment, the level of information that people have about environmental issues, their emotionality on these topics, and the consequences that may be foreseen in order to teach or keep a pro-environmental

attitude and to study the commitments that they are willing to make to resolve problems. The present paper draws a methodological strategy to assess attitudes towards the environment as an imperative element in planning programs addressed at promoting pro-environmental behaviors.

In this scenario, the main objective in environmental education is to teach people committed to preserving and respecting the environment, so they can understand and internalize their connection and reciprocal dependence [17]. However, the analysis of proposed actions to cover environmental issues has shown they are basically technological [18]. Very few of these proposals are based in education, which is surprising and alarming, because there is an almost unanimous agreement among researchers (and individuals) that education is key for achieving sustainable development [19]. Besides, environmental issues are not only seen as a technological problem, but also as a perceptual and behavioral problem [20]. Therefore, the solutions for environmental issues are not in technology, but in the modification of human behavior [21], especially in psychosocial and educational processes. Thus, to understand the processes and factors of pro-environmental behavior and its most significant predictors is vital to achieve a more sustainable future [22].

Its importance in the field of education was emphasized because it would have been impossible for humans to survive as a species if we had all been concerned exclusively with ourselves [23]. For this reason, the objective of environmental education is to teach people to respect the environment, so that they can understand its importance in their lives. [24,25]. In addition to this, the attitudes and beliefs we have about the environment are the roots of environmental issues and their solution, but they are also implicit in environmental education [25,26].

Many researchers observe that pro-environmental behaviors are predicted from internal and external factors [26–29]. Among the internal factors, one of the most relevant ones is the attitude towards the natural environment. So, it seems indispensable to consider environmental education as a great source of benefit to the connection of humans with their element through knowledge, awareness, promotion of healthy lifestyles, and pro-environmental behaviors; in other words, an education that takes into account skills and knowledge acquisition as a social and ethical formation to help students to take responsibility for the environment since school [30].

From the methodological approach, we should point out that, in some studies where environmental attitude is the only measure, the results show a weak connection between this variable, the environmental education, and the ecological behavior [31–35]. The results improve when this variable is analyzed from different perspectives like we have done in our research.

The term attitude has been studied in many different ways through time. It has always been considered a way of taking up a stance on something, like a tendency, a mental or physical predisposition, or a relatively stable assessment answer [36–38]. In other words, attitude could be defined as a position to express a state of mind, an intention, or a way of seeing the world. It is like a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon an individual's response to all objects and situations to which it is related [37].

In the field of environmental education, [39], attitude is described as people's favorable or unfavorable feelings towards some features of the physical environment or towards an issue that pertains to the physical environment. It is a determining factor in predisposing actions in favor of the environment. Consequently, the environment where the subject lives in will reinforce his own attitudes [40–42].

A basic aspect of the attitudes is their structure. Normally, there are two orientations, complementary in part. On the one hand, there is the classic or cognitive approach, in which attitudes are composed by structured groups of relatively stable beliefs, values, knowledge, or expectations [43]. These attitudes predispose to act in a preferential way in certain situations or before specific objects. The attitudes are opinions, beliefs, categories, attributes, and concepts. On the other hand, we have the affective approach and the shape of attitudes [44]. It is composed by the feelings about the object of the attitude; the assessment sets the behavior and it is triggered by the presence of the object or by the situation and the feelings produced. Finally, the conative (or behavioral) approach

refers to the predisposition or intention to take action and guides the action in a certain way before an object or subject [38,45].

In the second orientation, the components increase to four: cognitive (beliefs and opinions), affective (feelings and assessment), conative (behavioral intentions), and behavioral (behavior observation though actions) [45]. This was called the expectancy-value model. Subsequently, this model (with some modifications) led to the theory of reasoned action [44], and, finally, to the theory of the planned behavior [46,47]. These models explain the roles that the attitudes play in behavior creation, because it is essential to change attitudes towards a specific field in order to change the behaviors in this same field. This paper analyses the attitudes of university students, the connection with the environment during the educational process, and consequently, the environmental preservation and care. In this sense, it is important to mention the research about the impact of knowledge in determining an ecological behavior related to two aspects: attitude shaping and behavior itself [48]. We agree with this because it shares the conclusion that environmental knowledge provides the subject with the necessary action strategies to protect the environment. With this knowledge, attitudes and intentions are shaped through an individual's value system to take action in order to improve the environment.

The university is a key place for the processes that change society. It faces nowadays challenges and requirements [49]. This institution is accountable for spreading knowledge, values, and attitudes that contribute to a comprehensive education of students, in order to empower them to face working life with high levels of responsibility [50]. In this regard, the university (as an institution aimed at researching, preparing for the working life and generating critical awareness) must have a vital role in the development of environmental education and the extension of environmental knowledge and values in personal, social, and professional areas [51]. This must be in line with the objectives of the 2030 Agenda. These objectives invite all parts, both public and private, to work together to resolve social, environmental, and economic problems that threaten and endanger the sustainability of the planet. This new era not only entitles governments and international bodies, but also the whole community (including the university, which has a key role in it), to work towards a fairer and more equitable society.

Nonetheless, the creation of a university model that is environmentally coherent is a complex process which requires the involvement and active support of a whole community sharing the same space [52]. In 1997, some universities decided to support sustainability in their campuses and studies joining the University Charter for Sustainable Development through the European Network on Higher Education for Sustainable Development. In the same year, the Kyoto Declaration on Sustainable Development urged universities to establish an action plan to protect the environment and sustainable development. In 2002, the Conference of Rectors of Spanish Universities (CRUE) created a Working Group on Environmental Quality and Sustainable Development. In these years, sustainability has been incorporated as a cross-sectional dimension in the university degrees, both in students and teachers training; a call which is arousing a growing interest at meetings and conferences about the topic and especially in research journals, as shown by recent monographs devoted to sustainability in general, and to environmental studies in particular. We have Revista de Educación 2009; Trayectorias 2009; Revista Eureka 2010, Investigación en la Escuela, 71 2010; School Science Review 2010; Research in Science Education 2012, Revista de Educación Social 2019, among others. Very specifically, we also have the creation of specialized journals like Sustainability, International Journal of Sustainability in Higher Education, which collects and spreads the advances in the incorporation of sustainability to universities since 2000.

The university holds the responsibility for assuring the acquisition of knowledge, skills, attitudes, and values by students to achieve an effective solution for environmental issues. In this regard, the university is also an educational center where the experiences of community members (students, professors, administrative and service staff) in their day-to-day have a great importance in developing and building their scale of values and environmental behavior. Thus, this environmental management is

an example to other institutions, and plays an informal educational function on the future professionals because it offers and spreads new models of pro-environmental behaviors [53].

The European Higher Education Area (EHEA) establishes a framework to strengthen the environmental awareness of the students and the training of the university teaching staff (a key participant in the whole process). EHEA promotes new teaching methodologies and aims to achieve a comprehensive education. So, with the development of new skills in lifelong learning, future professionals will be able to face the challenges of global situation [54]. These ideas are defined in different international statements [55–60], and the Spanish University System explicitly adopted them [61].

That is why EHEA is an opportunity to introduce sustainability in the new degrees, so students can become socially responsible professionals. In 2017, the High Level Group (GAN) was set up to coordinate Spain's position and actions to achieve the SDGs, as well as to prepare the exam that our country has to do before the United Nations High Level Political Forum. Some meetings were held, both in civil and private sectors, and universities were present.

3. Methodology

The descriptive, cross-sectional, and quantitative methodology used in this study let us gather data from students about their attitudes and knowledge on environment. This data allowed us to know and interpret the variances in environmental knowledge and behavior, including the gender variable on the one side, and the university degree variable on the other side. In order to assess this last variable, the students were divided in three groups: Group 1 (G1) of Environmental Sciences; Group 2 (G2) of Social Education, Social Work, and Social Ed., Sociology, Sociology, and Political Sciences, Social Work, and Sociology, and Social Work; and Group 3 (G3) of Pedagogy, Early Childhood Education, and Sports and Physical Education. So, the first group (G1) gathers students of environmental studies (1st); the second group (G2) of social studies; and the third group (G3) of teaching studies.

Specifying the variables (both gender and university degree) has a defining objective. In the case of the gender variable, the purpose is to establish the environmental knowledge and behavior variables that have more discriminant power among men and women. However, the university degree variable points out the environmental knowledge and behavior variables that separate and differentiate the students of environmental studies, social studies, and teaching studies.

3.1. Participants

The groups were selected from a research population coming from the universities of Seville (both UPO and HISPALENSE), Málaga, Granada, Córdoba, and the Faculty of Education in Ceuta (from the University of Granada) during the academic year 2017–2018. From 132,076 students enrolled at these universities, the performing sampling (Table 1) was 1471 students ($1 - \alpha = 0.95$; e = ±2.54% y $p = 50$) from the following degrees: Environmental Science, Social Education, Sociology, Politics and Social Sciences, Pedagogy, Early Childhood Education, Primary Education and Sports & Physical Education.

Table 1. University Sample.

SEVILLE	MÁLAGA	CÓRDOBA	GRANADA	CÁDIZ	TOTAL
894	237	180	61	99	1471

These faculties held some cross-sectional activities related to the World Environment Day. The group variable sample is shown in Table 2. The less populated group is the first, the environmental studies group.

Table 2. University Studies Sample.

G1 Environmental Studies	G2 Social Studies	G3 Teaching Studies	TOTAL
142	597	732	1471

22.9% are men and 77.1% are women. The average age is 21.7 years old.

3.2. Research Instrument

The instrument was a specific questionnaire made for this research, with 40 items to answer with a four-point Likert scale (totally disagree, disagree, agree, totally agree) to get the levels of environmental knowledge (8 items), environmental education (10 items), and environmental behavior (22 items). The reliability of the instrument has produced an index of 0.977 in Cronbach's alpha [62], whereas in omega, recommended by several authors [63], we have the following coefficients: $\omega = 0.98$ of instrument and $\omega = 0.93$; $\omega = 0.77$; and $\omega = 0.85$ of the dimensions (considered good). To validate the content of the study, we used an expert panel: 94% agreed to keep the dimensions and items of the instruments.

3.3. Procedure

The questionnaires were handed to the students to fulfill them. The students participated voluntarily and anonymously during the second semester of the 2017–2018 academic year, so the reliability of the information gathered was guaranteed. Afterwards, the statistical analysis was made using the statistical software SPSS Version 25.

4. Data Analysis

The statistical work started with the descriptive analysis. Normality tests were run to the data of the research with the KS test ($p < 0.05$). To select the variables before the discriminant analysis, we used the Mann–Whitney U test for the gender variable ($p < 0.05$) and the Kruskal–Wallis test for the university degree grouping variable ($p < 0.05$). Then, we performed the discriminant analysis on the selected variables using the simultaneous inclusion method, the right option when the number of variables is not very large [64] with Wilk's Lambda ($p < 0.05$); and finally, the Fisher coefficient to point out the group classification or appreciate the accuracy of ingroup prediction.

5. Gender Variable Results

Once the normality tests of the study were run (Kolmogorov–Smirnov test ($p < 0.05$), the variables were checked with the Mann–Whitney U test ($p < 0.05$) to find the ones that have more discriminant power in environmental knowledge and behavior among men and women, as well as to make a selection prior to the discriminant analysis from a gender approach. The selected variables are shown in Table 3.

Table 3. Selected Variables according to the Mann–Whitney U test ($p < 0.05$).

	p
MA5 All human actions are harmful to the planet.	0.000
MA7 The interest in environment could solve environmental problems.	0.016
MA8 The interest in the preservation of the environment could prevent the appearance of environmental problems.	0.003
MA11 A person can educate others in environmental education.	0.010
MA15 The government is responsible for the preservation of the environment.	0.003
MA16 I may have an influence in the environment through my actions.	0.000
MA18 I completely understand the concept of Sustainable Development.	0.000
MA20 Environmental education is a tool for raising people's awareness.	0.009
MA23 All human activities are harmful to the planet.	0.000
MA24 Most of the people do not recycle correctly.	0.007
MA29 At home, we only separate glass and paper because we know where to put them.	0.010
MA31 Environmental education is a way to know the environment.	0.014
MA32 The current economic model is based on Sustainable Development.	0.000
MA33 If we all help in the preservation, there would be no environmental problems.	0.003
MA34 I could help environment-raising awareness among my close ones.	0.001
MA37 The last technological advances harm environmental education.	0.000
MA40 Environmental education shows how to protect the environment.	0.003

The first dimension analyzed (variables MA18 and MA32) covers environmental knowledge. Table 4 shows only one discriminant action, as expected with only 2 groups (men and women). Besides, this action is totally significant as we can see in the value related to Wilks' Lambda (0.000).

Table 4. Wilks' Lambda.

Functions Test	Wilks' L.	Chi-Square	Df.	Sig.
1	0.967	49.132	2	0.000

The structure matrix on Table 5 shows us that the absolute value of the correlation within the function is the M18 variable. Taking into account the function at group centroids values (Table 6), men have a higher discriminant power and they also have a higher probability to belong to the groups with a positive value in the variable of the function.

Table 5. Structure Matrix.

	Function 1
MA18 I completely understand the concept of Sustainable Development.	0.744
MA32 The current economic model is based on Sustainable Development	0.698

Table 6. Functions at Group Centroids.

1 Men	**2 Women**
0.338	−0.101

According to the averages of each group, men have a better knowledge of sustainable development (men 2.92; women 2.64), and women think the current economic model is not a sustainable model (women 2.1; men 2.91).

In the dimension about environmental knowledge, men are more aware of the sustainable development concept than women, whereas more women think the current economic model is not a sustainable model than men.

The coefficient of the classification function (Fisher linear discriminants: men -10.143, women -8.617) confirms the correct classification of 77% of the cases, which gives a good predictive power to the model.

The second dimension is about environmental education knowledge. Wilks' test (Wilks' L. 0.957/df. 2/P. 0.000) allows to infer that the discriminant value of the function is significant. The functions at group centroids also show that men have a greater discriminant action on this function (men -3.86; women 115). The structure matrix (Table 7) presents two variables with the highest absolute values (M11 and M20) which confirm, after checking the average values (men: M11 = 2.95 y M20 = 3.36; women: M11 = 3.05 y M20 = 3.47), that women are more certain that "a person with environmental knowledge could teach others in environmental education" and "environmental education is a tool to raise people's awareness." In the dimension about environmental education knowledge, the trust in people with environmental knowledge able to teach others in environmental education, and the fact this environmental education is a tool for raising people's awareness, discriminate between men and women in favor of women.

Table 7. Structure Matrix.

	Function 1
M11 A person can educate others in environmental education.	0.916
MA20 Environmental education is a tool for raising people's awareness.	0.408
MA31 Environmental education is a way to know the environment.	0.363
MA37 The last technological advances harm environmental education.	0.358
MA40 Environmental education shows how to protect the environment.	0.297

The classification of 77.3% of the cases (Fisher's linear discriminants: men -30.545; women -32.317) indicates that the model is solid.

The third dimension refers to environmental behavior, as well as the Wilks' test. Wilks' test (Wilks' L. 0.954/df. 2/P. 0.000) allows to infer that the discriminant value of the function is significant. The functions at group centroids also show that men have more probability to belong to the groups with negative value (men -0.401; women 119). The structure matrix (Table 8) presents four variables (MA5, MA7, MA8, and MA15), with absolute values to be considered. These variables have been checked with the averages of each group (men: MA5 = 2.05, MA7 = 3.51, MA8 = 3.42, MA15 = 2.34; women: MA5 = 2.31, MA7 = 3.63, MA8 = 3.55, MA15 = 2.18). The variables with higher discriminant action separate women from men in concepts like "all human actions are harmful to the planet," "the interest in the environment could solve environmental problems," and "the interest in the preservation of the environment could prevent the appearance of environmental problems." In the environmental behavior dimension, the behaviors that discriminate between men and women in favor of women are the statements about human actions which are harmful to the planet, and the interest in the environment could not only solve but also prevent environmental problems.

Table 8. Structure Matrix.

	Function 1
MA5 All human actions are harmful to the planet.	0.568
MA7 The interest in preservation could solve environmental problems.	0.467
MA8 The interest in environment could prevent the appearance of environmental problems.	0.459
MA15 The government is responsible for the preservation of the environment.	0.420
MA23 All human activities are harmful to the planet.	0.406
MA24 Most of the people do not recycle correctly.	0.359
MA29 At home, we separate glass and paper from the rest of the garbage.	−0.342
MA33 If we all help in the preservation, there wouldn't be environmental problems.	0.280
MA34 I could help environment raising awareness among my close ones.	−0.280

The classification function coefficient (Fisher's linear discriminants: men −42.030, women −43.379) and the correct classification of 77.5% of the cases confirm that the model is valid.

6. University Degree Variable Results

To undertake the second part of this study and meet the second objective, which is to identify the variables with a higher discriminant action on the environmental knowledge and behavior among the groups of environmental studies, social studies and teaching studies, we started using the Kruskal–Wallis test ($p < 0.05$) to select the variables that produce significant differences between the groups. These variables are going to be used in the following discriminant analysis.

We selected five variables for the first dimension about environmental knowledge. We checked these variables with the Wilks' test (Table 9), obtaining two significant functions that explain an 82.4% of variance in the first, and 17.6% in the second. The structure matrix (Table 10) presents a variable with a notable absolute value in the first function (M18) and two in the second function (M32 and M27). So, if we check the functions at group centroids (Table 11) we see the bigger distance between groups 1 and 3 (GV1 and GV3), that is, between environmental studies and teaching studies. In the second function, this distance is observed between groups 3 and 2 (GV3 and GV2), that is, between teaching studies and social studies. Thus, the students of environmental studies are set up apart by their knowledge of sustainable development, whereas the students of teaching studies understand better the current economic model and the types of waste. This means that in the dimension of environmental knowledge, the knowledge about sustainable development differentiates students of environmental studies and teaching studies in favor of the last ones. Also, the knowledge about the types of waste and the view of the current economic model as negative for sustainable development discriminate between students of social studies and teaching studies in favor of the last ones.

Table 9. Wilks' Lambda.

Functions Test	Wilks' L.	Chi-Square	Df.	Sig.
1	0.854	231.180	10	0.000
2	0.971	42.485	4	0.000

Table 10. Structure Matrix.

	F.1	F.2
MA18 I completely understand the concept of Sustainable Development.	0.891	0.027
MA1 The environment is the natural background surrounding us.	−0.271	0.035
MA32 The current economic model is based on Sustainable Development.	−0.160	0.903
MA27 I know all the types of waste.	0.431	0.470
MA21 The use of recycled products benefits economy.	−0.172	0.210

Table 11. Functions at Group Centroids.

	Function 1	Function 2
GV 1	1.131	0.025
GV 2	−0.101	−0.203
GV 3	−0.138	0.160

The model classifies correctly (Fisher's linear discriminants: GV 1 −34.028449; GV 2 −32.761803; GV 3 −34.023230) 54.5% of the cases as valid.

The second dimension is about environmental education knowledge. It is analyzed with five variables. The Wilks' test shows two significant functions (P. 0.000) that explain 65% and 35% of the variance, respectively. The structure matrix (Table 12) presents the MA37 variable with a notable absolute value in the first function.

Table 12. Structure Matrix.

	F.1	F.2
MA37 The last technological advances harm environmental education.	−0.648	0.396
MA12 The environmental education I studied in high school makes me tell what is good for the preservation of the environment.	0.625	0.629
MA10 We all have a good environmental education.	0.317	0.593
MA40 Environmental education shows how to protect the environment.	−0.142	0.337
MA21 The use of recycled products benefits economy.	0.256	−0.28

We see the discriminant action between environmental and teaching studies (Table 13) which have a bigger distance at centroid functions. The students of environmental studies (GV1) are aware of the impact of technological advances on the environment. In the second function, the M12 and M10 variables have a discriminant action between groups 1 and 3 (GV1 and GV3, Table 13), that is, teaching studies alumni think that they received enough environmental education in high school to differentiate what is good and bad for the environment, and they feel they have a good environmental education.

Table 13. Functions at Group Centroids.

	Function 1	Function 2
GV 1	0.642	−0.429
GV 2	−0.293	−0.134
GV 3	0.113	0.192

In the dimension of environmental knowledge, the idea of technological advance damaging the environment discriminates between environmental studies and teaching studies in favor of the first ones.

The knowledge acquired during high school, which the students consider good and let them identify what is good for the environment, discriminates between environmental studies and social studies in favor of the first ones.

In this dimension, the model classifies correctly (Fisher's linear discriminants: GV 1 −34.028; GV 2 −32.762; GV 3 −34.023) 55.7% of the cases as acceptable.

In order to study the environmental behavior, we introduced fourteen variables. Wilks's test gives two significant functions (P. 0.000) that explain 73.2% and 23.8% of the variance, respectively. The variables with irrelevant absolute values have been removed from the structure matrix data (Table 14).

Table 14. Structure Matrix.

	F.1	F.2
MA17 I help in environmental preservation at my university.	−0.622	−0.031
MA13 Big enterprises have influence in the preservation of the environment.	0.419	0.293
MA9 I am worried about the preservation of the environment.	0.312	−0.072
MA23 All human activities are harmful to the planet.	−0.307	−0.124
MA15 The government is responsible for the preservation of the environment.	−0.199	−0.186
MA5 All human actions are harmful to the planet.	−0.192	0.137
MA14 The people alone can't improve the environment.	−0.160	0.137
MA33 If we all help in the preservation, there wouldn't be environmental problems.	−0.117	0.494
MA7 The interest in the environment could solve environmental problems.	0.106	0.419

There are two variables (MA17 and MA13) in the first function (according to the functions at group centroids, Table 15) that have discriminant action between groups 1 and 2 (GV1 and GV2), which means that students of environmental studies always take part in the activities organized in their universities to boost environmental preservation, and they also think that big enterprises have an impact on the environment. The second function also separates students of environmental studies from teaching studies ones on the idea that global collaboration would lead to a world without environmental problems. In addition to this, it is also affirmed that the interest in the preservation of the environment would solve environmental problems too; hence, in the behavioral dimension, the involvement in students' activities to boost environmental preservation and the belief that big companies' impacts on the environment have a discriminant action between environmental studies and teaching studies in favor of the first ones. Also, the interest in environmental preservation and global collaboration as tools for solving environmental problems discriminate between environmental studies and teaching studies in favor of the first ones.

Table 15. Functions at Group Centroids.

	Function 1	**Function 2**
GV 1	0.832	−0.420
GV 2	−0.356	−0.148
GV 3	0.126	0.201

Finally, the model classifies correctly (Fisher's linear discriminants: GV 1 −55.019; GV 2 −53.695; GV 3 −54.112) 57.1% of the cases as acceptable.

7. Discussion and Conclusions

The purpose of this paper was to assess the attitudes of university students towards the environment and see if they connect with environmental, ecological, and global issues under present circumstances. We have taken into account their starting environmental knowledge and their attitudes in different environmental situations.

There are many research investigations where the importance of attitudes in the prediction of pro-environmental behaviors is highlighted, because it influences the conduct of the individuals [65–67], and also the empathy with natural environment within environmental studies [68]. This contributes to a better decision-making process concerning the use of natural resources, preservation and development of the environment and society. It will also allow to promote more pro-environmental lifestyles [69,70].

According to the results obtained, this research draws conclusions in different directions pointed out in the previous approaches and objectives. Thus, most of the students think they have environmental knowledge, mainly in concepts about the environment and its connection with human beings, as well as the individual and social impact they have on the environment. However, it is important to stress the existing disparities and significantly different conclusions between men and women about attitudes and knowledge. While men have a better knowledge of sustainable development, women are sure that this development model is not sustainable for the environment. This make us think knowledge and attitude can shape them as educators before new generations [71].

Nonetheless, students believe they have not enough information about the concept of environmental education. They doubt if it is correct or not what they observe, although they attach great importance to it [50]; a reason to believe we should go more deeply in teaching this content, in the same line of other papers that emphasize young students' need of criteria and solid scientific knowledge in this topic [72], especially because learning about environment issues has a positive connection with environmental attitudes [73,74].

That is why we need good environmental education to solve the environmental problems they will have to face. This fact leads us to the inference that universities should place more emphasis on the topic, taking into account the level of students in concepts and objectives of environmental education, as well as the knowledge acquired during the previous years of education [50]. This makes us consider environmental education of prime importance in all teaching levels, especially in the university field [75].

Human beings, both men and women, play different roles imposed by society, so they will also get involved in different levels and activities related to the environment. However, the key factor is that both should be aware of the urgent situation of environmental issues. In this aspect, it is also notable that women think education is a useful tool for raising people's awareness on the need to protect the environment. Besides, they are more aware that human behaviors are affecting the planet and changing these actions could prevent and solve environmental problems. Men are further and less committed to the environment than women. Women tend to be socialized to empathize with the needs and welfare of other people. This higher emphatic concern acquired by women during the socialization process, as well as gender role expectations and experiences, lead to a greater concern about the environment [76,77].

There are also differences made by gender, more or less marked, generally more favorable towards the environment among women than men [78–80]. Women show a natural tendency to have a favorable attitude towards the environment. Nevertheless, after the course of formal learning, the intra-gender natural differences decreased, which highlights the role of formal learning as an element for bringing equality, or, at least, a greater unification of values and behaviors.

We observe that students who have received environmental education during their studies stand out for a deeper knowledge about the environment, and a better education in specific concepts like economic relations regarding the environment or the knowledge of different types of waste. Youngsters have a positive attitude towards the environment and they can manage specific knowledge about it. A minority of the university students who have undertaken the questionnaire state the development of specific pro-environmental behaviors to protect the urban environment and nature in general [81].

The students of teaching studies think they received good environmental education, although they do not relate it to the knowledge of the environment. This research emphasizes the thoughts on environmental behavior, that is to say, the students' actions towards the environment. These actions should be addressed at improving the environment. Although they think it is necessary, the students' level of empathy with the environment it is still very low. This is clear because they admit a low level of involvement in the activities carried out in their universities. This fact makes us confirm the idea that the university is a key participant in the promotion of sustainable human development. It has an essential role to generate critical awareness and incorporate new ideas and values of equal and inclusive sustainable development.

We could state that environmental behavior is more acceptable among the students who have received environmental education during their studies. They are also aware of the influence that big companies have in the environment. Students believe that mankind could contribute with our interest and collaboration to solve environmental issues.

According to the research, we should take the importance of teaching the respect for the environment to a center stage. The students who have received education in this regard are different from those who have not, and they have a much more responsible attitude towards the preservation of the environment. The results support the design and implementation of teaching programs for men and women, which will help them in their future jobs and civil responsibilities to contribute to have a better perception of the environment. This will improve sustainable development in order to achieve the objectives established by the EU Sustainable Development Strategy [82].

Finally, we strongly believe that the university should prepare professionals to be committed with the world they live in, putting their knowledge and wisdom at the service of the society. To achieve that, higher education must bring the essential tools and training, so university students could answer current social needs and great challenges this planet is going to face. So, the university will be training students to work with social commitment and responsibility towards people and the environment. Hence, the education in attitudes and values towards the environment is indispensable to modify students' behaviors [83]. Teaching attitudes and values will help to plan new teaching strategies different from the usual ones in higher education, which will lead to real possibilities of affective, behavioral, and cognitive changes towards the environment [84].

Thus, it is remarkable the advance in environmental management and a greater permeation of sustainability in the universities, as well as in the cultural context: sustainability vice-rectorates have been created, there are more and more specialized master's degrees in this subject, and numerous lines of research about sustainability have appeared in different university departments throughout Spain. Another point to highlight is the concession of the Campus International Excellence Program (CIE) to campuses that integrate sustainable development as a strategic priority. For example, the program presented together by Universitat de València, Universitat Politècnica de València and CSIC (Spanish National Research Council); the program by the Universities of Burgos, León and Valladolid; or the program of Pablo de Olavide University.

These are relevant and necessary steps, but there are still not enough. For example, it is not enough to integrate sustainability in the competences of future professionals if subjects and disciplines do not include contents about sustainability to help its acquisition; or if the teaching staff does not consider it really important to bring it in their classes. In this regard, some authors show the obstacles and difficulties observed [85]. These difficulties justify the minor presence of sustainability in higher education and obstruct its real incorporation in the university curriculum. Some of these obstacles are: limited sustainability knowledge of many university professors, use of traditional methodologies, saturation of degree curricula, absence of collective reflection in the teaching staff about these issues, lack of resources, etc. That is why the research in this field is crucial to consolidate, boost and support sustainability in order to identify the obstacles and overcome them [86]. On this matter, the Conference of Rectors of Spanish Universities (CRUE) commission suggested action proposals to overcome the observed problems and achieve a real incorporation of sustainability to the university curriculum. The most notable suggestions are the development of sustainability competences, the incorporation of cross-sectional subjects in all studies to achieve sustainability competences, the boost in interdisciplinary projects, the establishment of dialog forums, and, specifically, the improvement of teaching staff training in the aspects related to sustainability with tools for encouraging its incorporation in the university programs. In fact, both in the official Master's Degree in Secondary School Teaching and in the new degrees in Primary and Early Childhood Education, sustainability is part of their curricula with objectives, competences and contents. Furthermore, the inter-university Master's Degree in Environmental Education is another excellent case within professional training in the field of environmental education. Seven Andalusian universities work together to integrate this knowledge and research area in their respective campuses.

All this effort is made to keep supporting the action research process in the management of environmental education, both as an element and a way to raise greater ethical awareness in the environmental context [50].

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