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FACTORS INFLUENCING STUDENTS' ENVIRONMENTAL BEHAVIOR FOR SUSTAINABLE DEVELOPMENT

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Abstract

The present study proposes to identify some important factors for sustainable environmental development. Sustainable Development Goal (SDG) 4 from Agenda 2030 is focused on education including university. In addition, higher education has a central role in delivering a number of the other SDGs. The universities become a role model of sustainable development and environmental protection behavior and practices. The purpose of this study is to examine the relationship between environmental attitude and behavior of university students and their care and participation in and for environmental development. A total of 2038 students enrolled at Afyon Kocatepe University Turkey and Cluj Napoca University Romania participated in this survey. It was revealed that the students' environmental attitude and behavior are similar, but there are also some differences due to the cross-culture environmental education. The vision of universities regarding the future for sustainable environment envisages the development of students' care, stimulation and participation in and for the environment.

Keywords: cross-culture, environmental attitude, environmental behavior, sustainable development

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1. Introduction

1.1. Short survey on factors for achieving sustainable environmental development

The 2030 Agenda for Sustainable Development (ASD, 2015) significantly expanded the set of priorities for transforming our world, especially those with regard to global development. The 2030 Agenda focused on sustainability with the target on the key issues of economic security and environmental sustainability. Sustainable development can happen through improved education, education within the adult population, in order to increase the awareness of the challenges and the level of information. Society in the 21st century is facing various environmental, social and economic issues that have become collective problems. The concept of 'sustainable

development' has become a central issue and has led to a global concern. Agirreazkuenaga (2020) and Fang et al. (2018) identify how the dominant mode of economic growth at present has led to an enormous consumption of materials and energy that triggers the large-size pollutants emission, which has intensified the conflict between environmental protection and economic development but in the same time Sustainable Development Goals (SDGs) gives some clues about and opportunities to reflect upon which concepts and directions to take in the field of education towards promoting sustainability. The urgency of our environmental situation as well as realization of long-term selfinterest in the preservation of ecological integrity means that there is a price that might have to be paid after Kopnina (2014). Ashraf et al. (2019) consider that environmental sustainability is indispensable to sustainable development associated

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with the complex interactions between environment and development. During 1986 and 1987, Hines et al. (1987) created a model of responsible environmental behavior after an analysis of 128 studies in the literature about environmental education. They established in their new model that individuals must possess knowledge to act, skills to apply that knowledge and also they must possess the desire to act, in addition of being personally responsible. Some authors (Hines et al., 1987; Koslowsky et al., 1988; Simpson, 1994; Stevenson, 1986) bring a new concept and create a new environmental behavior model taking into consideration three variables, which can influence people's behavior. These variables are environmental sensitivity, personal investment in environment and knowledge and skills on how to use the environment.

Also, Bogner (2002) states that environmental values and attitudes are crucial to the development of environmental behavior. Even environmental behaviors are influenced by knowledge, behavior and attitude. Hunderford and Volk (1990) has noticed that environmental knowledge has no influence on environmental education but can change the environmental decisions that people make. Because the correlation between the three factors – knowledge, attitude and behavior – was difficult to measure, as Cincera (2019) emphasized in the literature, studies were conducted only on the correlation of behavior and attitude towards the environment by Hungerford and Volk (1990), Hines et al. (1987), Heimlich and Ardoin (2008) who stressed the need for change through education. The pioneer of 'culture' as a factor of influence on attitude and behavior towards the environment was Butterfield (1965), Stern (2000) followed by Bogner (2002) and later by Giddens (2012). They have defined 'culture' as the environment in which we are born and grow to maturity, and it is a factor of essential influence in the social context and cannot be neglected. In conclusion, school is an important factor in shaping the attitude towards the environment but has not yet revealed the worth and attention it deserves. Fiorillo and Senatore (2016) established the relationship among self-image, pro-environmental attitudes and behavior in Italy. On the other hand, Crociata et al. (2014) extend the association to cultural participation, while Agovino et al. (2016) include environmental associations and voluntary activities. Milfont and Duckitt (2006), Milfont and Gouveia (2006) measure also environmental attitude across the cultural bridge between New Zealand and Brazil and establish a model for environmental attitude. Results showed no significant interactions between variables like gender and behavior or between gender and attitudes in either country. Arora et al. (2018) along with Arora and Mishra (2019), observed that the data from around the globe clearly shows that overall the situation is deteriorating particularly in concern to environmental sustainability. They concluded that building of awareness through education should be encouraged and intensified to support sustainability agendas. Purcell et al. (2019) mentioned also the role of

universities as the engine of transformational sustainability towards delivering the SDGs as living labs. Higher education can help shape new ways for the world, tackling the grand challenges of our day as reflected in the SDGs (United Nations General Assembly, 2015). Cecere et al. (2014) leaned on individual behavior and its relation with waste reduction, a relationship that is not directly influenced by economic incentives or pressures in society or social norms, but which is associated directly with altruistic reasons. The theme was taken over by Barr (2007), Chu and Chiu (2013), Ebreo and Vining (2000) and Sidique et al. (2010) who have noticed that the individual behavior in domestic and organizational waste recycling actions is most influenced by the personal knowledge in the field, the attitude towards the environment and the personal norms. In this sense, universities can contribute to accelerate the delivery of higher education and in partnership by contributing more fully to support the economic, environmental, cultural and intellectual well-being of our global communities. Kashdan (2013), who made an inter-cultural analysis between France and the United States, conducted a research to identify the cultural barriers a significant interaction between countries and attitudes, indicate that American participants' environmental attitudes predicted their environmental behavior, while this pattern was not observed among the French participants. Another significant difference between the French and the Americans' environmental behaviors was that the French have a high level of ecological behavior, as compared to the Americans, but they have a higher attitude towards the environment and its norms.

In this sense, universities can contribute to accelerate the delivery of higher education and in partnership by contributing more fully to support the economic, environmental, cultural and intellectual well-being of our global communities. Kasimov et al. (2002), Lemons (2017) and the international community recognized the crucial role that higher education will have to play to promote sustainable development and environmental protection, as well as sustain and promote education about sustainable development and environmental protection.

One of the most important parts of the transformation should be the construction for sustainable environment development, especially through universities, which can provide space for the science-society-political interaction. Universities synthesize over time knowledge of what works and improve the science for sustainable development as the foundation and rigor of sustainability.

They have specified that by knowing the factors which influence environmental behavior it is possible to identify methods and ways of modeling responsible environmental behavior. Chan (1996) applied a survey regarding the environmental protection attitude and behavior of students from several Hong Kong universities concerning various pro-environmental behaviors they engage in both at school and at home. Also, the author states that it is

necessary to know and understand how to encourage environmental behavior, as well as understand the factors which influence pro-environmental behavior.

Studies have shown that the attitude towards the environment actually influences people's behaviour towards the environment. It is the aim of this paper too, to carry out the comparative study between students from Turkey and Romania in what concerns their environment attitude and behaviour. Improving environmental attitudes and environmental behaviours of the students will definitely bring some positive effects toward the students' environmental attitude and behaviours. It is expected that the teachers will teach their students how to see and to behave toward the environment. Environmental education aims to improve environmental attitudes of students toward the environment.

1.2. Motivation of the study

In the modern age, the world seeks to consider the role of education, particularly higher education, in national development and educational progress. The paramount role of higher education in a country's development is inevitable, and universities are one of the most highly significant resources in human societies. The education sector is one of the few sectors that can support, promote, and contribute to achieving all of the 17 United Nations' Sustainable Development Goals (UN SDGs). To be effective, however, universities should be fully committed to supporting and implementing the 2030 Agenda for Sustainable Development (GUNI, 2019). The SDGs are an important vehicle for creating positive impact by embedding sustainability into university business strategies, decision-making processes and practices, and for improving their accountability to stakeholders.

The purpose of this study is to examine and determine the effective factors on environmental behaviors of university students via statistical techniques and compare the results of Turkish and Romanian students' behaviors towards the environment. Because environmental education can be considered to not have caught enough attention, the research in the present paper is trying to develop a new vision upon environment behavior through education.

The study wants to establish the differences and common elements of students' environmental behavior, as well as how environmental attitude can be acquired from family, society and universities and how it can influence the student's environmental behavior. Until now, scientific literature shows that environmental behavior can be influenced by environmental attitude. That is the reason why the study proposes to identify the cross-cultural common elements and differences between Turkey and Romania. In order to implement the 2030 Agenda, society must develop its capacity to innovate and sustain change through new generations of researchers and practitioners who can favor knowledge in co-production with several stakeholders on behalf of a sustainable future.

2. Methodology and hypotheses

2.1. Structure of the study

Literature studies measuring environmental attitude and behavior have generally used direct self-reporting methods like interviews and questionnaires. In our case we applied a questionnaire. To assess the environmental behavior of students, we used a questionnaire which was structured in the following parts: environmental attitude, environmental behavior and environmental education. The questionnaire was structured in two parts with 24 questions.

The first part has seven questions related to demographic characteristics to identify the environmental attitude of respondents: gender, mother's level of education, father's level of education, place of life, social provenience (rural or urban area) and country of origin. Even though there were 20 questions in the scale at the beginning of the explanatory factor analysis, for environmental behavior the final results are obtained from 17 questions. Two of the questions were deleted because of low factor loadings and one was deleted due to the fact that it linked to a wrong factor even if we applied a Varimax rotation.

The second part of the questionnaire is made up of 17 questions related to students' environmental behaviors, environmental care and knowledge about environment protection (Table 1). For this part of the questionnaire, we used a Likert type scale, ranging from 1 'strongly disagree' to 5 'strongly agree', and it was prepared by considering the studies of Ari and Yilmaz (2017), Miller (2011), Yilmaz et al. (2009), and Saraçlı et al. (2014).

To determine and identify students' behavior, attitude and commitment an Explanatory Factor Analysis (EFA) is applied to the data set. By independent samples *t* test, the hypotheses were tested using the SPSS statistical analyses software. The Lisrel 8.7 program was used to establish the connection and correlation between variables.

2.1. Sample and measurement tool

The participants of this study were 2038 students attending the Afyon Kocatepe University, Turkey (n=1680) and the Technical University of Cluj Napoca, Romania (n=358), to whom the questionnaire was anonymously applied. To be sure that the results would present the real situation from universities, the questionnaires were applied during the same period. The study was focused on the students' environmental behavior and their involvement in protection, care and stimulation attitude towards the environment influenced by environmental education culture (Fig. 1). Because in our study we focused especially on possible differences between the students' environmental behaviour in the two countries with different cultures and specific traditions, we selected the culture to establish a cross-cultural profile of students and their environmental behaviour.

The factors are adapted taking into consideration the new orientation of the young generation and how they are involved in environment education and for environment education; we included here the new recycling activities, volunteering, and responsible participation in protection activities.

Four factors which influence Environmental Education (EE) were taken into consideration:

- EB- Environmental Behavior (EB1, EB2, EB3, EB4, EB5 and EB6);
- S- Stimulation to involve students in different activities regarding the environment (S1, S2, S3 and S4);
- P-Protection of the environment (P1, P2, P3 and P4);
- C- Care (C1, C2 and C3).

The study investigates the environmental behavior of university students and the causal

relationships between their attitude towards the environment and environmental behavior using a Structural Equation Model (SEM) which takes into consideration the environmental importance and concerns about the medium.

Hypothesis tests are envisaged in the research model:

H₁: There is no difference between the means of Turkish and Romanian students' Environmental Behavior dimension;

H₂: There is no difference between the means of Turkish and Romanian students' Protection dimension;

H₃: There is no difference between the means of Turkish and Romanian students' Stimulation dimension;

H₄: There is no difference between the means of Turkish and Romanian students' Care dimension.

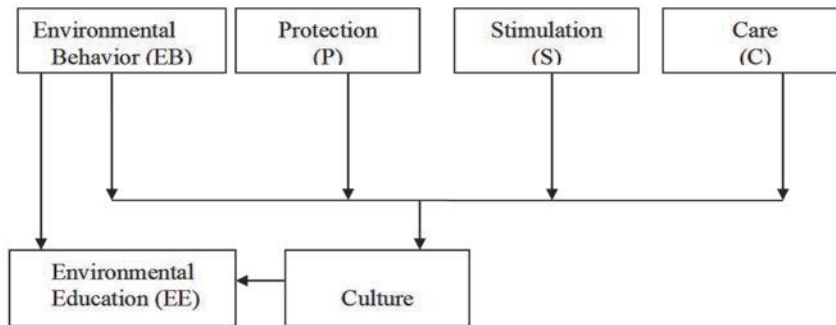


Fig. 1. Research model

Table 1. Results of Explanatory Factor Analysis for Environmental Behavior

Factors/Survey Items		Loadings	Eigen values	% of Variance	α
EB	Environmental Behavior		4.591	15.166	0.706
EB1	I will work on a voluntary basis for nature and human beings	0.719			
EB2	I will turn it off/fix it, when I see a dripping tap	0.652			
EB3	I act sensitively towards the environment in order to leave a cleaner world to newer generations	0.649			
EB4	I will use products produced from non-renewable resources like underground oil, coal, natural gas and mines in an economical manner because we will be unable to replace them with new resources	0.612			
EB5	I will be an actively involved member of nature and environment organizations	0.547			
EB6	I will check and switch off unnecessarily used lights	0.432			
P	Protection		1.171	12.333	0.668
P1	I will use the back of papers when I am studying	0.786			
P2	I will take part in environmental cleaning campaigns	0.664			
P3	I will take part in tree-planting activities	0.623			
P4	I will make non necessary consumption to make sure pollution is eliminated at its source	0.415			
S	Stimulation		2.025	13.235	0.683
S1	I will warn those in my immediate vicinity to refrain from any unnecessary consumption	0.754			
S2	I will warn those harming trees and flowers in parks and gardens	0.747			
S3	I will take action about nature polluters with the local authorities	0.653			
S4	I will fight those endangering nature	0.511			
C	Care		1.003	10.969	0.507
C1	I will show no violence and aggression towards the environment I live in and what is inside it	0.701			
C2	I will not directly or indirectly harm my environment with economic concerns in my business and private life	0.694			
C3	I will do my best to make the environment I live in more livable	0.532			

3. Results

The total Cronbach’s Alpha value of the scale which consists of 17 questions is calculated as 0.809 which is statistically one of the indicators that the reliability of the scale is high enough and the results can be taken into consideration for the target group of 2038 students. To determine the dimension of the environmental attitude and behavior scale, an Explanatory Factor Analysis (EFA) was applied.

The KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy) value is obtained as 0.869 and the p value of this statistics is 0.000 which means that the size in the sample is well enough to apply explanatory factor analysis to this data set. These factors explain 51.703% of the total variance, and the factor loadings Eigen values and Cronbach’s Alpha values of each factor are given in Table 1. After slight modifications suggested by the software (LISREL), the goodness of fit indices of the model given in Fig. 1, showed that the model fitted the data well enough, RMSEA=0.055, NFI = 0.95, NNFI = 0.95, CFI = 0.96, AIC = 860.67, SRMR=0.055, GFI = 0.96 and AGFI = 0.94. Transferring the database and using the LISREL 8,7 program, it was possible to model and establish the correlation between Environmental Behavior (EB), stimulation (S) protection (P) and care (C). Related with the results of EFA, we applied Confirmatory Factor Analysis (CFA) and the results are given in Fig. 2. The results of CFA given in Fig. 2 indicate that the relations among sub-dimensions are statistically significant and the results obtained from AFA are confirmed. Related with the results of AFA and CFA, first we tested the differences between countries according to these sub-dimensions and the mother’s education levels. Then effects of other sub dimensions on EB were tested by regression analysis and CR&T analysis. In Table 2 we presented the differences between countries and the relevant scores for the factors Environmental Behavior (EB), Stimulation (S), Protection (P) and Care (C). With this purpose we tested the hypothesis given below via independent samples *t* test and the results are given in Table 2.

For Turkish students the greatest value of 4.299 was obtained for C followed by EB. The value for environmental behavior for Turkish students of 4.140 is greater than that for Romanian students, for whom it is of 3.804. This may be due to the fact that Turkish students are educated to appreciate the importance of environment in their early childhood. The lowest value was obtained for protection (3.406) which may be due to a lack of information for Turkish students.

For the factor C, the value of 4.345 for Romanian students is greater than that for Turkish students because of the aggressive promotion towards a consumer society. As conclusion we can observe that the results show that universities have an important impact on environmental education and they have an important role which is reflected in students’ environmental behavior, and they are modeling the attitude of the new citizen with regard to the environment. The results of independent samples *t* tests related with the hypotheses are given in Table 3. We may see that the most significant difference between Turkish and Romanian students occurs for the Protection factor related with the *t* statistic.

Romanian students are more protective (P=4.074) than Turkish students, which may be a result reflecting the involvement of Romanian students in protection activities and participation in nature conservation. Also, for Stimulation, the value of 4.097 for Romanian students is greater than that for Turkish students which is 3.719. Romanian students are attracted with the help of mass-media to take care of the environment through volunteering and cleaning activities.

The values indicate that while there is a statistically significant difference between the means of environmental behavior, stimulation and protection, there is no significant difference between the means of factor care. Table 4 indicates that there is a statistically significant difference between the means of Environmental Behavior, Simulation, Protection and Care dimensions of Turkish and Romanian students. For both countries the biggest value of 15.11 was obtain for the protection of environment and the lowest value for care, which presents a negative perception in both countries for the environment.

Student’s environmental attitude according to their mothers’ education level is related with ANOVA results. To determine at which levels of mothers’ educations these dimensions differ, the Least Significant Test (LSD) is applied and the results are given in Table 5.

There is no significant difference between the Environmental Behavior (EB) means of Turkish and Romanian students and their environmental attitude whose mother's with primary education level from Turkey, and Romanian students’ mothers with high school and academic education level. There are significant differences among Turkish students whose mothers are not educated or with high school education level and the students’ environmental behavior (EB) means ($p < 0.05$).

Table 2. Environmental factors related with each country

Country	Statistics	EB	S	P	C
TURKEY (n=1680)	Mean	4.140	3.719	3.406	4.299
	S. Dev.	0.680	0.914	0.846	0.822
ROMANIA (n=358)	Mean	3.804	4.097	4.074	4.345
	S. Dev.	0.564	0.603	0.568	0.539

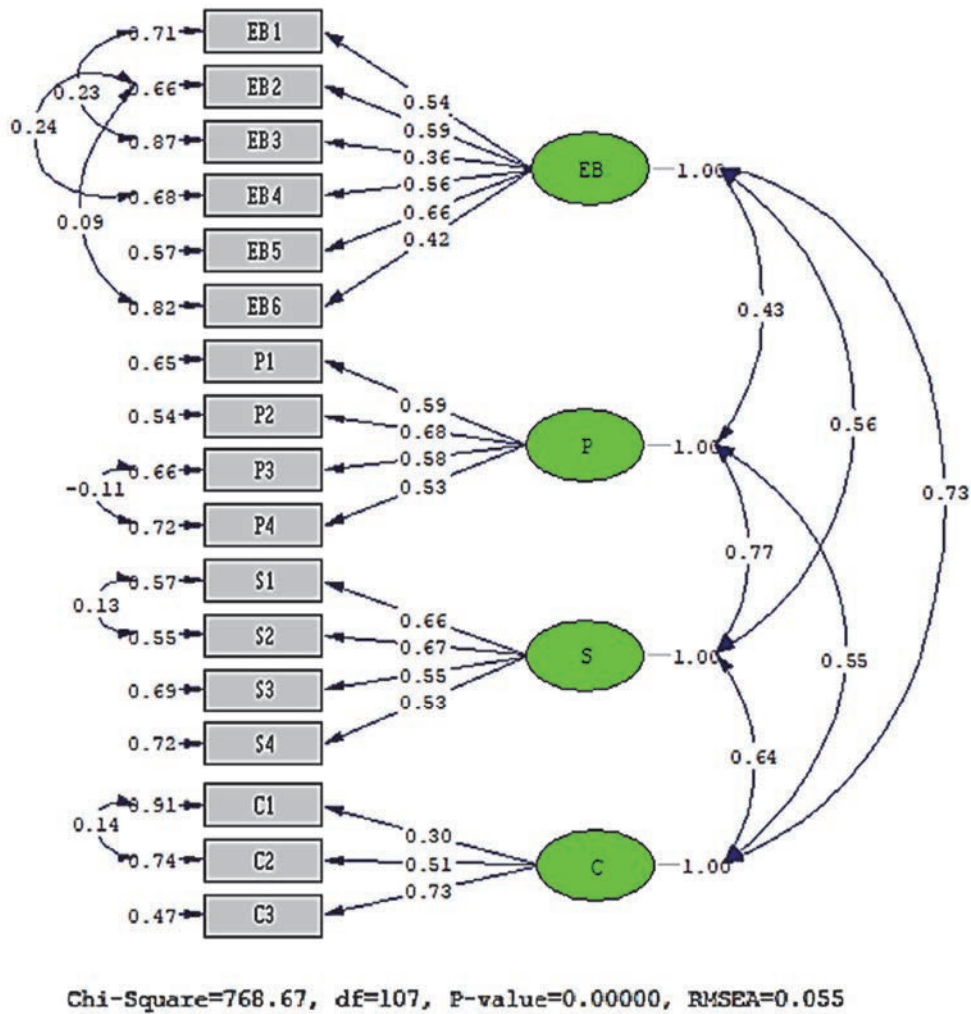


Fig. 2. Results of Confirmatory Factor Analysis

Table 3. Independent samples *t* test results of the dimensions for both countries

Variable	<i>t</i> value	Degrees of freedom	<i>p</i>
EB	8.716	2036	0.000
S	-7.478	2036	0.000
P	-14.260	2036	0.000
C	-1.013	2036	0.311

Table 4. ANOVA Results for Environmental attitude

Variable	Source	Sum of squares	df	Mean square	<i>F</i>	<i>p</i>
EB	Between Groups	17.099	3	5.700	12.759	0.000
	Within Groups	908.601	2034	0.447		
	Total	925.700	2037			
S	Between Groups	12.599	3	4,20	5.459	0.001
	Within Groups	1564.795	2034	0.769		
	Total	1577.394	2037			
P	Between Groups	45.332	3	15.111	21.856	0.000
	Within Groups	1406.264	2034	0.691		
	Total	1451.596	2037			
C	Between Groups	5.426	3	1.809	2.978	0.030
	Within Groups	1235.213	2034	0.607		
	Total	1240.639	2037			

Table 5. LSD test results using ANOVA

Variable	Mother Education Turkey	Mother Education Romania	p
EB	No Education	Primary School High School University	0.021 0.045 0.183
	Primary School	High School University	0.000 0.000
	High School	University	0.722
S	No Education	Primary School High School University	0.234 0.053 0.000
	Primary School	High School University	0.238 0.001
	High School	University	0.015
P	No Education	Primary School High School University	0.904 0.000 0.000
	Primary School	High School University	0.000 0.000
	High School	University	0.003
C	No Education	Primary School High School University	0.054 0.009 0.797
	Primary School	High School University	0.242 0.149
	High School	University	0.035

In terms of the Stimulation (S) factor, while there are no significant differences between the students whose mothers are without education or with primary and high school education in Turkey, there is a statistical difference between other mothers' education levels of the Romanian students. Even the culture is different between countries, and we can identify different perceptions in terms of education, the mother's role being an important value.

In terms of the Protection (P) factor, there are statistically significant differences between all the education levels of the students (all *p* values are lower than 0.05) except those whose mothers are without or only with primary school education level (*p*=0.904>0.05). In terms of the Care (C) factor, there is a significant difference between the Turkish and the Romanian students means according to the mothers' education levels of No education and High School (*p*=0.009<0.05) and High School and University (*p*=0.035<0.05).

Therefore, it seems for Turkey we obtained similar results to those of Turkish researchers Yilmaz et al. (2009), Ari and Yilmaz (2017), Saraçlı et al. (2014). We can admit that the mother's education is an important value which can influence the attitude and behavior of students, and that as such culture can be taken into consideration.

3.1. Correlation between environmental factors and the size of the countries

The correlations between the dimensions are given in Table 6, all correlation coefficients are found statistically significant at 95% confidence level. The values indicate that the highest correlation is between stimulation for environmental behavior and protection

of environment with the coefficients of 0.536, and the lowest correlation is between protection of environment and care with the coefficients of 0.233, all correlations are positive.

Results of the Regression analysis for both countries are given Table 7. The results highlight the specific problem of the young generation: even though the students have knowledge about the environmental problems, they get information from the media and they are aware of the importance of environmental issues, they do not like to be involved in care actions, protection and preservation of the environment because they consider that there are specialized people who know better what to do. Table 8 shows that the effect of care for Romanian students is not statistically significant. By comparison, Turkish students are more careful about the environment behavior and they take attitude in environment protection, and they are stimulated in different actions regarding the conservation and environmental protection.

The regression models for Turkey (Eq. 1) and Romania (Eq. 2) are as given below, taking into consideration the factors Stimulation (S), Protection (P) and Care (C):

$$\hat{Y}_{Turkey} = 1.979 + 0.149S + 0.131P + 0.27C \quad (1)$$

$$\hat{Y}_{Romania} = 0.915 + 0.204S + 0.539P - 0.033C \quad (2)$$

For Romanian students, the environment Protection (P) factor has a greater coefficient in comparison to Turkey because they are more interested in obtaining information and universities involve them more in different actions and volunteering activities, and students also offer their help to different social organizations or NGOs.

Table 6. Correlations between dimensions

	<i>EB</i>	<i>S</i>	<i>P</i>	<i>C</i>
<i>EB</i>	1	0.383	0.288	0.397
<i>S</i>		1	0.536	0.314
<i>P</i>			1	0.233
<i>C</i>				1

Table 7. Results of the Regression Analysis

Country	Source	Sum of Square	df	Mean Square	F	p
Turkey	Regression	210.002	3	70.001	206.378	.000
	Residual	568.476	1676	0.2339		
	Total	788.478	1679			
Romania	Regression	51.841	3	17.280	98.534	.000
	Residual	62.083	354	0.175		
	Total	113.924	357			

Table 8. Regression Coefficients of the model

Country	Statistics	Constant	<i>S</i>	<i>P</i>	<i>C</i>
TURKEY	β	1.979	0.149	0.131	0.270
	t value	22.354	7.972	6.694	14.828
	p value	0.000	0.000	0.000	0.000
ROMANIA	β	0.915	0.204	0.539	-0.033
	t value	4.409	4.546	10.834	-0.706
	p value	0.000	0.000	0.000	0.481

Romanian students witnessed dramatic episodes, true ecologically catastrophic ones (The Danube Delta, water pollution, industrial waste discharges), the floods in recent years, the intensification of the desertification phenomenon in the south of the country, tornadoes, long periods of drought, and consequently have begun to become aware of the consequences of some attitudes towards nature, as well as of the disappearance of many species of plants and animals due to human actions.

To see the interactions between variables and give supplementary information, the results of the Classification and Regression Tree (CRT) analysis are given in Fig. 3, for the Environmental Behaviors (EB) of Romanian students in a more visible way. In conclusion, environmental education shapes the students' behavior and their attitude, in helping to establish and develop responsible citizens.

The Technical University of Cluj Napoca is trying to harmonize and develop new fields and specialization like Environmental Protection or Recycling of materials and identify future jobs which are not yet developed on the market, to educate and prepare the future specialists and promoters of environmental education.

To understand the effective dimensions on the Environmental Behaviors (EB) of university students in a more visible way, the results of the Classification and Regression Tree (CRT) analysis for Turkish students is given in Fig. 4. For the Environmental Behavior (EB) of Turkish students, the most effective dimension is care attitudes for 64.2 % (n=1079). The Stimulation (S) and protection attitudes (P) of Turkish students also have significant effects for the sub

branches of the regression tree given in Fig. 4, taking into consideration the improvement.

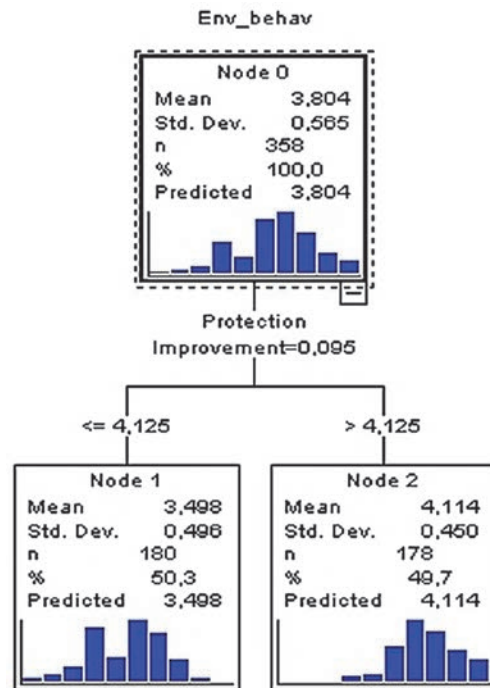


Fig. 3. Classification and Regression Tree results for Romanian students

Fig. 4 also indicates that according to the mean scores, the students whose Care (C) scores are greater than 4.167, whose Stimulation (S) scores are greater than 3.625, and Protection (P) scores are lower than 4.345, as well as students whose 'Care' scores are

greater than 4.833 have the highest Environmental Behavior scores (EB=4.459). On the other hand, the students whose 'Care' score are lower or equal to 4.167 and the Stimulation (S) scores are lower or equal to 3.625, as well as students whose 'Care' scores are greater than 3.167 have the lowest Environmental Behavior scores (EB=3.707). For Turkish students, universities can encourage and orient students in specific activities and special programs including girls as future mothers who can influence the environmental behavior through their increased environmental knowledge, leading to better practice. While for Turkish students the highest score was obtained for 'Care' and 'Environmental Behavior' and

the lowest score was obtained for 'Environment Protection', for Romanian students the research shows that they pay more attention to environmental protection than Turkish students and they are more involved in protection activities and participate actively in nature preservation. Romanian students are also more inclined towards environmental protection than Turkish students because they are involved in volunteering activities such as taking care of the environment and cleaning it. The results reflect that environmental education needs a new orientation, a new type of learning, a new learning path and education changes towards a pro-environmental behavior.

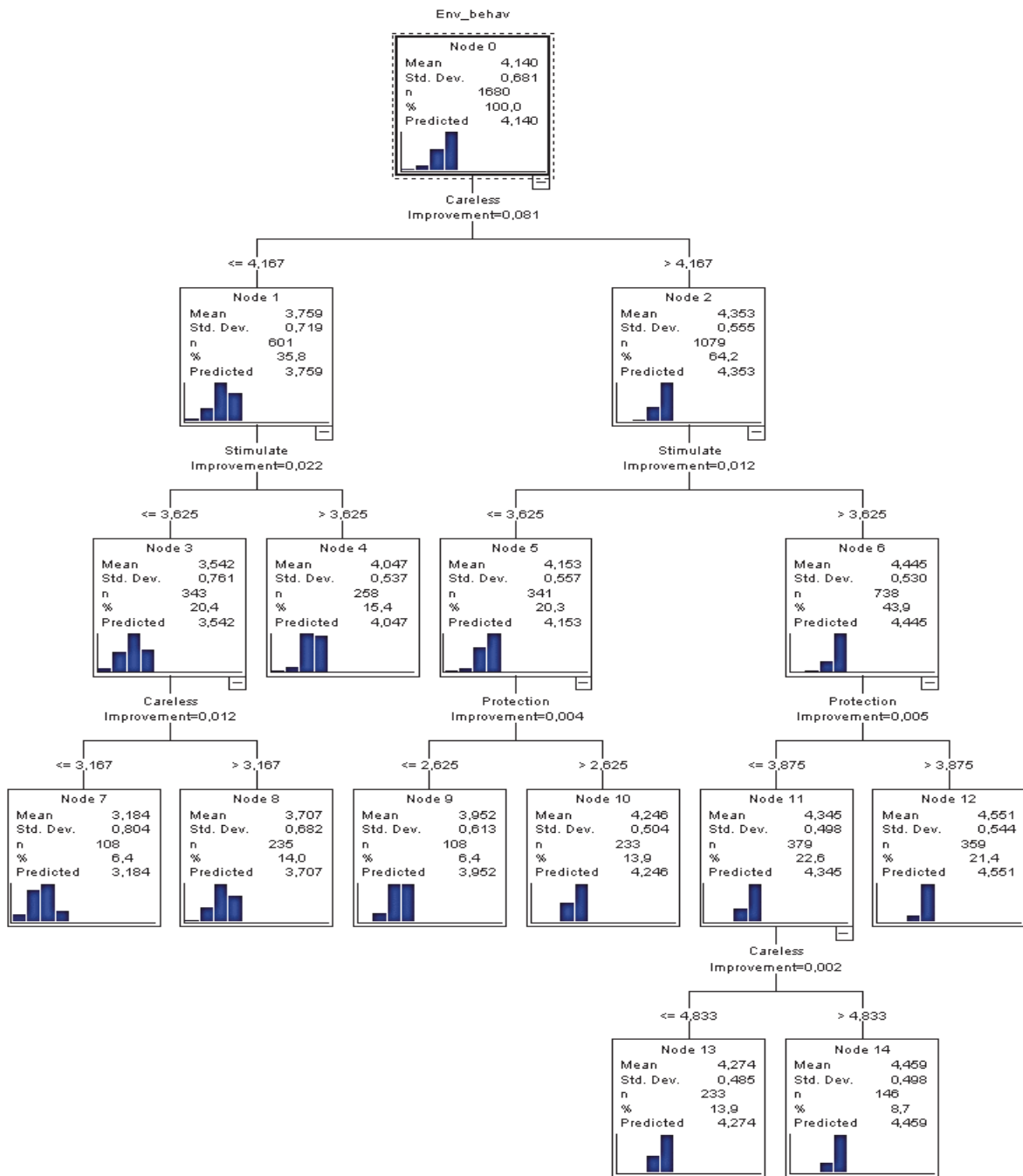


Fig. 4. CRT results for Turkish students

4. Discussions

Universities also incorporate a new pro-environmental behavior into campuses by sustaining learning about environments, eco schools, and green campuses and reducing the institutions' ecological footprint. Agenda 2030 mentions also the importance of universities in orienting and promoting sustainable development as a source of human resource development.

In this study, via some multivariate statistical techniques, environmental attitudes, environmental behavior and effective environmental protection, care and stimulation of university students on pro-environmental behavior are examined. In relation with the cultural, educational, and environmental factors, some differences between the students in Romania and Turkey were found.

The results of the study indicate that while the environmental behavior of Turkish students are better than the Romanian students', environmental protection, stimulation and care attitudes of Romanian students are better than those of Turkish students. The results of the regression analysis also indicate that environmental care attitudes of Romanian students have no significant effect on their environmental behavior. If we analyze the results, we can identify the needs of environmental education in both countries regarding the environmental behavior and how environmental attitude can influence the students' behavior.

From all four factors, it is for the care factor that both countries obtain the greatest score and there is no difference between the two countries. That may be so due to the fact that the young generation is informed about the danger of global warming, the pollution of the earth, the sea, and the waste of resources and it may be the indicator of the fact that the young generation is looking to protect and take care of the environment for a green life style and green products.

Environmental attitude is influenced in both countries by the mother's culture but it is not influenced by her education level, so it is important to encourage female education as a factor that influences environmental attitude.

Therefore, because in our case the 'Care' factor score must be improved by using the pillars of the Agenda 2030 (people, plant, peace, partnership and prosperity) for students from both universities, universities can be the engine for future sustainable environmental development by:

a) Adapting attitudes and behavior to the environment. Universities can involve students in nature-related activities and increase knowledge, as well as broaden their scientific horizon. Professors play a decisive role in organizing activities, either tourism itineraries or locally, and they must constantly express their concern about the formation of habits regarding the preservation and protection of the quality of the environment, by planting trees, cleaning

waters, reusing and collecting recyclable materials, using bicycles instead of driving cars etc. Universities need to educate tomorrow's adults in the sense of preserving the natural environment in which they live to give them the opportunity to personally contribute to the planting and care for trees, green areas, flowers, and the place where they live through practical plant protection, actions constituting the main regeneration factor of the atmosphere.

b) Promoting responsible behavior through eco-education. The green aspect is relevant in environmental education; it is a means of encouraging attitudes and responsible behaviors towards the environment. The new wave of environmental information and rapid communication has demonstrated the need for a transformative ecological education adapted to the new society of the 21st Century. The unexpected challenges we face, such as pollution, natural disasters, industrial gas emissions, road congestions, require involvement and ecological action based on action by all of us. The green universities should have an environmental mission towards the environment. Ecological education in today's society must be designed and developed as human rights education, especially regarding the right to a clean, undisturbed and well-preserved environment, health, life and peace, and building a green society. In this context, environmental education could become even more effective as it will be connected with the wide sphere of moral and aesthetic education - without losing its identity.

c) Assessing and improving the relationship between environmental concerns and recycling behavior using intercultural data. Improving environmental concerns through the development of the 3R cycle has led to the harmonization with international standards and the adoption of measures to protect and preserve the environment. Implementing the same rules and recycling measures through their international character has allowed the dissemination of good practice and information needed to prevent and conserve common and cross-border areas.

d) Controlling and modeling the results such as social participation. As we know, citizens in several developed European countries have highly developed attitudes towards the environment, but the inclination to act and to solve environmental problems, to be active in environmental organizations, is very low. The rift between the rich ecological awareness of many citizens and the lack of involvement in practical environmental protection activities can be overcome by changing the ratio of the share of knowledge to that of environmental activities in favor of the latter, and by prioritizing the specific methods of moral and civic education through the personal example of educators, eco ethic debate, case analysis, moral conversation, exercise, teamwork, positive or negative moral sanction, etc.

e) Individual environmental behavior and concern. Some human actions can start from each

individual work place, continuing with living habitat and the activities around communities such as: deforestation, destruction of vegetation, turning tourist trails, stopping in huge garbage cans, parking cars in green areas, infecting water by washing cars with detergents, leading to environmental degradation, which directly affect man and his health.

5. Conclusions

A perspective on current trends and future options for universities is encouraged by the guidelines of Agenda 2030, which encourages them to change the significant infusion of universities and their focus on sustainable development and environmental protection issues and fulfill the role of education on the issues of sustainable development and environmental protection. In addition, higher education plays a central role in delivering a number of the other SDGs and disseminates the example of good practice obtained from research activities. However, key actions are needed to start implementing the SDGs in and through higher education institutions through enhanced dialogue with students, providing them with the necessary skills, tools and abilities.

Green growth would benefit everyone and represents a guaranteed way for a better future for the next generations and the role of universities as educators is to achieve the goals of the Agenda 2030, for sustainable development:

- to prepare and encourage students with skills that they need to efficiently manage the resources of the earth and to take responsibility for maintaining the quality of the environment;
- to facilitate information accessibility and dissemination and foster exchange of experience among universities from different countries;
- educating for sustainability environment development based on the different types of actions changes of ideas and information about environment protection, conservation and sustainability;
- students learn about environmental phenomena and problems, about the consequences of environmental actions and how to get involved in preventing environmental problems and creating solutions.

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