

Determining the Ecological Citizenship Levels of Tourism Students: The Case of Eskişehir, Turkey

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ABSTRACT

We live in an era dominated by major environmental issues, for which countries try to bring solutions considering the philosophy of sustainability. As a concept concerning all humanity, ecological citizenship is regarded as an action to be taken to solve these problems. It is crucial for tourism students, who are prospective human resources for tourism industry, to have environmental awareness and act accordingly. This study aims to determine the ecological citizenship levels of tourism students, and their ecological citizenship level is analysed in terms of various factors. This study was designed with a correlational survey model, one of the quantitative research methods. The study group includes tourism students from Anadolu University and Eskişehir Osmangazi University in Eskişehir, enrolled in the 2022-2023 academic year. An “Ecological Citizenship Scale” was utilised in order to gathering data. The results of this study showed that tourism students had medium-level ecologic citizenship awareness. When considered in terms of variables/parameters, differences were found among all variables and dimensions. Finally, the students stated that the first three significant factors that had an influence on their ecological citizenship levels were family, education, and social media.

KEYWORDS

Sustainability, Ecological Citizenship, Ecological Awareness, Tourism Students.

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1. Introduction

It is well known that current environmental problems pose a serious threat to the whole world. The climate crisis will not only create harmful impacts on ecosystems and people but also lead to substantial economic losses. For example, unless measures are taken to prevent climate-related natural disasters, it is estimated that by 2100, the annual cost of damage caused by floods in Europe will increase to 112 billion Euros (Baydemir, 2021). Due to globalization, environmental problems are no longer just local problems. People's perspectives on environmental policies and issues have changed, and the search for solutions has gone beyond national borders (Valencia Saiz, 2005). Scientists argue that environmental problems are generally related to human behavior, that attitudes, values, ethical rules, and perceptions lie at their root, and that they can be solved by changing individuals' perceptions of the environment and harmful behaviors towards nature as well as physical efforts (Vlek & Steg, 2007; Buko, 2009; Steg & Vlek, 2009; Han, 2021). In this context, there is a need for a new paradigm, encouraging active participation that focuses on solving environmental problems (Dobson, 2003; Buko, 2009; Jagers, 2009; Travaline & Hunold, 2010; Gül, 2013; Goldman et al., 2020; Bourban, 2023; Houmam & Aomar, 2023). One suggestion is "ecological citizenship" (Jagers, 2009; Zeng et al., 2016; Ünal, 2019; Goldman et al., 2020; Bourban, 2023; Houmam & Aomar, 2023). This is the idea of creating a new paradigm of citizenship that understands and adopts sustainable development and is sensitive to the environment (Dobson, 2007; D'Arco & Marino, 2022). Changes in the behavior of individuals are assumed to be a prerequisite for sustainable development (Dobson, 2007). Since the importance of protected natural areas, access to clean water, and organic agriculture to human life have been proven by scientific studies, individuals have started to become ecological citizens voluntarily to protect their own and their family's health (Bostancı & Yıldırım, 2019).

Ecological citizenship reduces individuals' environmental impact and legitimizes a sustainable lifestyle (Seyfang, 2006; Wolf et al., 2009). An ecological citizen acts with environmental awareness in daily activities, advocates for the fair use of ecological areas across international borders, and respects nature (Smith, 1998; Kennedy, 2011; Melo-Escrihuella, 2015). Bookchin (1996) posits that the expression of an individual as an ecological citizen is related to their concern for other people and the consequent adoption of a sustainable life. Based on environmental principles, it advocates the harmony of human behavior and the foundations of ecology (Karatekin & Uysal, 2018). According to Wolf et al. (2009), "ecological citizenship requires at least an acknowledgment of a citizen's relative environmental impact and, at best, efforts to reduce it" (p. 505). Therefore, ecological citizens act from a sustainable perspective to protect the environment now and for future generations, minimizing their environmental footprint (Nash & Lewis, 2006; Seyfang, 2006; Jagers et al., 2014; Granados-Sanchez, 2023).

According to Bourban (2023), ecological citizenship primarily involves changes in behavior and underlying attitudes rather than participation in political decision-making, setting the conditions for social cooperation. This is because sustainable changes in behavior do not result from social, economic, and political measures introduced by local or national governments but from individuals' voluntary changes in underlying attitudes. Policies that promote sustainability can modify behavior, but these changes often last no longer than the policies themselves, failing to alter people's underlying mindsets. However, changing individuals' attitudes can lead to more secure and longer-lasting modifications to behavior. One of the tools that can be used to change attitudes is education. In a study on how individuals, institutions, and organizations can change their behaviors for sustainable development, Dobson (2007) revealed that ecological behaviors can change, but attitudes do not always, with examples given of various financial incentives and barriers. The study found that citizenship education at the secondary school level can positively affect attitudes toward environmental/ecological citizenship. Tarrant and Lyons (2012) examined the impact of short-term educational travel programs on the environmental citizenship of students participating in international education programs within the framework of sustainable development in Australia and New Zealand, also identifying the effects of differences in crucial student characteristics, such as international education experience, gender, and program purpose, on citizenship. McMillan, Wright and Karen (2004) investigated the effects of taking a university-level environmental course on people's ecological values and concluded that the participants' environmental values deepened after the implementation.

While studies on how to best integrate sustainability into higher education can be found in the existing literature (Deale & Barber, 2012; Airey et al., 2015; Liasidou et al., 2019), it is essential to gather specific

information about ecological citizenship levels of tourism students in terms of sustainable tourism. Tourism, one of the largest industries in the world, causes significant environmental problems within the scope of sustainability from the goods and services it produces (Briassoulis, 2000; Gössling, 2002; Tandoğan & Genç, 2019). Furthermore, Lenzen et al. (2018) found that tourism's global carbon footprint increased from 3.9 to 4.5 GtCO₂ between 2009 and 2013, accounting for approximately 8% of global greenhouse gas emissions. Moreover, it is known that the tourism industry negatively impacts the physical, ecological, and social environment when people do not act in an environmentally responsible way. Some of the tourism industry, which constantly interacts with the environment, has acknowledged that it needs to act in harmony with nature and be more sensitive to the ecosystem. Consequently, public and private organizations have developed policies and implemented regulations. For example, the "Green Star" project and the "Sustainable Tourism Program" have been introduced in Turkey.

When the literature on determining ecological citizenship levels in Turkey was examined, it was found that in addition to conceptual studies (Bostancı & Yıldırım, 2019; Okudan Dernek & Tırış, 2020), the majority were conducted with teachers (Yurttaş et al., 2021) and prospective teachers (Uysal, 2018; Ünal, 2019; Yılmaz et al., 2019; Koca, 2021; Altın, 2022; Durgun, 2022). In these papers, ecological citizenship levels were examined according to various parameters, such as gender, educational status of parents, membership in non-governmental organizations, participation in social projects, and membership in student clubs. Research also compares the ecological citizenship levels of pre-service teachers from different disciplines (Erdilmen, 2012; Karatekin et al., 2019).

When the literature on tourism and environmental awareness is examined, many studies can be found on ecological awareness (Aksu et al., 2012; Yılmaz et al., 2016), environmental attitudes and behaviors (Aşık, 2018), perceptions and attitudes towards environmentally friendly products (Yıldız & Kılıç, 2016), and ecological footprint awareness (Mercan, 2016; Temizkan & Ceyhanlı, 2020). However, there are no papers on the ecological citizenship levels of tourism students. Whereas, students of tourism who receive environmental education can play an active role in solving environmental problems and demonstrate a sustainable approach by accepting the right to life of all living things. One way to gather information on this issue is to obtain student feedback (Colomer et al., 2013). In this way, the present study aims to determine the ecological citizenship levels of tourism students. The following questions were developed for investigation:

- What are the ecological citizenship levels of tourism students?
- Do students' ecological citizenship levels differ according to gender, university, class, courses taken on the environment and sustainability, membership of non-governmental organizations, level of interest in environmental issues, environmental information sources, frequency of social media sharing about the environment, grade point average, and self-assessment parameters related to ecological citizenship?

According to the students, what factors (education, family, friends, culture, awareness, social media, recycling, etc.) affect levels of ecological citizenship?

The study's results will be important for raising students' awareness, determining the educational needs in this field, and including related courses in the tourism curriculum. They will also contribute to filling the existing gap in the literature.

2. Literature Review

The concept of ecological citizenship emerged to regulate the relationship between nature and human beings in terms of citizenship. It has been discussed globally since the early 1980s (Smith, 1998; Dobson, 2003; Dobson, 2007; Zeng et al., 2016; Karatekin et al., 2019; Goldman et al., 2020; Bourban, 2023; Houmam & Aomar, 2023). Ecological citizenship, also referred to as "green citizenship," "environment-oriented citizenship," "sustainable citizenship," "environmentally friendly citizenship," and "global and proactive citizenship" in the literature (Bell, 2005; Horton, 2006; Latta & Garside, 2005; Ünal, 2019; Güllüpinar, 2020), involves adopting environment-centered attitudes and behaviors in all private and public spaces beyond all national borders (Dobson, 2003). Horton (2006) states that ecological citizens have cross-border rights and responsibilities, drawing attention to the global effects of individual actions (Horton, 2006, as cited in

Karatekin, 2019). Jagers (2009) says that ecological citizens are “eager to make a move” and willing to make individual sacrifices for the sake of the environment. Many authors have embraced ecological citizenship as being key in the reconceptualization of both human-nature and inter-human relations (Jagers, Martinsson & Matti, 2014). In addition, the concept itself, influencing national guidelines and the discourse of non-governmental organizations and the business world, is linked to the vision of environmentally sound development (Houmam & Aomar, 2023).

Ecological citizenship plays a vital role in minimizing the effects of global warming (Wolf et al., 2009). It emphasizes responsibility for the common good and ethics of care towards nature and all living beings (Spannring, 2019). Therefore, it involves a set of ethical and political rights and responsibilities between people and nature, as well as between individuals (Kelly & Abel, 2012). Researchers working on ecological citizenship emphasize the necessity of blurring the lines between the public and private spheres, considering individual habits such as choosing environmentally friendly products and recycling as civic duties (Kennedy, 2011). Ecological citizenship has four dimensions: responsibility, rights and justice, sustainability, and participation (Light, 2006; Karatekin & Uysal, 2018; Feriandi et al., 2022).

Responsibility: Taking responsibility for one's actions or the consequences of any event that falls within one's jurisdiction is called responsibility (TDK, 2023). The primary responsibility of ecological citizenship is to ensure that ecological footprints are sustainable (Dobson, 2003; Seyfang, 2005; Nash & Lewis, 2006). Responsible ecological citizens adopt the protection and sustainability of biodiversity and ecosystems as a fundamental principle (Agyeman & Evans, 2005): Using water resources carefully, favoring environmentally friendly means of transportation, consuming less, giving importance to recycling, and advocating environmental equality (Latta, 2007; Karatekin & Uysal, 2018). As such, ecological citizenship includes many responsibilities (Bookchin, 1996; Dobson, 2003; Uysal, 2018).

Rights and justice: Rights are attributes such as adherence to duty or obedience to lawful authority that constitute the ideal of moral propriety or merit moral approval. Conversely, justice is defined as the quality of being just, impartial, or fair (Merriam-Webster, 2024). An ecological citizen whose most fundamental virtue is justice is someone who believes in and protects the rights of all living things in nature (Dobson, 2003). An individual with a developed sense of justice does not think that environmental problems belong to a specific region or a country but perceives these problems as the problems of all humanity and is concerned about this (MacGregor, 2014). These problems include carbon dioxide emissions, drought, fossil fuel consumption, and genetically modified foods. The ecological citizen adopts rights and justice, observes the truth, and acts in a principled way (Kılıç & Tok, 2014). In addition to the sense of justice that ecological citizens should have, they have also developed several moral characteristics, including love, cleanliness, and responsibility for those in need of defense.

Sustainability: Ecological citizens are defined as people who can find solutions to transnational environmental problems within the framework of sustainability and implement ecological action plans (Skill, 2012). The concept of ecological citizenship is more comprehensive than the traditional understanding of citizenship (Jagers, 2009; Jagers et al., 2014; Asilsoy & Oktay, 2018; Uysal, 2018). In this context, ecological citizenship — adopting a certain idea about nature and the place of humans within it (Zeng et al., 2016) — can be seen as a potential source of motivation for a sustainable life (Seyfang, 2006). Using it as a concept referring to conscious consumption, Seyfang (2006) investigated the sustainable consumption habits of members of a local food community in the UK whose common goal was to consume organic food in the context of ecological citizenship. The results of the study showed that ecological citizenship behaviors reduced ecological footprints and promoted localization and sustainability of consumption of local, organically grown food. These communities help strengthen the concept of ecological citizenship, with environmental impacts that transcend their geographical boundaries. Seyfang describes these consumers as “good ecological citizens” (2006, p. 394) because ecological citizenship is a driving force for sustainable consumption (Dobson, 2003; Seyfang, 2006). Many things can be achieved through the sustainability dimension of ecological citizenship, such as preventing the disappearance of streets, sidewalks, and pedestrian paths from urban life by greening them, reducing the destruction of nature, and ensuring modern continuity (Mead, 2013).

Participation: Participation is the ability of individuals to play an active role in environmental management processes and shape their own lives. In addition to their environmental responsibilities, ecological

citizens actively research the root causes of environmental problems and find solutions (Hadjichambis & Reis, 2020). In other words, the participation dimension of ecological citizenship refers to awareness of the environment as well as active participation in actions to protect it and improve the state of nature (Mengsi & Zhengke, 2018). Based on the necessity of public participation in environmental work to prevent environmental degradation, one focal point of contemporary environmental policy and political theory is the need for comprehensive changes in individual lifestyles (Jager & Matti, 2010). This attitude towards nature reveals a universal form of belonging and an effort to create an environmentally oriented society (Gorz, 1993). In a study conducted with people who participated in various environmental projects, who the authors defined as ecological citizens, Kaplan Mintz et al. (2023) investigated the motivation behind their participation. It was determined that the main impetus for participants' involvement was to protect nature. Ananthraman (2014) examined the ecological citizenship levels of individuals defined as working-class urbanites who were members of a non-governmental organization on environmental protection through sustainable waste management practices. The results of this study, conducted through semi-structured interviews, showed that those from the relatively privileged middle-class volunteer for environment-centered work.

3. Methodology

This study utilizes a quantitative research method. The relational survey model was employed to explain the situation between two or more parameters and determine the degree of these situations (Karasar, 2012). In this section; sample group, questionnaire procedures, data collection tool and analyses were conducted.

3.1 Sample Group

Eskişehir is a university city that is very interested in the sustainability of tourism. Both universities based there, Anadolu University and Eskişehir Osmangazi University, offer tourism programs. In this study, convenience sampling was used. The research data were collected from tourism students enrolled in the 2022-2023 academic year at associate and undergraduate levels at both Eskişehir universities. According to the data obtained from the registration offices of these universities, there were 2267 students enrolled in this academic year (Anadolu University Eskişehir Vocational School/297, Anadolu University Faculty of Tourism/928 and Eskişehir Osmangazi University/1042). Data were collected face-to-face between March and May 2023. Of the 584 questionnaires collected, 572 were found suitable for data analysis. The other 12 questionnaire forms were excluded from the analysis due to reasons such as extra or missing markings.

3.2 Questionnaire Procedures

Questionnaires were used to collect data, which was measured using the "ecological citizenship scale." Necessary permissions were obtained for this. The ethics committee approval required to conduct the survey study was obtained from the Anadolu University Social and Human Sciences Research and Publication Ethics Board under the decision numbered 442221. The protocol number was given on November 22nd, 2022.

Initially, frequency and percentage analyses were conducted for the profile data of the participants. These were analyzed using package programs (SPSS 22 and AMOS 23). Based on the fit indices (Bentler, 1980; Bentler & Bonett, 1980; Browne & Cudeck, 1992; Baumgartner & Homburg, 1996; Lit-ze & Bentler, 1999; Marsh et al., 2006), confirmatory factor analysis (CFA) was conducted to help assess whether the relevant factors had a valid structure. Thus, it was possible to verify the validity of the sub-dimensions. To determine whether participants' ecological citizenship levels differed according to the parameters, t-test, one-way ANOVA, and post-hoc tests, including Tukey's test, the Gabriel test, the Games-Howell test, and Hochberg's GT, were used to analyze the differences (Field, 2013).

Five categories were determined for the ecological citizenship levels of tourism students (Uysal, 2018):

- Between 1 and 1.80..... Almost None (Very Low)
- Between 1.81 and 2.60..... Rarely (Low)

- Between 2.61 and 3.40..... Sometimes (Occasionally)
- Between 3.41 and 4.20..... Usually (High)
- Between 4.21 and 5.00..... Always (Very High)

In addition, an open-ended question was asked to determine factors such as education, family, friends, culture, awareness, social media, and recycling that student thought were effective on their ecological citizenship levels. The answers were analyzed with the help of word cloud analysis using the Word Art program.

3.3 The Data Collection Tool

The “ecological citizenship scale” developed by Karatekin and Uysal (2018) was used to collect data to determine students’ ecological citizenship levels. The scale comprises 24 statements with four dimensions: participation, sustainability, responsibility, and rights and justice. The answers were scored on a five-point Likert scale: 1 - almost never, 2 - rarely, 3 - sometimes, 4 - usually, and 5 - always.

4. Results

4.1 Participant Profile

The findings regarding the profiles of the participants are shown in Table 1.

Table 1. Participant Profiles

Parameters		n	%
Gender	Female	315	55.10
	Male	257	44.90
Faculty/Vocational High School	Anadolu University, Faculty of Tourism	245	42.80
	Eskişehir Osmangazi University, Faculty of Tourism	164	28.70
	Anadolu University, Eskişehir Vocational School	163	28.50
Class	First Year	226	39.50
	Second Year	133	23.30
	Third Year	93	16.30
	Fourth Year	120	21.00
Taking Classes on the Environment	Yes	208	36.40
	No	364	63.60
Sources of Information Regarding Environmental Issues	Online newspapers and magazines	61	10.70
	Social media	463	80.90
	Printed newspapers-magazines	6	1.00
	Non-governmental organizations on the environment	8	1.40
	Conferences and Seminars	14	2.40
	Classes	20	3.50
Level of Interest in Environmental Issues and Matters	None	13	2.30
	Very little	27	4.70
	A little	144	25.20
	Sufficient	354	61.90
	Very much	34	5.90

NGO Membership	Yes	60	10.50
	No	512	89.50
Grade Point Average	0-2.50	132	23.10
	2.51-3.00	261	45.60
	3.01-3.50	140	24.50
	3.51-4.00	39	6.80
Frequency of Social Media Posts on Environmental Issues	Never	165	28.80
	Rarely	194	33.90
	Sometimes	197	34.40
	Very often	16	2.80
Level of Ecological Citizenship (self-scored)	Poor	49	8.60
	Intermediate	424	74.10
	High	99	17.30

Source: Own Elaboration

It was determined that 55.10% of the participants were female, the majority were from Anadolu University Faculty of Tourism (42.80%), and most were first-year students (39.50%). More than half of the students had not taken any course on the environment (63.60%). Students stated that their primary source of information on environmental issues was social media (80.60%) and that they were “sufficiently” interested in environmental issues and problems. When their social media posts on environmental issues were analyzed, it was found that 28.80% of the students did not share anything on social media. In contrast, only 2.80% of the students frequently shared content on environmental issues. Most students (89.50%) were not members of any non-governmental organization focusing on environmental issues. In terms of participants’ grade point averages, it was found that approximately half of them (45.60%) had a grade point average between 2.51 and 3.00. 74.10% of the students perceived themselves as “ecological citizens” at a medium level.

4.2 Confirmatory Factor Analysis

In order to shed light for the fit indices of the scale, confirmatory factor analysis (CFA) was conducted. The validity of the relevant factors was reviewed based on the fit indices obtained. The ratio of the chi-square value to the degrees of freedom is less than 5 ($\chi^2/df=3.93$), indicating that the model is accurate and shows an acceptable fit. RMSEA (0.072), SMRS (0.075), NNFI (0.992) and CFI (0.955) were found to be at acceptable values for perfect fit. Of these fit indices, NFI (0.992), IFI (0.956), RFI (0.966), GFI (0.969), and AGFI (0.940) values are good indicators for the model.

4.3 Ecological Citizenship Levels of Tourism Students

The average of the total scores (ECL) of participants from the ecological citizenship scale (Table 2) shows that, as a group, tourism students have a moderate level of ecological citizenship. However, these levels vary between dimensions. They have a low level of participation, a high level of rights and justice, a low level of responsibility, and a medium level of sustainability.

Table 2. Ecological Citizenship Levels of Tourism Students

	Dimensions of Ecological Citizenship									
	Participation		Justice and Equity		Responsibility		Sustainability		ECL Total	
	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s
Tourism Students	2.23	0.842	3.65	0.849	3.51	0.936	2.95	0.834	2.92	0.865

Source: Own Elaboration

4.4 Ecological Citizenship Levels of Tourism Students in Terms of Various Parameters

In this section, the results of the analysis on whether the ecological citizenship levels of tourism students differ according to gender, university, class, taking environment/sustainability courses, membership of non-governmental organizations, environmental information sources, level of interest in environmental issues, frequency of social media sharing about the environment, grade point average and self-evaluation of ecological citizenship are given.

The relationship between the ecological citizenship levels of tourism students and gender was examined (Appendix 1), and no difference was found in the participation dimension 0,267 ($p>0,05$). However, the ecological citizenship levels of female students were higher in the rights and justice 0,000 ($p<0,05$), responsibility 0,001 ($p<0,05$), and sustainability dimensions 0,003 ($p<0,05$).

When it was analyzed whether the participants' levels differed according to their university/faculty/school (Appendix 2), there were differences between the dimensions of participation, responsibility, and sustainability. It was determined that the ecological citizenship levels of Eskişehir Osmangazi University Faculty of Tourism students were higher than others in the dimensions of participation ($F=17.68$; $p<0.05$), responsibility ($F=3.13$; $p<0.05$) and sustainability ($F=3.18$; $p<0.05$). No difference was found in the rights and justice dimension ($F=0.082$; $p>0.05$).

Examining the connection between a student's grade and their ecological citizenship level (Appendix 3), differences were found between the groups in the dimensions of participation and sustainability. It was shown that the participation level of fourth-grade students ($F=9.45$; $p<0.05$) was significantly higher than that of first and second-grade students. In the sustainability dimension, it was indicated that the ecological citizenship levels of the fourth-grade students were significantly higher than the first-grade students ($F=4.02$; $p<0.05$). Conversely, no differences were found in the dimensions of rights and justice and responsibility.

When the relationship between taking courses on environmental issues at the university and the level of ecological citizenship was examined (Appendix 4), it was observed that the levels of the students who had taken environmental courses were significantly higher in the dimensions of participation 0,000 ($p<0,05$) and sustainability 0,004 ($p<0,05$) but there was no difference in the responsibility and rights and justice dimensions.

The correlation between information sources of the students on environmental issues and their ecological citizenship levels (Appendix 5) was analyzed, and differences were found between the groups in the participation dimension ($F=4.43$; $p<0.05$). It was discerned that the levels of students whose primary source of information for environmental issues was the internet, newspapers, and magazines were higher than those whose main source was social media. However, no significant difference was found in the dimensions of rights and justice and sustainability.

When it was considered whether there was a link between the level of interest in environmental issues and ecological citizenship levels (Appendix 6), significant differences were found in all dimensions between the groups ($F=15.57$; $p<0.05$, $F=30.63$; $p<0.05$, $F=13.32$; $p<0.05$, $F=14.74$; $p<0.05$, respectively). It was determined that students with more interest in environmental issues also had higher levels of ecological citizenship.

Regarding whether there was a difference between being a member of a non-governmental organization related to the environment and ecological citizenship levels (Appendix 7), it was found that there was a significant difference in the dimensions of participation 0.000 ($p<0.05$) and rights and justice 0.009 ($p<0.05$). Accordingly, it can be concluded that the levels of students who are members of non-govern-

rameters. According to the results of this analysis, the ecological citizenship levels of participants were at a medium level. More specifically, levels were found to be high in the dimensions of rights and justice and responsibility, medium in the dimension of sustainability, and low in the participation dimension. Based on these findings, it can be concluded that tourism students believe in and protect the rights of all living things in nature. However, it is noteworthy that despite these beliefs, their participation in environmental activities is low. Koca (2021) suggested that student teachers in science are the most conscious about rights and justice and responsibility. On the other hand, Altın (2022) found that pre-service preschool teachers scored more highly in the rights and justice dimension and lower in the participation dimension, similar to the present study's findings. Based on these results, through raising awareness about ecological citizenship, students could be encouraged to participate in projects on this subject.

It was found that female students' ecological citizenship levels were higher than those of males in the dimensions of responsibility, sustainability, and rights and justice. Considering studies on the environment, there are some indicating that female students generally have more environmental awareness. For example, Garcia and Luansing (2016) found that females had higher levels than males in their study on graduate students. Panth, Verma, and Gupta (2015) investigated the environmental awareness levels of undergraduate students and found that female students were more sensitive to the environment. It can be said that women are more environmentally aware and responsible, have a more developed sense of justice, and are active participants in environmental protests. This could be explained by the fact that women are more sensitive and have a more developed sense of compassion and responsibility (Brizendine, 2012).

The results showed that Eskişehir Osmangazi University Faculty of Tourism students' ecological citizenship levels were higher than their peers at Anadolu University in participation, responsibility, and sustainability. This suggests that courses such as environmental reading, non-governmental organizations, tourism and environment, tourism and sustainability, and environmental research in tourism are not limited to taught activities but are also adopted outside the classroom by students at Eskişehir Osmangazi University.

Another important result is that the ecological citizenship levels of tourism students differ at the class level. Similar results were found in the literature (Demirer & Şaşmaz Ören, 2020; Koca, 2021; Altın, 2022). It is indicated that as the student's grade level increases and the number of courses and practices related to the environment they have experienced increases, they become more conscious about the environment. The results based on grade point averages only differentiate students' ecological citizenship levels in the dimension of rights and justice. The results of this study support the findings of Kaplowitz and Levine (2005) and Timur and Yılmaz (2011) regarding environmental knowledge levels.

In the participation and sustainability dimensions, the ecological citizenship levels of students who took environmental courses were higher than those who did not. Uzel et al. (2018) and Yılmaz et al. (2019) also found similar results. From this, it can be concluded that university environmental education increases students' environmental awareness, directs them to actively participate in environmental actions, and changes their unsustainable consumption habits.

Significant relationships were found between students' interest in environmental issues and every dimension of the ecological citizenship scale (participation, rights and justice, sustainability, and responsibility). Students with a higher interest in environmental issues also have higher levels of ecological citizenship. Durgun's (2022) findings on parallel increases in the level of knowledge about environmental issues and ecological citizenship level support the results of this study. Except for the participation dimension, no significant differences were found regarding sources of information on environmental issues. In the participation dimension, it was found that students obtained more information about environmental issues from social media. Considering this, as Uysal (2018) stated, schools have become the most effective places for environmental education as they are a source that provides official information on environmental issues. In addition, Kennedy (2011) concluded that the focus of ecological citizenship is to understand the potential for participation. It can be said that students have a high level of awareness of the environment, but they do not exhibit the same enthusiasm in terms of taking action.

When the results of the analysis in the social media sharing parameter were analyzed, it was found that the ecological citizenship levels of students who frequently shared environmental issues were high-

er than the others in the dimensions of rights and justice and sustainability. The levels of students who sometimes shared environmental content were higher in the dimensions of participation and responsibility than those who never shared environmental content. In a conceptual study by Rokka and Moisander (2009), it was argued that online sites play an important role in paving the way for new forms of cultural production, the dissemination of environmental knowledge, and environmental dialogue in which certain forms of ecological citizenship and consumer culture are created and sustained.

The ecological citizenship levels of students who are members of NGOs focusing on environmental issues were higher in the dimensions of participation and rights and justice. Studies in the literature (Koç & Karatekin, 2013; Karatekin et al., 2019; Koca, 2021) support these findings. It can be argued that the cooperation of the state and all stakeholders — such as non-governmental organizations, local governments, and local communities — plays a crucial role in strengthening the concept of ecological citizenship. Another finding obtained by the present study was that students who reported higher levels of ecological citizenship actually had higher levels of ecological citizenship. Jagers et al. (2014) stated that individuals who reflect the attitudes of ecological citizenship have higher sustainable living behaviors.

The participants indicated that family, education, and social media affected their ecological citizenship levels. This result is similar to the findings of Uysal (2018). Therefore, it can be concluded that environmental education starts in the family and is supported by education. In this context, course curricula should be planned with more focus on ecological issues. Awareness could also be raised among families through public service. In addition, ecological issues could be given more space on social media platforms to raise awareness.

This study is limited as it was restricted to students enrolled in tourism programs at Anadolu University and Eskişehir Osmangazi University. Future studies should be planned with a larger and comprehensive sample. Ecological citizenship levels could also be measured using different parameters, such as the new environmental paradigm, environmental literacy, etc., than those addressed here.

REFERENCES

- Agyeman, J., & Evans, B. (2005). Environmental citizenship. In A. Dobson & D. Bell (Eds), *Justice, Governance, and Sustainability: Perspectives on Environmental Citizenship from North America and Europe* (pp. 185-207). The MIT Press.
- Airey, D., Tribe, J., Benckendorff, P., & Xiao, H. (2015). The managerial gaze: The long tail of tourism education and research. *Journal of Travel Research*, 54(2), 139-151.
- Aksu, M., Temeloğlu, E., Özkaya, E., & Gündeğer, M. (2012). Lisans düzeyinde turizm eğitimi alan öğrencilerin turizm ve çevre bilinci üzerine bir araştırma. *Düzce Üniversitesi Sosyal Bilimler Dergisi*, 2(2), 42-61.
- Altın, M. (2022). Okul öncesi öğretmenliği öğrencilerinin çevre eğitimine ilişkin öz-yeterlik ve çevre etiği farkındalık algılarının ekolojik vatandaşlık düzeylerine etkisi [Postgraduate thesis, Çanakkale Onsekiz Mart Üniversitesi].
- Anantharaman, M. (2014). Networked ecological citizenship, the new middle classes and the provisioning of sustainable waste management in Bangalore, India. *Journal of Cleaner Production*, 63, 173-183.
- Asilsoy, B., & Oktay, D. (2018). Exploring environmental behaviour as the major determinant of ecological citizenship. *Sustainable Cities and Society*, 39, 765-771.
- Aşık, N. A. (2018). Ön lisans düzeyinde turizm eğitimi alan öğrencilerin çevreye ilişkin tutum ve davranışları. *Sosyal ve Beşerî Bilimler Dergisi*, 10(2), 99-113.
- Baumgartner, H., & Homburg, C. (1996). Applications of structural equation modelling in marketing and consumer research: a review. *International Journal of Research in Marketing*, 13(2), 139-161.
- Baydemir, T. (2021). Avrupa yeşil mutabakatı, TÜBİTAK Bilim ve Teknik Dergisi. <https://bilimtekNIK.tubitak.gov.tr/makale/avrupa-yesil-mutabakati>.
- Bell, D. (2005). Liberal environmental citizenship. *Environmental Politics*, 14(2), 179-194.
- Bentler, P., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88(3), 588-606.
- Bentler, P. (1980). Multivariate analysis with latent variables: causal modeling. *Annual Review of Psychology*, 31, 419-456.
- Bookchin, M. (1996). *Ekolojik bir topluma doğru* (Translated by A. Yılmaz). Ayrıntı Yayınları.
- Bostancı, S. H., & Yıldırım, S. (2019). Sürdürülebilir toplumlar ve ekolojik vatandaşlık üzerine kavramsal bir inceleme. *Iğdır Üniversitesi Sosyal Bilimler Dergisi*, Additional Issue December, 203-218.
- Bourban, M. (2023). Eco-anxiety and the responses of ecological citizenship and mindfulness. In *The Palgrave Handbook of*

- Environmental Politics and Theory* (pp. 65-88). Springer International Publishing.
- Briassoulis, H. (2000). Environmental impacts of tourism: A framework for analysis and evaluation. In H. Briassoulis & Jan van der Straaten (Eds.), *Tourism and the Environment: Regional, Economic, Cultural and Policy Issues* (pp. 21-37). Springer Netherlands.
- Brizendine, L. (2012). *Kadın beyni*. Say Yayınları.
- Browne, M., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods and Research*, 21(2), 230-258.
- Buko, A. (2009). Environmental citizenship for sustainable consumption [Master's thesis, University of Twente].
- Colomer, J., Pallisera, M., Fullana, J., Burriel, M. P., & Fernández, R. (2013). Reflective learning in higher education: A comparative analysis. *Procedia-Social and Behavioral Sciences*, 93, 364-370.
- D'Arco, M., & Marino, V. (2022). Environmental citizen behavior and sustainability app: an empirical investigation. *Transforming Government, People, Process and Policy*, 16(1), 185-202.
- Deale, C. S., & Barber, N. (2012). How important is sustainability education to hospitality programs?. *Journal of Teaching in Travel & Tourism*, 12(2), 165-187.
- Demir, T., & Şaşmaz Ören, F. (2020). 7. ve 8. sınıf öğrencilerinin çevresel vatandaşlık ve ekolojik ayak izi kavramlarına ilişkin düşünceleri: kelime ilişkilendirme örneği. *Van Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi*, 17(1), 603-642.
- Dobson, A. (2003). *Citizenship and the Environment*. Oxford University Press.
- Dobson, A. (2007). Environmental citizenship: Towards sustainable development. *Sustainable Development*, 15(5), 276-285.
- Durgun, G. (2022). Sınıf öğretmeni adaylarının çevre etiği yaklaşımları ile ekolojik vatandaşlık düzeyleri arasındaki ilişkinin incelenmesi, [Postgraduate thesis, Fırat Üniversitesi].
- Erdilmen, Ş. (2012). Niğde üniversitesi eğitim fakültesi öğrencilerinin ekolojik vatandaşlık düzeylerinin incelenmesi ve sosyal bilgiler öğretmenliği lisans programı öğrencilerinin durumu ile karşılaştırılması, [Postgraduate thesis, Niğde Üniversitesi].
- Ferriandi, Y. A., Budimansyah, D., & Komalasari, K. (2022). Developing measurement instrument of students' citizenship ecological behavior on citizenship education course in middle school. *Journal of Human Behaviour in the Social Environment*, 32(7), 1-13.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*, Sage.
- Garcia, E. C., & Luansing, B. (2016). Environmental awareness among select graduating college students in Region IV-A. LPU-Laguna. *Journal of Multidisciplinary Research*, 5(1), 1-10.
- Goldman, D. et al. (2020). Education for environmental citizenship and responsible environmental behaviour. In Hadjichambis, A.C., et al., *Conceptualizing Environmental Citizenship for 21st Century Education* (Vol. 4, pp. 115-137).
- Gorz, A. (1993). *Kapitalizm, sosyalizm, ekoloji: Yönetim bozuklukları, arayışlar*. Translated by I. Ergüden, İstanbul: Ayrıntı.
- Gössling, S. (2002). Global environmental consequences of tourism. *Global Environmental Change*, 12(4), 283-302.
- Granados-Sanches, J. (2023). Sustainable global citizenship: a critical realist approach. *Social Sciences*, 12(3), 171-193.
- Gül, F. (2013). İnsan-doğa ilişkisi bağlamında çevre sorunları ve felsefe. *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 14, 17-21.
- Güllüpinar, F. (2020). Ekolojik vatandaşlık. In O. B. Çetin (Ed.), *Çevre sosyolojisi* (p. 154-189). Anadolu Üniversitesi Yayınları.
- Hadjichambis, A. C., & Reis, P. (2020). Introduction to the conceptualisation of environmental citizenship for Twenty-First-century education. In Hadjichambis, A. C., et al., *Conceptualizing Environmental Citizenship for 21st Century Education* (Vol. 4, pp. 1-14). Springer. https://doi.org/10.1007/978-3-030-20249-1_1
- Han, H. (2021). Consumer behavior and environmental sustainability in tourism and hospitality: a review of theories, concepts, and latest research. *Journal of Sustainable Tourism*, 29(7), 1021-1042.
- Houmam, L., & Aomar, I. (2023). Effects of school-based environmental clubs: fostering environmental awareness and strengthening eco-citizen behaviors among students. *Journal of Law and Sustainable Development*, 11(12), Article e1775.
- Jagers, S. C. (2009). In search of the ecological citizen. *Environmental Politics*, 18(1), 18-36.
- Jagers, S. C., Martinsson, J., & Matti, S. (2014). Ecological citizenship: a driver of pro-environmental behaviour? *Environmental Politics*, 23(3), 434-453.
- Kaplan Mintz, K., Arazy, O., & Malkinson, D. (2023). Multiple forms of engagement and motivation in ecological citizen science. *Environmental Education Research*, 29(1), 27-44.
- Kaplowitz, M. D., & Levine, R. (2005). How environmental knowledge measures up at a big ten university. *Environmental Education Research*, 11(2), 143-160.
- Karasar, N. (2012). *Bilimsel araştırma yöntemi*. Nobel Yayıncılık.
- Karatekin, K. (2019). Model review related to the effects of teachers' levels of ecological citizenship. *International Electronic Journal of Environmental Education*, 9(1), 6-61.
- Karatekin, K., & Uysal, C. (2018). Ecological citizenship scale development study. *International Elektronik Journal of Environ-*

- ment Education, 8(2), 2-104.
- Karatekin, K., Salman, M., & Uysal, C. (2019). Öğretmen adaylarının ekolojik vatandaşlık düzeylerinin karşılaştırılması. *Kastamonu Eğitim Dergisi*, 27(4), 1747-1756.
- Kelly, J. R., & Abel, T. D. (2012). Fostering ecological citizenship: the case of environmental service-learning in Costa Rica. *College of the Environment on the Peninsulas Publications*, 2. https://cedar.wvu.edu/hcop_facpubs/2
- Kennedy, E. H. (2011). Rethinking ecological citizenship: the role of neighbourhood networks in cultural change. *Environmental Politics*, 20(6), 843-860.
- Kılıç, S., & Tok, N. (2014). Geleneksel adalet anlayışlarından çevresel adalet anlayışına. *Uluslararası Alanya İşletme Fakültesi Dergisi*, 6(3), 213-228.
- Koca, G. (2021). Fen bilgisi öğretmen adayları ve ekolojik vatandaşlık: faaliyetler ve görüşler. [Postgraduate thesis, Ondokuz Mayıs Üniversitesi].
- Koç, H., & Karatekin, K. (2013). Coğrafya öğretmen adaylarının çevre okuryazarlık düzeylerinin çeşitli değişkenler açısından incelenmesi. *Marmara Coğrafya Dergisi*, 28, 139-174.
- Latta, A., & Garside, N. (2005). Perspectives on ecological citizenship: an introduction. *Environments: A Journal of Interdisciplinary Studies*, 33(3), 1-36.
- Latta, P. A. (2007). Locating democratic politics in ecological citizenship. *Environmental Politics*, 16(3), 377-393.
- Lenzen, M., Sun, Y. Y., Faturay, F., Ting, Y. P., Geschke, A., & Malik, A. (2018). The carbon footprint of global tourism. *Nature Climate Change*, 8(6), 522-528.
- Liasidou, S., Umbelino, J., & Amorim, É. (2019). Revisiting tourism studies curriculum to highlight accessible and inclusive tourism. *Journal of Teaching in Travel & Tourism*, 19(2), 112-125.
- Light, A. (2006). Ecological citizenship: The democratic promise of restoration. *The humane metropolis: People and nature in the 21st-century city*, 169-182.
- Li-tze, H., & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1-55.
- MacGregor, S. (2014). Ecological citizenship. In *Handbook of political citizenship and social movements* (pp. 107-132). Edward Elgar Publishing.
- Marsh, H., Hau, K. T., Artelt, C., Baumert, J., & Peschar, J. (2006). OECD's brief self-report measure of educational psychology's most useful affective constructs: cross-cultural, psychometric comparisons across 25 countries. *International Journal of Testing*, 6(4), 311-360.
- McMillan, E. E., Wright, T., & Beazley, K. (2004). Impact of a university-level environmental studies class on students' values. *The Journal of Environmental Education*, 35(3), 19-27.
- Mead, E. (2013). *Promoting lasting ecological citizenship among college students*. Lehigh University.
- Melo-Escrihuela, C. (2015). Should ecological citizenship advocates praise the green state?. *Environmental Values*, 24(3), 321-344.
- Mengsi, Y., & Zhengke, F. (2018). *Construction of environmental citizenship in hypermedia space*. In *2018 International Conference on Educational Research, Economics, Management and Social Sciences* (pp. 1407-1411). Francis Academic Press.
- Mercan, Ş. O. (2016). Lisans düzeyinde turizm eğitimi alan öğrencilerin otel işletmelerini çevre duyarlılığı açısından değerlendirmeleri. *Karabük Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 6(1), 126-144.
- Nash, N., & Lewis, A. (2006). Overcoming obstacles to ecological citizenship: the dominant social paradigm and local environmentalism. In Dobson A. & Bell, D. (Eds.), *Environmental Citizenship* (pp. 153-184). MIT Press.
- Okudan Dernek, K., & Tırış, G. (2020). Yurttaşlığı yeniden düşünmek: ekolojik yurttaşlık üzerine bir değerlendirme. *Ekonomi Politika ve Finans Araştırmaları Dergisi*, 5(3), 745-772.
- Panth, M. K., Verma, P., & Gupta, M. (2015). The role of attitude in environmental awareness of under graduate students. *International Journal of Research In Humanities And Social Studies*, 2(7), 55-62.
- Rokka, J., & Moisander, J. (2009). Environmental dialogue in online communities: negotiating ecological citizenship among global travellers. *International Journal of Consumer Studies*, 33, 199-205.
- Santos, J. A. R. (1999). Cronbach's alpha: a tool for assessing the reliability of scales. *Journal of Extension*, 37, 1-5.
- Seyfang, G. (2005). Shopping for sustainability: can sustainable consumption promote ecological citizenship?. *Environmental Politics*, 14(2), 290-306.
- Seyfang, G. (2006). Ecological citizenship and sustainable consumption: Examining local organic food networks. *Journal of Rural Studies*, 22(4), 383-395.
- Skill, K. (2012). The what, who, and how of ecological action space. *Sustainability*, 4(1), 1-16.
- Smith, M. J. (1998). *Ecologism: Towards ecological citizenship*. University of Minnesota Press.
- Spannring, R. (2019). Ecological citizenship education and the consumption of animal subjectivity. *Education sciences*, 9(1),

41.

- Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology*, 29(3), 309-317.
- Tandoğan, D., & Genç, M. (2019). Türkiye’de turizm ve karbondioksit salımı arasındaki ilişki: rals-enge ve granger eşbütünleşme yaklaşımı. *Anatolia: Turizm Araştırmaları Dergisi*, 30(3), 221-230.
- Tarrant, M., & Lyons, K. (2012). The effect of short-term educational travel programs on environmental citizenship. *Environmental Education Research*, 18(3), 403-416.
- TDK (2023). *Türk dil kurumu sözlükleri*. <https://sozluk.gov.tr/>
- Temizkan, R., & Ceyhanlı, K. (2020). Turizm lisans öğrencilerinin ekolojik ayak izi farkındalıkları. *Turizm Akademik*, 7(2), 203-223.
- Timur, S., & Yılmaz, M. (2011). Fen bilgisi öğretmen adaylarının çevre bilgi düzeylerinin belirlenmesi ve bazı değişkenlere göre incelenmesi. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, 31(1), 303-320.
- Travaline, K., & Hunold, C. (2010). Urban agriculture and ecological citizenship in Philadelphia. *Local Environment*, 15(6), 581-590.
- Uysal, C. (2018). Sınıf öğretmeni adaylarının ekolojik vatandaşlık düzeylerinin belirlenmesi [Postgraduate thesis, Kastamonu Üniversitesi].
- Uzel, N., Adıgüzel, M., Yılmaz, M., & Gül, A. (2019). The effect of different variables on pre-service teachers’ perceptions of self-efficacy on environmental education. *Erzincan University Journal of Education Faculty*, 21(3), 93-107.
- Ünal, E. (2019). The investigation of ecological citizenship levels of teacher candidates. *Asian Journal of Education and Training*, 5(2), 329-334.
- Valencia Sáiz, Á. (2005). Globalization, cosmopolitanism and ecological citizenship. *Environmental Politics*, 14, 163-178.
- Vlek, C., & Steg, L. (2007). Human behavior and environmental sustainability: Problems, driving forces and research topics. *Journal of Social Issues*, 63(1), 1-19.
- Wolf, J., Brown, K., & Conway, D. (2009). Ecological citizenship and climate change: perceptions and practice. *Environmental Politics*, 18(4), 503-521.
- Yıldız, S. B., & Kılıç, S. N. (2016). The attitudes and behaviours of undergraduate tourism students towards the environmentally friendly products. *International Journal of Human Sciences*, 13(1), 1304-1325.
- Yılmaz, İ., Çullu Kaygısız, N., & Özgül Katlav, E. (2016). Turizm öğrencilerinin çevre duyarlılıkları üzerine bir araştırma. *TURAN-SAM Uluslararası Bilimsel Hakemli Dergisi*, 8(32), 116-122.
- Yılmaz, M., Karakaya, F., Çimen, O., & Adıgüzel, M. (2019). Fen bilgisi öğretmen adaylarının ekolojik vatandaşlık düzeylerinin incelenmesi. *Akdeniz Eğitim Araştırmaları Dergisi*, 13(30), 98-113.
- Yurttaş, A., Erdaş Kartal, E., Çağlar, A., & Yurttaş, A. (2021). Temel eğitimde görev yapan öğretmenlerin ekolojik vatandaşlık düzeylerinin incelenmesi. *International Social Sciences Studies Journal*, 7(85), 2905-2916.
- Zeng, C., Sweet, W., & Cheng, Q. (2016). Ecological citizenship and Green burial in China. *Journal of Agricultural and Environmental Ethics*, 29, 985-1001.

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APPENDIX

Appendix 1. Gender-Based t-test Results of Ecological Citizenship Levels of Tourism Students

<i>Ecological Citizenship</i>	<i>Gender</i>	<i>n</i>	$\bar{x}$	<i>sd</i>	<i>df</i>	<i>t</i>	<i>p</i>
Participation	Female	315	2.26	0.83	570	0.098	0.267
	Male	257	2.18	0.84			
Justice and Equity	Female	315	3.80	0.80	525	9.267	0.000
	Male	257	3.48	0.87			
Responsibility	Female	315	3.63	0.90	570	1.255	0.001
	Male	257	3.36	0.96			
Sustainability	Female	315	3.04	0.77	512	3.541	0.003
	Male	257	2.83	0.55			

Source: Own Elaboration

Appendix 2. One-Way Analysis of Variance Results Regarding the Ecological Citizenship Levels of the Students Based on their Universities

<i>Ecological Citizenship</i>	<i>University</i>	<i>n</i>	$\bar{x}$	<i>F</i>	<i>p</i>	<i>Games-Howell / Tukey</i>
Participation	Anadolu University, Faculty of Tourism	245	2.13	17.68	0.000	1-3 2-3
	Anadolu University, Eskişehir Vocational School	163	2.05			
	Eskişehir Osmangazi University, Faculty of Tourism	164	2.54			
Justice and Equity	Anadolu University, Faculty of Tourism	245	3.67	0.082	0.921	-
	Anadolu University, Eskişehir Vocational School	163	3.65			
	Eskişehir Osmangazi University, Faculty of Tourism	164	3.64			
Responsibility	Anadolu University, Faculty of Tourism	245	3.40	3.13	0.044	1-3 2-3
	Anadolu University, Eskişehir Vocational School	163	3.58			
	Eskişehir Osmangazi University, Faculty of Tourism	164	3.61			
Sustainability	Anadolu University, Faculty of Tourism	245	2.89	3.18	0.042	1-3 2-3
	Anadolu University, Eskişehir Vocational School	163	2.90			
	Eskişehir Osmangazi University, Faculty of Tourism	164	3.09			

Source: Own Elaboration

Appendix 3. Variance Analysis Results on Ecological Citizenship Levels of the Students Based on their Classes

<i>Ecological Citizenship</i>	<i>Class</i>	<i>n</i>	$\bar{x}$	<i>F</i>	<i>p</i>	<i>Games Howell/ Hochberg GT</i>
Participation	First Year	226	2.08	9.45	0.000	1-4 2-4
	Second Year	133	2.12			
	Third Year	93	2.33			
	Fourth Year	120	2.54			
Justice and Equity	First Year	226	3.55	2.03	0.108	-
	Second Year	133	3.68			
	Third Year	93	3.74			
	Fourth Year	120	3.75			
Responsibility	First Year	226	3.40	2.17	0.090	1-4 2-4
	Second Year	133	3.53			
	Third Year	93	3.54			
	Fourth Year	120	3.66			
Sustainability	First Year	226	2.82	4.02	0.007	1-4 2-4
	Second Year	133	2.95			
	Third Year	93	3.02			
	Fourth Year	120	3.13			

Source: Own Elaboration

Appendix 4. T-Test Results on the Relationship between Taking Environment Classes and Ecological Citizenship Levels of the Students

<i>Ecological Citizenship</i>	<i>Taking Environment Classes</i>	<i>n</i>	$\bar{x}$	<i>sd</i>	<i>df</i>	<i>t</i>	<i>p</i>
Participation	Yes	208	2.46	0.88	570	2.27	0.000
	No	364	2.09	0.78			
Justice and Equity	Yes	208	3.70	0.96	570	2.31	0.338
	No	364	3.63	0.77			
Responsibility	Yes	208	3.60	0.92	570	0.730	0.080
	No	364	3.46	0.93			
Sustainability	Yes	208	3.08	0.82	570	0.190	0.004
	No	364	2.87	0.82			

Source: Own Elaboration

Appendix 5. Tourism Students' Sources of Information about Environmental Issues

<i>Ecological Citizenship</i>	<i>Getting Information about Environmental Issues</i>	<i>n</i>	$\bar{x}$	<i>F</i>	<i>p</i>	<i>Hochberg GT</i>
Participation	Online newspapers and magazines	61	2.53	4.43	0.001	1-2
	Social media	463	2.15			
	Printed newspapers-magazines	6	2.62			
	Non-governmental organizations on the environment	8	2.52			
	Conferences and Seminars	14	2.57			
	Classes	20	2.66			
Justice and Equity	Online newspapers and magazines	61	3.88	1.30	0.261	-
	Social media	463	3.62			
	Printed newspapers-magazines	6	3.61			
	Non-governmental organizations on the environment	8	3.62			
	Conferences and Seminars	14	3.91			
	Classes	20	3.55			
Responsibility	Online newspapers and magazines	61	3.55	0.991	0.422	-
	Social media	463	3.49			
	Printed newspapers-magazines	6	3.27			
	Non-governmental organizations on the environment	8	3.08			
	Conferences and Seminars	14	3.78			
	Classes	20	3.76			
Sustainability	Online newspapers and magazines	61	3.19	2.07	0.067	-
	Social media	463	2.90			
	Printed newspapers-magazines	6	2.94			
	Non-governmental organizations on the environment	8	2.97			
	Conferences and Seminars	14	3.21			
	Classes	20	3.21			

Source: Own Elaboration

Appendix 6. Tourism Students' Interest in Environmental Issues

<i>Ecological Citizenship</i>	<i>Interest in Environmental Issues</i>	<i>n</i>	$\bar{x}$	<i>F</i>	<i>p</i>	<i>Games-Howell/Hochberg GT</i>
Participation	None	13	1.75	15.57	0.000	1-5
	Very Little	27	1.69			2-4
	A Little	144	2.00			2-5
	Sufficient	354	2.30			3-4
	Very Much	34	2.99			3-5
						4-5
Justice and Equity	None	13	2.61	30.63	0.000	1-5
	Very Little	27	2.76			2-4
	A Little	144	3.34			2-5
	Sufficient	354	3.83			3-4
	Very Much	34	4.27			3-5
						4-5

Responsibility	None	13	2.76	13.32	0.000	1-5
	Very Little	27	2.72			2-4
	A Little	144	3.29			2-5
	Sufficient	354	3.64			3-4
	Very Much	34	3.93			3-5
Sustainability	None	13	2.25	14.74	0.000	1-4
	Very Little	27	2.51			1-5
	A Little	144	2.69			2-4
	Sufficient	354	3.05			2-5
	Very Much	34	3.57			3-4

Source: Own Elaboration

Appendix 7. NGO Membership Status of Tourism Students

<i>Ecological Citizenship</i>	<i>NGO</i>	<i>n</i>	$\bar{x}$	<i>sd</i>	<i>df</i>	<i>t</i>	<i>p</i>
Participation	Yes	60	2.60	1.13	65.95	21.051	0.000
	No	512	2.18	0.79			
Justice and Equity	Yes	60	3.93	0.88	570	0.023	0.009
	No	512	3.62	0.84			
Responsibility	Yes	60	3.58	1.13	68.19	4.61	0.609
	No	512	3.50	0.91			
Sustainability	Yes	60	3.15	0.99	68.56	7.62	0.093
	No	512	2.92	0.81			

Source: Own Elaboration

Appendix 8. Variance Analysis Results of the Ecological Citizenship Levels of the Students and Frequency of Posting Environmental Content on Social Media

<i>Ecological Citizenship</i>	<i>Social Media Posts</i>	<i>n</i>	$\bar{x}$	<i>F</i>	<i>p</i>	<i>Gabriel/Games- Howell</i>
Participation	Never	165	1.85	25.50	0.000	1-2
	Rarely	194	2.18			1-3
	Sometimes	197	2.57			1-4
	Frequently	16	2.45			2-3
Justice and Equity	Never	165	3.27	21.03	0.000	1-2
	Rarely	194	3.67			1-3
	Sometimes	197	3.92			1-4
	Frequently	16	4.08			2-3
Responsibility	Never	165	3.08	19.80	0.000	1-2
	Rarely	194	3.57			1-3
	Sometimes	197	3.80			2-3
	Frequently	16	3.60			
Sustainability	Never	165	2.67	13.52	0.000	1-2
	Rarely	194	2.90			1-3
	Sometimes	197	3.19			1-4
	Frequently	16	3.34			2-3

Source: Own Elaboration

Appendix 9. Variance Analysis Results of the Students' Ecological Citizenship Levels and Grade Point Averages

<i>Ecological Citizenship</i>	<i>Grade Point Average</i>	<i>n</i>	$\bar{x}$	<i>F</i>	<i>p</i>	<i>Gabriel</i>
Participation	0-2.50	132	2.30	0.848	0.468	-
	2.51-3.00	261	2.23			
	3.01-3.50	140	2.14			
	3.51-4.00	39	2.28			
Justice and Equity	0-2.50	132	2.49	3.185	0.024	1-2 3-1
	2.51-3.00	261	3.66			
	3.01-3.50	140	3.80			
	3.51-4.00	39	3.64			
Responsibility	0-2.50	132	3.52	0.356	0.785	-
	2.51-3.00	261	3.50			
	3.01-3.50	140	3.47			
	3.51-4.00	39	3.64			
Sustainability	0-2.50	132	2.89	0.465	0.704	-
	2.51-3.00	261	2.94			
	3.01-3.50	140	2.98			
	3.51-4.00	39	3.05			

Source: Own Elaboration

Appendix 10. Variance Analysis Results for Ecological Citizenship Level Perceptions of Tourism Students

<i>Ecological Citizenship</i>	<i>Ecological Citizenship Perception</i>	<i>n</i>	$\bar{x}$	<i>F</i>	<i>p</i>	<i>Hochberg GT/Games-Howell</i>
Participation	Poor	49	1.85	17.65	0.000	1-3
	Intermediate	424	2.18			2-1
	High	99	2.62			2-3
Justice and Equity	Poor	49	3.00	21.71	0.000	1-2
	Intermediate	424	3.66			1-3
	High	99	3.94			2-3
Responsibility	Poor	49	2.96	11.38	0.000	1-2
	Intermediate	424	3.52			1-3
	High	99	3.72			
Sustainability	Poor	49	2.56	10.96	0.000	1-2
	Intermediate	424	2.93			1-3
	High	99	3.22			2-3

Source: Own Elaboration