



The Investigation of Ecological Citizenship Levels of Teacher Candidates

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Abstract

The aim of this study is to investigate the ecological citizenship of teacher candidates in terms of different variables and to determine the variables influencing the ecological citizenship level. The study group consists of 318 voluntary senior students who study at the departments of Primary School Teaching, Social Studies Teaching, Primary School Mathematics Teaching, Science Teaching and Physical Education and Sports Teaching in the faculty of education at a state university. The data were obtained through Ecological Citizenship Scale developed by Karatekin and Uysal (2018). The study was designed in survey method, which is a quantitative research method. The results of the study showed that the ecological citizenship levels of teacher candidates did not differ significantly in terms of the variables of gender, mother educational attainment level, father educational attainment level, membership to non-governmental organizations and membership to student organizations while significant differences were found in terms of the variables of department and participation in social projects.

Keywords: Ecology, Citizenship, Teacher candidate, Ecological citizenship, Environment, Environmental problem.

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Contents

1. Introduction	330
2. Methodology	330
3. Findings	331
4. Results and Discussion	332
References	333

1. Introduction

The beginning of environmental problems to threaten the current order can be dated back to the first half of the 19th century; in other words, the industrial revolution. In fact, in this period, the relationship between man and nature began to change in a unidirectional manner to the detriment of nature and environmental problems started to become a threat to human life.

It is stated that, in addition to industrialization, liberalization (Jagers, 2009) and the capitalist economic system (Houser, 2009) are the other reasons for the increase in environmental problems. The reasons for this may be that liberal democracy does not force citizens to be more sensitive towards the environment (Barry, 2001, cited in 2001 by Jagers (2009) and that capitalist economic system has unlimited concepts of production and consumption. Environmental problems emerge from the collective results of the citizens' unsustainable lifestyles, which makes it necessary to ensure that they take ecological considerations and responsibilities into account while trying to overcome environmental problems (Jagers *et al.*, 2014).

The fact that environmental values have an important place in the expression of citizens' environmental responsibility behaviors (Biagi and Ferro, 2011) has led to many studies examining opinions and beliefs of teachers and teacher candidates on environmental education, sustainability and nature in different countries (Cotton, 2006; Munoz *et al.*, 2009; Manolas and Tampakis, 2010; Begum, 2012; Ahi *et al.*, 2017; Uitto and Saloranta, 2017; Aarnio-Linnanvuori, 2019).

Green *et al.* (2016) addressed the role of governments in overcoming environmental problems in their study and highlighted the need to handle the solution in the dimensions of citizen and government. Such that, the limited content and structure of environmental education have formed a basis for the idea that the evaluation of related studies in terms of citizenship is more important in the protection of the environment and in creating a sustainable habitat. Considering the issue globally, it is understood from this point of view that environmental concerns have started to be regarded as a problem in various strata of society and that a connection between citizenship and environment is tried to be established especially in the last years (Jelin, 2000; Wolf *et al.*, 2009; Latta and Wittman, 2010). In this sense, ecological citizenship concept is increasingly getting important in solving environmental problems (Latta, 2007). It is evident that the environmental problems, once regarded as local issues, have gained an international dimension with the globalization process. This globalization process leads to the implementation of policies involving approaches different from the traditional approach in both the definition of social problems and the search for political solutions (Sáiz, 2005). The most significant one of these policies is the adoption of the concept of "ecological citizenship", which includes the increase in the environmental sensitivity of citizens. Because, as an ecological citizen, the individual has the responsibility to exhibit behaviors that include the daily lifestyle which will reduce the ecological pressures on nature (Lummis *et al.*, 2017).

In the literature on environment, "ecological citizenship" is frequently associated with "environmental citizenship" whereas the issues that constitute the content of this definition are considered under the names of "sustainable citizenship" and "green citizenship" in some studies (Bell, 2005).

Kenis (2016) stated that ecological citizenship refers to a conscious choice that is intended to change the individual behavior of the individual and to reject practices in which this behavior is guided by economic incentives or advertising campaigns, thereby altering the underlying motivation of environmental action. MacGregor and Szerszynski (2003) expressed environmental citizenship as a personal commitment to learning more about the environment and to taking measures against environmental problems (cited in Bell (2005). On a basic level, ecological citizenship is related to citizens' status, rights and participation processes related to natural environment (Crane *et al.*, 2008). In this context, "ecological citizenship" consists of environmental information, environmental awareness, environmental concern, personality variables, socio-demographic variables, environmental education, environmental literacy and performing environmentally responsible behaviors (Hawthorne and Alabaster, 1999).

As stated by Green *et al.* (2016), teachers have the potential to influence students' environmental citizenship levels significantly by affecting their knowledge, value, belief and environmental actions. The necessity for every single child to adopt being productive starting from his/her school environment, to know about nature and culture and to be an active practitioner in the protection of nature and culture (p.84) is stated in the document called "Strong Turkey Happy Children Educational Vision 2023" by the Ministry of Education. Also, the need to arrange awareness and skills education programs concerning multiple-literacies such as digital literacy, financial literacy, health literacy, ecological literacy, social media literacy, etc. as the 21st century skills is mentioned under the title of lifelong learning (MEB, 2018). Considering the issue with these dimensions, it can be claimed that teachers will assume important tasks in transferring environmental sensitivities to students. The purpose of this study is to investigate the ecological citizenship levels of teacher candidates in terms of the variables of gender, mother educational attainment level, father educational attainment level, membership to non-governmental organizations, participation in social projects and membership to student organizations.

2. Methodology

2.1. Research Model

In this study, survey method, which is among quantitative research methods, was used. A survey is a type of research to describe an existing situation as it is Büyüköztürk *et al.* (2010). In this study, survey method is used as it aims to determine the ecological citizenship levels of teacher candidates in terms of different variables.

2.2. Study Group

This study was carried out in 2018-2019 academic year with 318 senior students studying in the faculty of education at a state university. The study group consists of 105 male and 213 female teacher candidates. As for the department variable, the study group includes 131 teacher candidates from the elementary school teaching program, 76 teacher candidates from the science teaching program, 20 teacher candidates from the elementary mathematics teaching program, 32 teacher candidates from the social studies teaching program and 59 teacher candidates from the physical education and sports teaching program.

2.3. Data Collection

In this study, Ecological Citizenship Scale developed by Karatekin and Uysal (2018) was used as the data collection tool. The scale consists of 24 items and 4 sub-dimensions. In the exploratory factor analysis to examine the construct validity of the scale, the total variance was found 49.81% and the internal consistency coefficient, Cronbach-Alpha, was found as .901 for the whole scale (Karatekin and Uysal, 2018). In the exploratory factor analysis which is the structural validity analysis for this study group, the total variance was 51.32% and the Cronbach-Alpha internal consistency coefficient was .886 for the whole scale. The Ecological Citizenship Scale is a valid and reliable scale for this study group.

2.4. Data Analysis

In order to determine the analysis techniques to be used in the study, it is examined whether or not the data showed normal distribution. For this purpose, kurtosis and skewness were examined. It is stated that the kurtosis value must be between +1 and -1 (George and Mallery, 2010) and the distortion value must be between +1 and -1 (Hair et al., 2013). It was concluded that the kurtosis and skewness values in this study were among the required values and that the data showed normal distribution. As a result, independent t test and one-way analysis of variance were used to analyse the data.

3. Findings

The teacher candidates' ecological citizenship levels in terms of gender are given in Table 1.

Table-1. The independent t-test results showing teacher candidates' ecological citizenship levels in terms of gender.

Gender	n	\bar{x}	s	T	p
Male	105	3,43	,66	1,901	,058
Female	213	3,56	,53		

Source: Calculated from primary data *Level of significance at $p < 0.05$.

The t-test results in Table 1 indicate that ecological citizenship levels of teacher candidates do not differ significantly in terms of their gender. Although the mean scores of female teacher candidates were higher than those of males, no statistically significant difference was found.

The teacher candidates' ecological citizenship levels in terms of the department variable are given in Table 2.

Table-2. The one-way analysis of variance test results showing teacher candidates' ecological citizenship levels in terms of the department variable.

Department	Sum of Squares	Df	Mean Square	F	P	Source of Difference (Scheffe)
Between Groups	4,793	4	1,198	3,697	,006	SÖ-SBÖ İMÖ-SBÖ
Within Groups	101,768	313	,324			
Total	106,561	317				

Source: Calculated from primary data *Level of significance at $p < 0.05$.

According to the one-way analysis of variance test results in Table 2, ecological citizenship levels of teacher candidates vary significantly in terms of the department variable. Scheffe test was conducted to investigate the source of the difference. It was seen that the difference is between the social studies teacher candidates and the primary school teacher candidates, and social studies teacher candidates and the primary school mathematics teacher candidates. The difference was found to be in favour of the social studies teacher candidates in both situation.

The teacher candidates' ecological citizenship levels in terms of their mothers' educational attainments variable are given in Table 3.

Table-3. The one-way analysis of variance test results showing teacher candidates' ecological citizenship levels in terms of their mothers' educational attainments variable.

Mothers' educational attainments	Sum of Squares	Df	Mean Square	F	P
Between Groups	,522	4	,130	,386	,818
Within Groups	106,039	313	,338		
Total	106,561	317			

Source: Calculated from primary data *Level of significance at $p < 0.05$.

The figures in Table 3 show that ecological citizenship levels of teacher candidates do not differ significantly in terms of the mothers' educational attainment variable. It was found that mother educational attainment levels of teacher candidates had no effect on their ecological citizenship levels.

The teacher candidates' ecological citizenship levels in terms of their fathers' educational attainments variable are given in Table 4.

Table-4. The one-way analysis of variance test results showing teacher candidates' ecological citizenship levels in terms of their fathers' educational attainments variable.

Fathers' educational attainments	Sum of Squares	Df	Mean Square	F	P
Between Groups	1,808	5	,362	1,080	,371
Within Groups	104,753	312	,335		
Total	106,561	317			

Source: Calculated from primary data *Level of significance at $p < 0.05$.

As it can be seen in Table 4, ecological citizenship levels of teacher candidates do not differ significantly in terms of their fathers' educational attainment levels. The figures indicate that fathers' educational attainment levels have no effect on the teacher candidates' ecological citizenship levels.

The teacher candidates' ecological citizenship levels in terms of membership to non-governmental organizations (NGOs) are given in Table 5.

Table-5. The independent t-test results showing teacher candidates' ecological citizenship levels in terms of membership to NGOs.

NGOs Membership	n	\bar{x}	s	T	p
Yes	44	3,67	,53	1,918	,056
No	274	3,49	,58		

Source: Calculated from primary data *Level of significance at $p < 0.05$.

According to the figures in Table 5, ecological citizenship levels of teacher candidates do not show a significant difference according to their membership to NGOs. Although the mean scores of the teacher candidates who are members of NGOs are higher than those of the teacher candidates who have no membership to any NGOs, there is no statistically significant difference.

The teacher candidates' ecological citizenship levels in terms of participation in social projects variable are given in Table 6.

Table-6. The independent t-test results showing teacher candidates' ecological citizenship levels in terms of participation in social projects variable.

Participation	n	\bar{x}	s	T	P
Yes	124	3,64	,60	2,975	,003
No	194	3,44	,56		

Source: Calculated from primary data *Level of significance at $p < 0.05$.

The independent t-test results in Table 6 show that ecological citizenship levels of teacher candidates vary significantly in terms of their participation in social projects. The mean scores of the teacher candidates who participate in social projects are higher than those of the teacher candidates who do not take part in social projects. In this case, it can be concluded that participating in any social project increases the ecological citizenship levels of teacher candidates.

The teacher candidates' ecological citizenship levels in terms of membership to student organizations variable are given in Table 7.

Table-7. The independent t-test results showing teacher candidates' ecological citizenship levels in terms of membership to student organizations variable.

Student Organization	n	\bar{x}	s	T	p
Yes	93	3,46	,60	1,090	,276
No	225	3,54	,57		

Source: Calculated from primary data *Level of significance at $p < 0.05$.

The figures in Table 7 indicate that ecological citizenship levels of teacher candidates do not differ significantly in terms of their membership to student organizations. It can be concluded that membership to a student organization has no effect on ecological citizenship levels.

4. Results and Discussion

The concept of ecological citizenship is still debated today (Karatekin and Uysal, 2018) because it contains many definitions such as individual information, environmental literacy and attitude towards the environment. In this respect, there are no comprehensive studies on the concept of ecological citizenship in the literature. Also, the concept hasn't yet been addressed on the basis of different variables in the studies that handle it indirectly. Likewise, the ecological citizenship scale developed in our country has not been adequately addressed in terms of variables either. It is thought that this study will contribute to the field in this context.

The first one of the variables that are taken into consideration in relation to ecological citizenship levels of teacher candidates is the gender variable. Although the mean scores of female teacher candidates are higher than those of the male teacher candidates, there is no statistically significant difference in terms of gender. The reasons for the high mean scores of female teacher candidates may be that society considers the teaching profession as a woman's profession in which women can perform family and business life together and that women internalize this social value (Dogan and Coban, 2009) and environmental sensitivities more than do men. It can be stated that women's critical thinking tendencies are higher (Can and Kaymakçı, 2008) and that, in terms of critical thinking tendency, women have more attitudes and values such as approaching a problem from a sceptical and curious point of view, analysing decisions while making decisions about the solution of the problem, being planned, reasoning the decisions out, questioning and criticizing the events encountered, thinking about the details of the situation, conducting in-depth observations, fulfilling the responsibility given, taking the appropriate conditions into consideration during the decision-making process and being tolerant (Yıldırım, 2018), which supports the finding obtained in the research.

It was found that ecological citizenship levels of teacher candidates differ significantly in terms of the departments in which they study. The difference was found to be between the social studies teacher candidates and the primary school teacher candidates, and social studies teacher candidates and the primary school mathematics teacher candidates. In both situations, the difference was in favour of the social studies teacher candidates. The reason for this result may be that this process is managed more effectively in some courses (Social Project

Development, Citizenship Knowledge, Today's World Issues) which are only included in the undergraduate programs of social studies teacher candidates.

It was concluded that the ecological citizenship levels of teacher candidates do not differ significantly in terms of mother and father educational attainment levels. The educational attainment levels of teacher candidates' fathers and mothers have no effect on ecological citizenship levels of the teacher candidates. Considering that the teacher candidates in the study group are senior students, this result is thought to stem from the idea that their personal values, beliefs and attitudes are already internalized.

Ecological citizenship levels of teacher candidates do not show a significant difference in terms of their membership to NGOs. Although the mean scores of the teacher candidates who are members of a NGO are higher than those of the teacher candidates who have no membership to any NGOs, no statistically significant difference was found. It can be inferred from this result that teacher candidates who are members of NGOs have more democratic values and adopt democratic values more (Akin and Ozdemir, 2009) and that membership to NGOs enable individuals to be active in environmental development and problem solving, improving their social involvement competencies (Ersoy, 2014).

Ecological citizenship levels of teacher candidates vary significantly in terms of participation in social projects variable. The mean scores of the teacher candidates who participate in social projects are higher than those of the teacher candidates who do not take part in any social projects. In this case, it can be concluded that taking part in any social project increases the ecological citizenship levels of teacher candidates. Teacher candidates are supposed to gain social sensitivity and responsibility, have entrepreneurship and self-confidence, integrate into society and take the leadership role in society in the pre-service period (Gökçe, 2011). In this context, it is thought that increasing the number of social projects in teacher education and encouraging the participation of teacher candidates actively in social projects are of great importance.

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