



Human Rights Education with Socioscientific Issues through the Environmental Education Courses

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ABSTRACT

Purpose: Human rights education is vital for democratic societies. For an effective human rights education, teachers need to have an in-depth comprehension regarding human rights in the first place. Accordingly, this study aimed to develop, implement and evaluate the Human Rights Curriculum Based on Socioscientific issues as Part of the Environmental Education Course (HRCSEC) for pre-service primary school teachers (PPSTs). **Method:** This study was designed as a quasi-experimental study with non-equivalent pre-test/post-test control group. The participants of the study include 77 PSPTs

38 of whom were included in the experimental group and 39 of whom were included in the control group. The implementation lasted for 14 weeks within the scope of the study. **Results:** The study results showed that following the implementation the experimental group pre-service teachers had significantly higher knowledge and attitudes regarding human rights compared to the control group pre-service teachers. In addition, the experimental group pre-service teachers were equipped with various acquisitions, in addition to knowledge and attitude development regarding human rights, such as, the relationship between environment and human rights and knowledge development. **Implications for Research and Practice:** According to the results of the research, it can be suggested to establish a human rights connection with SSI in environmental education courses for PSPTs to gain a holistic understanding of environment and human rights and in order to gain knowledge and attitude about human rights. For comprehensive information on the situation, studies can be conducted in environmental courses at different levels of education.

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Introduction

Human rights can be defined as the rights associated with equality that people are due as a result of their existence (Flowers, Bernbaum, Rudelius-Palmer, & Tolman, 2000). Human rights education is the process during which knowledge and skills required to create a global sense of human rights are acquired. Human rights education is considered to be an effective strategy to prevent the violation of rights (Banks, 2002). The purposes of human rights education can be characterised as corroborating the respect for human rights and fundamental freedoms, making people more active citizens, introducing universal human rights values, raising tolerance and respect among people, and conducting studies to create a peace culture in international terms (Brander et al., 2002; Flowers, et al., 2009). Understanding human rights is vital for democratic societies (D'sa, 2004). Teachers have to fulfil important duties for human rights education process to be effective (Francis, 2012; Jennings, 2006; Osler & Starkey, 2010). The standards that are expected to be achieved by teachers in this sense include supporting all students' learning of human rights, creating effective learning environments that are based on human rights, designing and planning learning experiences for human rights education, and improving oneself as professional educators of human rights (Jennings, 2006). In order for teachers to offer an effective human rights education, they need to have an in-depth comprehension regarding human rights in the first place (Anees, 2014; Osler & Starkey, 1994). This makes it necessary to make regulations in teacher preparation programs in order to equip teachers with the competencies that are required for conducting human rights education (Jennings, 2006). Human rights can be made a separate course with the arrangements to be made in teacher training programs while it is also possible to teach human rights as part of various courses. In this sense, the environmental education course can be one of the courses in which human rights can be incorporated within teacher training programs. Nowadays, with the influence of scientific applications, the world has rapidly evolved and brought along environmental problems (Demirdelen & Odman, 2017; Topcu & Atabey, 2017). Air, water, soil pollution and global warming are some of these problems and energy resources are one of the most important causes of environmental pollution (Akyuz, 2015a, 2015b; Topcu & Atabey, 2017). Environmental pollution threatens many fundamental rights and freedoms, including the right to life, the right to a clean environment, the right to clean water and food and the right to health, and it constitutes one of the most fundamental causes of human rights violations (Akyuz, 2015a). All this draws attention to the close relationship between environmental issues and human rights. Human life depends on a healthy and sustainable environment. This makes environmental issues prominent in terms of human rights (Brander et al., 2002; UNEP, 2014). In other words, it is impossible for humans to survive without a healthy and sustainable ecosystem. Therefore, it is not possible to protect and maintain human rights if their ecosystem deteriorates. This situation draws attention to the fact that there is nature/ecology at the core of human rights and highlights the importance of human rights in the ecological sense (Akyuz, 2015a; Hung, 2007). According to the researchers, human rights education and environmental education are associated with and support one another. Therefore,

they can be dealt with together in curricula and units (Brander et al., 2002; Harris, 2004; Flowers et al., 2009). The relevant literature states that many environmental issues such as global warming and climate change, sustainable agriculture, sustainable environment, nuclear power plants, alternative energy resources, hazardous pesticides, acid rain, and recycling are associated with human rights (Benz, 2013; Clark & Sampson, 2008; Clarke, 2010; Moro, 2002; Rademacher, 2010; Ramamurthy, 2011). In this sense, due to the deterioration in ozone layer, Clarke (2010) has drawn attention to the existence of a rapidly growing movement regarding sustainable environment and human rights; while Hammarberg (2011) stated that climate change is a human rights problem. To this end, he asserted that certain fundamental rights such as the right to life, the right to housing, right to health, right to food, and the right to clean water are under threat. Rademacher (2010) stated that climate change negatively influences local people in Latin America in terms of human rights. Similarly, Caney (2008) defined climate change as a threat to human rights. Ramamurthy (2011), emphasized that a nuclear accident in nuclear power plants during the energy production process would be a human rights disaster while drawing attention to the importance of an international nuclear responsibility law that is suitable for the protection of human rights. Benz (2013), within the context of the Fukushima accident, stressed the influence of possible problems from nuclear power plants on human rights. Akyuz (2015b) expressed the negative effects of the Chernobyl disaster on the five fundamental human rights, which are the right to life, a safe environment, health, clean water, and food. While studying the concept of climate refugees that has come to the forefront as a result of climate change, Ziya (2012) noted that it has brought about various problems related to human rights. According to Demirdelen & Odman (2017), while the environmental problem of global warming and the possible negative effects of climate change on fundamental rights and freedoms have been being discussed, the sea level rise due to global warming has already forced a majority of the people of Tuvalu, the world's first climate refugees, to leave their homes and relocate to New Zealand or Australia. Characterised as climate refugees, these people are experiencing many problems arising from international law in relation to their fundamental rights and freedoms. In their study, Yardimoglu, Atas, Fidan, and Karadag (2014) revealed the relationship between clean energy resources, sustainable development and the right to a healthy life. Terada (2012) stated that pollution in electronic conversion areas poses a risk to both the environment and human rights. In addition, living in a healthy environment, using natural resources in a sustainable way, and protecting the natural and historical richness as a common heritage of humanity have all been defined as human rights. In this sense, there are environment-based human rights such as environmental protection and sustainable development. Environmental problems pose a problem for various rights and freedoms. In this respect, it can be said that environmental education courses have the necessary theoretical framework for raising awareness and attitude towards human rights.

Considering the evaluation regarding the relationship between the environment and human rights, it is possible to say that the situations which most influence

human rights emerge as a result of advances in science and technology. Socioscientific issues (SSI) refer to those issues which emerge as a result of science and technology products and processes, and have ethical and moral dilemmas at their core (Sadler & Zeidler, 2005a). SSI involves science based controversial issues (Sadler & Zeidler, 2005b; Topcu, Sadler, & Yilmaz-Tuzun, 2010). It is also known that these issues have their environmental, financial, scientific, ethical, moral, and political aspects and are about situations associated with human rights (Chang-Rundgren & Rundgren, 2010). These issues require sustainable development, consideration of the environment, understanding risks and possible outcomes, and making scientific decisions (Ratcliffe & Grace, 2003), and are closely related to human rights and constitute an important context for human rights education (Doganay & Ozturk, 2017; Bossér, 2018; Chang-Rundgren & Rundgren, 2010; Dolan, Nichols, & Zeidler, 2009; Sadler, Foulk, & Friedrichsen, 2017; Sousa, 2017; Zeidler & Keefer, 2003). Environmental education courses also include a wide range of socioscientific issues such as nuclear power plants, thermal power plant, climate change, recycling, and use of pesticides-methyl bromide, genetically modified organism (GMO), nuclear power plants, global warming, and alternative energy resources. These topics require the active participation of citizens in the decision-making process, thinking about risks and possibilities, considering sustainable development and the environment because they are closely related to human rights. In this sense, it is possible to say that SSI can be an important context to carry out human rights education during environmental education. Considering the literature review about environmental education and human rights education, there has not been a study dealing with human rights education within the context of SSI as part of environmental courses. Studies carried out in the context of environmental education and socioscientific issues have tended to focus not on human rights education in general but on knowledge, argumentation quality, risk perception, opinions, and decision-making skills related to SSI (Atabey & Topcu, 2018; Ayaz, Karakas, & Sarikaya, 2016; Calik & Coll, 2012; Domac, 2011; Evren-Yapicioglu, 2018; Kilinc, Boyes, & Stanisstreet, 2011; 2012; Iseri, 2012; Ozdemir & Cobanoglu, 2008; Ozturk & Leblebicioglu, 2015; Yavuz Topaloglu, & Balkan Kiyici, 2017) and citizenship education (Cao, 2015; Kolstø, 2001; Mapping & Johnson, 2005; Mulvaney, 2011; Ratcliffe & Grace, 2003; Smith & Pangsapa, 2008; Ozden, 2011). In addition, the fact that advances in science and technology have brought about environmental problems that influence the fundamental rights and freedoms which make it compulsory to establish this context in environmental education courses. Moreover, such a study is important to raise the awareness that problems brought about by technological advances manifest themselves not only in the natural environment but also in the fundamental rights and freedoms of all people.

Generalization and protection of human rights requires raising individuals who understand and value human rights (Flowers et al., 2000). In this sense, integration of human rights education into curricula particularly in democratic societies and the quality of primary school education, which is the first step where students encounter such concepts, is of great importance (Flowers et al. 2009; Karagozoglu, 2017; Saglam, 2017). As a matter of fact, one of the important focal points of studies that aim at

creating a universal human rights culture is focusing on primary school systems. In this direction, there is also a democracy, human rights and citizenship class at the primary school level in Turkey. Furthermore, studies regarding human rights education have been conducted in different classes in the primary school system through a variety of interdisciplinary links. This shows the need for efforts aimed at equipping primary school teachers that are to engage in teaching of human rights with the required knowledge, skills, and attitudes. It is important to make adjustments in primary school teachers' training programs in order to meet this need. It is believed that this will contribute to international studies aimed at improving human rights education as part of teacher training curricula. In the light of the aforementioned reasons, this study was aimed to develop, implement and evaluate the Human Rights Curriculum Based on Socioscientific issues as Part of the Environmental Education Course (HRCSEC) for pre-service primary school teachers (PPSTs). In accordance with this main objective, this study aimed to answer the following questions:

What is the influence of HRCSEC on PPSTs' knowledge and attitude development regarding human rights? What are the evaluations of PPSTs' about effectiveness of HRCSEC and their individual development regarding human rights?

Method

Research Design

This study was designed as a quasi-experimental study with non-equivalent pre-test/post-test control group. This design is employed when participants cannot be appointed to experimental and control groups neutrally. A comparison was made between the pre-test and post-test measurements of the experimental and control groups (Christensen, Johnson, & Turner, 2011). In this study, the participants could not be appointed neutrally to experimental and control groups. Of the two second year classes from the department of primary school education, one was randomly assigned as control group while the other was assigned as experimental group. Human Rights Curriculum Based on Socioscientific issues as Part of the Environmental Education Course (HRCSEC) was administered to the experimental group in the study. The control group was subjected to no experimental operation. Attitude Scale for Adults Regarding Human Rights (ASAGR) and Knowledge Test Regarding Human Rights (KTHR) were administered as pre-test and post-test to both the experimental and control groups. Effectiveness of HRCSEC and Individual Development Evaluation Form (EHIEF) was only administered to the experimental group as final measurement.

Validity and reliability studies for the experimental research process. Before the implementation, information was collected from PPSTs regarding their previous experiences associated with human rights in order improve the explanation of the changes observed in the dependent variable by the independent variable. In this sense, information was collected as to whether they had received training regarding human rights previously and engaged in any individual effort for obtaining information about human rights. One of the PPSTs in the experimental group stated

that he had participated in a training and engaged in individual efforts in this sense. That PPST participated in all the practices, but his measurement data were not included in the evaluation. In addition, ANCOVA was planned for ASHR and KTHR in order to control the difference between the pre-test scores statistically. However, it could not be implemented since assumptions of the test were not met. The training process was not conducted by the researcher in order to prevent the possible bias likely to be caused by the researcher.

Preparation process of the Human Rights Curriculum Based on SSI as Part of the Environmental Education Course (HRCSEC). Needs analysis was carried out initially for the preparation of HRCSEC. Afterwards, program outcomes were identified; activity plans were prepared; pilot study was conducted; and the program was finalized prior to the implementation respectively. Detailed information regarding this process is given below.

Needs analysis studies. A two-stage approach was adopted for the needs analysis in the study. In the first stage, national and international documents regarding the relevant literature were analysed. Information was collected regarding the knowledge, attitudes, and skills that need to be possessed by pre-service teachers regarding human rights. The second stage involved administration of Needs Analysis Form Regarding Human Rights (NAFHR) in order to determine whether the pre-service teachers possessed the relevant knowledge, skills, and attitudes. The form includes open-ended questions. Information regarding the concept of human rights, fundamental rights and freedoms, violations of human rights, and the importance of human rights was collected. In this process, NAFHR was administered to 496 PPSTs studying at four different universities. The results showed that the pre-service teachers made incomplete or incorrect explanations regarding human rights and violations. The pre-service teachers could not make explanations as to why knowing, protecting, and spreading human rights is important. Of these pre-service teachers, 403 stated the works to develop knowledge and attitudes regarding human rights within teacher training programs as a necessity and need. These results were compared with the findings obtained through review of the relevant literature to reveal the needs.

Identifying the purposes for HRCSEC and developing activity plans. General purposes and acquisitions for HRCSEC were prepared according to needs analyses and the views of experts. With the needs analysis studies, it was determined for which rights, freedoms, and concepts the information and attitudes would be developed in the HRCSEC. The general purpose and gains for the HRCSEC were prepared by determining for which rights, freedoms and basic concepts the awareness and information would be provided in the information improvement dimension of the needs analysis. In this process, in line with the needs analysis, it was decided to convey knowledge and awareness about the rights, freedoms and basic concepts which are unknown to pre-service teachers and have low frequency among the listed rights, that is to say, which have a low awareness, which cannot be adequately explained in terms of their scope despite the fact that they are known as names and which can provide information improvement with socioscientific issues

in environmental education class. In the attitude improvement dimension of the needs analysis, in general, the reasons why fundamental rights and freedoms are important, and the gains that show the importance and necessity of generalizing and protecting human rights were prepared. At the same time, in weekly applications, awareness-raising gains were prepared for the importance and necessity of rights, freedoms or concepts taken as a basis. The general purpose and gains of the program, prepared after the needs analysis study, were finalized by presenting them to the expert opinion. The environmental education course was analysed in socioscientific terms in accordance with general purposes and acquisitions. What kinds of relationships can be established between which fundamental rights and freedoms and which SSI was determined. Then the relevant literature was reviewed to collect information about the methods and techniques to be set to work for the teaching-learning process. In this process, the strategy of teaching through discovery and the strategy of teaching through research-examination were taken as a basis. In this context, a teaching-learning process using active learning methods and techniques that put students in the center was adopted. In this sense, dilemma scenarios based on socioscientific issues, media report analysis, real jurisdiction reports on human rights, cooperative learning, role-playing methods, and projects were utilized. The activities were prepared based on the studies from the relevant literature (Doganay & Ozturk, 2017) and expert views. To finalize the prepared program, pilot studies were conducted for the activities prior to the main implementation. The framework that shows the general structure of HRCSEC is given in Figure 1.

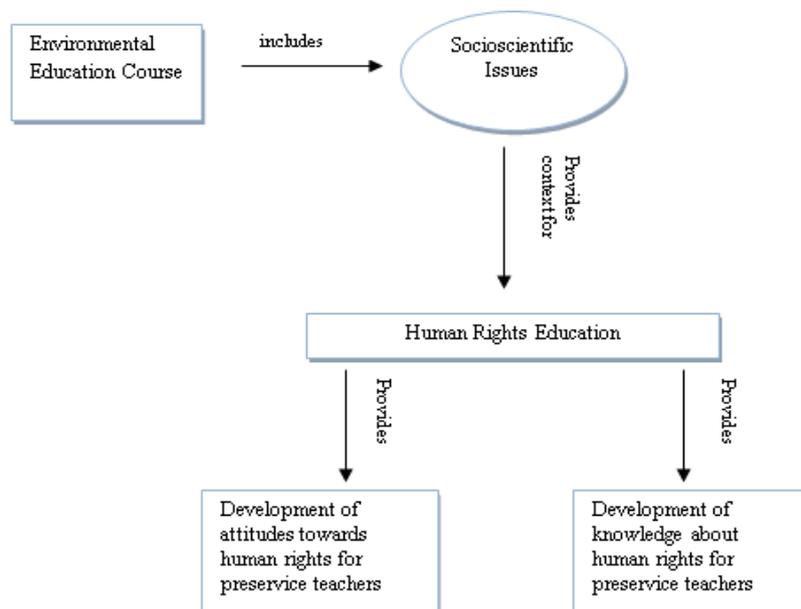


Figure 1. The Framework for The General Structure of HRCSEC

Figure 1 shows that environmental education course included socioscientific issues. Socioscientific issues provide context for human rights education. The practice

of human rights education is expected to develop attitudes and knowledge towards human rights of PPSTs. It also offers a holistic understanding of the relationship between the human rights, environment and the effects of development of science and technology.

Implementation process of HRCSEC. 14-week implementation was conducted within the scope of HREPSEC. During this process, the pre-service teachers were informed of the SSI about which the activities would be carried out beforehand. Thus, the pre-service teachers were allowed to collect information by conducting research. The practices carried out within the scope of HRCSEC, which was prepared in line with the environmental education course curriculum, are given below.

1st Week. In this week, the ASHR and KTHR were administered to both groups. In addition, awareness-raising works were performed on fundamental rights and freedoms and the relationship between the environment and human rights for the experimental group. The methods of discussion, question-answer, and brainstorming were employed in this process.

2nd Week. The activity for the second week was based on global warming and climate change. A dilemma was employed to create an environment for discussion. This activity involved the possible outcomes of global warming and climate change as well as the responsibilities that need to be undertaken by countries to prevent such outcomes. Connections were established with the rights to life, environmental protection, housing, food, clean water, an adequate standard of living, and employment during this process. Thus, awareness was raised regarding the rights and their protection. In addition, practice opportunities were offered to list the rights according to priority.

3rd Week. In week three, the activity was also based on global warming and climate change, drama and role-play methods were employed. The class was divided into two groups during the activity. One of these groups performed as climate refugees who had to migrate due to negative influence of global warming and climate change. The other group acted as the government and people living in another country that was less impacted by this situation. The problems and the clashes between the refugees seeking shelter and the government as well as the people who did not want to accept them were performed. Connections were established with the rights to life, environmental protection, housing, property, immigration, an adequate standard of living, food, and clean water during this process.

4th Week. For week four, media report analyses were carried out in this activity based on the use of thermal plants for energy production. A conflict was analysed within the scope of the rights to environmental protection, health, employment, and public welfare.

5th Week. The role-play method was employed in this activity which a legal process extending to the European Court of Human Rights in relation to Yatagan

thermal plant was performed by the students. In this sense, a conflict based on the rights to environmental protection, health etc. and public welfare was dealt with.

6th Week. For week six the activity was about the use of cleaning products in socioscientific terms. It drew attention to the sustainable use of water. Cooperative learning and small and large classroom discussion methods were employed in the activity. Connections were established with the rights to sustainable development, clean water, life, and healthy life. The aim was to make students acquire a holistic and universal perception regarding the influence of water pollution on human rights in term of the environment.

7th Week. The activity for week seven focused on GMO's. Research-analysis, discussion, and cooperative learning methods were employed for the activity. A dilemma scenario was created in which one has to decide whether products with GMO should be produced or not. Connections were established with the rights to food, right to food security, healthy life, and life.

8th Week. For week eight, hydroelectric power plants (HPP) were dealt with as one of the alternative energy resources. Accordingly, news in the media regarding HPP was analysed in this activity. In this sense, evaluations were made regarding the rights to housing, food, environmental protection, sustainable energy, and respect for common heritage of humanity, property, and housing.

9th Week. During week nine, the Chernobyl accident was the point of focus in socioscientific terms. Connections were made with the rights to life, environmental protection, freedom of press (e.g., freedom of information), and healthy life.

10th Week. Recycling was dealt with as SSI in the week 10 activity. A connection was established with sustainable development. In this sense, the relationship between the right to sustainable environment, sustainable economy, and environmental protection and recycling was analysed. Then they prepared posters and presented them. This activity involved small group work. The pre-service teachers conducted research initially.

11th Week. The pre-service teachers worked in small groups during the 11th week. They identified a SSI associated with the environment as a group. They evaluated the situation from the aspect of human rights and created a poster. They presented the work they prepared in the class one-by-one, and all the class participated in the discussions.

12th Week. In the 12th week, the activity focused on the use of GMO and pesticides-methyl bromide as SSI. It dwelt on sustainable agriculture, sustainable environment, the right to health, provision of adequate food, and the right to environmental protection. In this process, the pre-service teachers faced a conflict through the dilemma scenario. All-class discussion was conducted. The pre-service teachers used the information they obtained through research-analysis to present the relevant justified decisions.

13th and 14th Weeks. In the final two weeks of activities, the pre-service teachers worked in groups of five or six. They were asked to develop projects providing information about human rights and their importance within the context of environmental issues. The pre-service teachers conducted many projects such as preparation and presentation of posters and banners, organizing works to inform, drawing attention to the importance of the right to environmental protection and sustainable environment via the planting of tree saplings, and establishing recycling stations by focusing on the importance of sustainable development. Afterwards, ASHR and KTHR were administered to the experimental and control group pre-service teachers. In addition, EHEF was administered to the experimental group.

Implementation process of the control group. In the control group, the environmental education course was carried out as a normal course in the curriculum. In this respect, the topics in the curriculum were conveyed to the students through active learning methods and techniques. However, it should be noted about the application process that the control group curriculum included topics such as nuclear power plants, global warming, thermal power plants, etc. However, these topics were addressed only as environmental issues in the control group. In this process they were not used in the context of socioscientific issues like the experimental group's curriculum, and they were not used to provide information or for the attitudes of human rights as well as being an environmental situation. This situation related to the application process of the experimental and control group can be explained by a sample topic. For example, while global warming and climate change were addressed as environmental issues in the control group, they were addressed as a socioscientific issue that concerns both the environment and human rights in the experimental group. In this respect, they were addressed in relation to the rights of the environment, living, environmental protection, housing, property, refuge, adequate living standards, nutrition, and clean water in experimental group curriculum. As a result, in the control group, applications were made in line with the aims of the environmental education class and no intervention was made regarding human rights education.

Study Group

The study was conducted at the faculty of education of a state university in Turkey. Study group included 38 experimental and 39 control group PPSTs (e.g., a total of 77 pre-service teachers) who were in their second year. Experimental group students' with age ranges from 19 to 20. 20 were female and 18 were male. Control group students' age ranges were from 19 to 20. 22 of them were female and 17 were male. None of these pre-service teachers had previously been trained regarding human rights. In addition, none of these PPSTs had experience regarding knowledge acquisition concerning human rights.

Research Instruments and Procedures

Attitude Scale for Adults Regarding Human Rights (ASHR). The ASHR was developed and employed in the study to reveal the pre-service teachers' attitude change towards human rights. To develop the ASHR, literature was reviewed to

create an item pool initially. To this end, the developed scales, published manifestos and agreements were analysed. A draft form including 43 items was prepared within the context of the accessed theoretical information and a 5-point Likert type was adopted for the form. Content validity of the form was ensured by five expert faculty members and five expert lawyers. The necessary corrections were made according to these views, and the form was reorganized to include 40 items. In the later step, a pilot study was conducted on 10 pre-service teachers. The form was finalized with the received feedbacks. Explanatory factor analysis was carried out on the database including 389 people. After examination, five items were excluded from the scale, and the analysis was repeated. At the end of the repeated explanatory factor analysis, it was seen that the scale had two factors: "Attitude towards human rights" and "Attitude towards the protection and development of human rights". Factor loads of items range from .626 to .823. Total score correlations range from .633 to .820. The Cronbach Alpha internal consistency coefficients of the sub-scales were .960 and .939. These two sub-factors explained 52.724% of the total variance. The Cronbach Alpha internal consistency coefficient of the entire scale was .930. The relationship between the total scores of the two factors was calculated to be .126. This result implied that the factors do not measure the same construct. Correlation values were calculated to determine the relationship between ASHR sub-factors and the entire test. High and significant correlation values (.676; .816) indicated that these two sub-factors were the components of the Attitude Scale for Adults Regarding Human Rights (ASHR). At the end of EFA, a two-factor scale with 35 items was obtained. Confirmatory Factor Analysis (CFA) was conducted to see whether the construct obtained based on the data obtained through the EFA yielded adequate fit index as well as to test construct validity. CFA was conducted on database including 350 people. At the end of CFA, RMSEA value was found to be .035, NFI value .932, AGFI value .872, CFI value .973, IFI value .979, RFI .978, RMR value .017, and χ^2/df value 1.432. These fit indices showed that the model has good fit (Kline, 2005). As a result, a Likert-type scale with two factors and 35 items was obtained to determine the attitudes of pre-service teachers regarding human rights. Among these factors, there were items for determining the attitudes of pre-service teachers towards the protection and development of fundamental rights and freedoms in the "attitude towards the protection and development of human rights" factor. Example items of this factor are as follows: "One of the main purposes of the education should be to provide knowledge, skills, and attitudes related to human rights", "In the society, awareness-raising activities should be focused on strengthening respect for human rights", "People should be provided with the awareness of acting together against violations of rights in the national and international context". In the factor of "attitude towards human rights", there were items to determine the attitudes of pre-service teachers towards fundamental rights and freedoms. Example items of this factor are as follows: "The sustainable use of the environment and natural resources is a necessary right for all humanity", "All people should have the right to adequate nutrition, clothing, shelter and clean water", "Differences such as gender, race, colour, and religion should not be an obstacle to having fundamental rights and freedoms", "Taking measures for environmental problems such as global warming is not

necessary if they will bring severe economic constraints to the country" (e.g., adverse item), "The state should take measures to provide freedom of the press and obtainment of information".

Knowledge Test Regarding Human Rights (KTHR). KTHR was developed and employed in the study in order to reveal the changes in the PPSTs' knowledge acquisition regarding human rights. The sources in the relevant literature were reviewed, and 35 multiple choice questions suitable for the acquisitions were prepared. These questions were presented to the experts for them to evaluate for content validity. The number of the questions was reduced to 28 according to the received feedbacks. KTHR was administered to 92 pre-service teachers who had acquired knowledge regarding human rights previously. After the test, item analysis was conducted to calculate the difficulty and discrimination indices of each item. The items with discrimination indices below .20 were excluded from the test. Independent-samples *t*-test was conducted to see whether there was a significant difference between the lowest and highest 27% groups. Following those operations, difficulty and discrimination indices, standard deviations, and *t*-test results of the test items were obtained. The analyses pointed to four items that were not valid and reliable. These four items were excluded from the test. Since the excluded items did not reduce the content validity of the test, no corrections were made to add new questions. In order to calculate the reliability of KTHR including 24 multiple choice questions, Kr-20 value and average difficulty value of the test were calculated. In the end, a test with items whose discrimination indices ranged from .35 to .69 with an average difficulty of .59 and with a Kr-20 value corresponding to .87 was obtained. In KTHR, question roots, in which information related to human rights was asked directly and information related to human rights in the environmental context, were used. Sample question roots to the questions in the information test are as follows: "Which of the following is not among the characteristics of human rights?", "In which classification are the environmental rights, the right to peace, the right to benefit from the common heritage of mankind in the field of human rights?", "It was determined that radioactive waste had spread to the environment due to leakage in a nuclear power plant. In this process, it was decided to solve the problem without informing the inhabitants in order to avoid chaos and to avoid the reaction of people. What fundamental rights and freedoms of the inhabitants have been violated by this decision?", "It is the duty of the state and citizens to improve the environment, protect the environment and prevent environmental pollution. This is also a burden for citizens in terms of the environmental protection. A citizen who has learned that dangerous substances and wastes are released to the nature has applied to the relevant state institution with a petition. In this process, what rights has the citizen used to protect his/her what rights?"

Effectiveness of HRCSEC and Individual Development Evaluation Form (EHIEF). EHIEF was employed to receive participants' views regarding effectiveness of HRCSEC and to evaluate whether they observed any change in themselves in terms of their perceptions and attitudes regarding human rights at the end of the process. The form made up of open-ended questions was prepared after receiving

expert opinions. To this end, the pre-service teachers were asked, "Do you think the practices implemented to improve the knowledge and attitudes regarding human rights within the scope of HRCSEC are beneficial and necessary? Can you explain why?" and "Did you notice any change in your attitude and knowledge regarding human rights before and after the practices? Can you explain how?" via EHIEF.

Data collection. The ASHR and KTHR were administered to both experimental and control groups in the study. In the data collection process, the ASHR was administered, and after a 15-minute interval, the KTHR was administered as well. One-to-one interviews were made with the experimental group pre-service teachers during the administration of EHIEF, and these interviews were recorded.

Data Analysis

Analyses of quantitative data. Quantitative data regarding the improvement of knowledge and attitude towards human rights were statistically analysed. In this process, ASHR and KTHR data sets were analysed to see whether they were fit for covariance analysis. It was seen that the assumptions that were necessary for the analysis were not met thoroughly. For the ASHR and KTHR pre-test and post-test scores, normality and equality of variances assumptions were analysed for the independent *t*-test fitness. After the analyses a Mann-Whitney U test was employed for the analyses of the pre-test score of ASHR and pre-test and post-test scores of the KTHR. The ASHR post-test score dataset was analysed via an independent-samples *t*-test.

Analyses of qualitative data. The views regarding the effectiveness of HRCSEC and individual development were analysed via content analysis. Initially, open and selective coding (Strauss & Corbin, 1990) processes, which are the first steps of content analyses, were followed for the analyses. The data set was analysed line-by-line according to the research purposes during the analysis. Codes were created based on the meanings emerging directly or indirectly. The created codes were grouped taking into account their similarities and differences. Five categories were obtained. These categories were re-analysed and divided into two themes: evaluations regarding effectiveness of HRCSEC and individual acquisitions regarding human rights. In the presentation of the findings, quotations from the students are provided according to their sequence numbers.

Validity and Reliability Studies for the Analysis of Qualitative Data

The studies below were conducted to ensure the reliability and validity of the study results:

Interview data were recorded to prevent data loss. The research process was explained in detail in a way that other people could understand how the research results were obtained and how deductions were made. Direct quotations were provided for the readers to envision the described situation as well as to support the research findings. Inter-coder reliability was employed to ensure the reliability of the obtained results. Inter-coder reliability was calculated at 91% (Miles & Huberman,

1994). Discussions were carried out with experts regarding the codes which coders had disagreed upon in order to be sure agreement was reached.

Results

Results Concerning the Attitude Improvement Regarding Human Rights

ASahr was administered as pre-test and post-tests to the experimental and control groups in order to reveal if there was any change in the pre-service teachers' attitudes regarding human rights. Mann Whitney U Test was carried out to see if there was a statistically significant difference between the experimental and control group pre-service teachers' ASahr pre-test scores. The Mann Whitney U Test showed that there was no statistically significant difference between the experimental and control group pre-service teachers' pre-test scores [$U=722, p >.05$]. Also, the test showed that mean rank pre-test score of the experimental group was 38.50 and the mean rank pre-test score of the control group was 39.40. This was indicative of the fact that the pre-service teachers from both the experimental and control groups had similar attitude scores regarding human rights prior to the implementation.

Independent-samples *t*-test was conducted to reveal if there was a statistically significant difference between the experimental and control group pre-service teachers' ASahr post-tests scores. The test showed that there was a statistically significant difference between the experimental and control group pre-service teachers' ASahr post-test scores in favour of the experimental group pre-service teachers [$t(75)=19.32, p<.05$]. Also, the test showed that mean post-test score of experimental group was 149.13 and mean post-test score of control group was 78.38. This was indicative of the fact that the experimental group pre-service teachers had higher attitudes than the control group pre-service teachers following the implementation.

Results Concerning Knowledge Improvement Regarding Human Rights

Mann-Whitney U Test was carried out to see if there was a statistically significant difference between the experimental and control group pre-service teachers' KTHR pre-test and post-test scores. The Mann-Whitney U Test showed that there was no statistically significant difference between the experimental and control group pre-service teachers' KTHR pre-test scores [$U=703.50, p >.05$]. Also, the test showed that the mean rank pre-test score of experimental group was 38.00 and mean rank pre-test score of the control group was 39.97.

Mann-Whitney U Test for KTHR post-test scores showed that there was a statistically significant difference between the experimental and control group pre-service teachers' KTHR post-test scores in favour of the experimental group pre-service teachers [$U=.00, p >.05$]. The mean rank score was calculated for post-test of experimental group as 58.00 and for post-test of control group as 20.00. Mean ranks

indicated that the experimental group pre-service teachers turned out to be more knowledgeable following the implementation.

Results for Views Regarding Effectiveness of HRCSEC and Individual Development

The experimental group students were asked to evaluate effectiveness of HRCSEC and individual development. The results are given in Table 1.

Table 1

Results for Views Regarding Effectiveness of HRCSEC and Individual Development

Themes	Categories	Codes
Evaluations regarding the effectiveness of HRCSEC	The views regarding the necessity and the importance of HRCSEC	<ul style="list-style-type: none"> -Considering HRCSEC necessary to raise individuals who are aware of the fundamental rights and freedoms -Considering HRCSEC important to provide knowledge and skills to participate in the discussions about the environment and human rights -Considering HRCSEC necessary to make people comprehend that fundamental rights and freedoms are important -Considering HRCSEC necessary to understand the relationship between the environmental problems and violation of rights -Considering HRCSEC necessary to make people responsible individuals in relation to the environment and human rights
	The views regarding the benefits of HRCSEC	<ul style="list-style-type: none"> -Obtaining necessary acquisitions for professional development -Raising an awareness regarding the violation of rights in daily life -Making people acquire knowledge regarding rights through real life problems -Making people comprehend the necessity and importance of the human rights education -Making people comprehend the relationship between the environment and human rights -Creating an awareness of responsibility regarding the environment and human rights

Table 1 Continue

Themes	Categories	Codes
Individual acquisitions regarding human rights	Creation of understanding and knowledge	<ul style="list-style-type: none"> -Acquiring detailed knowledge regarding the fundamental rights and freedoms -Understanding what is the violation of rights -Understanding that human rights are universal values -Not memorizing but learning meaningfully -Learning how to use rights in the daily life -Constructing knowledge regarding what one can do in the face of violation of rights -Understanding the responsibilities of citizens and government regarding human rights -Understanding the relationship between the environment and human rights
	Attitude development	<ul style="list-style-type: none"> -Considering the knowledge acquisition regarding human rights important -Considering the spread and protection of human rights important -Stating the importance of preventing the violation of rights -Being eager to undertake responsibility for the protection of rights -Considering the studies to raise consciousness regarding human rights necessary -Being eager to follow the publications regarding human rights -Wishing to support the efforts regarding human rights
	Behaviour development	<ul style="list-style-type: none"> -Engaging in behaviours that are appropriate for human rights -Following the publications about human rights -Participating in the efforts about human rights

Table 1 shows that the results regarding the implementation process and individual development fell under two themes: evaluations regarding the effectiveness of HRCSEC and individual acquisitions regarding human rights. Of these two, evaluations regarding effectiveness of HRCSEC referred to views about importance, necessity and benefits of HRCSEC for human rights education. This theme has two categories: the views regarding the necessity and importance of HRCSEC and the views regarding the benefits of HRCSEC. The category about the necessity and importance of HRCSEC draws attention to raising individuals who are aware of fundamental rights and freedoms, making people comprehend the importance of protecting the rights and freedoms, providing knowledge and skills to participate in discussion about the environment and human rights, understanding the relationship between the environmental problems and violation of rights, and equipping people with the responsibility of being sensitive towards the environment and human rights. In this sense, it is possible to say that the practices are considered important and necessary not only in terms of acquiring knowledge and attitude towards human rights but also in terms of understanding the connection between the

environment and human rights, equipping citizens with the responsibility regarding the environment and human rights, and providing knowledge and skills to participate in the discussions. One of the pre-service teachers commented on this issue as follows:

“I think such practices should be part of the environmental education course. We acquired so many things regarding the human rights and the importance of the protection of human rights...Before the practices, human rights and environmental problems were two separate issues for me...I even did not know the right to environmental protection...We understood the relationship between the environmental problems and protecting the nature...We realized that we have responsibilities to protect the environment and human rights as citizens...We discussed the controversial issue that we frequently see on TV and the news. These are really the situations that we encounter in our daily lives...With these discussions, our skills of looking from another perspective, advocating our opinions with justifications and proofs, and persuasion and rhetoric skills improved. We gained experiences about how to participate in the discussion that are on the agenda regarding human rights and environmental problems...thus, such practices should be supported...” (T13)

The views regarding the benefits of HRCSEC included acquisitions regarding the professional development, comprehension of the necessity and the importance of human rights education, creating an awareness regarding the violation of rights in the daily life, offering the acquisitions regarding the rights by means of real life problems, comprehension of the relationship between the environment and human rights, and creating a sense of responsibility for the protection of the environment and human rights. In this sense, it is possible to say that the practices were considered useful for professional development, acquisition of awareness and knowledge regarding the violation of rights through real life situations, comprehension of the relationship between the environment and human rights, and raising sense of responsibility for the protection of environment and human rights. One of the pre-service teachers who considered the practices for the professional development necessary stated the following:

“... They provided the necessary knowledge for professional development. This is because we also need to teach human rights to our students. However, there is no such course in our teaching curriculum...” (T16).

It was seen that the views regarding the individual acquisitions about human rights are divided into three categories: the creation of understanding and knowledge, attitude development, and behaviour development. Fundamental rights and freedoms, violation of rights, prevention of the violation of rights, and knowledge acquisition about human rights as a universal value were stated within the scope of creation of understanding and knowledge. In addition, meaningful learning regarding the rights, understanding the relationship between environment and human rights, the responsibilities of citizens and the government, and the increase in the number of rights one is informed about were emphasized. One of the pre-service teachers expressed meaningful learning regarding the human rights as follows:

“... If we were taught the human rights course only, it would be plain memorization. However, we acquired knowledge within the life itself as part of the environmental education course. We learnt how rights and violation of rights appear in our lives and what they mean via real life experiences...” (T28).

One of the pre-service teachers expressed the improvement of knowledge about human rights as follows:

“I learned a lot about what rights we have at the events... In the first place, the rights I know increased. Previously, I only knew a few fundamental rights like education and the right to life. Now I can say that I know most of the fundamental rights and freedoms ...there were also rights such as environmental protection and protection of the common heritage of mankind ...I understand what the violation of a right is and what it is not. I saw it has a very different meaning than we think” (T17).

Another pre-service teacher expressed the following about knowledge improvement:

“When I compare with what I knew at the beginning of the term ..., I can say that I know so much about human rights now ...both the number of rights I know increased and I understood their meaning and scope better ...” (T21)

In terms of attitude development, they emphasized the importance of knowledge acquisition, generalization and protection of human rights, and the prevention of the violation of human rights, considered the efforts regarding human rights necessary, and expressed their willingness to participate in such efforts. In addition, they also wish to follow the publications regarding human rights and undertake responsibilities for the protection of the rights. One of the pre-service teachers pointing to the importance of the necessity of engaging in efforts about human rights and the prevention of the violation of human rights stated the following:

“...Most of the people either do not know their fundamental rights and freedoms or are not aware of their importance...People should be informed about the rights and violation of rights. Only in this way, the violation of rights can be prevented, and people can live better lives...” (T32).

In relation to behaviour development, the pre-service teachers stated that they tried to behave according to human rights, followed the relevant publications, and participated in the relevant efforts. One of the pre-service teachers commented on following the publications regarding human rights as follows:

“...At first I thought human rights were so shallow. I started to understand with examples from the real life. I started to read now. Particularly social-cultural rights draw my attention most...” (T24).

When an overall evaluation is made based on these results, it is possible to say that the pre-service teachers in the experimental group consider the practices necessary and important and personally observed various improvements in themselves regarding knowledge, understanding, attitudes, and behaviours regarding human rights.

Discussion, Conclusion and Recommendations

The study results indicated that the experimental group pre-service teachers that were given HRCSEC had significantly higher knowledge and attitude compared to the control group pre-service teachers. Acquisition of high level knowledge and attitude by the experimental group pre-service teachers following the implementation process may be indicative of the fact that SSI can provide a suitable context for human rights education within the environmental education course. Doganay & Ozturk (2017) also reported that SSI presents an effective context for attitude development regarding human rights. In this sense, he stated that SSI such as nuclear power plants, hydroelectric power plants, global warming, climate change, thermal power plants, and genetically modified organisms offer the necessary context for human rights education. On the other hand, attention was drawn to the relationship between human rights and numerous environmental aspects that were evaluated in the context of SSI in various studies (Akyuz, 2015a, 2015b; Benz, 2013; Clarke, 2010; Chang-Rundgren & Rundgren, 2010; Colakoglu, 2010; Davies et al., 2017; Demirdelen & Odman, 2017; Dolan et al., 2009; Evren-Yapicioglu, 2018; Kadioglu, 2008; Moro, 2002; Ziya, 2012; Rademacher, 2010; Yardimoglu, et al., 2014) in the related literature. This supports the claim advocated in this study that SSI can be an effective context for human rights education as part of environmental education courses.

In addition, lower knowledge and attitude development observed in the control group pre-service teachers compared to the experimental group pre-service teachers and little change compared to their status prior to the study were remarkable points to consider. This was because; some of these situations (e.g., environmental problems, energy problems, water pollution, etc.) known as SSI were actually part of the environmental education course curriculum. The control group pre-service teachers also encountered some of these issues within the scope of the environmental education course. Then why did not further knowledge and attitude development take place with regard to human rights? Issues such as thermal power plants, water pollution and global warming were only considered as environmental issues and problems within the scope of the environmental education course. In other words, environmental damage in the traditional approach was considered as pollution or destruction of nature, and the relation of environmental problems to human rights was ignored. However, such environmental problems adversely affect people's fundamental rights and freedoms, in particular, the right to life (Akyuz, 2015a). When such issues were evaluated within the context of SSI, they gained importance not only as environmental problems but also in social, political, and economic terms as well as from the aspect of human rights (Sadler & Zeidler, 2005a). In this sense, the meanings and deductions derived from the evaluation of such issues differed as well. This situation was taken into account during the research process, and relevant arrangements were made to draw the pre-service teachers' attention towards human rights. In this sense, these problems were started to be perceived not only in environmental terms but also as human rights problems. A holistic perspective was created for the relationship between the environment and human rights in this

process. The understanding that protecting the environment means protecting human rights, and it was necessary to improve human rights (Flowers et al., 2009; UNEP, 2014) was acquired by the pre-service teachers. On the other hand, even if the environmental education course offers context to teach many rights within the scope of human rights, it is clear that this development cannot take place unless this connection is intentionally established. Teachers are expected to undertake this responsibility consciously and engage in planned activities to improve students' knowledge and attitudes (Darder, 2009).

Furthermore, the pre-service teachers were made to experience real events/problems from daily life regarding human rights through the activities based on SSI. These issues were frequently on the agenda via media or political campaigns and lead to arguments. Their connections with fundamental rights and freedoms were highlighted. In this sense, these socioscientific issues enabled meaningful learning for the pre-service teachers and facilitated the transfer. This situation may be indicative of the fact that the context of socioscientific issues served important educational purposes such as meaningful learning and transfer during the process of human rights education (Zajda & Ozdowski, 2017). In addition, it was recognized that the implementation provided knowledge and skills to participate in the relevant discussions regarding the environment and human rights. Experiences regarding the rights through real life problems allowed meaningful learning about the rights, skills to participate in social discussions, attitude development concerning human rights, knowledge acquisition, and raising awareness about violation of human rights, which were indicative of important acquisitions in terms of human rights education (Doganay & Ozturk, 2017; Jennings, 2006; Shiman, 1999; Tibbitts, 1996). Moreover, research results showed that the practices provided a sense of responsibility to the pre-service teachers to protect the environment and human rights, allowed understanding of the responsibilities of governments and citizens, and adopting positive attitudes to undertake responsibilities. Sense of responsibility is an important acquisition in terms of human rights education (Reardon, 1995; Tarrow, 1990). Gaining such acquisitions is very important. Conducting human rights education from a global perspective and raising awareness regarding global problems is a problem repeatedly mentioned as part of human rights education (Brander et al., 2002; Spreen & Monaghan, 2017; Tibbitts, 1996). It is possible to say that this study helped to develop understanding regarding the universality of human rights, and the practices drew attention to many global problems such as global warming, climate change, and sustainable development. In addition, acquisition of knowledge, skills, and attitudes regarding human rights is an important component of teacher training taking into account the fact that pre-service teachers will offer human rights education in the future (Anees, 2014; Jennings, 2006; Karakus, 2018; Osler & Starkey, 1994). As a matter of fact, the Ministry of National Education (2017) included the sensitivity of teachers to human rights and natural environment within the scope of general qualifications of the teaching profession in Turkey. At the same time, in the primary school teaching undergraduate program updated by the Council of Higher Education (2018) in Turkey, it has been foreseen to convey knowledge about human rights both as a separate course within the elective courses as well as

with an interdisciplinary approach. In this case, the gains from the study can be said to be important for pre-service teacher education in Turkey. Considering that primary school teachers will give classes on human rights at the primary school level, it can be said that the gains would be indirectly beneficial for increasing the quality of human rights education at the primary school level. In this sense, it is possible to say that such practices make important contributions to the professional development of pre-service teachers. On the other hand, applications were found to be beneficial for pre-service teachers to gain proficiency in environmental discussions, to understand the relationship between environment and human rights, and to acquire citizenship responsibility. In the context of education for the environment, it is aimed at bringing up participant and responsible individuals (Ozdemir, 2007) and integrating the human rights and citizenship education (Atasoy, 2015). It can be concluded that the use of the socioscientific context in environmental education will provide gains for environmental education as well as for human rights.

Considering the study results generally, it is possible to say that HRCSEC served the purposes of human rights education such as offering knowledge, attitude, and behaviours and raising awareness in relation to the violation of human rights. According to the results of the research, it can be suggested to establish a human rights connection with SSI in environmental education courses for PPSTs in order to gain a holistic understanding of the environment and human rights and also to gain knowledge and attitude regarding human rights. Additionally, studies focusing on possible problems and their solutions are important to make the practices more effective. In this sense, researchers may be recommended to conduct action research in this matter. On the other hand, this study was limited with 77 PPSTs. In this direction, studies can be conducted at different stages of education and with larger samples in order to more fully obtain the comprehensive and detailed information needed to better understand this situation.

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Çevre Eğitimi Dersinde Sosyobilimsel Konularla İnsan Hakları Eğitimi

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Özet

Problem Durumu: İnsan hakları eğitimi küresel bağlamda temel hak ve özgürlüklere ilişkin anlayış ve saygının oluşturulması için gerekli bilgi, beceri ve tutumun kazandırılması sürecidir. Demokratik toplumlar için büyük önem taşıyan ve barış kültürünün oluşturulmasına önemli katılar sağlayan insan hakları eğitiminin etkili bir şekilde gerçekleştirilmesinde öğretmenlere önemli görevler düşmektedir. Öğretmenlerin insan hakları eğitimini etkili bir biçimde gerçekleştirilmesi için ise öncelikle kendilerinin insan haklarıyla ilgili derinlemesine bir anlayışa sahip olmaları gerekmektedir. Bu durum, öğretmen yetiştirme programlarında insan hakları eğitimi için düzenlemeler yapılmasının gerekliliğini ortaya koymaktadır. Öğretmen yetiştirme programlarında insan hakları eğitimi için bağlantı kurulabilecek derslerden biri de çevre eğitimi dersidir. Küresel ısınma ve iklim değişikliği, sürdürülebilir çevre, nükleer enerji santralleri, alternatif enerji kaynakları, zararlı peptisitler, asit yağmurları, geri dönüşüm gibi çevresel birçok konunun insan hakları üzerinde etkisi bulunmaktadır. İnsan hakları üzerinde etkisi olduğu belirtilen bu durumlarfen ve teknolojiadaki gelişmelerin ürün ve sürecine bağlı olarak ortaya çıkmakta olup sosyobilimsel konular olarak adlandırılmaktadır. Bu doğrultuda, çevre eğitimi derslerinde insan hakları eğitimini gerçekleştirmek için uygun bağlamlardan birinin sosyobilimsel konular olabileceği söylenebilir. Bununla birlikte, ilgili alan yazın incelendiğinde çevre eğitimi ve sosyobilimsel konular bağlamında gerçekleştirilen çalışmaların ise insan hakları eğitimine değil vatandaşlık eğitimi ve sosyobilimsel konulara ilişkin bilgi, risk algısı, görüşler, karar verme becerisi, argümantasyon becerisivb. üzerine odaklandığı görülmektedir. Böyle bir çalışmanın, insan haklarına ilişkin bilgi ve tutum kazandırmanın yanı sıra; fen ve teknolojiadaki gelişmelerin beraberinde getirdiği birçok problemin çevresel olduğu kadar temel hak ve özgürlükler için de sorun olduğu bilincinin kazandırılması için de önem taşıdığı söylenebilir. Evrensel bir insan hakları kültürünün oluşturulması amacıyla gerçekleştirilen çalışmaların önemli odaklarından birinin ilkökul sistemleri olduğu düşünüldüğünde, sınıf öğretmen adaylarına insan hakları ile ilgili bilgi ve tutum kazandırılması için çalışmalar yapılmasının önem kazandığı söylenebilir.

Araştırmanın Amacı: Bu çalışmada, sınıf öğretmen adayları için “Çevre Eğitimi Dersinde Sosyobilimsel Konular Temelli İnsan Hakları Eğitimi Programı’nın (ÇSİHEP’in) geliştirilmesi, uygulanması ve değerlendirilmesi amaçlanmıştır. Bu ana amaç doğrultusunda şu sorulara yanıt aranmıştır: ÇSİHEP’in sınıf öğretmen adaylarının insan haklarına ilişkin bilgi ve tutum gelişimi üzerine etkisi nasıldır?

Sınıf öğretmen adayları, ÇSİHEP'in etkililiğini ve insan haklarına ilişkin bireysel gelişimlerini nasıl değerlendirmektedir?

Yöntem: Eşdeğer olmayan ön-test son-test kontrol gruplu yarı deneysel desen olarak tasarlanan araştırmanın katılımcılarını, deney grubunda 38 ve kontrol grubunda 39 olmak üzere toplam 77 sınıf öğretmeni adayı oluşturmuştur. Araştırma kapsamında, 14 hafta uygulama gerçekleştirilmiştir. Araştırmada, deney grubuna ÇSİHEP uygulanmış, kontrol grubuna ise deneysel herhangi bir işlem uygulanmamıştır. Çalışmada, araştırmacı tarafından geliştirilen Yetişkinler için İnsan Haklarına İlişkin Tutum Ölçeği (YİHTÖ) ve İnsan Haklarına İlişkin Bilgi Testi (İHBT) deney ve kontrol grubuna ön-test ve son-test olarak uygulanmıştır. ÇSİHEP'in Etkililiğini ve Bireysel Gelişimi Değerlendirme Formu (ÇEBDF) ise yalnızca deney grubuna son ölçüm olarak uygulanmıştır. Araştırmada, nicel verilerinin istatistiksel analizi için önce Kovaryans analizi sonra Bağımsız gruplar t testi ön sayıtları kontrol edilmiştir. Bu işlem sonrasında, YİHTÖ ön test puanı, İHBT ön-test ve son-test puanları analizleri için Mann Whitney U testi, YİHTÖ son-test puanı ise Bağımsız gruplar T testi yapılarak analiz edilmiştir. ÇEBDF verileri ise içerik analizi yapılarak çözümlenmiştir. Bu analiz sonucunda, iki tema ve beş kategoriye ulaşılmıştır. Nitel verilerin analizinde güvenilirlik çalışmaları yapılmıştır.

Bulgular: Araştırma bulguları, deney ve kontrol grubunda yer alan öğretmen adaylarının YİHTÖ ön-test puanları arasında istatistiksel olarak anlamlı bir fark olmadığını [$U=722, p >.05$]; YİHTÖ son-test puanları arasında deney grubu lehine istatistiksel olarak anlamlı bir fark olduğunu göstermiştir [$t(75)=19,32, p <.05$]. Yine araştırma bulguları deney ve kontrol grubu İHBT ön-test puanları arasında istatistiksel olarak anlamlı bir fark olmadığını [$U=703,50, p >.05$]; İHBT son-test puanları arasında istatistiksel olarak deney grubunun lehine anlamlı bir fark olduğunu göstermiştir [$U=.00, p >.05$]. Bu bulgular, uygulamalar sonrasında deney grubu öğretmen adaylarının insan haklarına ilişkin bilgi ve tutumlarının kontrol grubu öğretmen adaylarınıninkine göre anlamlı olarak daha yüksek olduğunu göstermiştir. ÇEBDF bulguları ise ÇSİHEP'in etkililiğine ilişkin değerlendirmeler ve insan haklarıyla ilgili bireysel kazanımlar olmak üzere iki tema altında toplanmıştır. ÇSİHEP'in etkililiğine ilişkin değerlendirmeler kapsamında bulgular iki kategoride toplanmıştır. Bunlardan ÇSİHEP'in gerekliliği ve önemine ilişkin görüşler kategorisi kapsamında; uygulamaların temel hak ve özgürlüklerin farkında bireyler yetiştirmek, hak ve özgürlükleri korumanın önemini kavratmak, çevre ve insan hakları ile ilgili tartışmalara katılım için bilgi ve beceri sağlamak, çevresel problemler ve hak ihlalleri arasındaki ilişkinin anlaşılmasını sağlamak, çevre ve insan haklarına duyarlı vatandaş sorumluluğu kazandırmak için gerekli ve önemli bulunduğu belirlenmiştir. ÇSİHEP'in sağladığı faydalara ilişkin görüşler kategorisi kapsamında ise uygulamaların mesleki gelişim için kazanım sağlamak, insan hakları eğitiminin gerekliliğini ve önemini kavratmak, gerçek hayat durumları üzerinden hak ve hak ihlalleri için farkındalık ve bilgi kazandırmak, çevre ve insan hakları ilişkisini kavratmak, çevre ve insan haklarını korumak için sorumluluk bilinci oluşturmak için faydalı görüldüğü saptanmıştır. İnsan haklarıyla ilgili bireysel kazanımlar temasına ilişkin görüşler ise anlayış ve bilgi oluşumu, tutum ve davranış gelişimi olmak üzere

üç kategoride toplanmıştır. Anlayış ve bilgi oluşumu kapsamında temel hak ve özgürlükler, hak ihlalleri, hak ihlallerinin önlenmesi, evrensel bir değer olarak insan hakları için bilgi kazanımının gerçekleştiği belirtilmiştir. Ayrıca, haklarla ilgili anlamlı öğrenmeye, çevre ve insan hakları arasındaki ilişki ile vatandaş ve devlet sorumluluklarını anlamaya, bilgi sahibi olunan hak sayısında artışa vurguda bulunulmuştur. Tutum gelişimi bağlamında ise öğretmen adayları insan hakları ile ilgi bilgi kazanımının, yaygınlaştırma ve korumanın, hak ihlallerinin önlenmesinin önemini vurgulamış, insan haklarıyla ilgili çalışmaların yapılmasını gerekli bulduklarını ve bu çalışmalara destek vermeye istekli olduklarını belirtmişlerdir. Ayrıca, insan haklarıyla ilgili yayınları takip etmeye ve hakların korunması için sorumluluk almaya istekli olduklarını da ifade etmişlerdir. Davranış gelişimi ile ilgili olarak ise öğretmen adayları insan haklarına uygun davranmaya çalışma, ilgili yayınları takip etme ve çalışmalara katılma davranışlarını gerçekleştirdiklerini belirtmişlerdir.

Sonuç ve Öneriler: Araştırma sonuçları genel olarak değerlendirildiğinde ÇSİHEP'in; insan haklarına ilişkin bilgi, tutum ve davranış kazandırdığı, hak ihlallerine ilişkin farkındalık oluşturduğu ve çevre ile insan hakları arasındaki ilişkinin anlaşılmasını sağladığı söylenebilir. Bu doğrultuda, sınıf öğretmen adaylarına, çevre ile insan hakları arasındaki ilişkiye yönelik bütüncül bir anlayış kazandırılması ve insan hakları eğitimi için çevre eğitimi derslerinde sosyobilimsel konularla insan hakları bağlantısının kurulması; farklı eğitim kademelerinde çevre derslerinde çalışmalar yapılarak duruma ilişkin kapsamlı bilgi sağlanması önerilebilir.