The Role of Education in Realizing Sustainable Development in Turkey

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Abstract: The defects in the application of 1950s' Green Revolution brought the discussion in 1962 Silent Spring about the negative consequences regarding sustainable environment, which in turn created a new notion in 1980s that needed further work. In Turkey, environmental problems were first discussed within the framework of the 3rd Five-Year Plan (1973-1977). However, actual studies on environment and sustainable development began in the 2000s. The primary aim of this paper is to present sustainable development activities and policies in Turkey to determine the progress in this regard. Moreover, the effect and the role of education in sustainable development will be investigated. The main argument of the paper is that educational activities on environment are not designed to accommodate sustainable development. In this manner, this paper will offer new suggestions about the adaptation of environmental literacy to the education system and turning people's interest in attitudes towards the environment into behavioural patterns so as to establish sustainable development.

Keywords: sustainable development, education policy, environment policy, public policy

INTRODUCTION

The problems of the global world, such as global warming, the ozone layer thinning down, nuclear waste, overwhelming increase in population, decreasing biologic diversity, and in particular, environmental issues like air and water pollution, have exceeded the national boundaries. For this reason, a conference that deals with the environmental issues called the United Nations Conference on the

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Human Environment (Stockholm Conference) was carried out in 1972. In Stockholm Conference, the United Nations Human Environment Declaration was accepted and the United Nations Environment Program emerged as an institution of the United Nations (Kayhan 2013, 62-63).

As a result of recognising the notion of sustainable environment, the term "sustainable development" was mentioned for the first time in 1987. The term "sustainable development" in Brundtland Report, which was developed by World Commission on Environmental Development (WCED), was defined as "development that meets today's necessities without conceding the ability to meet the future generations' necessities" (www.mfa.gov.tr/surdurulebilir-kalkinma.tr.mfa). With this definition, so as to carry out sustainable development, a three-circle model that emphasises the importance of simultaneous and equal development that is in the economic, social and environmental vein emerged (Aksu 2011). With the concept of sustainable environment, a different way is promoted to change the values that are embraced in utilising the natural resources (Teksöz 2014, 73). In case environmental prosperity is not achieved, economic and social prosperity that are explained in the definition of sustainable development cannot be provided (Aksu 2011).

Due to the evolutional processes that the humanity has been through, the use of natural resources has increased. Hence, the developmental process that will be accomplished through the use of natural resources needs to be reconsidered (Teksöz 2014, 73). Natural resources are a global entity that requires the utmost attention since it meets the needs of today's generations as well as the future generations' needs. Being a global asset, natural resources need to be assessed in a multidisciplinary area in which many countries are involved to discuss the terms of sustainable environment and development.

Rio World Summit, which was essential in the sense that it helped accept a row of principles to embrace a more sensible way to govern the environment, was held in Rio de Janeiro in 1992. In this conference, an action plan named Agenda 21 was formed. In addition to this agenda, Rio Declaration and Forest Principles were also accepted. Moreover, during the conference, United Nations Climate Change Treaty and Biological Variety Treaty were presented to the signature (Ağca 2002). However, United Nations Convention to Combat Desertification Treaty that was prepared in the direction of the

decisions that were taken in Rio World Summit was presented to signature in 1994 (www.mfa.gov.tr/ surdurulebilir-kalkinma.tr.mfa). In 2000, the United Nations held a conference in New York and United Nations Millennium Declaration was signed. Within the scope of this declaration, eight goals, which are seen as mandatory in the international affairs in the new century and which involve environmental sustainability and global development, were set (www.tr.undp.org/ content/ turkey/tr/home/mdgoverview/ millennium-development-goals.html). In order to reach the goals of Millennium Development Aims to enable sustainable development, which paves the way for social and economic improvement by being environment-conscious, "Global Sustainable Development Summit" (Rio+10) was held in Johannesburg in 2002 (Ağca 2002).

The United Nations Sustainable Development Conference (Rio+20 Summit) was held on 20-22 June 2012 in Rio de Janeiro. In fact, since Rio Summit, "green growth" has been put forward to reach a common theme internationally, which is a reshaped version of "sustainable development" according to today's needs. During the summit, the topic "green growth for sustainable development" came to the forefront, and at the end of the summit, a result paper on a political level called "The Future We Want" was approved by the members of the United Nations. The general topics focused on sustainable cities and human settlements, aims of sustainable development/practical means, decreasing the disaster risk and climate change. In this summit, Turkey put emphasis both on the importance of urban development, which must be sensible to the environment and on the lack of increasing public awareness when including the people in the process (Çevre ve Şehircilik Bakanlığı 2012).

As a follow-up to the Millennium Development Aims, 17 main aims and 169 sub-aims were identified in New York in September 2015. These new aims were named "Agenda 2030: United Nations Sustainable Development Aims". Within the concept of Sustainable Development Aims (SDA), the prominent topics were sustainable cities, climate change, combating desertification, protecting biodiversity and such others. The United Nations General Secretary publishes a report that includes the progress made on these aims every year (www.mfa.gov.tr/surdurulebilir-kalkinma.tr.mfa).

A hot topic of international debate about being worthwhile to investigate the education factor – one of big impact on creating social awareness about sustainable development - is developing in Turkey. In

this manner, firstly, public policies related to sustainable development specifically in the Turkish context will be discussed. Following this, the significance of education about sustainable development will be emphasised and the educational practices in sustainable development will be scrutinised. After talking about the main identified problems and deficiencies in the conclusion section, some suggestions will be made.

SUSTAINABLE DEVELOPMENT ACTIVITIES AND POLICIES OF TURKEY

Sustainable development is highly crucial and takes an essential place in almost all developed and developing countries. Therefore, countries from all over the world attempt to design and formulate policies in accordance with sustainable development. According to Anderson (1979), public policies are targeted actions and decisions rather than random occurrences. For this reason, governments policies related to sustainable development should have concrete objectives and even roadmaps for the continuity of sustainable development.

As one of the public policy areas, sustainable development policy has a heterogeneous structure. Major topics and discussions on sustainable development policies are related to several macro level public policy areas such as environment, education and climate change. Most countries take part in many international organisations, agreements, summits and conventions for the purpose of developing a better sustainable development policy. Especially with the rise of globalisation, the effect of international actors on sustainable development policies has increased. In this context, policies related to sustainable development nowadays are mostly formulated and implemented under the international actors' strong influence.

As public policies are the plans, programs and the strategies of the governments with all their bodies (Çalı 2012, 4), the Turkish government has a promising sustainable development policy that consists of various national and international action and development plans, programs and strategies. To this end, Turkey aims to further develop the relevant policies in an effort to reach sustainable development goals, which cover the period until 2030. Additionally, by doing so, Turkey intends to align with the European Union (EU) acquis in many public policy areas (Kulaç and Torlak 2018), for instance, pursuing a strategy called "EU Integrated Environmental Approximation Strategy (2007-2023)". Turkey's activities and policies

regarding sustainable developments can be further analysed by an evaluation of Table 1.

Table 1. National Reports, Plans, Programs and Strategies of Turkey (www.surdurulebilirkalkinma.gov.tr)

Name of the Document	***Type of Document***	***Year of Publication***
7th Development Plan	Plan	1995
8th Development Plan	Plan	2000
Turkey's National Action Program for Combating Desertification	Program	2005
9th Development Plan	Plan	2006
EU Integrated Environmental Approximation Strategy (2007-2023)	Strategy	2006
First National Communication on Climate Change of Turkey	Report	2007
National Biological Diversity Strategy and Action Plan 2007	Strategy & Plan	2008
The Millennium Development Goals Report Turkey 2010	Report	2010
Turkey's Sustainable Development Report Claiming the Future 2012	Report	2012
10th Development Plan	Plan	2013
Report on Turkey’s Initial Steps towards the Implementation of the 2030 Agenda for Sustainable Development	Report	2016

As seen, Turkey has implemented and put into action a great number of plans, programs, reports and strategies about sustainable development. The development plans are especially crucial efforts to specify the roadmap regarding sustainable development in Turkey. Additionally, various reports such as “First National Communication on Climate Change of Turkey”, “The Millennium Development Goals Report Turkey 2010”, “Turkey's Sustainable Development Report Claiming the Future 2012” and “Report on Turkey’s Initial Steps towards the Implementation of the 2030 Agenda for Sustainable Development” have been prepared and shared with the public in an effort to develop and maintain a sustainable development policy of Turkey. Furthermore, “EU Integrated Environmental Approximation Strategy (2007-2023)” is a significant attempt to have sustainable development policies that are compatible with the EU acquis. Developed in 2007, the “National Biological Diversity Strategy and

Action Plan" can be described and categorised as strategy and plan, and is basically a supporting document for Turkey's sustainable policies and activities. Overall, looking at the data provided in Table 1, it is possible to argue that plans and reports were prioritised and preferred rather than programs and strategies. These efforts, undertakings and initiatives have a great value in encouraging and supporting the educational activities and programs regarding sustainable development in Turkey. Thus, the awareness about the role of education in sustainable development policies of Turkey has risen thanks to mentioned efforts above.

Table 2. Sustainable Development Targets and Priorities of Turkey (www.surdurulebilirkalkinma.gov.tr)

Targets and Priorities
Struggling with Poverty
Finishing Famine
Health and Welfare
Quality Education
Gender Equality
Access to Healthy Water
Accessible Clean Energy
Employment and Economic Growth
Industry, Innovation and Infrastructure
Reduction of Inequalities
Sustainable Cities and Societies
Consciously Production and Consumption
Struggling with Climate Change
Life in the Water
Life on Land
Peace and Justice

Setting targets and defining priorities are crucial for countries almost in every public policy. Turkey has various promising targets and priorities in terms of sustainable development. These targets and priorities, as seen from Table 2, are expanded to a large extent of public policy areas such as "Struggling with Poverty", "Health and Welfare", "Quality Education" and "Finishing Famine". Moreover, some of the targets and priorities Turkey has concern most of the countries in the world that require international collaborations and

agreements. To this end, Turkey set a number of targets and priorities regarding sustainable development so as to develop international cooperation, which might have a positive impact on the policies of the countries. "Peace and Justice", "Struggling with Climate Change" and "Sustainable Cities and Societies" are some of the prominent targets and priorities set by Turkey in an effort to enhance relations with relevant developed or developing countries. In this manner, Turkey aims to have a functional sustainable development policy by following numerous policy strategies and appropriate education programs. These education programs in every level are extremely significant for Turkey's sustainable development policy. Therefore, education's role in the success of Turkey's sustainable development policies and activities has increased especially in the last decades.

THE EDUCATION FACTOR IN SUSTAINABLE DEVELOPMENT

In creating solutions against the mechanical understanding that causes environmental problems, societal establishments such as economy, politics and education work together. However, as well as this organic and holistic approach, there is a need for a holistic change in understanding and attitudes (Şama 2003, 107). In order to achieve this sort of a change in individuals, the education factor is crucial (Alım 2006, 600). The only way to establish sustainability in national and international development and to create the human capital that can keep up with the conditions that have shown progress and change with globalisation is education itself.

It is useful to mention some characteristics that the individuals should have in order to sustain the development. These characteristics are listed as competence, knowledge, attitudes and skills. The objectives of sustainable development education are formed around these characteristics (Kaya and Tomal 2011, 51). Whereas the concept of sustainable development in discourse encompasses societal, environmental and economic dimensions; the educational system shaped around the environmental dimension of sustainable development is a developed version of green curriculum and environmental literacy (Thomas and Nicita 2002, 478).

UNESCO elaborates programs on the relationship between people and environment with regards to sustainability. As consumers of natural resources, humans need to go through a special education for sustainable development. This education, which will be provided for sustainable development, has emerged as an important tool under the

name of environmental education (Sauvé 1996, 8). The impression that environmental education is an indispensable tool to eliminate problems that could bring the world to an end (Erten 2004) emphasises further the importance of education for global sustainable development. However, in solving the problem, it is not possible for environmental education to create a fundamental basis that would only lead up to individual behaviour change (Kesercioğlu 2010, 30). It should not be forgotten that sustainable development education should be a comprehensive system including environmental education (Kaya and Tomal 2011, 59).

When the phrase "environmental education" was first coined, its meaning was shaped around protecting the nature and natural resources. However, the contents and meaning of environmental education that sprung out of sustainable development have changed over time (Özdemir 2007, 28). Whereas environmental education was expressed as protection of natural resources and nature earlier; nowadays, it has focused on protecting and improving the environment a more extensive understanding of the word, including biosphere, biomes and ecosystems. Ecology has become an essential part of environmental education since it gives information about how these new systems that are included in the environmental education work and how they should be protected. With the emergence of new environmental education systems, the focus has shifted from informing the target audience of natural problems to actually informing them on how they can efficiently manage their surroundings (Peyton et al. 1995, 5). Another important part of this education is to what extent it is able to transform the audience's skills, attitudes towards and the value they have for the environment as opposed to giving the information passively (Tanrıverdi 2009, 89). To sum up, environmental education is the process that represents a number of processes from giving ecological information to developing people's attitudes towards the environment and helping to turn these attitudes into behaviours (Erten 2004, 2009). What is really aimed with this process is giving a sustainable development education that also includes environmental education. It is observed that recent studies in environmental education also focused on this phenomenon.

The expanding of the audience to which the environmental education is provided is a significant factor in increasing environmental consciousness and awareness (Gürcüoğlu 2013, 154; Yurt 2015, 2). Environmental engineers' contributions to

environmental education for adults are undeniable (Kesercioğlu 2010, 62). It should be mentioned that auditory and visual media are also key factors in environmental education (Alım 2006, 613). With regards to environmental education, high school students have been the focus since they are the most valuable segment. High school students are deemed the most critical population group in terms of getting involved in pieces of training regarding understanding environmental issues and coping with them (Jacobson 1985, 13-14). However, it is predicted that the earlier the environmental education with regards to students' cognitive, affective and psychomotor learning capabilities is initiated, the better (Erten 2004, 2010). University education is the indicator of how this education is shaped and finalised with current systems (Yücel and Morgil 1998, 85).

At the beginning of the 1970s, with the acceptance of the threats the environment faced by politicians, educators and the scientific world, environment education started gaining momentum in various places around the world both nationally and internationally. With the United Nations Human Environment Conference that held place in Stockholm, environment education gained an international and global standing. After Stockholm Conference, UNESCO environment department conducted a survey in order to evaluate the current situation regarding environment education and to guide the experts. Through the findings of this survey, the qualitative and quantitative deficiencies in environment education were detected (Ünal and Dımışkı 1999, 142-143).

The suggestions at the Stockholm Conference helped to create the International Environmental Education Programme (IEEP), a project that is part of UNESCO and United Nations Environment Program (UNEP). In the conference held in Tbilisi, Georgia on Environmental Education in 1977 under the sponsorship of IEEP, disciplinary structure and administrative mentality were adopted for global environmental education. Afterwards, the educational curricula were reviewed and teacher training gained more focus (Peyton et al. 1995, 5-7).

The declaration and suggestions of Tbilisi Conference were turning points for global environmental education. The declaration and suggestions created a broad framework and set the grounds for the quality, the objectives and the pedagogical basis for the education. The document, which gained a noteworthy standing both nationally and internationally, paved the way for other countries to develop

environmental education policies in accordance with these principles (Ünal and Dımışkı 1998, 300). While Tbilisi Declaration aims to create awareness, knowledge, interest and skills on environmental education, its ultimate objective is enhancing activity regarding the solutions for environmental issues (Chawla and Cushing 2007, 437). The declaration guides the experts in the educational area to improving environmental education as well as making suggestions about the knowledge, documents, resources exchange and teacher training (Ünal and Dımışkı 1999, 143-144).

After Tbilisi Conference, Hungerford and Peyton (1994) identified a four-level objective that would help making big decisions about environmental education curriculum. Among the levels are introducing ecological environment, establishing conceptual awareness about the environment, improving the research, analysis and evaluation skills, and creating attendance skills about environmental issues solutions (Hungerford and Peyton 1994, 15). With the collaboration of UNESCO and UNEP, the International Congress on Environmental Education and Training was held in Moscow in 1987. In this conference, it was emphasised that there was a need to identify international strategies regarding environmental education within the framework of Tbilisi Declaration (Ünal and Dımışkı 1999, 143), and this education was named of hope and tolerance (Kesercioğlu 2010, 29).

The IEEP was given the mission of bringing the dimension of sustainable development back to the education in The United Nations Conference on Environment and Development (UNCED) in 1992 in Rio de Janeiro (Ünal and Dımışkı 1999, 143). The Agenda 21 of this conference gave an active role to local authorities in integrating daily life with sustainable development and in influencing people's lives, as well as emphasising the importance of education (Emrealp 2005, 61; Atvur 2009, 231). The International Conference on Environment and Society: Education and Public Awareness for Sustainability in Thessaloniki in 1997 was held in order to contribute to the application of the work program of United Nations Commission on Sustainable Development (CSD). The headline Education and Societal Awareness for Sustainability was emphasised, also the validity of the Tbilisi Declaration and what is to be done in the field of education with regards to sustainable development were discussed (Ünal and Dımışkı 1999, 143). The Final Report Thessaloniki Declaration in 1997, the Johannesburg Implementation Plan after 2002 UN World Summit on

Sustainable Development, the Ahmedabad Declaration after 2007 the 4th International Conference on Environmental Education, Gothenburg Recommendations on Education for sustainable development after the 2008 Conference Knowledge and Learning for a Sustainable Society were published (Kesercioğlu 2010, 27-28).

The European Council also added the environment factor to social and economic developments in the 2000s. The Gothenburg reports (2001 and 2006) show the multidimensional sustainable development; and the environment factor is perceived as one of the most importance. The reports emphasised that the strategies identified for sustainable development are not enough and it is a necessary attempt in reflecting on how the individuals can understand and reflect upon strategies. The reports also emphasised that sustainable development's environmental education dimension and place in educational systems need to be reviewed (Tanrıverdi 2009, 91). At the present time, the implementation of the 7th Environment Action Program, which would be valid until 2020, is being discussed. It can be seen in this action program that environmental training and awareness is also given place (www.ab.gov.tr/ files/SEPB/cevrefaslidokumanlar/7theap.pdf).

EDUCATIONAL ACTIVITIES RELATED TO SUSTAINABLE DEVELOPMENT IN TURKEY

Creating environmental awareness underlies sustainable development training. Lack of education is a notable obstacle as well as other factors concerning the sustainable management of natural resources and the elimination of environmental problems (Çevre Envanteri Dairesi Başkanlığı 2004, 18; Yurt 2015, 4). According to Article 56, Section 2 of the 1982 Constitution, it is a duty of both the state and the citizens to improve the environment, to protect the health of the environment and to prevent environmental pollution (www.mevzuat.gov.tr). The state carries out this task through the Ministry of Environment and Urbanism. Environmental education was included in the Environmental Atlas prepared by the Department of Environmental Inventory and the provision of formal, non-formal and in-service education on the subject was brought to the agenda (Ahi 2015, 17). In 1990, the "Seminar on Turkish Environmental Education and Training National Environment Strategy and Implementation Plans" was jointly organised by UNESCO and the Prime Ministry Undersecretariat of Environment (Özdemir 2007, 25).

The Regulation on Primary Education Institutions, prepared in 1997 in accordance with the general objectives and basic principles of Turkish National Education, aimed to educate students on health and to raise awareness and adapt habits of environmental protection. The sustainable environmental education courses were not included in the curriculum; however, these gains were acquired in Life and Social Sciences, and Science and Technology courses (Tanrıverdi 2009, 92-93).

Signing the "Cooperation Protocol on Studies Conducted on Environmental Education" between the Ministry of Environment and the Ministry of National Education, the objective was to provide environmental education in pre-school, primary and secondary education institutions in a systematic and orderly manner (Çevre Envanteri Dairesi Başkanlığı 2004, 456). It is expected that environmental awareness is created among students in the first years of their education life, and in the following years, they are raised as individuals who are environmentally-conscious with regards to sustainability. It is, in fact, assumed that this system will be implemented with the application of the Eco-Schools program in educational institutions starting from pre-school education to undergraduate level (Aktepe and Girgin 2009, 403). This assumption is confirmed by a study carried out in 2016 on eco and non-eco pre-schools. While educators teaching in both schools have positive views on sustainable development education, teachers serving in eco-schools have been shown to be more experienced in sustainable development education compared to those serving in non-eco schools (Kahriman 2016, 110). Furthermore, applied environmental education can positively affect the development of environmental attitudes, awareness and behaviours (Somuncu Demir 2011, 17).

In the 2018-2019 academic year, 1247 schools in Turkey implement the Eco-Schools program that aims to give students environmental awareness, management and sustainable development education in pre-, primary and secondary schools. Students have taken an active part in informing their families, local government units and non-governmental organisations about environmental issues, alongside the steps they have taken to help implement the sustainable development process at the local level (www.ekookullar.org.tr).

With environmental education provided to pre-school and school children, the awareness levels of these students will be increased and the foundations of behaviours expected in the future will be laid thanks

to the concern and attitudes gained during this period (Erten 2004, 2010). Considering the desire of pre-school children to explore their surroundings, they are regarded as a significant audience for elementary environmental education (Demir and Yalçın 2014, 8). Although pre-school environmental trainings are collected under the title of science and nature studies, teachers have included environmental education activities in arts, music, Turkish, leisure time, reading and playtime activities. Working with materials stands out as a crucial feature in teaching students to recycle; it is also found in pre-school year plans for environmental education (Akçay 2006, 43). When the Ministry of National Education's pre-school curriculum is analysed, we observe that it is aimed towards environmental awareness, cleaning and beautifying the environment. Although not sufficient, there are also mentions of certain concepts related to environmental education (Demir and Yalçın 2014, 8). A 2013 study, carried out on students from a pre-school institution that is part of the Eco-Schools program, measured students' perception towards the environment after the training program. Significant changes in their perceptions were observed. Following this training, students began to perceive themselves as part of environmental and sustainable practices (Cengizoğlu 2013, 106). Similarly, a doctoral dissertation on pre-school students written in 2015 established that environmental education program integrated into pre-school curriculum had an impact on the development of children's mental model about the concept of environment (Ahi 2015, 111). The provision of such education programs through inclusive interdisciplinary programs will have a positive impact on pre-school children (Güner 2013, 83; Ahi 2015, 111).

In the pre-2005 primary school curriculum, it is not possible to encounter units that deal with the environment in Life Sciences and Social Sciences courses; however, certain topics concerning the education of students on the environment are present. In science classes taught in fourth, fifth, sixth, seventh and eighth grades, it is possible to encounter units on human and the environment. Although students acquire environmental awareness during this period, environmental education has not yet reached the desired level. The source of this issue is not the curriculum. It is caused by the failure in integrating environmental education with multiple courses since it is an interdisciplinary subject, and the disregard for the significance of the 'learning by doing' method in teaching students about environmental

awareness (Sever and Samancı 2002, 157-160). With the changes made to the primary school curriculum in 2005, a new curriculum was created (Alım 2006, 605-608). While only one gain is acquired in the curriculum of Turkish taught from first to fourth grades, there are multiple gains in the curriculum of Life Sciences, although it does not focus directly on environmental education. Moreover, Social Sciences taught to fourth graders focus on environmental gains (Yılmaz 2016, 127-128). The curriculum of Social Sciences is shaped within the framework of skills, concepts, values and general purposes. Cultural sustainability, sustainable use of natural resources, sustainable economy, peace, life and land use are highlighted in the curriculum of Life Sciences that is discussed in relation to sustainable development education (Kaya and Tomal 2011, 60).

Science and Technology courses give weight to environmental education and increase the positive value of environmental awareness, acquiring positive attitudes and behaviours, mindfulness and solving environmental problems (Yılmaz 2016, 127-131). A study demonstrates that environmental training aimed at the sustainable use of resources increases primary school students' knowledge levels regarding their carbon footprint and reduces the size of their carbon footprint (Ertekin 2012, 60). Based on these findings, the impact of effective environmental education provided in primary schools on students' behaviour appears significant.

In accordance with the principle of spiralling regarding environmental education, in primary schools, same units were differentiated in different grades and shaped to complement each other within the framework of the 2005 curriculum. In addition, the stern behaviourist approach was abandoned in favour of the constructive approach. However, the success of the curriculum should not be tied to a single curriculum change and the impact of other external factors should not be disregarded (Alım 2006, 608). One of the most impactful external factors is inadequate knowledge about sustainable development. In the study, Sağdıç (2013) determined that primary school teachers had positive attitudes towards sustainable development and sustainable development education. Though, inadequate understanding of sustainable development within the social structure leads to lack of knowledge in sustainable development education (Sağdıç 2013, 85).

A decision made on environmental education in secondary education institutions, published in the Ministry of National

Education's Journal of Notices in 1992 by the Board of Education and Discipline, compels attention. With this decision, a course called Environment and Human I was added to the list of elective courses in high school. This course was found to be compatible with the objectives of the Institute for European Environmental Policy within the framework of environmental education's objectives (knowledge, awareness, attitude, skill and participation) outlined in the Tbilisi Declaration; yet, due to its curriculum being quite extensive to be taught in one semester, authors, students and teachers encountered various problems which resulted in this elective course not being offered. With a re-regulation declared in 1997 in the Ministry of National Education's Journal of Notices by the Board of Education and Discipline, environmental education started to be partially provided as part of high school Biology courses since the 1998-1999 academic year. With the environmental education unit taught as the last subject in Biology I, the objectives of knowledge, awareness and skill were attempted to be accomplished. Time shortage that was suffered in Environment and Human I course is even more evident in this course (Ünal and Dımışkı 1999, 150-153). It is observed that trainings that touched upon crucial environmental matters were essentially part of the curricula before the 1990s. A study examining education on fuels with serious environmental impacts taught in Chemistry found the post-1960 curriculum to be too intensive for primary school students and inadequate for secondary school students (Ünal 1998, 71). The provision of Environment and Human's content within the scope of other courses in primary and secondary schools, following its removal from the curriculum, made environmental education inadequate in qualitative and quantitative terms. This inadequacy and disorganisation indicate that environmental education, crucial for sustainable development, has not reached its objective (Özdemir 2007, 37-38). When asked if the current curriculum is adequate for environmental education, teachers, serving in secondary education institutions, responded negatively mentioning curriculum inefficacy and the course content not being intertwined with nature and experimental methods (Uzun and Sağlam 2007, 184). It is expected that environmental learning objectives will be added to the high school curriculum revisions made in 2008 and students will acquire environmental literacy (Kürkçüoğlu 2012, 2). A study conducted in Social Sciences High School produced similar results and highlighted that not

sufficient training in formal education is provided to students for them to acquire environmental knowledge (Aydın and Kaya 2011, 242).

It is essential that the masses that will teach students about environmental awareness and consciousness in the name of sustainable development, especially teachers and prospective teachers, be knowledgeable and conscious of the environment, have advanced environmental literacy, in short, develop environmental identities (Erten 2004, 2023; Tuncer et al. 2009, 435; Teksöz et al. 2010, 317; Güner 2013, 82; Dindar 2014, 52; Derman and Hacıeminoğlu 2017, 84) and be self-sufficient to give environmental education to the next generations. A study conducted on this subject in an institution that provides high school education established that teachers are not self-sufficient in environmental education, yet they were able to partially answer the questions raised by students with the education they received in previous years (Kürkçüoğlu 2012, 50).

In recent years in Turkey, scientific studies on teachers' and prospective teachers' environmental education, knowledge, attitudes and behaviours toward environmental issues have been conducted. One of these studies (Gökmen et al. 2017, 473), holds the view that prospective teachers implement sustainable development practices in schools and these practices possess a high level of attitude in addition to their individual and societal benefits. In another study (Teksöz et al. 2010, 316), it was determined that prospective teachers have high interests in environmental attitudes, uses and issues, despite having low levels of environmental knowledge. In contrast to these studies, the study which evaluated environmental knowledge, concern, use and attitude of students from the Faculty of Education (Tuncer et al. 2009) demonstrates that these students have limited environmental knowledge, yet they display eco-centric behaviours and are conscious of the interaction between human and the environment, though they are not knowledgeable about most environmental issues. The main reason for this, as established by Kürkçüoğlu (2012), is that there is not enough emphasis on environmental problems in teacher training programs in Turkey's education faculties and the number of courses with environmental content is insufficient. The necessity of pre-service training and in-service training for teachers to become self-sufficient in environmental matters has been highlighted (Kürkçüoğlu 2012, 50-51). How much of environmental values can be adopted as habit with these training programs is a matter of importance. Another study, that underlines the lack of environmental concern being transformed into

action, gives an answer to this question. The provision of sustainable development education from a very young age will be effective in transforming environmental concern and attitude into behaviour (Kocalar 2012, 190-192).

In a study that investigated the attitudes of students of classroom teaching towards the environment and environmental issues, it was observed that their interest in the environment and environmental problems was weak and some concepts related to ecology and the environment could not be sufficiently internalised. The study, that considered multiple variables, reported that female students, in comparison to male students, had significantly higher concerns for environmental issues (Erol 2005, 77). In his study conducted on prospective teachers, Şama noted that female students had higher attitudes towards the environment and remarked that he is hopeful for the future considering the possibility that they will be mothers (Şama 2003, 107). Prospective teachers studying classroom teaching view science and technology as the principle cause of environmental problems; they also regard science and technology as the means to solving environmental issues. Furthermore, it is thought that teaching environmental problems in science and technology classes positively affects prospective teachers' self-sufficiency (Kahyaoğlu 2009, 37-38).

A study conducted to measure the environmental literacy of education faculty students established their environmental literacy to be moderate. In addition, their environmental attitudes were partly high, environmental knowledge; behaviour and perception levels were also moderate (Bilim 2012, 102-106). A study on classroom teachers found that, among their literacy levels, their interest and use level was good, attitude dimension was moderate and level of knowledge was low (Derman and Hacıeminoğlu 2017, 95).

The data on the perceptions about environmental education of prospective teachers in the Science and Technology program, whose names are frequently mentioned in relation to environmental education, demonstrates that they do not go beyond environmental knowledge and awareness. This is due to the fact that environmental training is mainly theoretical. Though, in environmental education programs, besides its scientific aspect, cognitive and affective skills, attitudes, values and habits, activities directed at action and active participation are required to be taught (Özmen and Özdemir 2016, 1703). A 2016 master’s dissertation, supporting this study, probed courses on environmental education taught in undergraduate programs

in the fields of Social Sciences and Science. The data showed that there are a limited number of compulsory courses concerning environmental matters in both programs and courses directly related to environmental education are offered in the Science Education program (Yılmaz 2016a, 49-55).

In a study where prospective teachers in the Biology Department were selected as the sample, the data showed that they were more conscious about awareness, positive thoughts, conservatism, sensitivity and efficient consumption with regards to the environment than volunteering for sustainable environmental education (Gürbüz et al. 2013, 148). In another study on prospective teachers in the Biology program, it was determined that their belief in self-sufficiency with regards to environmental education was moderate (Gökmen et al. 2012, 8). In a study on students in the chemistry program, findings that support previous studies were discovered. The most striking finding is that the graduates of this program have limited competence in the fields of environmental education and sustainable development. The reason for this is that the courses in the program are inadequate in the field of environmental education and sustainable development, although they are adequate in the field of chemistry. In addition, prospective teachers, who receive relevant training in the field, do not know how to integrate environmental education and sustainable development into chemistry education as they lack pedagogical content knowledge, even if they are willing to teach on relevant topics (Soysal 2017, 62).

When we look at a study done on graduate students, thought to be associated with environmental education in Ankara, no change is observed in the environmental attitude, awareness and sensitiveness of the students. This indicates that the level of education given in relevant departments or programs should be questioned about the development of students (Oğuz et al. 2011, 36-38). In contrast, a study shows that academic staff who have completed their education life display positive attitudes towards sustainable environmental education (Güler 2013, 74).

CONCLUSION AND POLICY SUGGESTIONS

If we are to summarise the outcomes of educational activities carried out in the name of sustainable development backed by the literature, a number of deductions stand out. The first one, perhaps the most important, is that the integrative (social, environmental and economic)

structure of environmental development is kept in the background by placing too much focus on the environment. In a study expressing this situation, it is observed that school principals refer to the tripartite structure when defining sustainable development, however, during the implementation, the educational institutions mainly focus on the environmental dimension (Akpınar 2011, 54).

The second inference is that, with regards to sustainability, there are defects in the environmental education that is being provided to students in educational institutions. The systematic approach and the lack of coordination in environmental education are highlighted in a study conducted to observe how effective the environmental education college students received in their previous education life was (Yücel and Morgil 1998, 86). In another study carried out in the early 2000s, the data revealed that there are no courses on environmental education or sustainable environmental education offered in Turkish primary schools. In Life Sciences, Social Sciences, and Science and Technology courses taught in primary schools, the concept of sustainability was ignored and the "relationship between human, its immediate surroundings and nature" was accentuated (Sever and Samancı 2002, 157-160; Tanrıverdi 2009, 92-98).

With the curriculum change in 2005, several regulations have been made which include courses on environmental education that complement one another and the adoption of the constructivist approach (Alım 2006, 605-608; Kaya and Tomal 2011, 60; Yılmaz 2016, 127-128). Science and Technology has come to the fore in environmental education in Turkey and protecting the environment has become a prevalent sentiment. Moreover, it is seen that the education being provided aims at developing knowledge and attitudes; it is far removed from developing skills, understanding and values (Tanrıverdi 2009, 92-101). Contrary to Alım, who emphasises curriculum adequacy, the study carried out in 2014 by Demir and Yalçın is critical of the current curriculum. Although there is an effort to cover environmental awareness, the efficient use of natural resources, environmental sensitivity, the importance of preserving the environment for society and future generations, and the development of students' desire to partake in the solving of environmental issues in environmental education within Life Sciences, Social Sciences, Geography, Science and Technology, Biology, Health Sciences and Chemistry courses in primary and secondary education, it is not enough to raise individuals that are conscious of sustainable

development (Demir and Yalçın 2014, 8-16; Yurt 2015, 58). The main cause for this is the insufficient adoption of environmental education models that are policy-defined and policy-driven (Chawla and Cushing 2007, 450).

The conviction that environmental education can be provided by keeping children away from nature is not compatible with the nature of this education. A study, conducted after students had received a short-term training under the title of environmental education that contained the concepts of sustainable development, ecological footprint and recycling in addition to the current curriculum that addresses environmental issues and causes, concluded that the existing curriculum is not sufficient. Positive developments in environmental attitudes were noted in this study following the short-term training (Yıldırım 2008, 64-66). Students with increased awareness of their ecological footprint will be more interested in sustainable development and will exhibit environmentally responsible behaviours (Yurt 2015, 60). Therefore, in order to ensure sustainable development, education strategies, in formal and non-formal education, concerning the subject must be reviewed. Kaya and Tomal (2011, 60) remarked that, with the inclusion of the primary goals of sustainable development in the curriculum of Social Sciences as part of the United Nations Development Program, positive developments will take place in sustainable development education in primary schools.

In higher education, environmental education courses and training are available in teacher training programs. The reality is that these trainings on environmental education are squeezed into one semester and efforts of implementation correspond to the interest levels of faculty members (Güntürkün 2016, 60). In Turkey, there is no standard higher education, pertaining to environmental education, for sustainable development on a national level (Oğuz et al. 2011, 34). Yet, the transformation of the attitudes of individuals towards necessary education for sustainable development into action is achieved within the bounds of well-thought-out plans (Gökmen et al. 2017, 473). The department that provides education in Turkey devoted primarily to eliminating environmental issues and improving environmental quality is environmental engineering. Aside from environmental engineering, environmental science that is interdisciplinary must be created (Kesercioğlu 2010, 118-119). The third inference from the research is that, there are not enough studies and projects in universities, where environmental education for

sustainable development is supposed to be most fruitful, and trainings similar to previous ones that fail to develop environmental attitudes are being provided in line with the interests of faculty members.

Since its establishment in 2004, Regional Environmental Centre (REC) Turkey has performed activities as the executive or the partner of at least one project every year and has conducted studies on sustainable development (https://rec.org.tr/projeler). REC organises training programs with regard to sustainable development for local officials and employees, teachers, private sector, public employees, students (Teksöz 2014, 92) and other staff employed in schools (Erten 2004, 2024). The shortcomings of presenting these studies to the average citizen, other than those who are interested in the subject, stand out as the fourth inference. In order to eliminate these deficiencies, education institutions, local administration units and the media must take on various roles.

The relationship between sustainable development and education was referred to in the Turkey Sustainable Development Report in 2012. The report emphasised that educating future generations about sustainable development, consumption and production can be realised by adding courses to formal and non-formal curricula (Kalkınma Bakanlığı 2012, 2). Even after so many years, the suggestions have not been fulfilled to the desired extent.

Raising more environmentally awareness of generations will be actualised through the cooperation of schools and families (Alpagut and Karataş 2014, 406). Collective political responsibilities are also of great importance in improving the environment (Chawla and Cushing 2007, 443). Hence, the provision of sustainable development education to students only is not sufficient in terms of its objectives. This training should also be provided to families, educators, other employees, bureaucrats and politicians. The report, prepared by the Ministry of Development in 2012 stressed the vitality of the sustainable development concept being adopted and embraced by every segment of society, and the support of public, private, non-governmental organisations and the media in creating awareness of the matter.

Policy suggestions for the improvement of sustainable development education within the existing structure in Turkey are as follows:

- The sustainable development mentality needs to be internalised within the social structure. This is an interdisciplinary issue that should not be on the agenda of a single ministry. It is, therefore, necessary to formulate a plan, which contains common ideas about sustainable

development education and can transform individuals' environmental knowledge into attitude, by consulting, first, the Ministry of National Education, the Ministry of Environment and Urbanisation and other ministries concerned with the subject. While educational institutions, local governments and non-governmental organisations take an active role in the implementation of these plans, the media should also take an active role in the dissemination of public service announcements on the subject. Moreover, the media and producers should pay more attention to relevant topics in programs and channels targeting pre-school and younger children.

- To support the education of students who are crucial subjects of sustainable development education, there should be programs to educate families, whom students interact with outside school, about relevant issues. On this matter, great responsibility falls, once again, on education units, local administration units and the media. In particular, education and local administration units that are in communication with parents in primary education should provide sustainable development education to families in seminar format and include those who are eager in small projects with students.
- As emphasised in the Tbilisi Declaration, it is crucial that, especially in formal education, students are shown positive and negative conditions with practical experiments on top of theoretical information. Students will absorb environmental education models better when these models are analysed and developed by them. Hence, to ensure sustainable development for students, education strategies on the subject in formal and non-formal education, starting from pre-school education, should be reviewed. Education programs that stress the significance of the environment for sustainable development and seek spiralling, comprehensiveness and application, rather than those focusing only on environmental education, should be adopted. Instead of unnecessary repetitions in environmental education, the transformation of accumulated knowledge into action must be realised in schools.
- The Ministry of National Education should take action in the adoption of eco-school systems by schools, hereby; more students should be made aware of their ecological footprint. Special course content on sustainable development education should be prepared. Research should be conducted on how respective education provided to students affects their level of awareness and the curriculum should then be revised in line with the developments.

- It has been observed that teachers' interest in environmental problems positively influence their environmental uses. Furthermore, teachers' levels of self-sufficiency in environmental education for sustainable development are also placed among important issues. Consequently, in-service training should be provided to teachers and administrators. Additionally, the opportunity to discuss projects that can be implemented during the semester should be given in annual seminars.
- In higher education departments, teacher-training departments in particular, compulsory courses that consider national strategies on the necessity of environmental education for sustainable development must be taught. Furthermore, opportunities should be offered for the creation of environmentally-conscious and sensitive policies at both undergraduate and graduate levels as part of Urbanisation and Environment Programs in the Department of Public Administration / Political Science and Public Administration in universities' respective faculties. While all of these suggestions are actualised, the integrative (social, environmental and economic) structure of sustainable development must not be overlooked.

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