

Historical Background of Secondary School “Environmental Education and Climate Change Lesson” in Türkiye

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Research Article

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Abstract

Environment problems and the effects of climate crisis give rise to different consequences and affect the lives of people. Therefore, educating students with awareness and sensitiveness about this subject at an early age has become obligatory. In other words, the environmental education instructed at schools is always supposed to be up to date in this context. In this research, the historical background of the content of the Environment Education and Climate Change Lesson's curriculum is investigated which is instructed to secondary school students as a selective course in Türkiye. The instruction durations at schools, content, learning fields, distribution of the subjects and the number of the outcomes of environmental education's curriculum are examined progressively. In this research, the weekly schedule of the lesson and document analysis of the curriculum are performed, and the results are presented. Consequently, it is understood that there was not any independent lesson named as environmental education in Türkiye until the 1990s; the instructional statute of the lesson from the beginning of primary schools differentiated as selective or compulsory in the meanwhile; the names of independent lessons about environmental education are changed in time; the instructional levels of the grades are increased in number with the latest updates; the climate crisis and disaster trainings are highlighted as independent subjects, and the content is developed mainly for practical applications rather than transfer of academic knowledge.

Keywords: Environmental education, Climate change, Curriculum

Türkiye’de Ortaokul “Çevre Eğitimi ve İklim Değişikliği Dersi”nin Tarihsel Gelişim Süreci

Öz

Çevre sorunları ve özellikle de iklim krizinin etkileri tüm dünyada çok şiddetli şekilde etkisini göstermekte ve farklı yollarla insanların hayatını etkilemektedir. Ayrıca bu konudaki farkındalığın ve duyarlılığın erken yaşta kazandırılması bir zorunluluk haline gelmiştir. Dolayısıyla okullarda verilen çevre eğitiminin de bu bağlamda her zaman güncel olması gerekmektedir. Türkiye’de ortaokullarda seçmeli olarak okutulan “Çevre Eğitimi ve İklim Değişikliği Dersi”nin incelendiği bu araştırmada dersin ve içeriğinin tarihsel değişim süreci ele alınmıştır. Çevre eğitimiyle ilgili bu dersin okullardaki işleme süresinin yanı sıra öğretim programının içeriğinin; öğrenme alanları, konu dağılımları ve programda yer alan kazanımların miktarı bakımından zamanla ortaya çıkan durumu incelenmiştir. Bu inceleme yapılırken dersle ilişkili haftalık ders çizelgeleri ve öğretim programları üzerinden doküman incelemesi yapılmış ve elde edilen veriler derlenerek sunulmuştur. Çalışmanın sonucunda Türkiye’de çevre eğitime yönelik 1990’lı yıllara kadar bağımsız bir dersin bulunmadığı, ilkökullarda işlenmeye başlanan dersin günümüze kadar zorunlu veya seçmeli olması durumunun zaman içerisinde değişkenlik gösterdiği, çevre eğitimiyle ilişkili bağımsız olarak okutulan ders isimlerinin farklılaştığı, en son yapılan değişiklikte ortaokullarda bu dersin okutulduğu sınıf seviyesinin artırıldığı ve programda iklim krizi ve afet eğitimi konularına ayrı bir şekilde yer verildiği, içeriğin teorik bilgi aktarımından çok uygulamaya dönük hazırlandığı anlaşılmaktadır.

Anahtar kelimeler: Çevre eğitimi, İklim değişikliği, Öğretim programı.

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INTRODUCTION

Environment and environmental issues are on the top of the list that the people are engaged with all over the world these days. The environment is a concept that is thought to be commonly known. However, it is a more comprehensive notion than it is considered (Akgün et al., 2016). In other words, the environment can be described as a holistic interaction of living beings and inanimate entities (Sungurtekin, 2001). Human beings are constantly modifying their habitat by intervening in the natural balance to upgrade their prosperity through the use of high technology. If the changes emerging from the result of these interventions have negative or damaging sides, these changes are taken into consideration as environmental problems (Alım, 2006; Erten et al., 2022).

The environmental issues resulting from technological developments, overpopulation, irregular urbanization, increasing necessities day by day and the exploitation of natural sources, increasing air, water and soil pollution are threatening living beings all around the world (Akgün et al., 2016; Arıkan, 2021; Güngör Cabbar et al., 2020; Saraç & Sarıkaya, 2020). It is constantly asserted that more serious problems are to emerge due to environmental issues unless the required precautions are taken and the awareness of people is raised as soon as possible (Alım, 2006).

On the other hand, since the measures taken so far have been insufficient, it is getting more and more difficult to prevent environmental problems. The emerging negative effects have extended to common environmental issues. The negative effects of climate change on the ecosystem, air and water have damaged the socioeconomic situations and human health, and caused irregular immigration, fruitlessness in agriculture, desertification, and many others. All people should take responsibility for the required precautions to create a better future as well as to address the damage to the shared world (Akbulut & Kaya, 2020).

Before the environmental problems get worse, practicable precautions against future environmental disasters must be taken as soon as possible. Schools are an essential component for developing a positive attitude, awareness and responsibility for the environment as in the other fields. Education about environmental issues must begin within the preschool and continue throughout the lifelong learning process (Akbulut & Kaya, 2020; Alım, 2006; Özkan & Tuğluk, 2022; Sungurtekin, 2001). Many local and international meetings held for the solution of environmental problems have also emphasized the importance of environmental education (Erkol & Erbasan, 2018). The importance of teaching how to have an environmental perspective is an indispensable reality and education is the only way to create this awareness (Erten & Köseoğlu, 2022; Saraç & Sarıkaya, 2020). In addition, since it is important to reach large masses in the fight against environmental problems and in achieving the purpose of environmental education, environmental education has become an individual and social need arising from environmental problems that are on the agenda of the whole world. The excessive scope of environmental problems and the increasing awareness about the environment reflects the importance of environmental education (Alım, 2006).

The developments in science and technology throughout history have brought about many changes in the social lives of people. Furthermore, each century requires a different educational system compatible with the necessities and character of that century. One of the most important problems about environmental education is that students are not able to improve any perception of the maintenance of the environment because of their lack of adoption (Yüzüak & Zihni, 2022). In this case, the importance of addressing the environmental issue with values education is to be emphasized. "Environmental ethics", one of the most essential issues nowadays, highlights that people should have responsibility for the environment (İğci & Çobanoğlu, 2019; Tekiroğlu & Hayır Kanat, 2021). In this context, educating students to acquire the necessary attitudes, values, knowledge and skills is one of the most crucial missions of the public. Therefore, environmental education is not only about the presentation of the environment but also a significant way of raising awareness and the values about being a part of the environment (Ceger & Erten, 2018; Davis, 1998, as cited in Güngör Cabbar etc., 2020; Laaloua & Tamer, 2022; Yusuf etc., 2022). In order to get the expected results from environmental education, teachers in the school should be environmentally friendly, sensitive to environmental problems and have sufficient environmental knowledge, and they should also have full belief that they can fulfill their responsibility in this regard (Erkol ve Erbasan, 2018).

An important feature of environmental education is that it is a transdisciplinary process that includes all disciplines (Erten et al., 2022). While environmental education is taught embedded in science education, biology, geography, ecology and social sciences in some countries, it is taught as a separate lesson in some countries (Alım, 2006; Tanrıverdi, 2009; Yusuf et al., 2022). The environmental education lesson in Türkiye is taught through both a separate lesson and in other lessons such as science, life sciences or social sciences. Because children face problems such as climate change and the loss of biological diversity, it has become an important issue to teach

them about environmental problems (Orhan, 2022). The awareness for the protection of the environment is going to be the foundation of other precautions about environmental problems. Therefore, the curriculum of the environmental education lesson is to be revised accordingly (Akbulut & Kaya, 2020).

Tanrıverdi (2009) comprehensively analyzed the system of education in Türkiye. It was found that while the environment concept was included in the objectives of primary curricula, there was not a separate lesson available, and the social and cultural environmental issues were ignored. However, the concept of environment comprises both the natural surroundings and sociocultural neighborhood as stated in Sustainable Development Strategy. Contemporary approaches argue that environmental education is not only a part of the science lesson but also includes social and cultural aspects (COM, 2007; Tanrıverdi, 2009).

On the other hand, the curriculum is the center of any educational process. That is because the curriculum attributes meaning to concepts, objectives, and expectations and turns them into a reality. A curriculum is an educational and instructional programme through which students achieve their aims, perspectives and dreams (Obasi ve Oyemwen, 2022). Yusuf et al. (2022) suggests that environmental education programmes should be integrated into the school curriculum and people should be informed regularly through multi-channel social media, including various environmental institutions and organization. Furthermore, according to the research of Güngör Cabbar et al. (2020), the outcomes of the environment in science and biology lessons were analyzed in the scope of the revised Bloom taxonomy. The results showed that there were few or no outcomes in the application category and many outcomes in the understanding category. Therefore, the students were not as successful in the application questions as in the knowledge questions.

In the literature, there are many studies on environmental education in Türkiye and in the world. However, as in every field, it is necessary to acknowledge the historical background in this subject for the studies to be done on environmental education and plans. In this way, future studies on environmental education will be more solid in line with the knowledge and experience gained from the past.

When the Board of Education and Discipline Department’s decision texts on the past lessons on environmental education are examined, it is seen that various names such as “*natural science*”, “*science*”, “*environment*”, “*agricultural practices*” were used. While the name “*natural science*” was used until the 1950s, it is seen that the word “*science*” has been used for many years. The concept of “*environment*” began to be used in the 1960s. However, the teaching of a separate course named “*environment*” at primary education level started in 1992 (Board of Education, 2022).

The background of the lesson's first implementation as a separate lesson, the change of the name and content of the book and the class levels implemented are indicators of the importance given to this subject throughout the country. The “*Environmental Education and Climate Change*” course, dealing with the issue of climate change on the agenda recently, is one of the secondary school courses in Türkiye. It is thought that this study, including the explanation of historical process of the course, can guide policy makers, educators and researchers for the future studies on environmental education in Türkiye. It will also contribute to the awareness of the developments in Türkiye on environmental education for all countries which are affected by the climate crisis as well as Türkiye. For this reason, in this research, “*Environmental Education and Climate Change Lesson*” is examined in terms of the background of the lesson's first implementation as a separate lesson, the change of the name and content of the book and the class levels implemented because of the important components of any lessons.

METHOD

This paper aims to present the background and change of the “*Environmental Education and Climate Change Lesson*”, which is one of the selective courses taught in middle schools in Türkiye. The process of the investigation was conducted as a literature review. As stated in Karaçam’s study (2013), conventional reviews are conducted through searching at and assessing studies regarding a subject without using a scientific method. The data is specifically gathered by investigators from a variety of sources. These are aimed to describe a certain topic, summarize the guidelines, and highlight the gaps in the related literature (Yılmaz, 2021). On the other hand, the documents are taken into consideration as an important source of information to be used effectively in qualitative studies. Document analysis is known as the analysis of written materials about the concepts targeted in scientific research. Written sources are valuable sources of information on many things we do not know about the past (Yıldırım ve Şimşek, 2011). For this reason, in this study, a document analysis method was utilized, and a literature review was carried out related to the lessons' general assembly resolutions and curricula.

One of the ways to ensure reliability in qualitative research is to explain in detail each stage of the research and the path followed (Büyüköztürk et al., 2022). In addition, since the curricula examined were obtained from

the official internet website of the Ministry of National Education (<http://mufredat.meb.gov.tr>) and it is understood that they are the latest updated versions as a result of the interviews with the officials of the Institution, the documents are accepted as valid and reliable. On the other hand, since the researchers had to work impartially and away from prejudices for the internal validity of the research, the data were rechecked through long and detailed notes on the subject studied (Büyüköztürk et al., 2022). Since external validity depends on the generalizability of the results, the concept of comparability is used in such studies (Büyüköztürk et al., 2022) and since the curricula and board decisions are accessible to everyone, a process that allows comparability has been followed. On the other hand, scientific, ethical and citation rules were followed in the writing process of this study and no falsification was made on the collected data.

As all the lessons in primary education are taught with the orientation of Ministry of National Education Board of Education decisions, the general assembly resolutions of the lessons (Board of Education, 2022) about environment education were gathered and examined, and the lessons named "*Environment, Health, Traffic and Reading*", "*Environmental Education*", "*Environment and Science*", "*Environmental Education and Climate Change*", which are directly related to the environment, were identified. In the second section of the research, the teaching programmes of the mentioned lessons were procured from the archives of Journal of Communiques (Ministry of National Education, 2022) and the records of Board of Education.

In this research, primary and secondary school levels were considered as primary grades according to the Ministry of National Education Pre-School Education and Primary Schools Legislation (Ministry of National Education, 2014). The curricula of the aforementioned lessons were examined in terms of weekly timetable, education levels, grades and contents (aims, subjects, the number of the outcomes), and the historical background of the "*Environmental Education and Climate Change Lesson*" was summarized from the beginning of the first environmental education lesson.

FINDINGS

There are outcomes and subjects about environmental education and climate change in many lessons such as sciences, social sciences and life sciences in formal primary and secondary schools in Türkiye. However, this research is specifically related to a separate lesson on environmental education. What is more, the process of "*Environmental Education and Climate Change Lesson*" is presented in depth.

The lessons at schools are taught under the decisions of the Ministry of National Education Board of Education. The decisions are issued on the website of the Ministry and also the Journal of Communiques. Therefore, the lessons about environmental education are explained in two phases according to their place in the timetable and the content respectively.

Environment Education and Weekly Course Schedule

In this research, the lessons whose names contain "environment" and the lessons related to environment such as agriculture in primary and secondary school lessons' timetable and the general assembly resolutions are searched and summarized in Table 1 below.

Table 1. The General Assembly Resolutions of Environmental Education in Primary and Secondary Level

The Date and the Issue	The Subject	The Content
30.06.1987 118	The approval of new weekly course schedule of some schools and the abolishment of former timetables of these schools	<ul style="list-style-type: none"> • Instruction of the selective course named "Agricultural Applications" for 4-course hours a week in 1, 2 and 3. grades in secondary schools. • Instruction of "Agriculture" as a compulsory and selective course in 4, 5, 6, 7 and 8. grades in primary schools.
16.09.1991 192	The approval of the secondary school weekly course schedule	The instruction of the selective lesson named "Agricultural Applications" for 2-course hours a week in 1, 2 and 3. grades in secondary schools.
24.08.1992 235	The approval of the primary school weekly course schedule	Instruction of "Environment, Health, Traffic, Reading" as a compulsory lesson in all grades of primary schools.

Table 1. The General Assembly Resolutions of Environmental Education in Primary and Secondary Level

The Date and the Issue	The Subject	The Content
10.09.1997 143	Primary school weekly course schedule	Instruction of "Agricultural Applications" for 1-2 course hours a week in 1-5 years in 4-8 grades in primary schools
19.09.1997 148	The curricula of Environment, Health, Traffic and Reading Lesson	Instruction of "Environment, Health, Traffic and Reading" lesson for 1-course hour a week in 4 and 5. grades as a selective course and as a compulsory course in 1, 2 and 3. grades in life sciences
26.08.1998 180	Primary school weekly course schedule and primary school selective courses	Instruction of "Agriculture" as a selective course for 1-2 course hours a week, 1-3 years in 4-8 grades
04.09.2001 339	The changes in the weekly course schedule of some lessons in the primary school weekly course schedule	Instruction of "agriculture and husbandry" as a selective course for 1-2 course hours in a week, 1-3 years in 4-8 grades
14.07.2005 192	Primary school weekly course schedule	Instruction of "Agriculture and husbandry applications" as a selective course for 1-course hour a week in 6-8 grades in secondary school
04.06.2007 111	Primary schools weekly course schedule	Instruction of "Agriculture" as a selective course for 1-course hour a week in 6-8 grades in secondary school
25.06.2012 69	Primary schools (primary and secondary Schools) weekly course schedule	Instruction of "environment and science" as a selective course for 2-course hours a week in 7 or 8 grades in secondary schools
29.07.2015 61	The change of Secondary and Imam Hatip Secondary School's "Environment and Science" lesson's name to "Environmental Education"	The change of the name "Environment and Science" selective course as "Environmental Education" in secondary school
23.12.2021 49	The changes in weekly course schedule in primary schools (primary and secondary)	The change of the name "Environmental Education" to "Environmental Education and Climate Change" and instruction of the lesson for 2-course hours a week in 6, 7 or 8. grades in secondary school

The following information was obtained as a result of the examinations made regarding the courses and application principles in Table 1.

Considering the courses that have the word “environment” directly or that may be indirectly related to the environment such as agriculture, it is seen that a selective course called “Applied Agriculture” was taught in secondary schools since the 1987-1988 academic year. In primary schools, the “Agriculture” course was among the compulsory and selective courses. Then, as of the 1991-1992 academic year, the “Applied Agriculture” course was taught as a selective course in the 1st, 2nd and 3rd grades of secondary school. In addition, for the students who could not take this course, alternative courses called “Practical Livestock”, “Practical Fishing”, “Practical Beekeeping” and “Practical Poultry”, which could be taught for 1 course hour a week, were included.

In primary schools, the course with the name “environment” was applied for the first time in the 1992-1993 academic year. This course, named “Environment, Health, Traffic, Reading”, was taught at all grade levels in primary schools for 1 course hour per week. When the relevant Board Decision is examined, it is understood that this course was taught alternately, starting with “environment” in the 1st week, “health” in the 2nd week, “traffic” in the 3rd week, “reading” in the 4th week and again “environment” in the 5th week. On the other hand, as per the 125th article of the Highway Traffic Law No. 2918, the compulsory “Traffic and First Aid Course” was proposed to be in the weekly course schedule of primary schools, the “Environment, Health, Traffic, Reading” course was included in the life studies course and the selective courses in the curriculum.

This course on environmental education was removed from the compulsory courses in the 1997-1998 academic year. Instead, a selective course called “Applied Agriculture” was given in secondary schools. A year later, as of the 1998-1999 academic year, the name of the course was changed to “Agriculture” and it was decided to teach this course as a selective course. As of the 2001-2002 academic year, the “Agriculture and Livestock” course started to be taught as a selective course instead of this course, which had the same class level, year and course hours. In the 2005-2006 academic year, 1-5th grades of primary school and in the 2006-2007 academic year

6-8th grades of secondary school the name of the course was changed to “Agriculture and Livestock Practices” to be applied in the classrooms. One year later, the name of the course was determined as “Agriculture” again and it was taught as a selective course in the 6-8th grades for 1 course hour per week.

After about 6 years, the selective course named “Environment and Science” was taught in only one of the 7th or 8th grades of secondary school instead of the course named “Agriculture”. The name of the course was changed to “Environmental Education” in 2015. In 2022, it was determined to change the name of this course, which is taught as a selective course in secondary schools, to “Environmental Education and Climate Change” and to teach 2 lessons per week in 6th, 7th or 8th grades.

If the process of the changes of the lesson titles and the class levels instructed for environmental education is taken into consideration with the context of weekly schedule is going to cause incorrect evaluations about the lesson. The content and extent of the lessons should be considered for a moderate evaluation.

The Scope of Environmental Education

The lessons including "environment" name are taken into account and content analysis is carried out in this research. In this context, the general assembly resolutions regarding the curricula of environmental education and related lessons in primary schools (primary and secondary schools) are summarized in Table 2.

Table 2. The Curricula of Environment Education and Related Lessons in Primary Schools

The Date and The Issue of the General Assembly Resolutions	The Subject of the General Assembly Resolutions	Weekly Course Schedule
07.09.1992 274	The approval of curricula "Environment, Health, Traffic, Reading" lesson to instruct all class levels in primary schools	Primary School 1, 2, 3, 4, 5. grades Compulsory lesson 1-course hour a week
29.07.2015 62	Secondary School Curriculum of Environmental Education Lesson	Secondary School 7 or 8. grades Selective Course 2-course hours a week
14.02.2022 10	The Curriculum of Environmental Education and Climate Change (6, 7 or 8 Grades)	Secondary School 6, 7 or 8. grades Selective Course 2-course hours a week

"Environment, Health, Traffic and Reading" Lesson: The lesson was developed and applied in 1992-1993. It was determined to instruct all levels by turns in primary schools for 1-course hour as a compulsory lesson. When the content related to the environment in the curriculum is considered, a subject-based approach is applied instead of a structure consisting of outcomes only (Table 3).

Table 3. The Content of the Curriculum "Environment, Health, Traffic and Reading" Lesson

Level of Class	Headlines of Subjects
1 st Grade	<ol style="list-style-type: none"> 1. Home and family 2. Security 3. School and environment 4. The importance of asking to adults
2 nd Grade	<ol style="list-style-type: none"> 1. You, your differences from others, emotions 2. Your similarities to others and the important points in your relationships with others 3. When are we happy and unhappy at school? When are we proud of ourselves? 4. Why are we polite to others? Why is it important? 5. What do we feel when we do mistake? What do we learn from mistakes? 6. The importance of loving and protecting animals 7. Riding a bicycle safely

Level of Class	Headlines of Subjects
	<ol style="list-style-type: none"> 8. What must we do in a state of fire? 9. The important issues on picnics and trekking 10. How to be in secure on the way to school
3 rd Grade	<ol style="list-style-type: none"> 1. Maintaining the belongings at home, saving the sources, the obligations to be a conscious consumer 2. How to protect ourselves from accidents. 3. Strange people and us 4. Our environment
4 th Grade	<ol style="list-style-type: none"> 1. Accident protection 2. Relationship between environment and health 3. Water 4. Human and animal waste 5. Disposal of solid waste 6. Prevention of noise 7. Prevention of air pollution 8. Protecting other living in our environment
5 th Grade	<ol style="list-style-type: none"> 1. Our emotions 2. Security and accident protection 3. Drinking and Domestic water 4. Other water sources 5. Waste 6. Air pollution and its prevention 7. Soil pollution and its prevention 8. Protection of natural life 9. Protection of natural sources and prevention of wastage 10. Protection and recovery of the environment

When the objectives and explanations of the curriculum of the "Environment, Health, Traffic, Reading" lesson are examined, it is understood that the main objective of the curriculum is to instruct the people on environmental knowledge and its relation to health. Those environmental issues are not to be instructed via the other subjects such as physics and biological pollution concept, but the social environment is emphasized with the definition of *"The subject is about synthesis knowledge. Presenting the knowledge one-dimensionally like only ecological, health, human ecology and social environment will cause the misinformation among the individuals."* On the other hand, the curriculum has emotional qualifications for the students with the headlines of subjects in Table 3 and the explanations like *"The disappointing explanations creating fear and anxiety about the future of the earth must be avoided. Positive contributions with healthy and correct behaviors may help to prevent the environmental danger and recover the environment with systematic effort."*

"Environment and Science" Lesson: The weekly schedule was updated with the Changes of Primary and Education Law No 6287, referring to those 12 years of compulsory education in Türkiye and applied with 25.06.2012 date and 69 No of Primary Schools (primary and secondary schools) Weekly Lesson Schedule. "Environment and science" lesson was placed in the related weekly schedule for 7th or 8th grades for 2-course hours and taught through content and treatment designed by the lessons' own teachers.

"Environmental Education" Lesson: "Environment and science" lesson was replaced by "Environment Education" in 2015 and a special curriculum was developed for this lesson. The outcomes were emphasized in the related curriculum. The content of the curriculum was summarized in Table 4.

Table 4. The Content of the Curriculum of Environmental Education

The Units	The Number of Outcomes	Recommended Time	The Content of the Unit
Balance of the Nature	6	10	<ul style="list-style-type: none"> • The interaction between living beings and non-living things • Natural balance concept and the effect of social, cultural and economic activities on natural balance • Developing ideas and suggestions to protect natural balance
Material Cycles and Natural Balance	8	16	<ul style="list-style-type: none"> • Material cycle and its effect on natural life • The interaction among material cycles, the effect of change and deformation of material cycles on living beings and environmental problems • The analysis of life cycle • Personal responsibility
Limits of Sources and Ecological Footprint	7	12	<ul style="list-style-type: none"> • The effect of production and consumption activities on environmental problems • The concept and calculation of ecological footprint • Renewable energy sources • Sustainable usage of natural sources and sustainable development • Taking care of savings and the usage of environmentally friendly materials
Global Environmental Problems	12	22	<ul style="list-style-type: none"> • Deforestation, global warming, climate change, acid rains, destruction of the ozone layer, biological diversity including: <ul style="list-style-type: none"> - Describing global environmental problems - Explaining the reasons of environmental problems - Explaining the relation among the problems - The effects on natural balance • The problems caused by air, water and light pollution, responsibility to prevent these problems. <p>Individual responsibilities to prevent global famine</p>
Environmentally friendly solutions and technologies	5	12	<ul style="list-style-type: none"> • The concept of sustainable development and sustainable consumption of natural sources • The application samples in Türkiye with renewable and non-renewable energy sources • The research of recycle and reuse concepts and good application samples <p>The suggestions on the recycling problems</p>
Total	38	72	

Environment concepts related to living beings and non-living things, national and international studies, sustainability, relationship with the other lessons and reasoning of environmental education as a separate lesson are explained in the "Introduction" part of the curriculum of this lesson. Main conceptual knowledge, conceptual awareness, inquiring and evaluating skills, the levels defined in UNESCO's prototype environment education programme and the positioning of these levels in the curriculum order were explained in the "Main Principles"

part of the curriculum. The *"Think Globally, Act Locally"* principle was explained to be applied in the curriculum, which refers to the adaptation of an interdisciplinary approach; local, national and global perspective; a realistic perspective for environmental problems. The objectives of the subjects related to protecting the nature and balance of the nature, awareness of the obligation for protecting the balance of the nature, comprehension of material cycles, the belief in the necessity of recycling waste, calculation of ecological footprint, environmental problems and having the responsibility to prevent environmental problems, sustainable development and usage of natural sources are explained in the *"General Objectives"* section. Moreover, the roles of teacher-student and the process of teaching and learning are described in the curriculum. Therefore, the process of students' responsibility to be active in the lesson, the role of the teachers as facilitator guides, instruction of the lesson in a different settings such as the school or outside of school, and students' responsibility to protect the close environment is explained in the curriculum. The evaluation of both product and process, the performance of the students within knowledge, skills, attitudes and behaviors are explained in the *"Assessment and Evaluation"* section. Assessment and evaluation tools and techniques like observation, self-assessment, and peer assessment are suggested.

"Environmental Education and Climate Change" Lesson: After the entry into force of the "law related to the appropriateness of approval of the Paris Agreement" by the Grand National Assembly of Türkiye on 07/10/2021, which was signed on 22/04/2016 by Türkiye, in the context of supporting sustainable development and eliminating the poverty, the objectives of improving the adaptation and climate resistance against the negative sides of climate change, encouraging the development with low emissions without damaging the production of food, educational consistency objectives for persistent development against climate change were explained. Therefore, the weekly schedule applied in primary and secondary schools was updated and the name and class level of the *"Environmental Education"* lesson was changed accordingly. The name of the lesson was changed to *"Environmental Education and Climate Change"* to be instructed in 6, 7 or 8. Grades in secondary schools for 2-course hours as a selective course by the academic year of 2022-2023. The lesson's content of the curriculum is summarized in Table 5.

Table 5. The Content of the Curriculum of Environmental Education and Climate Change Lesson

The Units	The Number of Outcomes	Recommended Time	The Content of the Unit
Human and Nature	6	10	<ul style="list-style-type: none"> As a result of observation, recognizing the negative and positive sides of the interaction between human and nature The interaction between living beings and non-living things A sensitive balance of the nature and social awareness for the protection of this balance Current examples affecting the balance of the nature negatively
Circular Nature	4	10	<ul style="list-style-type: none"> As a result of observation, recognizing the natural sources in immediate environment Grouping the natural sources by inquiring Sustainability of natural sources with the material cycle and flow of energy The effect of deterioration in material cycle and flow of energy
Environmental Problems	6	12	<ul style="list-style-type: none"> The importance of the balance between production and consumption in daily life The difference between the concepts of waste, rubbish and pollution The concept and calculation of ecological footprint

The Units	The Number of Outcomes	Recommended Time	The Content of the Unit
Global Climate Change	5	12	<ul style="list-style-type: none"> The local and global environment problems and their effects on human life The events causing the increase in greenhouse gases The reasons for global warming The relationship between global climate change and global warming The effects of global climate change The disasters caused by global climate change
Climate Change and Türkiye	5	12	<ul style="list-style-type: none"> The effects of climate change in Türkiye National and international research about the climate change in Türkiye The precautions to increase the effects of climate change in Türkiye
Climate Change and Türkiye	5	12	<ul style="list-style-type: none"> Having responsibility and creating social awareness about the struggle with the climate change
Sustainable Development and Environmentally Friendly Technologies	8	16	<ul style="list-style-type: none"> The relationship of daily request and needs with the future generations Sustainable consumption of water sources Sustainable consumption of sources and the effects on development Recycling and reusing in terms of sustainable development Designing an upcycled product with the help of waste materials The samples in Türkiye and the world promote sustainable development Designing a project for a real-life problem about sustainable development The career fields about environment, climate and sustainable development
Total	34	72	

According to the curriculum, objectives, perspectives, values, competencies, assessment and evaluation approach, individual improvement, special objectives, skills and the principles during the application of the curriculum are explained. The general definitions of knowledge, skills and competencies of the students in primary, secondary and high school levels as general objectives are explained in the "*Objectives*" section of the curriculum. The knowledge, skills and behaviors with the values and competencies are explained to instruct the students in the "*Perspective*" section of the curriculum. Justice, friendship, honesty, self-regulation, patience, respect, love, responsibility, patriotism and helpfulness are described as root values in the "*Values*" section of the curriculum. The eight key competencies (communication in mother tongue and foreign languages, basic skills in math and science, digital skills, learning to learn, social and civic responsibilities, initiative and entrepreneurship, cultural awareness and creativity) of the Turkish Qualifications Framework (Türkiye Yeterlilikler Çerçevesi, 2016) are explained in the "*Competences*" topic of the curriculum. The principles in direction of outcomes, process, individual differences and multifocal qualifications are highlighted in the "*Assessment and Evaluation*" section of the curriculum. The objectives of the curriculum are explained following the "*Individual Development*" which emphasizes the individual differences because of the lifelong education process of humans. Therefore, this lesson aims to help students increase their interest and curiosity in nature, understand the interrelation between production and consumption activities, acquire a sustainable lifestyle awareness, comprehend the effects of and solutions for

environmental problems and climate change from the different perspectives, take responsibility for climate change, learn about the effects of climate change in Türkiye, describe the career fields related to environmentally friendly technologies and environment. Moreover, environmental ethics issue is emphasized. Following the explanations about the scientific skills and life skills, the issues related to the responsibility of students for their learning, students' taking active roles for a sustainable lifestyle, the obligation about the instruction of the lesson in different learning settings, emphasizing the local and global environmental problems and the results of climate change within the contradictions and sample events, highlighting the emotional outcomes like the enjoyment as a result of protecting the environment and awareness for the disasters are to be taken into account in the “*Important Issues For The Application Of The Curriculum*” part within the instruction of the lessons.

DISCUSSION & CONCLUSION

Education about environmental problems and climate change rises to prominence because the climate crisis and environmental issues strongly affect the earth and people all around the world. The awareness of the environment is going to be the base of the protection of the environment for the students (Akbulut ve Kaya, 2020). Failure to maintain an environmental sustainability and climate change are the most important problems in the world. These problems are the source of the other problems at the same time and people must be instructed to solve these issues. In other words, it is a compulsory situation to teach awareness and sensitivity at an early age (Orhan, 2022). According to Alım (2006); Tanrıverdi (2009); Yusuf et al. (2022), environmental education can be instructed within other lessons like sciences, biology, geography, ecology and social sciences. Moreover, it can be instructed as a separate lesson itself. Öz-Aydın et al. (2022) explained that there is not a compulsory environmental education lesson or a similar curriculum for any class level. Additionally, it is stated that environmental education outcomes are instructed within other lessons in Türkiye. Moreover, environmental education in Türkiye has been instructed both as a selective, separate lesson and compulsory within other lessons.

In this research, the content and the historical background of the “*Environmental Education and Climate Change Lesson*” are examined as a selective course for secondary schools. “*Agriculture*” and “*Agriculture Applications*” lessons related to the environment education were instructed to primary and secondary school students and then the “*Environment, Health, Traffic, Reading*” lesson was instructed in primary schools as a compulsory lesson. After the lessons “*Agriculture*”, “*Agriculture and Husbandry*”, “*Agriculture Husbandry Applications*” were instructed to different class levels as compulsory and selective courses, the lessons containing “*Environment*” (*Environment and Science, Environmental Education, Environmental Education and Climate Change*) were approved for secondary schools with the transformation into the 12-year compulsory education system in 2012. The durations or class levels of both agriculture and environment lessons in the weekly schedule are different from each other.

It is understood that subject base and then outcomes base structures are followed in the lessons related to the environment or lessons containing the term “environment” in their names. Especially, “*Environmental Education*” and “*Environmental Education and Climate Change*” lesson curricula have similar contents to each other. “*Environmental Education*” lesson involving 38 outcomes was taught to 7th and 8th grades as a selective course. The curriculum of this lesson was revised and therefore the “*Environmental Education and Climate Change*” lesson curriculum involving 34 outcomes was developed for 6th, 7th and 8th grades. The most important qualification of the “*Environmental Education and Climate Change*” lesson is its intensive content about climate change and its relationship with Türkiye.

Consequently, it's clear that there was not a separate lesson related to environmental education in Türkiye until the 1990s; the statute of the lessons instructed in primary schools has varied as selective or compulsory until now; the name of the lessons about environment education has varied; the number of the class levels was increased with the latest revision of the lesson; the extension of climate crisis and training for disaster subjects are highlighted; the content of the latest curriculum is developed for practical applications instead of theoretical knowledge.

The research about the curriculum and materials related to education is as essential as conducting impact analysis of the studies. That is because the outcomes based on the environment may not pay off in a very short period without any applications. The curriculum is supposed to be utilized by teachers flexibly without depending on any instruction material or coursebooks. What is more, the lesson is considered to connect to other lessons and out of school settings to educate students to be environmentally friendly. The students are to be aware of lifelong learning from the beginning of preschool education until the class level of the “*Environmental Education and Climate Change*” lesson, one of the lessons in the weekly schedule. The studies focusing on developmental

evaluations of students' readiness, knowledge, skills, attitudes and qualifications are going to create a more sustainable and livable environment heritage for the next generations.

In line with the information on the historical process of the “*Environmental Education and Climate Change*” lesson, it is possible to assert many indications for the future of the environmental education. Despite the changing the name or class levels of the lesson, environmental education has a hidden curriculum to educate individuals to be sensitive and conscious of environmental issues. Thus, environmental education will be one of the lessons that students do not struggle to get lesson points. Because the next process must focus on how to find solutions to the problems that arise as a result of the climate crisis as well as protecting the environment. Therefore, instead of separate courses with names such as agriculture, animal husbandry, environment, climate change and similar names, it is necessary to create an education model that is not learning-oriented, based on standards and adopting environmental ethics.

Conflict of Interest

The authors have no competing interests to declare that are relevant to the content of this article.

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