Research on Social Studies Education in the 100th Year of the Republic of Turkey

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PREFACE

The innovations that occur in the changing and developing world also show themselves in the field of social studies education, which has a multidisciplinary structure that includes different disciplines. In this direction, the content of the work area is constantly renewed according to the requirements of the time and the change is kept up with in this way. This change contributes to the main aim of social studies, which is to raise good citizens who can solve problems, are active, productive and adapt to the conditions of the age. The change experienced does not only affect the content of social studies, but this change also directs the studies conducted in the field. This idea has been the starting point for the creation of this work. Each of the chapters in the book has been prepared with the contributions of academics working in different universities in Turkey, independent researchers and doctoral / master's students. This book, which includes studies such as root value, concept teaching, good and effective citizenship, immigration, privacy education, the use of web 2.0 tools in education, differentiated teaching activities for gifted students in the field of social studies education, consists of 13 chapters. This book, prepared in the field of social studies education, is a work that can be a source for researchers who are and will be working in the field. We would like to thank all the authors of the book for their efforts, dedication and contributions to the formation and completion of this study. We would also like to thank the Pegem Academic Publishing family for publishing the book. We hope that this work, which is dedicated to the 100th anniversary of the Republic, will contribute to educators, social studies field experts and researchers working in this field.

Editors

October 20, 2023

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CHAPTER 6

TEACHING CLIMATE CHANGE IN SOCIAL STUDIES COURSE THROUGH ART

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INTRODUCTION

Climate change emerges as the most significant global issue affecting living organisms in the 21st century. Climate change, which is one of the largest and most complex problems the world faces, has a universal impact. Climate change leads to situations such as damage to biological diversity and natural ecosystems, the occurrence of natural disasters due to increased temperatures in the atmosphere, problems in food production due to decreased water resources, and negative effects on economic growth due to damage to agricultural areas and infrastructure. In this regard, it is a problem that transcends national boundaries and requires international cooperation for its solution. Furthermore, it is necessary to carry out organized educational efforts in this regard to raise awareness among future generations about climate change and to foster their willingness to generate solutions, as well as to make them aware of the issues.

At the primary education level, the interdisciplinary subject of social studies encompasses a wide range of content that enables students to get to know their environment and the world around them. In the past, present, and future, topics that impact and will impact human life and the world are addressed within the scope of the social studies curriculum. Furthermore, among the objectives of the social studies curriculum is to educate students to become aware of global issues

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affecting the world, capable of generating solutions to these problems, fostering a sustainable environmental understanding, and nurturing them as active and responsible citizens.

Within the interdisciplinary structure of social studies, art helps students gain an aesthetic perspective, fosters the development of creative and original ideas, and contributes to the concretization of concepts and phenomena. Works of art reflect the political, cultural, economic and other characteristics of the society in which they emerged. Moreover, art is an effective tool in the development of skills such as critical thinking and empathy.

Art has often been in people's minds as a concept in opposition to science. However, when considered from an educational perspective, it can be seen that they are not very distant from each other. Within education, art and science can become integral components of a whole. It can be said that in today's world, the necessity of art in education is not as readily accepted as the necessity of art in human life. Science's search for concrete values may not give enough importance to the intuitive values of art. Art contains subjective values, while science contains objective criteria (Özsoy, 2001). Making life valuable and building a more livable world is possible by strengthening the bond between art and science through education.

Through art, students can approach the topics covered in social studies from an affective perspective. It is thought that the use of art in teaching a wide-ranging subject such as climate change can provide students with a different perspective and thus sensitize them to the effects of climate change.

In this section, the issue of climate change is examined conceptually, the work of international organizations related to climate change is mentioned, and then it is stated how climate change is included in the social studies course. Examples of current artworks related to climate change were examined and sample activities were prepared for the social studies course.

Climate Change

Global climate change refers to the increase in the average surface temperatures of the earth and changes in the climate as a result of the rapid increase in the accumulation of greenhouse gases (H2O (water vapor), CO2, CH4, O3, N2O, CFC-11, HFC, PFC, SF6, CFC-11, HFC, PFC, SF6) released into the atmosphere by human activities such as the use of fossil fuels, land use changes, deforestation and industrial processes, which strengthen the natural greenhouse effect (Web 1).

Climate change is defined in the United Nations Framework Convention on Climate Change, UNFCCC, 1994 as "a change in climate as a result of human activities that directly or indirectly disturb the composition of the global atmosphere, in addition to natural climate change observed over a comparable period of time" (Web 2).

Throughout its 4.5 billion years of geological history, the Earth has witnessed major climate changes and in some periods its geography has changed completely. Undoubtedly, there will be a slow change in the future as part of the evolution of nature. However, with the beginning of human history, and especially since the second half of the 18th century, a period has been entered in which various human activities have also affected the climate (Öztürk, 2002). The most significant consequence of the intensified greenhouse effect due to the rapid accumulation of greenhouse gases in the atmosphere as a result of various human activities, especially since the Industrial Revolution, is the creation of an additional positive radiative forcing on Earth's energy balance, leading to a warmer and more variable climate on Earth. On the other hand, climate change causes significant changes in the frequency, severity, spatial distribution, length and timing of extreme weather and climate events on a global and regional scale (Türkeş, 2018).

Climate change affects many systems simultaneously. Changes in precipitation patterns lead to floods, disasters increase, people lose their lives, rising temperatures and droughts alter crop growing seasons and threaten food security, food prices rise, livelihoods of those working in sectors like nature-based agriculture and livestock are jeopardized, agricultural structures and crop patterns dependent on water resources are affected, vulnerable ecosystems and species begin to disappear, forest fires become more frequent, the impacts leading to infectious diseases increase, rising sea levels particularly harm coastal areas and deltas, and island nations face the threat of extinction (Web 3).

In a series of UN reports, scientists and government representatives agree that limiting the global temperature rise to no more than 1.5°C will help us avoid the worst climate impacts and maintain a habitable climate. But current policies point to a 2.8°C temperature rise by the end of the century. The emissions that cause climate change come from all over the world and affect everyone, but some countries produce far more than others. Only the seven largest emitting countries (China, the United States, India, the European Union, Indonesia, Russia and Brazil) accounted for about half of all global greenhouse gas emissions in 2020. Everyone must act on climate, but the people and countries that create more of the problem have a greater responsibility to act first (Web 4).

Continued greenhouse gas emissions at or above current levels will lead to further warming and, most likely, to many changes in the climate system over the course of the 21st century that could be greater than those observed in the 20th century. The international community therefore faces an important task to prevent climate risk linked to the increase in human-induced greenhouse gas emissions. The most important way to minimize projected climate changes and their potential negative impacts on socio-economic sectors, natural ecosystems and human health is to reduce human-induced greenhouse gas emissions and increase sinks. Policies and measures aimed at reducing or controlling greenhouse gas emissions are being planned and implemented, along with scientific and technological approaches and measures (Türkeş, 2008).

International organizations are actively and effectively conducting extensive work on climate change. The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 by two United Nations agencies, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP), with the primary objective of assessing the risks associated with climate change caused by human activities. The organization, which aims to evaluate existing scientific, technical, and socio-economic information and provide guidance to decision-makers on climate change adaptation and resilience based on scientific outputs, has 195 member countries (Web 5). The organization aimed at evaluating current scientific, technical, and socioeconomic information and studies related to climate change, and providing guidance to decision-makers on combating and adapting to climate change in light of scientific outputs, has 195 member countries (Web 5). The Paris Agreement, signed by 195 countries in 2015 under the United Nations Framework Convention on Climate Change (UNFCCC), is a legally binding international agreement on climate change (Web 6). Under the agreement, each country must determine, plan, and regularly report on the contributions they have undertaken to reduce global warming. In addition, the United Nations Development Programme (UNDP) aims to achieve Sustainable Development Goals, which include ending poverty, protecting the environment, taking action against the climate crisis, ensuring equitable sharing of prosperity, and promoting peace. In this context, under the *Climate Action* heading, it is aimed to "*Take urgent action to combat climate change and its impacts*".

13.3. *Enhancement of education, awareness-raising, and the development of human and institutional capacity in climate change mitigation, adaptation to climate change, impact reduction, and early warning.*

> ***13.b.*** *Supporting mechanisms to increase the capacity for effective planning and management of climate change in the least developed countries and developing small island states, with a focus on women, youth, local communities, and marginalized groups. (Web 7)*

The above two items in the Sustainable Development Goals under the Climate Action heading emphasize the role of education in increasing awareness about climate change. Raising awareness about climate change from an early age is inevitably crucial for making a significant contribution to the global effort in combating it.

Climate Change Within the Scope of Social Studies Course

Within the scope of the social studies course, it is aimed to train students as environmentally literate. Environmental literacy is a basic functional education that provides basic knowledge, skills and motives for all people to cope with environmental needs and contribute to sustainable development (Moseley, 2000). An environmentally literate student is expected to recognize environmental issues in their country and in the world and take an active role in addressing these problems. Climate change is the most prioritized environmental problem on the world agenda. In a global context, young individuals can only be conscious and willing to be part of the solution in the fight against climate change, which affects both the present and the future of humanity, through planned educational activities. The issue of climate change, which has numerous local and global dangers, is among the objectives and achievements of the social studies course. When the specific objectives of the Social Studies Curriculum (Ministry of National Education (MEB), 2018) are examined, it is seen that the article stated as "*Being aware of the limitations of the natural environment and its resources, trying to protect natural resources with environmental sensitivity and having a sustainable environmental understanding* (Article 6)" is related to environmental problems and climate change. In addition, within the scope of the Global Connections learning area, it is aimed to "*raise active and responsible Turkish citizens who follow the agenda of the developing world and can produce solutions to the problems they face*".

When the achievements of the Social Studies Curriculum (MEB, 2018) are examined, it is seen that in the 7th grade Global Connections learning area, the statement "*Develops ideas for solving global problems with friends. (SB.7.7.4)*" is included. In the explanation of the learning outcome, it is stated that global climate change, natural disasters, hunger, terrorism and migration issues should be addressed. These issues should also be included in the textbooks, which are the

main tools for teachers in the application of the program. However, studies reveal that information on the causes and occurrence of climate change is presented superficially in social studies textbooks, the future effects of climate change are not sufficiently addressed, and visuals are not included in the presentation of information (Demir, 2018; Eryılmaz, 2021; Demirezen & Kaya, 2022; Erbaş, 2023). There are also studies on the positive effects of teaching the subject of climate change and its effects with methods that make students active and with a rich content (Seçgin, Yalvaç & Çetin, 2010; Ak, 2012; Tuncel, 2017; Dere & Çinikaya). In addition, in the study conducted by Çetin and Yel (2022), the mental structures of secondary school students towards the concept of climate change were examined with the word association test. As a result of the research, it was determined that students could not produce words because they did not have sufficient knowledge about the causes and consequences of climate change. Similarly, Yel (2023) concluded in his study that students do not have information about individual measures to be taken to prevent climate change.

While planning the content of climate change education in the social studies course, it can be suggested to address the following topics:

1. **What is Climate Change?**
    - Definition and scope of climate change
    - Causes of climate change, especially the impact of greenhouse gases
2. **Climate Systems and Elements:**
    - Explanation of climate systems such as atmosphere, hydrosphere, lithosphere and biosphere.
    - Climate elements: how factors such as temperature, precipitation, wind, humidity shape climate.
3. **Impacts of Climate Change:**
    - The impacts of climate change on people, ecosystems and economies.
    - Consequences such as sea level rise, extreme weather events, loss of biodiversity.
4. **Global Climate Agreements:**
    - The purpose and objectives of the Paris Agreement and similar international agreements.
    - Climate Action for Sustainable Development Goals

5. **Fight Against Climate Change:**
    - How individuals, communities and governments can contribute to tackling climate change.
    - Solutions such as sustainable energy sources, energy conservation and sustainable agriculture.
6. **Climate Change and Social Justice:**
    - The impacts of climate change on different societies and regions and the inequitable distribution of these impacts.
    - The concept of climate justice and reducing social inequalities.
7. **Youth Shaping Our Future:**
    - The importance and impact of youth and students in the fight against climate change.
    - Young people's awareness and action on climate change.

These topics can be foundational elements for comprehensively addressing the issue of climate change in social studies course. Furthermore, lasting learning can be achieved through interactive activities and examples based on current data. Climate change is not just an environmental issue; it is a complex problem with social, economic, and political dimensions, requiring a multidimensional approach.

Raising Climate Change Awareness Through Art

Today, art not only creates beauty arising from the harmonious unity of colors, forms, sounds and movements, but also exhibits a critical approach to historical, cultural, social and political events and phenomena (Kırışoğlu, 2014). The work of a true artist, no matter how irrational it may seem, is as true as a law of science. Because artists, like scientists, achieve reality by explaining their observations obtained from nature with formulas and discover aesthetic laws at the end of their investigations (Kavuran, 2003). Artists are people who interpret the information they have obtained with their senses throughout history with a new perspective and transfer it to their works. Along with scientific and technological research, artists investigate social problems based on cultural philosophy. Their works range from biology to climate change and artificial intelligence (Dikmen, 2012).

The success in combating global warming and climate change is directly proportional to the level of awareness in societies. However, despite the studies and efforts made by scientists and experts, it is quite challenging to say that people's awareness of climate change, which has reached socio-ecological dimensions, has increased sufficiently. Then why are the scientifically proven facts and efforts

regarding climate change, which has increasingly severe impacts, not creating a sufficiently effective public awareness? Can art play a more effective role in creating this perception? (Türe, 2014). There are ceramic artists who take it upon themselves individually, make the seriousness of the issue known to society, and place the future of humanity and the environment at the center of their works, dealing with the ongoing process that drags us all into the crisis of climate change, which is today's most pressing global issue, in their works using various techniques, materials, and critical approaches. Certainly, artists possess extraordinary potential in raising awareness, making the subject more clearly understandable, perceptible, and relatable to the public through their unique expressions, thus contributing significantly to increasing awareness about this issue. They create highly effective opportunities in raising awareness within societies, confronting individuals with the issues in a clear manner, and shaping public opinion toward the implementation of correct policies (Çetin Almalı and Ağatekin, 2022).

Some artists depict climate change by photographing and videotaping the melting glaciers, which have become symbols of global climate change, while others portray the negative effects of industrial pollution, the petroleum industry, and the detrimental impacts of disappearing nature tourism with more emotional and critical perspectives on the disruption of ecological diversity (Demos et al., 2021). The effectiveness of visual arts in creating awareness and understanding of the global phenomenon of climate change, which affects the sustainability of our planet, and in reducing the impacts of this process, can sometimes surpass that of science (Türe, 2014).

We witness that nature, which has undergone changes culturally, genetically, and technologically in parallel with climate change, is addressed in art with different techniques and orientations. Climate change is much more than just temperature change, and exploring worlds related to climate change through art can increase the likelihood of taking the situation seriously. The majority of climate change-related studies are of a type that goes beyond traditional art categories, being interdisciplinary, experimental, visual, and multicultural in nature, involving the creative establishment of new information, organizations, and networks. It can be said that contemporary artists dealing with global climate change have taken warning, action-oriented and shocking initiatives on the protection and sustainability of natural resources, reminding us that we are part of the natural world and trying to confront us with what we can experience if we do not realize this, quite different from the traditional understanding of art and the images frequently encountered in the media (Girgin, 2022). In fact, it is seen that artistic works related to climate change are presented in contemporary forms. Examples of these artistic works are presented in the activities prepared for the social studies course.

CONCLUSION

Unfortunately, the biggest challenge regarding the most pressing issue in the world today, which is climate change, is that the reality of it is still not widely accepted, the necessary sensitivity and awareness about the issue have not yet reached the desired level, and there is even ongoing debate about whether there is a climate crisis or not. Urgent action plans and transformations are needed worldwide to draw attention to the issue and stop climate change before it reaches an irreversible point (Çetin Almalı and Ağatekin, 2022). Turkey is among the countries most affected by climate change, from the formation of the world to the present day. Furthermore, it is in a position to be most affected by many changes in the climate and may face significant challenges in the future (Öztürk, 2002). Therefore, it is essential to create conscious awareness about climate change in all segments of society. In order for young people and children to grasp the importance of this issue more clearly, the subject of climate change should be included in curricula and textbooks, out-of-school learning environments should be actively used, and cultural and artistic activities should be utilized. The social studies course, with its interdisciplinary structure, allows the subject of climate change to be addressed in all its aspects. Students, who are intended to be raised as active citizens, can be directed to activities such as civil society work on climate change, the importance of public opinion, and developing solution-oriented projects. Artworks can be used as an effective tool for students to understand the problems caused by climate change. Works that emphasize climate change can be introduced to students, and in-class activities can be prepared. In order for future generations to produce more effective solutions in the fight against climate change, which is the most important global problem affecting the present and future of humanity, they need to gain awareness and be sensitive today. Art is the most effective way to bring this sensitivity to young minds.

EXAMPLES THAT CAN BE USED IN TEACHING CLIMATE CHANGE IN SOCIAL STUDIES COURSE THROUGH ART

In this section, examples of artworks that can be used in teaching the subject of climate change in the social studies course are given. Visuals of works of art can be projected in the classroom environment with a smart board. The activities can be used in all learning areas, especially in the Global Connections learning area, at all grade levels by associating them with appropriate subjects. Activities inspired by artworks can be used for school-wide activities on specific days and weeks such as "*International Clean Air Day (September 7)", "World Water Day (March 22), "Environment and Climate Change Week (2nd week of June)", "Forest Week (March 21-26)", "World Environment Day (June 5)".* Therefore, the grade level at which the artworks can be used is not specified. Thus, it is aimed to provide a wider application opportunity. Visual Arts, Technology and Design, Music, Science and Technology branches can cooperate in the application of activities prepared with works of art.

Ice Sculptures	**Melting Superhero**
	
Brazilian artist Nele Azevedo, in order to draw attention to global climate change, exhibited 1000 melting man figures made of ice from the Arctic regions in 2009 at the Berlin Concert Hall and on the stairs of the Gendarmenmarkt square, and the perception created by how they melted in 30 minutes attracted great attention all over the world. The figurines made of ice melting drop by drop in front of everyone's eyes have been one of the works that have drawn the most attention to this environmental disaster. For this reason, the exhibition has been repeated many times in different events held in many countries around the world (Türe, 2014).	The sculpture design titled "Melting Superman" exhibited by Steve Lawler (Mojoko) and Eric Foenander at the Singapore Art Museum in 2012 was found to be very effective in the perception and awareness of global warming and climate change, especially in children as well as adults (Türe, 2014). The clear message conveyed by the giant figure summarizes how even a superhero, especially one so well known to children, cannot stop us from continuing to warm the planet and destroy our own existence: "*No One Can Save Us*" (Web 8).
Activity Suggestion: While teaching the subject of climate change in the social studies course, artworks are introduced to students. Inspired by these artworks, a similar work can be done with the students. The water filled inside the balloons is frozen in the school's facilities, typically in the freezer located in the cafeteria or canteen, depending on the school's resources. Students gather in the schoolyard during lunchtime to display the frozen balloons under the sunlight. Nele Azevedo repeated her ice sculptures work with the participation of students at a school in Paris on March 22, 2018 for World Water Day. The video of this event can be shown to the students and they can be asked questions about the purpose of the event (Web 9).	

Wheatfield	7000 Oaks
	
In May 1982, Agnes Denes attempted to plant a 2-acre wheat field in a garbage dump overlooking the Statue of Liberty, very close to Wall Street and the World Trade Center. For this purpose, two hundred truckloads of soil were brought in, seeds were planted by hand, the field was maintained for four months, weeds were removed, fertilizers were applied, pesticides were used, and an irrigation system was installed. The planting and harvesting of wheat on land worth four and a half billion dollars creates a powerful paradox. In fact, the wheat field is a symbol, a universal concept, representing food, energy, trade, world trade, economy. With this work, Denes refers to mismanagement, waste, world hunger and ecological concerns. It draws attention to our misplaced priorities. As with many other land art works, this project is accessible through the photographs that document it.	Alman artist Joseph Beuys's "7000 Oaks" project is a significant example of ecological art in response to environmental issues. It involves the planting of 7,000 trees throughout the city of Kassel, Germany, each paired with a basalt stone about four feet above the ground. As part of the global mission to trigger environmental and social change, the planting of trees in this city is intended to spread around the world (Girgin, 2022). Beuys defines the project as "the progression of human talent towards a new concept of art in a symbolic communication with nature. The oak expresses the fragility of life and the mutually beneficial relationship between man and nature. The act of planting trees is important for the artist. Especially the oak tree is important for the artist for the development of ecological sensitivity and ecological perspective. This artistic production continued to grow after the artist's death. The first tree was planted in 1982 and the last in 1987, 18 months after Beuys' death, by his son (Güven Ak, 2021).
Activity Suggestion: While teaching the subject of climate change in the social studies course, artworks are introduced to students. Inspired by these artworks, a similar work can be done with the students. If possible, a tree planting activity can be organized in the school garden with the participation of students, a small greenhouse can be established where various plants are grown. In cases where these are not possible, potted plants can be grown in the classroom and students can be given responsibility for the care of the plants.	

Concert In the Arctic	**Protect the Oceans Concert**
	
The famous Italian composer and pianist Ludovico Einaudi gave a special concert in the Arctic on June 17, 2016 to draw attention to global warming and climate change. The artist played 'Elegy for the Arctic', an original piece he composed for Ocean. For the Italian pianist, a piano was placed on a floating platform. The renowned composer set to music the voices of eight million people from around the world demanding the protection of the Arctic (Web 10).	A group of musicians who traveled to the Arctic as part of Greenpeace's "Protect the Oceans" campaign gave a concert at minus 12 degrees with instruments made of ice. As musicians played the piece "Ocean Memories" accompanied by bells, horns, cellos, and percussion rhythms, they also conveyed the following message to the world: "We must protect at least 30% of our oceans by 2030." Indeed, scientists emphasize the need to include at least 30% of our oceans within marine protected areas by 2030 in order to conserve wildlife and mitigate the impacts of climate change (Source: Web 11).

Activity Suggestion: While the subject of climate change is being taught in the social studies course, the artworks are introduced to the students. Concert videos are shown to the students (Web 10, Web 11) and then questions are asked about why the artists draw so much attention to the protection of polar ice caps and oceans. The story of Frankie Morlar, who is a young child, is told.

> *At just eight years old, Frankie composed a piece called "World in Danger." Inspired by a book he read at the age of five, the young child began to arrange words about trees and the world in his own way. His father, who liked the lyrics, then took notes and recorded what the child was saying. The father and son not only record the song, but also make a music video. Thus, little Frankie's cute song has the chance to reach a wide audience. Thanks to its childlike spirit and simple, yet striking lyrics, the song becomes a hit (Web 12).*
>
> *Frankie Morland has been fundraising for the World Wide Fund for Nature (WWF) since the age of 4. He is contributing all the proceeds from his song to environmental causes, doing his part to raise awareness about climate change (Web 13).*

Frankie's video is shown to the students in the classroom. Students can be asked to prepare a song, write a poem or design a poster (in line with their interests and abilities) about the effects of climate change.

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