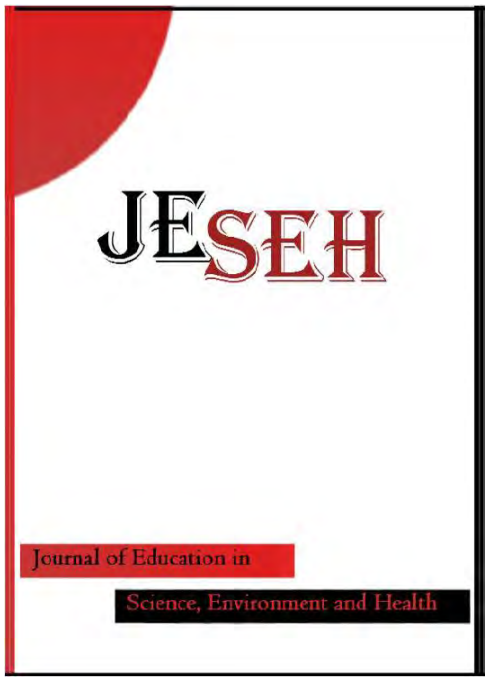

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Scientific Studies on Climate Change, Children and Education: Current Situation and Suggestions

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Abstract

Climate change is at the top of the world's agenda due to the major problems it creates. It is a subject that concerns all humanity and living things with its many different dimensions, from economy to social life. However, it is children who are most affected by the problems arising from climate change and will be affected in the future. Within this scope, the aim of this study is to examine the effects of climate change on children through the current literature and to interpret the studies on this subject in Turkey. The research was conducted in a qualitative way and content analysis method was used. The content of the study was limited to researches focusing individuals aged 0-12, including early and late childhood. National studies in Turkey on climate change for children and their education are included in the scope. According to the results, there has been a noticeable increase in studies on the effects of climate change on children and their education, especially in the last five years. Furthermore, most of the studies focus on examining dimensions such as knowledge, awareness, perception and attitude. However, there is a great need at the moment to teach children, who are the architects of the future, permanent environmentally and eco-friendly behaviors.

Introduction

Due to the consequences of climate change, it has been one of the problems that humanity has experienced the most throughout history (Hosking et al., 2011). As many knows, massive changes have occurred in the lives of people who have had to deal with these climate change sourcing problems; many people have been displaced from their homes worldwide and some parents even stated that they are worried about the future of their children (Akachi et al., 2009; McMichael, 2014). These concerns of parents can be understandable because by the end of this century, our planet is predicted to will have warmed by an average of 2 degrees Celsius with human activities (Hellden et al., 2021). Children have contributed the least to the climate crisis but will pay the highest price. Children are undoubtedly the most affected by these problems; because they are not sufficiently ready for the extraordinary consequences of climate change, as they have not yet reached a sufficient level in terms of mental and physical development (Shea, 2007; Urbano et al., 2010). Therefore, children have to bear the burden of climate change. The negative consequences of climate change are a danger that awaits children even before they are born, because the child is fed with whatever the mother feeds while in the womb. The nutrition of the mother also depends on the climatic conditions (Pacheco, 2020). Children are more sensitive to the consequences of climate change, as they have not yet developed enough for themselves and are dependent on others (Currie & Deschenes, 2016; Kousky, 2016).

The effects of climate disasters that the child is exposed to before birth have also been proven in neurodevelopmental disorders in childhood (Perera, 2017). Among the climate problems that affect children are the carbon emissions caused by fossil fuels and the effect of greenhouse gases. These can cause dangers such as lung diseases, developmental disorders, low birth weight, childhood asthma and increased cancer risk in children. Furthermore, children are the ones who will feel the deadliest effects of rising temperatures, drought, water scarcity and air pollution. Children's need for water is much more than adults and need more water than adults, which they need to consume per weight. The scarcity of water prevents some agricultural products from growing. This leads to a decrease in meat consumption due to the nutrition of animals, which leads to the inability of children to receive the necessary amount and quality of nutrients for their development (Godfray et. al., 2018). 438,000 people died in 2015 alone from diseases such as poor water quality, malaria, diarrhea, cholera, dengue fever and meningitis, and two-thirds of these are children under 5 years old (UNICEF, 2013; UNICEF, 2015). Scarcity of water also causes people to migrate. When people migrate from where there is no water, it is girls who are more affected. In unsafe conditions, girls are given the task of traveling long distances

to bring water to the house. In the event of a possible disaster, girls are the first to leave the schools. It seems that in the coming years, bigger threats await their children than they do now.

Although it is known that climate change affects every person, it also has some other significant effects on children. It has been stated that, depending on the consequences it creates, especially after extraordinary climatic events and natural disasters, depression, stress, phobia, sleep disorders, attachment disorders, anxiety and even substance addiction can be seen in children, especially post-traumatic stress disorder (Burke et al., 2018). Among the climate problems that affect children are the carbon emissions caused by fossil fuels and the effect of greenhouse gases. These can cause dangers such as lung diseases, developmental disorders, low birth weight, childhood asthma and increased cancer risk in children (Xu et al., 2012). Reducing the effect of greenhouse gases alone means saving the lives of millions of children.

Another dimension of climate change that can be evaluated for children is its connection with children's rights. Although the 'Convention on the Rights of the Child' does not specifically mention the issue of climate change, it contains provisions regarding the need to protect children from the harmful effects of environmental pollution. The rights of children who have become refugees as a result of migration due to climate change have been emphasized (Arts, 2019).

Table 1. Articles related with global climate change in the "International Convention on the Rights of the Child"

Article No	Rights of the children related with climate change
Article 3:	Children's needs must be the top priority. Climate change studies should be focused on countries that are more vulnerable in this regard.
Article 6:	Children have the right to survive and develop. Disasters such as drought, epidemic, flood and hunger directly threaten the lives of children.
Article 9-10:	Children have the right not to leave their parents against their will. As a result of climate change, millions of children are forced to leave their places of residence and may even go out of the country.
Article 12:	Children have the right to have a say. The issue of climate change is an issue that affects children and children should be able to have a say in this matter.
Article 24:	Children have the right to benefit from health services. Situations caused by climate change may prevent children from benefiting from health services.
Article 27:	Children have the right to live with an adequate standard of living. Situations related to climate change can affect children's living standards.
Article 28:	Children have the right to receive education. Children may have to postpone or drop out of school due to natural disasters.
Articles 19, 32 and 34–36:	Children have the right to be emancipated from all forms of violence and exploitation. Children and their families can be away from their homes when disasters due to climate change occur. This can lead to child abduction and human trafficking.
Article 30:	Children have the right to an indigenous culture and language. Climate change threatens ecosystems with close ties to indigenous culture.
Article 31:	Children have the right to create and play. As disasters related to climate change threaten the child's environment (school, home…etc), children may stay away from recreation and play activities.

(All of the provisions and the specific interpretations of the provisions belong to the International Convention on the Rights of the Child and are quoted from the "UNICEF 2021 - The climate crisis is a child rights crisis: Introducing the Children's Climate risk index" report)

As highlighted by many nations at 26th United Nations Climate Change Conference of the Parties (COP26), in Glasgow, and by IPCC reports, reducing the effect of greenhouse gases alone means saving the lives of millions of children. One billion children are at 'extremely high risk' from the impacts of climate change, according to a Southampton-led consortium of researchers who conducted the analysis for a key UNICEF report that was presented at the UN Climate Change Conference, COP26. Entitled "The Climate Crisis Is a Child Rights Crisis: Introducing the Children's Climate Risk Index (CCRI)", the report presents the first comprehensive worldwide analysis of climate risk to children (UNICEF, 201). It combines different types of information – physical data, such as floods and droughts, with social data, such as access to essential services – on a single map to show governments across the globe where they most need to focus their resources to protect vulnerable children. In addition, climate change produces hotter temperatures and worse air pollution—and that matters to a child's brain. Some studies conducted by Harvard University, have shown that heat and air pollution can influence

everything from how a brain develops to how well a student does on a test. Many research studies have suggested that the more particulate matter a child or teen breathes, the more their brain may be harmed (Harvard T. H. Chan School of Public Health, 2021).

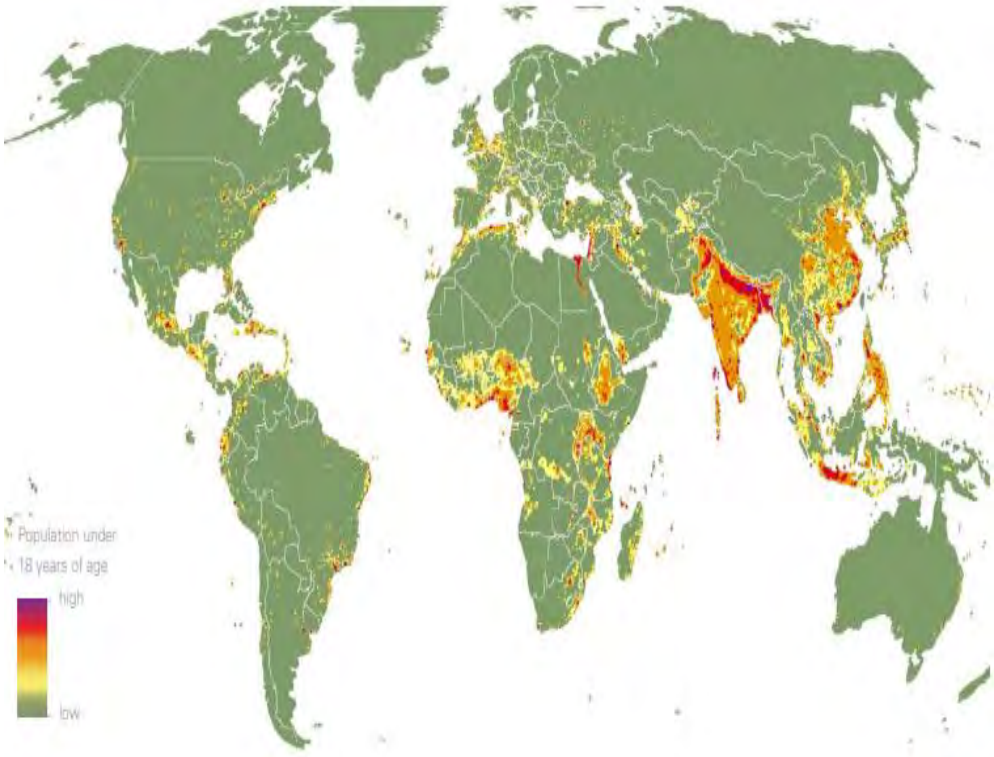
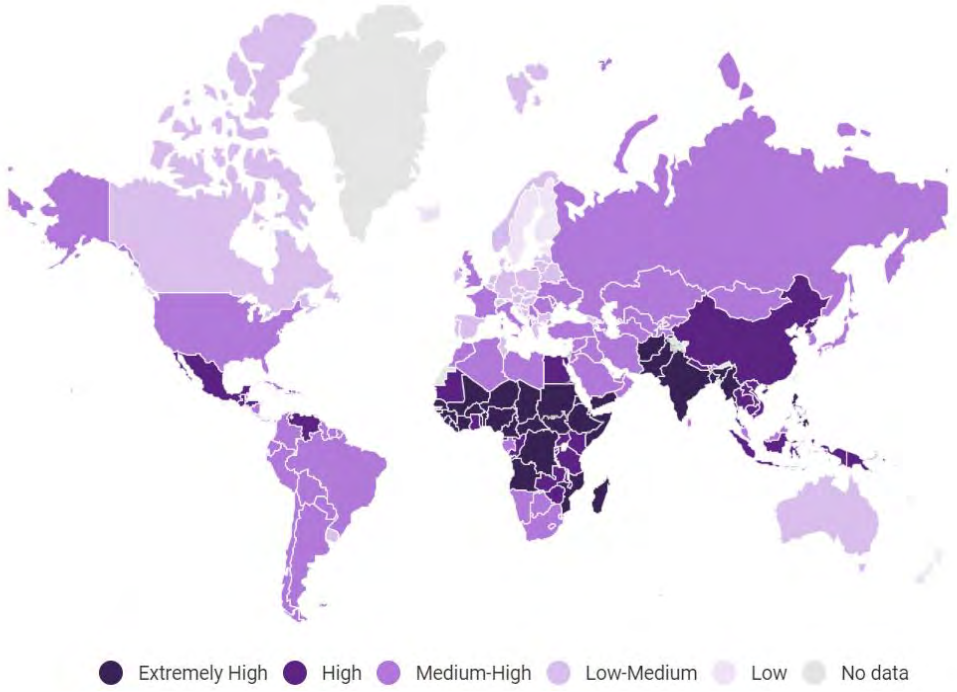


Figure 1. Distribution showing the risk of child and young population being affected by climate change-related disasters (UNICEF, 2015)



Note: Approximately 1 billion children (nearly half of the world's children) live in extremely high-risk countries
Figure 2. Children's climate risk index atlas (UNICEF, 2021; https://data.unicef.org/resources/childrens-climate-risk-index-report/)

"What we found surprised us. The scale of exposure is even larger than we anticipated: there are very few children in the world who are not exposed to some form of hazard – for example floods or heatwaves – resulting from climate change," says Hutton (2021) who led and conceptualized the risk mapping approach. From the difference between both maps above, it can be seen that how much the situation has changed in just five years. Also, one billion children are at 'extremely high risk' from the impacts of climate change, according to a Southampton-led consortium of researchers who conducted the analysis for a key UNICEF report that was presented at the 26th UN Climate Change Conference (COP26). Considering all these effects of the climate crisis on children, almost every country should focus on deeper and faster studies on this issue. Turkey is among the countries that have been affected by the climate crisis in recent years. Flood disasters in many parts of the country, widespread fires, catastrophic weather events that threaten the habitat of many living species make the measures to be taken in this regard very essential. Undoubtedly, children, who will be adults of the future, will be the individuals most affected by the above-mentioned effects today and tomorrow. At this point, the climate studies carried out in the children's center in Turkey and their quality should be increased and shaped according to the needs. For this reason, in this study, firstly, general trends and analyzes of existing studies were desired. Within the scope of these effects mentioned above, the aim of this study is to examine the effects of climate change on children through the current literature and to interpret the studies on this subject in Turkey. The content of the study was limited to individuals aged 0-12, including early and late childhood. National studies in Turkey on climate change for children and their education are included in the scope.

Method

The research was conducted in a qualitative way and content analysis method was used. This research, involves purposeful use for describing, explaining, and interpreting collected data (Creswell, 2013). Leedy and Ormrod (2001; p. 155) define this method as "a detailed and systematic examination of the contents of a particular body of materials for the purpose of identifying patterns, themes, or biases". In line with the purpose of the study, all scientific studies and government-supported scientific projects in the field of education on children and climate change in Turkey were included in the center. The study aims to describe the biometrical characteristics of the theses, articles and scientific project reports published in educational journals reached through using "environmental education, climate change, children" keywords. The aims, target age groups, methods, results and general tendencies of these studies were tried to be examined in depth. The following steps were carried out in the study, respectively: (1) Examination of the effects of climate change on children according to the common literature and current scientific researches; (2) Examination of higher education-specific programs, research centers and schools in the field of climate change and its effects in the education system in Turkey; (3) Determining the scope and criteria to be included in the research; (4) Determination of scientific studies and projects covering the early childhood and primary education period on climate change in Turkey and examining their contents; (5) Analyzing and interpreting research data obtained in the context of children and climate change in Turkey; (6) Developing further recommendations for educators, practitioners and researchers in terms of studying global climate change and child as a result of the findings obtained.

The credibility of the results is considered one of the most important criteria of scientific research. Patton (2002) states that validity and reliability are two factors which any qualitative researcher should be concerned about while designing a study, analyzing results and judging the quality of the study. In this respect, validity and reliability are the two most commonly used criteria in research. Errors such as handling inadequate results, themes based on closed answers, misinterpreting data can jeopardize the credibility of the qualitative study. Asking people who have general knowledge about the research subject and specialized in qualitative research methods to examine the research from various dimensions is another measure that can be taken in terms of credibility (Creswell, 2003). In this study, peer debriefing was preferred in order to make realistic and reliable analyzes on the obtained documents. In this review, two other experts took a critical look at the processes from the research design to the collected data, their analysis, and the writing of the results, and provided feedback to the researcher.

Sampling and Limitations

The data for the study consisted of the theses, articles and scientific reports reached through Council of Higher Education Thesis Center, Science Citation Index (SCI), Social Science Citation Index (SSCI) and Art & Humanities Citation Index (A&HCI) international citation indexes, Scopus and Ulakbim TR Dizin database published between 1988 and 2021 using "environmental education, climate change, children" keywords. As a result of the initial scanning, 1988 is considered to be the starting date for this line of research since the first

article on the subject matter was found to be published in. It should be noted that the sampling of the study has some limitations. Firstly, the sample did not involve of all the publications on environmental education in the related literature. The study is limited to the issue of climate change, which is included in environmental education research. Additionally, the scope of the study is limited to related published work only in thesis and research article format and does not cover conference papers, reviews, editorials, notes, letters, short surveys, book chapters and books published on the topic. In addition, year of publication was also set to be another limitation for the reasons mentioned earlier. There was no limitation regarding the publication language, and thus, articles published in any language were included in the analyses. Finally, it should be stated that this study is limited to the studies conducted in the center for 0-12 age group children and carried out in Turkey.

Data Collection

Since 1988, 138 topics have been researched as theses in the field of environmental education in the last 30 years in our country (see Graph 1); eleven studies of them are directly on climate change and especially seven of them are focused on children. As a result of the scanning conducted; 7 theses, 5 research articles and 5 government-coordinates project reports publications in total were reached for this time period from past to present year. For the aim of the study, search limitations such as publication type (i.e., journal article) and time period were set. The analyses results for this sample of 19 studies revealed the findings related to the annual distributions of the articles.

Data Analysis

In order to carry out content analysis, firstly determined researches (graduate theses and research articles and government-supported projects conducted by Ministry of Environment, Urbanization and Climate Change) were listed. The basic information of each study was coded and the variables to be included in the study were tried to be determined. At the end of the preliminary examination, each study examined in this research was divided into subgroups of "Aims", "Research Methods", "Research Duration", "Study Groups", "Subject Areas", "Study Types" and "Results", separated and analyzed. The data obtained as a result of the analyzes are presented in tables and graphics.

Results

The findings and comments obtained from the studies are examined in this section. The obtained data are presented to the reader under the determined sub-headings (purpose, research types, research method, research durations, study groups, subject areas, results) in tables and graphics. Themes, codes and frequency values of the related analysis are given in the tables and graphics.

First of all, it should be said that Turkey has taken a supportive stance and participated internationally in the search for solutions since the years when environmental problems emerged on the world agenda (see Figure 3). When we turn our focus to the educational situation on this subject, we encounter the following findings. In Turkey, great importance has been given to environmental education for nearly 30 years. Many dimensions related to the environment, from pre-school to higher education, have been included and implemented in national educational programs. Looking at higher education, ‘Environmental Education’ course was made compulsory in classroom teaching since 2007 and in early childhood teacher training undergraduate programs in 2018 (Council of Higher Education, 2018). These programs cover the training processes for the prevention of the climate crisis more than in the past. Additionally, the trend of awareness, which has been developing and increasing in the last 5 years, stands out in the context of climate change. Since 1988, 138 topics have been researched as theses in the field of environmental education in the last 30 years in our country (see Graph 1). Eleven studies of them are directly on climate change.

It is seen in the graph that scientific research on environmental education has been condensed since 2000. The first study directly on climate change and children's education was conducted in 2013 and the number has increased until this year. A large number of scientific studies have been identified on this subject. It is noteworthy that researches have intensified especially in the last 20 years. There has been a noticeable increase in studies on the effects of climate change on children and their education, especially in the last 5 years. This situation is thought to be caused by a result of the reflection of the climate crisis and environmental problems in our daily life.

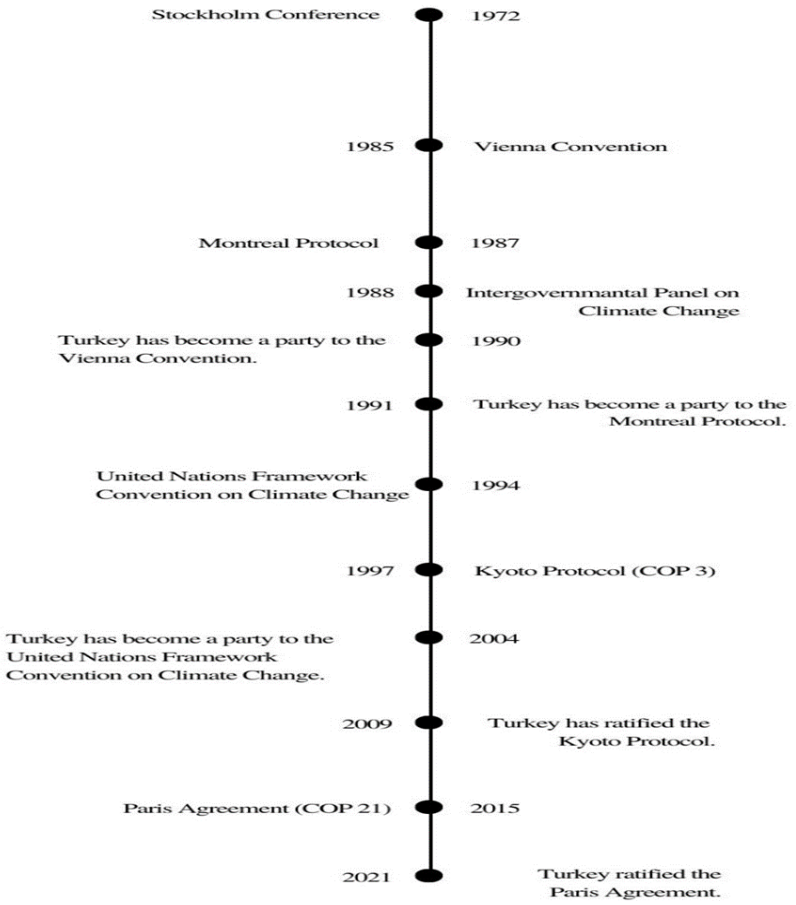
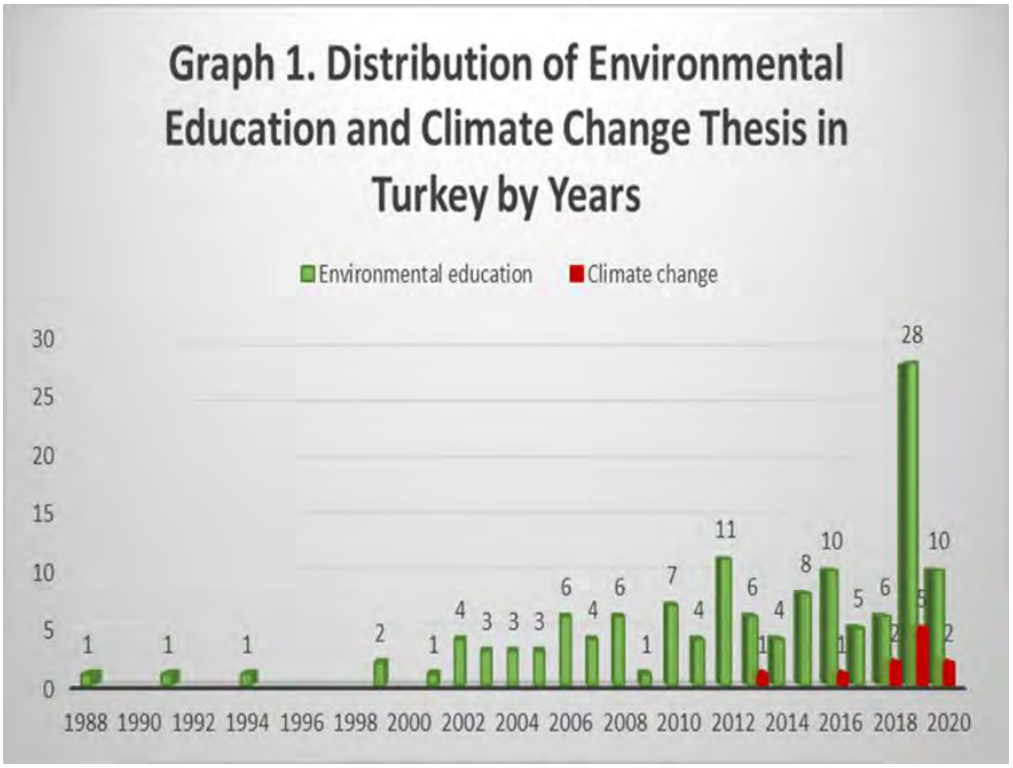


Figure 3. Timeline of Turkey's international participation



Graph 1. Distribution of environmental education and climate change thesis in Turkey by years

Table 2. Research articles published about global climate change and children in Turkey

Year	Author/s	Journal	Theme	Sub-Theme	Sample/ Study group	Results
2012	Article 1 (A1)	Erciyes Medical Journal	Climate change	Effects of Climate Change on Child Health	Document analysis	It has been determined that climate change has physical and mental effects on children.
2017	Article 2 (A2)	Anatolian Journal of Teacher	Light pollution	Students' Perceptions of Light Pollution	Children age of 11	Bird species and sea turtles, whose populations are decreasing due to light pollution, attract the attention of students.
2019	Article 3 (A3)	Baskent University Journal of Education	Environmental Problems	Investigation of Secondary School Students' Cognitive Structures for Environmental Problems Through Drawings	Children age of 12	Environmental problems are caused by humans. Students do not have knowledge about the concepts of global warming, greenhouse effect and acid rain .
2019	Article 4 (A4)	International Primary Education Research Journal	Unconscious Consumption of Natural Resources and Environmental Problems	Determining the Readiness Levels of 6th Grade Students about Unconscious Consumption of Natural Resources and Environmental Problems with Cartoons	Children age of 12	Children understood the visual messages about environmental problems given in the cartoon, but they could not diversify the solutions.
2020	Article 5 (A5)	Journal of Geography	Climate Change Education	Comparison of Secondary School Curriculums in the World and in Turkey According to Climate Change Education Approach	Document analysis	The principle of integrating climate change with local elements, which is one of the components of climate change education, is given superficially in our country's curriculum.

As seen in Table 2 and Table 3, there are more researches at the primary school level. It can be argued that there is a greater need for educational content research on early childhood period. Most of the studies focus on examining dimensions such as knowledge, awareness, perception and attitude (see Figure 4). However, there is a great need at the moment to teach children, who are the architects of the future, permanent environmentally and eco-friendly behaviors. A cleaner future can be talked about when knowledge and values turn into behavior.

Another source of data on climate change and children's education is government-supported projects. The studies carried out within the scope of this subject by the Ministry of Environment, Urbanism and Climate Change have been examined. Comprehensive projects covering various themes of environment, sustainability and climate change were encountered. Also, it is seen that mixed methods are used in government-supported projects and individuals from different age groups (children, teachers, parents, etc.) are included in the process. Therefore, the wider segment of society is involved in the process.

Table 3. National masters and doctoral theses on global climate change and children in Turkey

Year	Author	Institution/ organization	Theme	Sub-Theme	Sample/ Study group	Results
2018	Theses 1 (T1)	Ankara University	Climate Change	Climate Change in Social Studies Curriculum and Textbooks	Children age of 10-11-12-13	The reflection level of most of the achievements determined for the relationship between climate, human and environment in the textbooks was found sufficient.
2019	Theses 2 (T2)	Kastamonu University	Climate Change	The Effect of the Climate Change Program Applied to Five-Year-Old Children on Children's Views on the Concept of Climate Change	Children age of 5	It has been observed that the climate change program applied to 5-year-old children has an effect on children's views on the concept of climate change.
2019	Theses 3 (T3)	Aksaray University	Global warming	Investigation of Secondary School Students' Knowledge and Perceptions of Global Warming	Children age of 11-12-13	It has been observed that the students have an average level of knowledge about global warming, the global warming knowledge level of the students studying in the 5th grade is significantly higher than the students at the other level, and the out-of-school learning environment has an effect on the students.
2019	Theses 4 (T4)	Adnan Menderes University	Environmental Education	Investigation of Children's Books in Eco-Schools in terms of Environmental Education	Children age of 0-6	It has been determined that the books do not include the theme of climate change at all.
2019	Theses 5 (T5)	Hacettepe University	Environmental Education, Climate Change	Investigation of Primary Education Programs in terms of Sustainable Development Goals, Environmental Education and Climate Change	Children age of 7-8-9-10-11-12-13-14	Some of the achievements of the compulsory courses Life Science, Science, Social Studies, History of Revolution and Kemalism are suitable for some goals.
2020	Theses 6 (T6)	Erzincan Binali Yildirim University	Global warming	6th Grade Students' Metaphors and Metaphorical Perceptions on Global Warming	Children age of 12	It has been determined that the students are aware that everyone should fulfill their duties and make an effort to solve the problem of global warming, which has become a danger for living things and the world.

2020	Theses 7 (T7)	İstanbul University	Climate Change	Examining Climate Change Education in the World and in Turkey and Suggesting an Education Model	Children age of 12	It has been determined that the learning-teaching strategies chosen in accordance with the climate change education approach and the teaching materials prepared accordingly give positive results in correcting the misconceptions about climate issues.

Table 4. Government-coordinated projects (by MOEUCC) in the context of global climate change and children in Turkey (Republic of Turkey Ministry of Environment Urbanization and Climate Change, 2021)

Project name	Target group	Theme	Sub-Theme	Purpose of Project
Development of Awareness Project on Climate Change	Starting from kindergarten and preschool, students at all levels, preservice teachers, teachers, local governments	Global climate change	---	Increasing the awareness of students, teachers and local governments about climate change.
The Voice of Meteorology	Primary and secondary school students	Environment	Climate, climate change, meteorology, meteorological disasters, renewable energy systems	The aim is to raise awareness with Meteor FM radio broadcasts on environmental issues such as climate, climate change, meteorology, meteorological disasters, and renewable energy systems.
Family Education Program	Parents	Education	Global warming, greenhouse effect, communication, law, economy, health, media, energy saving	The aim is parent education on global warming, greenhouse effect, communication, law, economy, health, media, energy saving.
Water Ambassadors	Preschool, Primary, Secondary and Higher Education students, teachers, parents	Water use	Environmental protection, sustainability, climate change	The aim is to increase the level of knowledge about the use of water resources, to protect the environment and to differentiate usage habits.
Energy Child Project	primary school students	Energy efficiency	Global warming	The aim is to teach children the use of energy.

Conclusion

Climate change is at the top of the world's agenda due to the major problems it creates. There is clear evidence that it will exacerbate the underlying social, economic and ecological factors that cause global illness and death for all age groups (Watts et al., 2018). It is a subject that concerns all humanity and living things with its many different dimensions, from economy to social life. However, it is children who are most affected by the problems arising from climate change and will be affected in the future. The natural and environmental disasters that have been experienced for especially two years, inform us how quickly we need to move this issue to the center of our lives. At the end of COP26, we can discuss for hours here the issues on which countries have agreed and agreed. However, one important the dimension to emphasize is our “future”, that is, “our children and youth”. Increased poverty from climate change could directly harm a child's mental wellbeing, with particularly detrimental effects if natural disasters also increase (Hanna & Oliva, 2016). Sanson and Burke (2020) also state climate change as an urgent issue of structural violence and intergenerational justice that demands attention from psychologists, scholars, practitioners, activists and policy-makers, with particular emphasis on the needs of current and future generations of children.

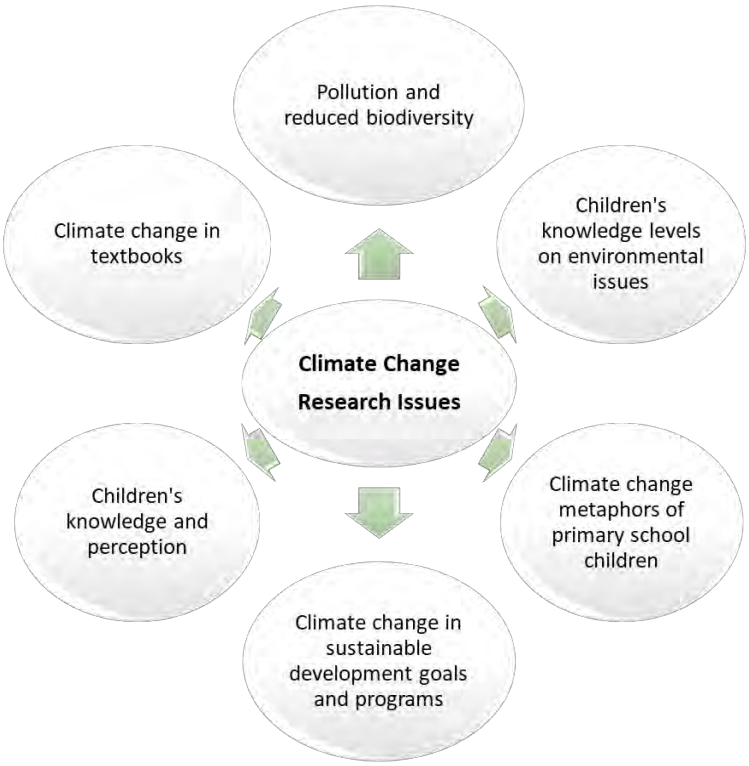


Figure 4. Research topics of scientific studies on climate change and children in Turkey

As being adults of today, although we take urgent precautions, it will be possible to overcome the problems and get long term results only with the education of our children. Focusing on children also helps us to see the injustice and urgency of addressing climate change and encouraging the current adult generation to recognize its responsibilities and "moral duty" (Cripps, 2017) to ensure that today's children and their descendants will have the basic conditions for flourishing (Sanson & Burke, 2020). I thought that in order to be able to decide better what we can do about this issue; we should first look at "how Turkey is" in this regard. For this purpose, it is examined that the current scientific researches on education and projects carried out by the ministry on climate change in our country. Thence, the aim of this study is to examine the effects of climate change on children through the current literature and to interpret the studies on this subject in Turkey. This purpose coincides with the implication of Currie and Deschenes (2016). They imply and emphasized that in states, cities, and communities all over the world must promote preparedness and resilience for the effects of climate change especially for children.

When the scientific studies reached are examined, it is clearly evident that environmental education has been given great importance for many years in Turkey. When it comes to the education of children, environmental education has been made compulsory in pre-school and primary school education programs and teacher training programs in the last 10 years (Council of Higher Education, 2018). These programs cover the training processes for the prevention of the climate crisis more than in the past. A large number of scientific studies have been identified on this subject. It is noteworthy that researches have intensified especially in the last 20 years (see Graph 1). There has been a noticeable increase in studies on the effects of climate change on children and their education, especially in the last 5 years. This situation is a result of the reflection of the climate crisis and environmental problems in daily life. Another result obtained, there are more researches at the primary school level. In addition to these, it appears to be that there is a greater need for educational content research on early childhood period.

According to another result, most of the studies focus on examining dimensions such as knowledge, awareness, perception and attitude. However, it is thought that there is requirement for applied and more educational studies to teach children, who are the architects of the future, for further permanent environmentally and eco-friendly behaviors. A cleaner future can be talked about when knowledge and values turn into behavior. It is seen that mixed methods are used in government-supported projects and individuals from different age groups (children, teachers, parents, etc.) are included in the process. Therefore, the wider segment of society is involved in the process.

Recommendations for Further Research and Policy

As a result of the results obtained in this study, many suggestions come to the fore on climate change, children and their education. In this regard, both researchers and educators and government units have crucial roles. The following recommendations are presented in order:

In solutions, it is necessary to prioritize the most vulnerable segments, the first of which is children. Children should be provided with climate education and nature skills that are critical to adapting to and preparing for the impacts of climate change. By developing qualified education programs, children should be able to interact more with the environment; thus, they should be supported to develop ecocentric attitudes**.** Moreover, children's ideas on climate change should be listened to and action should be taken. Within the scope of this purpose, theoretical and practical educations that will raise environmental and climate awareness for children should be increased. Country governments should reduce the existing inequalities (especially in financial terms) regarding the climate among their children. While making future plans for climate change, investments for children should also be planned. Climate adaptation and resilience investments should be increased in basic services for children. It is recommended that as much as possible, everyone should be involved in this process**.**

At the higher education level, some other suggestions have been considered in the dimension of climate change, children and their education in the country. In fact, these can be an action plan for Turkey. First off, climate change departments and research centers should be established in more universities across the country. In this country, there are very few academic programs directly on climate change and education. There is a necessity to establish departments, institutes and even schools in the field of sustainability and climate change. In addition, a consortium should be offered students opportunities to become well versed in the interconnected challenges of climate change. Must courses on climate change and its effects in teacher training programs. It is strongly recommended that more detailed and diversified mandatory or elective courses should be added to the teacher training programs who will give this education to our children. Hence, there is a need to carry out more scientific researches. Academics, researchers and scientists working in different faculties and working on different disciplines should do more scientific research on the climate crisis, education and children. There should be an increase in the theses produced on this subject.

Another suggestion is that children and young people should be empowered to be agents of change. Children's ideas on climate change should be listened to and action should be taken. Theoretical and practical educations that will raise environmental and climate awareness for children should be increased. By developing qualified education programs, children should be able to interact more with the environment; thus, they should be supported to develop ecocentric attitudes. Children should be provided with climate education and nature skills that are critical to adapting to and preparing for the impacts of climate change.

Scientific Ethics Declaration

The author declares that the scientific ethical and legal responsibility of this article published in JESEH journal belongs to the author.

Acknowledgements or Notes

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Appendix1-Articles

A1. Kondolot, M., Beyazova, U., Özmert, E., Şahin, F., Ulukol, B. & Gökçay, G. (2012). İklim değişikliğinin çocuk sağlığına etkileri. *Erciyes Medical Journal, 34*(1), 29-31.

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Appendix2-Theses

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