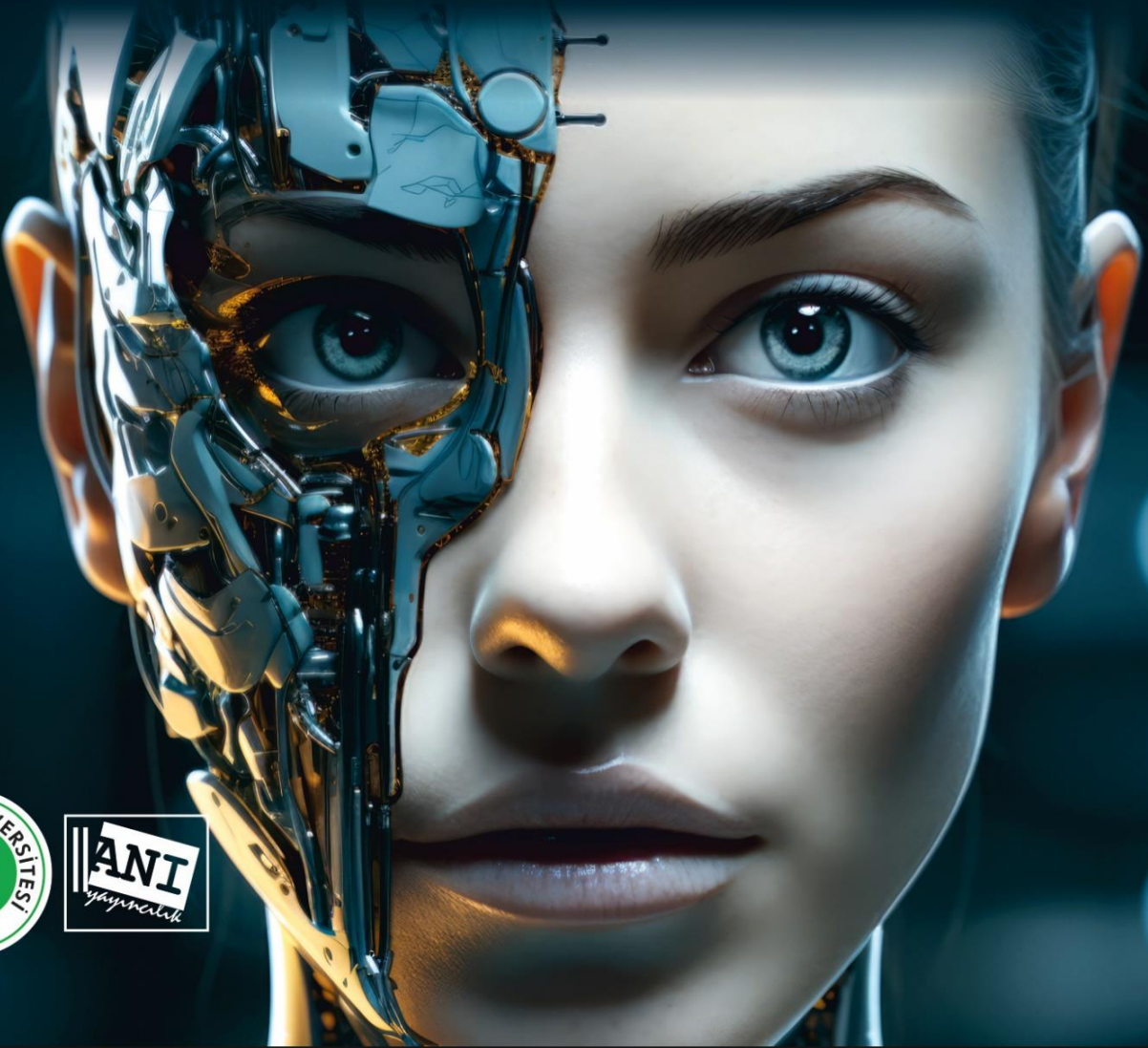


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EJERCONGRESS 2024
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May 21-24, 2024/ Kocaeli University - Türkiye

Editor

Distinguished Professor Şenel POYRAZLI,
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Main Theme

“Designing the Future: Changing Paradigms and Transhumanism with Artificial Intelligence in Education”

Sub-Themes

- Academic freedom, autonomy, and social responsibility in education
- Artificial intelligence and educational applications
- Augmented reality applications
- Barriers to learning
- Blended learning
- Computer-assisted measurement and evaluation
- Core skill sets for students and teachers
- Design of school buildings in the future
- Designing and delivering a digital strategy
- Digital competence
- Digital parenting
- Distance Education
- Earthquake Education
- Post Earthquake Trauma Training
- Earthquake and Effective Psychosocial Intervention Methods
- Earthquake and Trauma
- The Impact of Earthquakes on School Staff
- Education and society
- Education for healthy living and healthy communities
- Education for a sustainable life
- Education in the digital age: Primary, secondary, high school, higher education, and application examples
- Educational leadership in the digital age
- Effects of regional differences on education
- Equity, Diversity, and Inclusion Related to Marginalized Groups
- Emergency Management at Schools
- Evidence-Based School Counseling Services for Refugees and Marginalized Groups
- Globalisation and Education
- Higher education
- Innovative learning designs for student success
- Instructional technologies in the digital age
- Integration of immigrants into education
- K-12 education (preschool, primary, and secondary education)
- Learning management systems
- Lifelong learning
- Machine learning
- Management information system
- Managing schools
- Measurement and evaluation of students' learning outcomes
- Metaverse
- Migration and education
- Multicultural Classroom Concerns of Educators and Parents
- New educational system after COVID-19
- New skills to live and work in new times
- New technologies in teaching and learning

- New trends in educational research
- New trends in learning and teaching methods
- New trends in research methods
- Pedagogy, educational programs, and teaching
- Politics, good governance, and leadership in the educational sector
- Program design and development
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Pınar Mercan Küçükakın, Özge Dönmez

Addressing Eco-Anxiety in Turkish Schools: A Document Analysis of the Environmental and Climate Change Education Curriculum

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Abstract

Awareness-raising efforts regarding the climate crisis in schools have gained momentum in recent years. However, increased awareness of the climate crisis has also led to a rise in eco-anxiety, which threatens the well-being of young people. Therefore, it is becoming important to be sensitive to eco-anxiety in climate crisis awareness education and to support skills for managing eco-anxiety. This research aims to evaluate the environmental and climate change curriculum, which was implemented in middle schools in 2022, in terms of eco-anxiety. Upon examining the program, it is observed that the curriculum addresses climate change at both global and local levels, highlighting the urgency of climate change and its impacts on all species. Additionally, the program emphasizes the responsibilities of individuals and institutions in combating climate change and supports students in developing projects aimed at solving this issue. The curriculum empowers students by involving them in actionable climate change projects, turning anxiety into proactive measures, and highlighting the immediate relevance of their actions. Improvements could include addressing emotional impacts directly, incorporating psychological coping strategies, and emphasizing successful climate action stories to foster hope and counter negative projections.

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Keywords: *Eco-anxiety, climate change, environmental education, climate crisis, emotional well-being*

Introduction

As the effects of the climate crisis become more pronounced, environmental, sustainability, and climate change education in schools are rapidly increasing worldwide. These educations aim to raise awareness about climate change and target a shift towards environmentally protective attitudes and behaviors. There are concerns about the long-term effects of this education on children's mental health, especially highlighting that there are no safe spaces for discussing emotions and fear-based education can cause children to experience eco-anxiety (Crandon et al., 2022). Eco-anxiety is defined as "increased emotional, mental, or physical distress as a reaction to dangerous changes in the climate system" (Climate Psychology Alliance, 2022, p.25). Research findings have shown that the level of knowledge about the climate crisis affects eco-anxiety (Ediz & Yanık, 2023; Milfont, 2012; Yılmaz et al., 2018).

Eco-anxiety has become increasingly prevalent, especially among young people. Research conducted with 10,000 children and young people (aged 16-25) in ten countries (Hickman et al., 2021) revealed that participants in all countries are concerned about climate change. Additionally, more than 50% of participants reported feeling sadness, anxiety, anger, powerlessness, hopelessness, and guilt about climate change. The rising prevalence of eco-anxiety negatively impacts the well-being of young people. A study conducted in Canada examining the emotional effects of climate change on youth (Galway & Field, 2023) found that many Canadian young people experience challenging emotions such as fear, sadness, anxiety, and helplessness

related to climate change. Another study conducted with 12,246 university students in 32 countries, including Turkey (Ogunbode et al., 2022), found a negative relationship between eco-anxiety and well-being. A meta-analysis of research examining the relationship between climate change anxiety and well-being (Gago et al., 2024) also found a moderate negative relationship between well-being and climate change anxiety. As a result, it can be seen that eco-anxiety may pose a threat to the well-being of young people.

Research findings show that eco-anxiety is negatively related to the well-being of young people, while eco-anxiety is positively related to pro-environmental behaviors (Brosch, 2021; Trkaslan et al. 2023). Therefore, while paralyzing forms of eco-anxiety pose a problem, the view that eco-anxiety is a natural response to the climate crisis and encourages pro-environmental behaviors is gaining increasing support (Clayton, 2020; Kurth & Pihkala, 2022; Pihkala, 2020; Wullenkord et al., 2021).

The relationship between eco-anxiety and well-being, as well as pro-environmental behaviors, is important for environmental and climate change education, which aims to increase young people's awareness of climate change and support their pro-environmental behaviors. Intense eco-anxiety experienced by children can negatively affect their interest and participation in education (Liu, 2023). Furthermore, they may choose to cope by denying the crisis or downplaying its seriousness. The importance of teachers being aware of the fear and anxiety students may experience when teaching about climate change is emphasized (Ojala, 2016). It is crucial to develop children's effective coping skills with emotions related to the climate crisis (Baker et al., 2021).

It is recommended to develop an age-appropriate education curriculum that considers children's emotions and supports the development of healthy coping skills (Léger-Goodes, 2022).

Furthermore, supporting hope in climate change education is also considered important in reducing paralyzing eco-anxiety and fostering the display of environmentally protective behaviors (Ojala, 2016). It is an important requirement for teachers to know how to encourage hope and action to protect students from despair (Phikala, 2020). It is emphasized that climate change education programs should inspire from a vision of an achievable future (goal), promote awareness of pathways to reach the goal (pathway thinking), and encourage belief in the ability to make an impact to achieve it (agency thinking) (Buchanan et al., 2021).

Prior to the signing of the Paris Agreement in 2015, environmental issues were addressed in subjects such as life skills, science, social studies, geography, and biology in Türkiye. With the signing of the Paris Agreement, an "Environmental Education Program" was prepared as an elective course and began to be taught as an elective course. In 2022, the elective course was replaced by "Environmental Education and Climate Change", which is taught as an elective course in 6th, 7th, or 8th grades. This study seeks to explore how the environmental and climate change curriculum addresses the emotional aspects of the climate crisis and how it might contribute to or mitigate eco-anxiety among students.

Method

Qualitative research was conducted in this study. Document analysis was used as a method to examine the environmental and climate change education curriculum published by the Turkish Ministry of Education in 2022.

Findings

The curriculum of the environmental and climate change course has been examined in the context of emotions and eco-anxiety. First, the general objectives were reviewed. Then, two units that could be directly related to emotions and eco-anxiety were analyzed.

General Objectives Related to Climate Change

- To be informed about the effects of environmental issues and global climate change on the environment, society, and the economy,
- To take responsibility for preventing and reducing the problems caused by climate change,
- To be informed about the effects of climate change in Turkey,
- To gain awareness about the national/international agreements related to climate change and the institutions and organizations working on this issue.

The program aims to educate participants about the impacts of environmental issues and global climate change on ecosystems, society, and the economy. It seeks to instill a

sense of responsibility for preventing and mitigating climate-related challenges. The program also focuses on providing insights into the specific effects of climate change in Turkey and raising awareness of national and international climate agreements, along with the institutions and organizations dedicated to addressing climate change.

Curriculum Structure

The detailed review of the program identified two main units related to the climate crisis. These units aim to comprehensively introduce students to the causes and effects of climate change, enhance their capacity to develop conscious behaviors, and produce solutions to this major global issue. The learning outcomes of both units are designed to enable students to take effective and informed actions on both individual and societal levels.

Table 1

Curriculum Structure of Environmental Education and Climate Change Course

Unit name	Number of learning outcomes	Lesson hours	Percentage
1. Human and Nature	6	10	14
2. Cyclical Nature	4	10	14
3. Environmental Issues	6	12	17
4. Global Climate Changes	5	12	17
5. Climate Change and Turkey	5	12	17
6. Sustainable Development and Environmentally Friendly Technologies	8	16	21
Total	34	72	100

An Overview of The Related Units

Since units of 'Global Climate Change' and 'Climate Change and Turkey' directly address climate change, they have been examined in detail within the scope of this research.

Unit 4: Global Climate Change

This unit introduces students to the causes and consequences of global climate change, aiming to deepen their understanding of its origins and impacts. The curriculum spans 12 class hours, covering key topics such as global climate change, greenhouse gases, global warming, acid rain, ozone layer depletion, and natural disasters. The learning objectives (Table 2) are structured to provide a comprehensive understanding of these concepts. Students will begin by investigating the causes of increased greenhouse gases, leading to an understanding of global warming because of the greenhouse effect. This exploration will include related phenomena such as acid rain and ozone depletion. The curriculum also aims to explain the relationship between global climate change and warming trends, analyze the effects of climate change through various global incidents, and discuss disasters directly or indirectly caused by global climate change and their broader impacts.

Table 2***Learning Objectives of Unit 4: Global Climate Change***

4.1. Investigates events causing an increase in greenhouse gases.	<p>a) Students are expected to articulate the environmental issues caused by greenhouse gases.</p> <p>b) It is stated that a certain level of greenhouse gases is necessary for maintaining atmospheric temperature.</p> <p>c) Examples of factors contributing to the increase in greenhouse gases include the use of fossil fuels, deforestation, excessive use of fertilizers, waste from industrially raised animals, stubble burning, burying or burning of waste, volcanic eruptions, supersonic planes, excessive evaporation, exhaust fumes, sprays, air conditioning gases, Styrofoam, fire extinguishers, etc.</p>
4.2. Realize that global warming is a result of the greenhouse effect. Briefly discusses acid rain and the thinning of the ozone layer events.	
4.3. Explains the relationship between global climate change and global warming.	<p>a) Emphasizes that global climate change and global warming are different concepts.</p> <p>b) Touches on the climate crisis concept.</p>
4.4. Interprets the effects of global climate change through example events.	<p>a) Issues such as the decline in biodiversity, melting glaciers, rising sea levels, changes in coastal ecosystems, drying up of lakes, changes in the chemical structure of aquatic environments, depletion of freshwater sources, and changes in the migration and breeding timings of animals are conveyed through examples.</p> <p>b) Discusses the interconnectedness of events caused by global climate change.</p>
4.5. Describes the disasters directly or indirectly caused by global climate change along with their effects.	<p>a) Discusses disasters such as floods, landslides, mudslides, fires, deforestation, drought, coastal erosion, desertification, hurricanes, tornadoes, global hunger, epidemic diseases, etc.</p> <p>b) Discusses precautions that should be taken before a disaster.</p> <p>c) Discusses actions during and after a disaster based on a past event.</p>

(Meb, 2022, p. 12)

Unit 5: Climate Change and Turkey

This unit focuses specifically on the impact of climate change in Turkey, aiming to increase student awareness of local and global efforts to address climate challenges. The curriculum is designed to be completed over 12 class hours and focuses on the impacts of climate change in Turkey, the importance of national and international efforts, and the role of societal engagement. The learning objectives guide students through a comprehensive understanding of these issues. Students will begin by recognizing the local effects of climate change in Turkey, considering geographical and socio-economic factors. The curriculum emphasizes the significance of both national and international collaboration in climate action, providing

practical examples of how to mitigate the effects of climate change locally through changes in consumption, energy use, and conservation efforts. Additionally, it empowers students to take responsibility within their communities by engaging in informational campaigns and encourages the development of projects that aim to raise societal awareness and promote action against the impacts of climate change.

Table 3***Learning Objectives of Unit 5: Climate Change and Turkey***

5.1. Recognizes the current and potential effects of climate change in Turkey.	<p>a) It is emphasized that Turkey is affected by climate change, not only due to its geographical location but also other factors.</p> <p>b) The impact of climate change on areas such as agriculture, livestock, biodiversity, tourism, and the economy in Turkey is discussed</p>
5.2. Discusses the importance of national and international efforts to combat climate change in Turkey.	<p>a) International agreements, such as the Paris Agreement, aimed at combating global climate change are mentioned.</p> <p>b) The activities of national institutions and organizations working to prevent global climate change are highlighted.</p>
5.3. Provides examples of measures to mitigate the effects of climate change in Turkey. Topics affecting carbon emissions such as changing consumption habits, increasing public transportation usage, turning to renewable energy sources, recycling, and forest conservation are discussed.	
5.4. Become aware of responsibilities in informing the local community about combating climate change in Turkey. Students are expected to prepare presentations, posters, flyers, brochures, and other materials to inform their local community.	
5.5. Design project(s) that will raise societal awareness to reduce the impacts of climate change in Turkey.	

(Meb, 2022, p. 13)

Discussion

Recent research findings suggest that the goal of climate change education should shift from merely identifying climate change problems to adopting a holistic approach that supports emotional and mental health, fosters community building, and includes action-oriented processes (Olsen, 2024). The curriculum fosters empowerment through action by involving students in actionable solutions and projects, which helps shift feelings from helplessness to control and agency. By actively engaging students in community outreach

and real-world projects, it provides a practical understanding of combating climate change, transforming anxiety into proactive measures. Educating students about the specific impacts of climate change within Turkey makes the issue more tangible, highlighting the immediate relevance of their actions. Projects that build societal awareness reinforce the importance of community in addressing global challenges, creating a collective sense of purpose and reducing individual anxiety.

However, there are potential areas for improvement. Incorporating explicit discussions about the emotional impacts of climate change and providing space for students to express and process their feelings could offer direct emotional support (Pihkala, 2022). Integrating psychological coping strategies, such as mindfulness exercises or stress management techniques, could help students manage eco-anxiety more effectively (Ojala, 2013; Olsen et al. 2024). Additionally, including more content on successful climate action stories could foster a sense of hope and possibility, countering the often-overwhelming negative projections about climate change impacts (Skilling et al., 2022).

Conclusion

In conclusion, this study highlights the importance of an integrated approach in climate change education that addresses both the intellectual and emotional needs of students. While the curriculum has made significant strides in incorporating elements of action and empowerment, there remains a substantial need for explicit emotional support mechanisms. Addressing this gap can enhance the effectiveness of climate change education by ensuring that it not only informs but also supports the well-being of students.

Suggestions

Further studies could focus on evaluating the effectiveness of various psychological coping strategies integrated into climate change education. Additionally, research could assess the long-term effects of such education on students' mental health and their environmental behaviors. Comparing the impact of different climate change curricula on eco-anxiety and student engagement is another area of interest. Exploring how participation in community-based environmental projects influences students' perceptions of climate change could provide valuable insights. Moreover, examining how training educators in climate psychology impacts their teaching effectiveness and students' mental health is crucial. Lastly, investigating how cultural and regional differences shape students' responses to climate change education and their experiences of eco-anxiety could offer a deeper understanding of diverse educational needs.

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