

## Climate Change and Environmental Knowledge: The study case of Preschool Teachers



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**ABSTRACT:** The most pressing concern in recent years, according to a recent study, is climate change, which is considered the most critical issue facing humanity. The aim of this study is to explore environmental knowledge on Climate Change and the possibility for teachers to take action to protect the Environment. For this reason, a quantitative survey was carried out among preschool teachers of the Primary Education of Eastern Thessaloniki, through a structured questionnaire. The results of the research pointed out that the environmental knowledge of the Educators regarding the anthropogenic causes of climate change and the harmful effects of the phenomenon is a motivation for taking actions and at the same time encouraging sustainable practices among students for the protection of the environment.

**KEY WORDS:** Climate Change, Environmental Knowledge, Preschool Teachers

### INTRODUCTION

Climate change is widely regarded as the greatest modern challenge in the world (Uexkukk and Buhaug, 2021). Anaker et al., (2021) studied the most important cause and impact of climate change on Nursing students in Sweden. Results showed that 1) climate change could have negative consequences on human and human health and 2) climate change is anthropogenic.

According to the European Commission (2019), the human factor is the main cause of climate change, as the extensive utilization of fossil fuels, deforestation, and livestock are activities that affect the global climate and temperature. There is an irreversible trajectory with increasingly intensifying phenomena such as forest fires and floods with devastating consequences and this is now recognized on a global scale by the majority of the people (Andrea & Petkou, 2022).

According to Ogah (2013), climate change has been the consequence of man's activities on the environment; on the contrary, the majority of adults in the world generally, believe that Climate change is a natural occurrence (Hamilton and Saito, 2015).

With more and more scientists predicting that the Earth is getting warmer, rising sea levels, melting ice, and variable precipitation, climate change has been gathering attention from not only the scientific communities but also the global population (IPCC, 2021). This increase in temperature is mainly caused by the increase in carbon dioxide and other anthropogenic emissions into the atmosphere (NASA, 2019).

Climate change awareness is connected to climate knowledge. On the basis of this relationship, Tasquier and Pongiglione (2017) linked their findings to scientific knowledge on climate change, which, according to the authors, enabled students to understand the impact of problematic human activities on their environment, not only in the short term but also in the long term.

Education for Climate Change has been regarded as a tool for adjusting to climate change by providing climate change information and knowledge, which can help to adapt to and mitigate climate change through behavioral change and research motivation (Feinstein and Mach, 2020).

Education imparts knowledge that provides people with information, which encourages them to act on climate change, and then implement innovative ideas in their daily lives, which may be reflected in people's attitudes towards nature (Damoah, 2023).

It is worldwide recognized the necessity to take action to face the plethora of environmental problems and follow the United Nations' 2030 Agenda for Sustainable Development (Shulla et al., 2020). The efforts are made by different people in personal or collective manner in order to act in a different way and adjust their daily activities in response to the concern that their behavior caused damage to the environment (Walker, 2017).

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The purpose of this study was to investigate the possibility of the contribution of environmental knowledge to Climate Change so that teachers can take action to protect the Environment.

### METHODOLOGY

An extensive literature review took place, followed by the design of a structured questionnaire, that contained 10 closed-ended questions with five-point Likert scales. The target population under investigation consisted of 52 preschool teachers employed by the Directorate of Primary Education in Eastern Thessaloniki and it was a quantitative pilot study. The collected data were processed by the application of descriptive statistics. The results were discussed, and important conclusions were extracted.

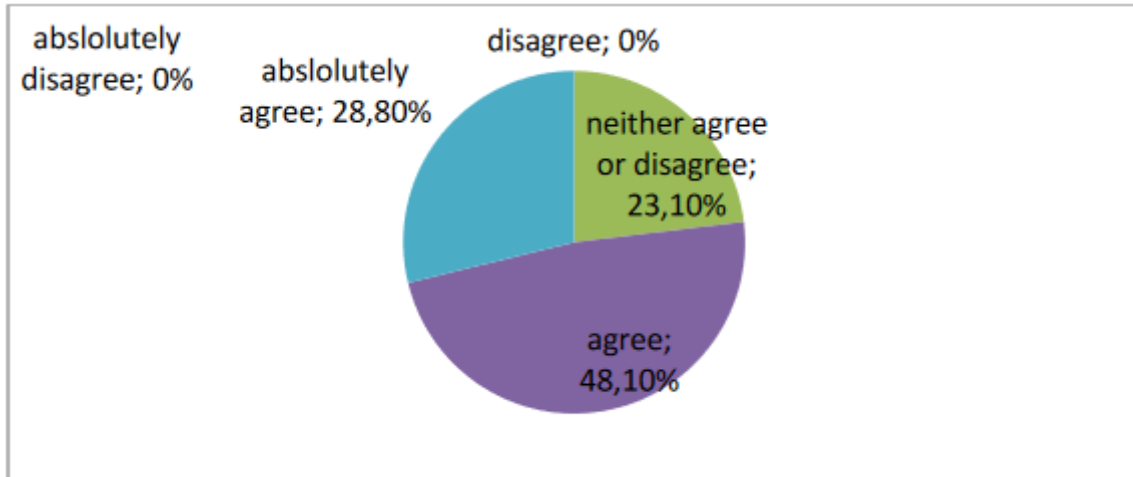


Figure 1. Climate change is the most important problem

In the research carried out, that all the educators were women. The majority (67%) were over 40 years old with a master's degree and more than 20 years of experience. The largest percentage of the sample (76.9%) seems to agree with the opinion that climate change is the most important problem facing humanity today.

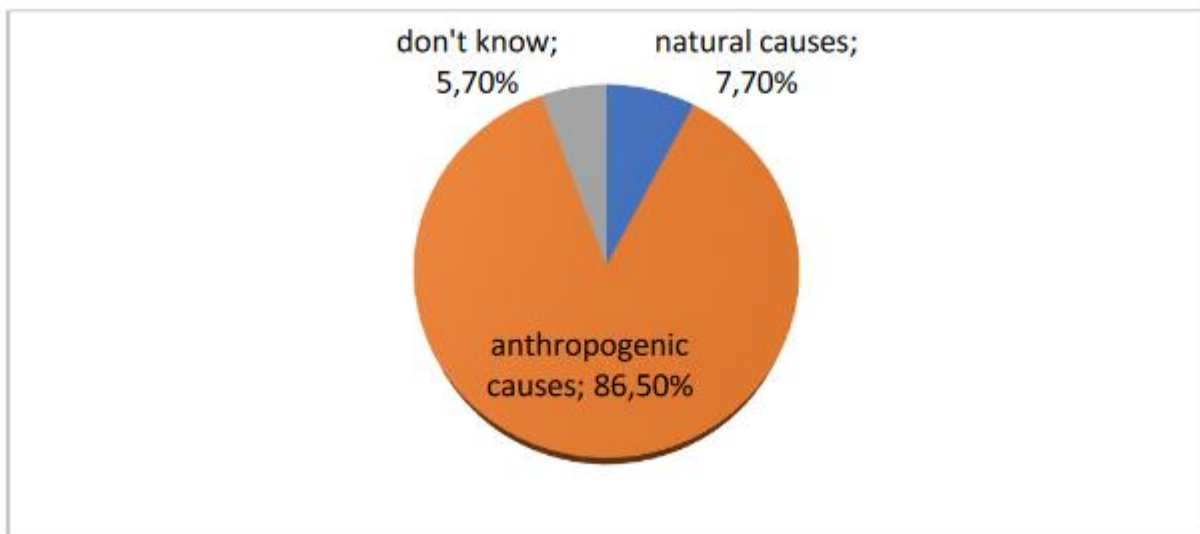


Figure 2. Causes of Climate Change

When it comes to climate change, 86.5% of preschool teachers believe it is caused by anthropogenic factors. According to IPCC (2018), most causes of climate change come from human activities.

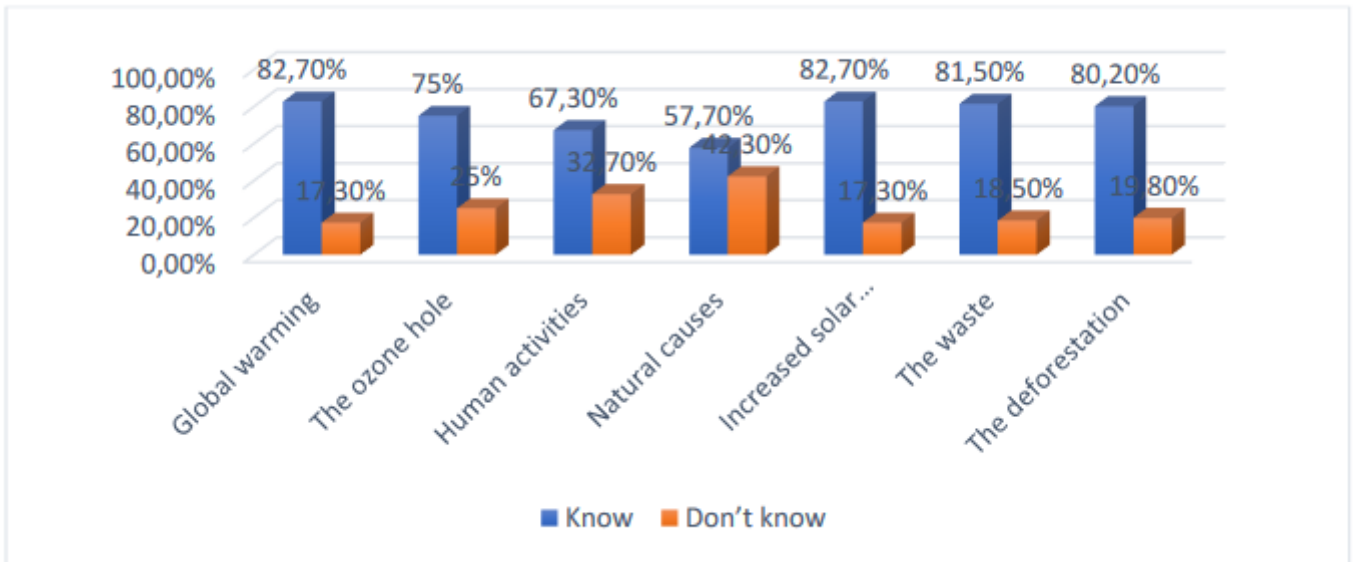


Figure 3. Factors contributing to climate Change

Regarding the factors that contribute to climate change, most educators support, in decreasing order, global warming (82.7%), increased solar radiation (82.7%), waste (81.5%) and deforestation (80, 2%), the Ozone hole 75% and anthropogenic activities (67, 3%). Therefore, the majority of preschool teachers seem to have cognitive abilities regarding the causes of climate change. However, it is surprising that only 57.7% of teachers are aware of the natural causes that contribute to climate change.

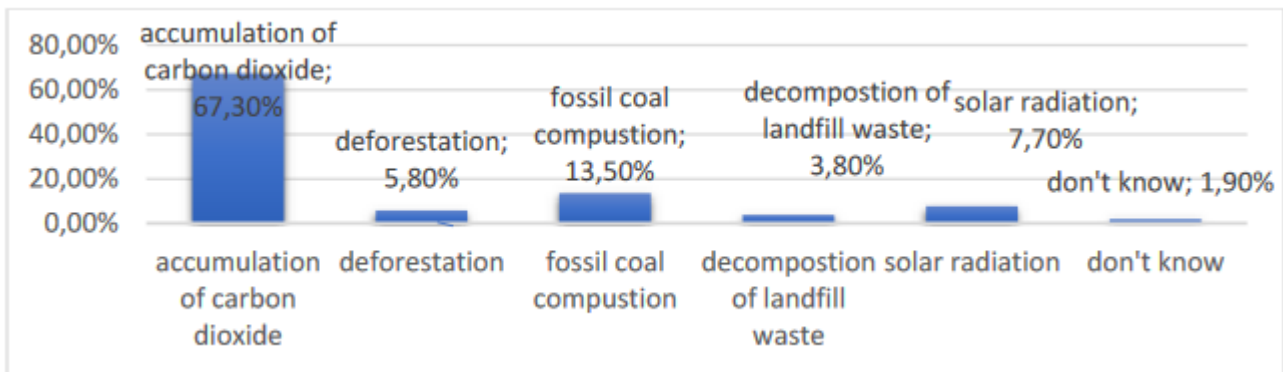


Figure 4. The major cause of the greenhouse effect

The largest percentage of preschool teachers believe that the main cause of the greenhouse effect is the accumulation of carbon dioxide in the atmosphere (67.3%) and a much smaller percentage is the burning of fossil fuels (13.5%) and other activities, which contribute with a very small percentage to the creation of the greenhouse effect.

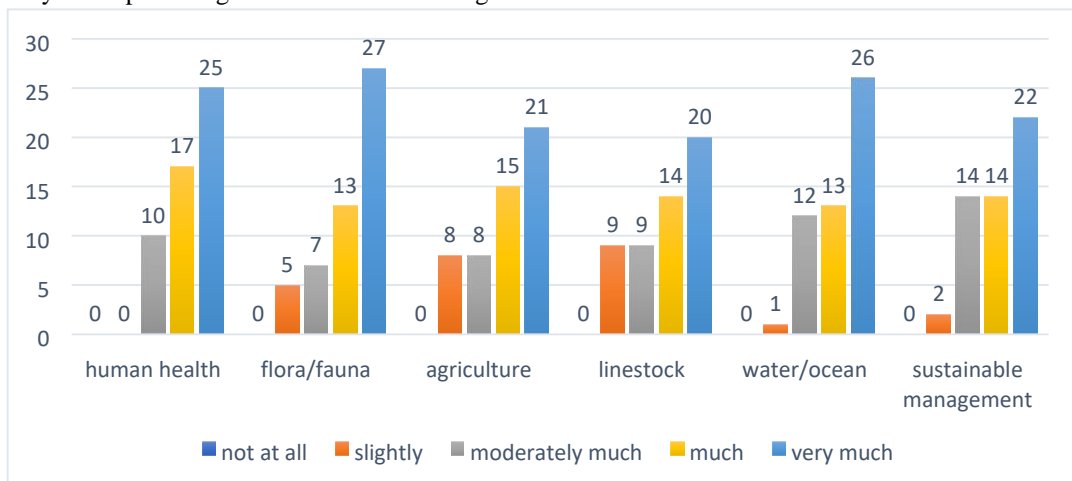


Figure 5. The Impact index of climate change in our lives

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From the impact index of climate change, it is found that the majority of teachers give priority to human health (80.8%). After that, flora and fauna (76.9%), water, and oceans are ranked in the third position (75%). It is remarkable that sustainable management, agriculture, tourism, and the economy with smaller percentages are impacted. Livestock seems to have a lower impact (65.6%). Indeed, climate change affects every country on the planet, deteriorating the environment, economy, and social and cultural systems (Annual Report, 2018).

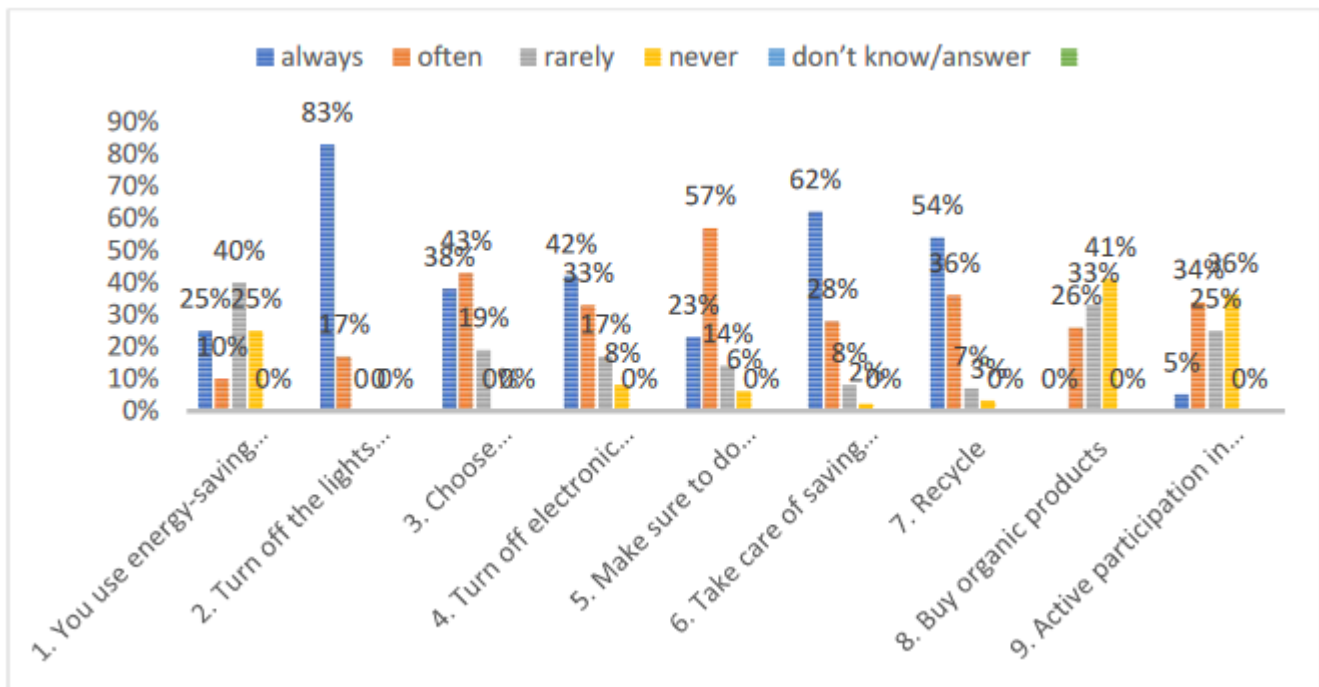


Figure 6. The implementation's Index of actions through environmental knowledge

The results of the research indicate the implementation's index of action where the majority of Preschool Teachers used to switch off the lights (100%), recycle (90%), and switch off electrical appliances when they were not using them (84%). Moreover, in high percentages, Educators quite often tend to do appliance maintenance (75%), choose energy-saving lamps aiming at reducing energy consumption, and implement environmental programs. Furthermore, teachers' participation in environmental organizations (39%) and their weakness in buying organic products (26%) due to cost are low in the ranking.

## CONCLUSIONS AND DISCUSSION

Climate crisis is a multifaceted and difficult issue with consequences for all human activities (Statha, 2019). Nation and Feldman (2021), in a research find that educators believe climate crisis is intimately linked to human activities and activities that have a negative impact on global climate change, but also worry about how future generations will manage global warming. Despite the scientific data, about the harmful effects of climate change, there is a growing divide in opinion about anthropogenic climate change causes (Luo and Zhao, 2021). Therefore, it is important as many people as possible to learn about the phenomenon of climate change (Rushton & Walshe, 2022) and parallel, to work in order to reduce the effects of this phenomenon (Littrell, et al., 2020).

A large percentage of preschool teachers also attribute the greatest responsibility of Climate change to the greenhouse effect, meanwhile a large percentage claims as the major cause the carbon dioxide and Fossil Fuels. According to Malhi et al., (2021), as greenhouse gases increase in the atmosphere, so does the temperature.

The research Findings reveal that the most significant impact index of climate change is human health. This is in line with the cross-sectional study of Watts et al., (2019), which identified threats to human health of present and future populations around the world. Climate change awareness is linked to climate knowledge (Nepras, 2023). The relationship between environmental knowledge, beliefs, and attitudes was demonstrated by a survey conducted by Higuchi et al., (2018), which showed that environmental knowledge correlated to environmental beliefs and attitudes of the participants. People who believe that climate change is human-induced tend to be more supportive of climate change mitigation actions than those who do not (Akter, 2012). This could be supported by the environmental actions of preschool teachers as a large percentage choose to turn off the lights and electronic systems, to recycle and save energy.

Human Activities cannot be ruled out as one of the major factors of climate change crises. Attitudinal change is required to minimize the trend of climate change crises (Botzen et al., 2021). This could be done through Climate Change Education in both formal and informal sectors, which will equip the citizens with the needed skills, values, attitudes, and principles to remedy environmental problems (Kembara et al., 2020).

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Educators are important factors in creating the Climate Change of student awareness. Being aware of the climate can guarantee the encouragement of sustainable practices in students to protect the planet earth for human security (Jgu, 2023).

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