

Awareness of Teachers at the School System Through Trash Art Into Environmental Issues and Actions

Ioannis Theodoulou¹, Athanasios-Foivos Papathanasiou², Areti Lagiou¹, and Constantina Skanavis¹

1. Department of Public and Community Health, University of West Attica, Greece

2. Department of Water Resources and Environmental Engineering, School of Civil Engineering, National Technical University of Athens, Greece

Abstract: An artwork reveals concerns and aspects of environmental ethical issues, environmental philosophy, social ecology, evolved technology, environmental degradation, and social alienation. Teachers learn how to develop environmental education and encourage students and citizens to respect environmental behavior, through Trash Art and ecological thinking. This study aims to investigate the connection between Trash Art and nature through a literature review and quantitative research. The environmental awareness of teachers at Primary and Secondary Schools and to which degree the development of environmental awareness drives to respect environmental behavior has been examined. The connection between art and nature, using natural and artificial materials for art, results in the reevaluation of human presence in the environment.

Key words: ecology, Trash Art, environmental education, environmental communication, actions

1. Introduction

Artists using “useless” materials or waste in their art promotes a significant understanding of the interconnection between humans and the environment [1]. Artists use Art as their primary “weapon” of expression for protest, dissatisfaction, and indignation to convey their messages. Art becomes their tool for awakening society as everything around us shifts and changes. Through their works, they achieve their goals as every difficulty they face leads to unlocking a new piece about who they really are. The work of their creation gives access to a new piece of the soul, with the aim of contributing to the planet [2].

The objective of this study is to:

- People gain knowledge, skills, and responsibility for the environmental issues

- Investigate how environmental practices affect and aware people
- How people can participate in different environmental actions such as Trash Art

1.1 Degradation of Environment

Climate change is the major environmental issue of this century [3]. The principal cause of climate change is the burning of fossil fuels [4]. The atmospheric CO₂ measured at Mauna Loa Observatory is increasing as shown in Fig. 1, based on NOAA Earth Research Laboratory. The red color represents the mean monthly value and the black color the mean annual value. In 1960 the concentration of atmospheric CO₂ was below 320 ppmv, whereas in 2020 the atmospheric CO₂ exceeded 400 ppmv. The CO₂ concentration is increasing by around 0.35% per year [5].

Due to climate change, the global average temperature is increasing, deserts are expanding and the sea level is rising [6]. In Fig. 2, the mean increment of the earth’s surface temperature from 1950 to 2020

Corresponding author: Ioannis Theodoulou, Ph.D. Student, research areas: environmental education, trash art. E-mail: itheodoulou@uniwa.gr.

against the pre-industrial period based on various models is shown. A near-term projection is shown in green. The period time 1983-2012 was the warmest 30-year period of the last 800 years [7].

Climate change affects people’s physical and mental health in the assessed regions [8]. A solution is to take advantage of Renewable Energy Systems [9].

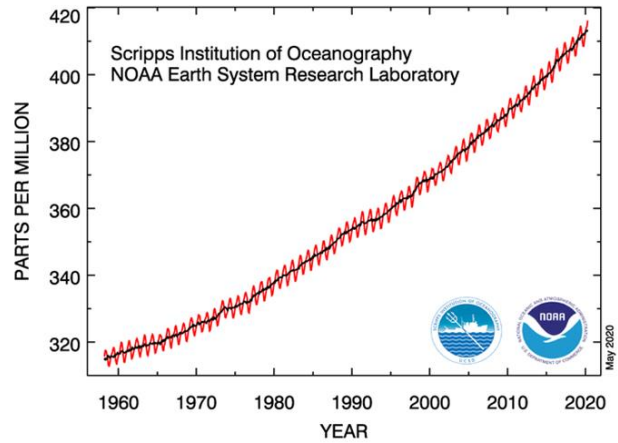


Fig. 1 Atmospheric CO₂ at Mauna Loa Observatory [5].

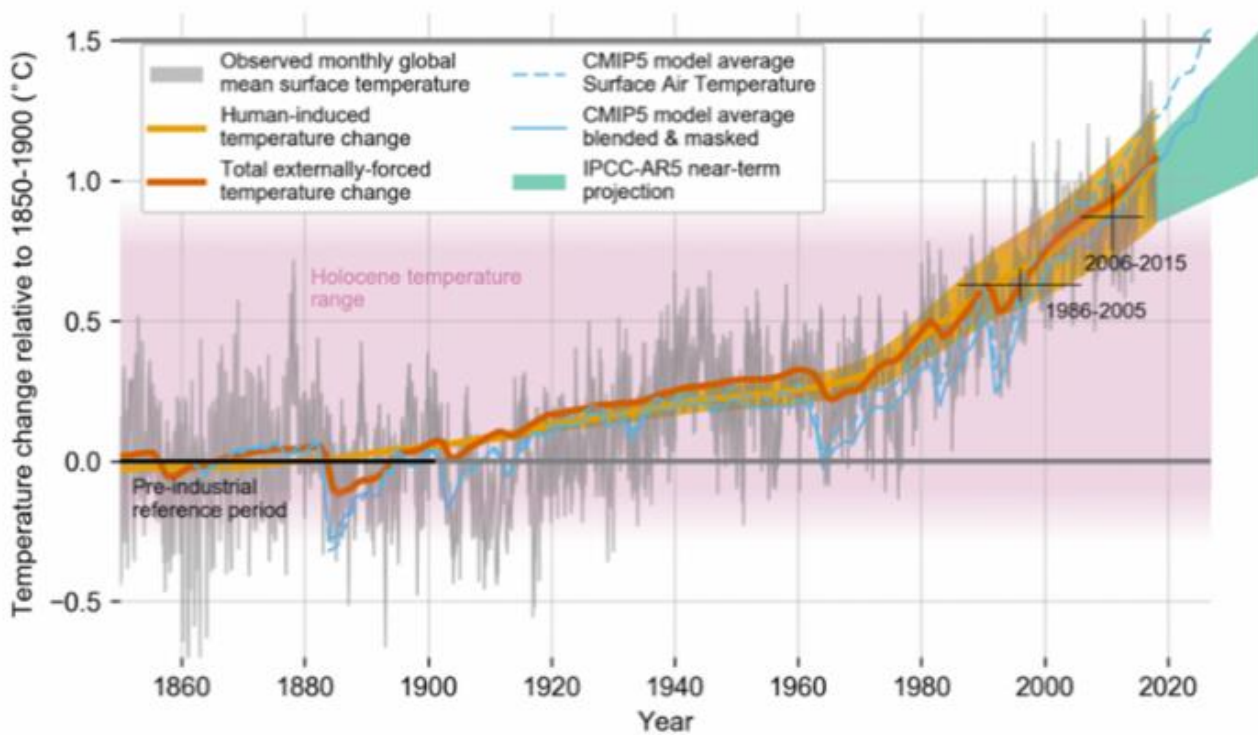


Fig. 2 Temperature change at the earth’s surface [7].

1.2 Environmental Education

Environmental education at schools aims to inform and raise awareness about environmental issues. Through this form of education, people gain knowledge, skills, mindset, and motivation to solve and prevent environmental problems as a group and individually. Also, environmental education aims to build new ethics between people and the environment and develop different environmental activities at

schools [10].

The beginning of environmental education is based on the ecological movement of the decade of the 60s. Later, in the first decade of the 20th century, these movements were referred to as “preservation”, “study” and “protection” of the environment [11].

Environmental education is an ethical recognition progress and meanings clarification, to develop the necessary capacities and attitudes for people and

society to understand and value the relationship between humans, civilization, and the natural environment. Environmental education requires practical work for decision-making. That leads to a behavior code toward concerns and problems regarding society and nature quality [11].

1.3 Environmental Ethics

An ethic of respect and responsibility towards nature could be characterized as an environmental ethic. On the one hand, the relationship between humans and nature gives the last one an ethic of respect, on the other hand, the relationship between humans and technology applies pressure to nature [12].

Our behavior towards the environment is crucial, as there are good and bad ways to live in this. In particular, talking about the environment is where we stand but haven't built. Our attitude affects and modifies the environment, so we should follow some environmental ethics [12].

According to A. Georgiopoulos [13], ethics is a set of rules that determine good and bad, justice and injustice, acceptance and unacceptance, etc. Humans should comprehend this set of rules, to understand and follow them. In other cases, these rules can be unconsciously followed by instinct.

Environmental ethics is an effort to organize ethical rules towards the non-human beings on the planet, and to find a way to include them also into the ethical community. Education could contribute to this effort through the cultivation of respect and responsibility towards nature. To fill this gap, humans should also understand and absorb environmental values [13].

1.4 Environmental Actions

Several environmental actions are carried out by different organizations and universities around the world. Creating art using discarded objects is a world-famous master art piece [14].

2. Material and Methods

2.1 Methods

A systematic literature search and quantitative research were conducted to investigate the connection between Trash Art and nature [15]. A questionnaire of 18 questions was conducted. The sample size is 255 teachers from Athens College, 109 from the primary and 136 from the secondary school during October-November 2021. Besides collecting demographic data and prevalence information that it will attempt to identify; the present study has as its main objective to explore 3 specific research hypotheses. Specifically, the aim of this study is to investigate to what extent:

(1) The levels of awareness among educators regarding the problems faced by the planet will be correlated with their pro-environmental behavior.

(2) There will be a difference in the levels of awareness regarding the problems faced by the planet between primary and secondary education.

(3) The attitudes/opinions of educators towards the environmental problems faced by the planet can predict their attitudes/opinions towards the use of art as a tool for environmental awareness after participating in the workshop.

2.2 Questionnaire

A custom questionnaire, featuring straightforward, closed-ended questions, was designed for this study due to the lack of pre-existing validated questionnaires fitting the study's needs in Greek or international literature. Following feedback from pilot participants, minor tweaks were made for the questionnaire's validation. This questionnaire aimed to assess educators' understanding of global environmental problems and to investigate if engaging in an art workshop, specifically mosaic creation, could enhance their environmental awareness. Existing questionnaires were also adapted to suit the Greek population and the study's particular needs.

More specifically, the questionnaire was structured into 3 main parts:

Part A, (Questions 1-6), includes questions regarding the demographic characteristics of the sample. Part B, (Questions 7-10), includes questions about detecting the positions and opinions of the participants on the environmental issues that the planet is facing today. Part C, (Questions 11-18), was completed after participating in the experiential workshop of the Artistic Laboratory, to detect the degree of importance of the laboratory in eco-behavior and whether it will sensitize them even more about material reuse and environmental protection. It includes questions to detect the opinions of the participants regarding the utilization of art as a tool for environmental awareness.

3. Results and Discussion

3.1 Results

The first question is: Do you agree that education affects the environmental awareness of people? The results show a correlation between the gender and the degree of affection. Most of the women strongly agree at a percentage of 35.89%, whereas most of the men at 25.84%, as shown in Fig. 3.

The second question is: Do you agree that Trash Art can provoke guilt? Based on the results there is a correlation between the gender and the emotion of guilt. Most of the women strongly disagreed at a percentage of 20.24%, whereas most of the men agreed at a percentage of 14.29%, as shown in Fig. 4.

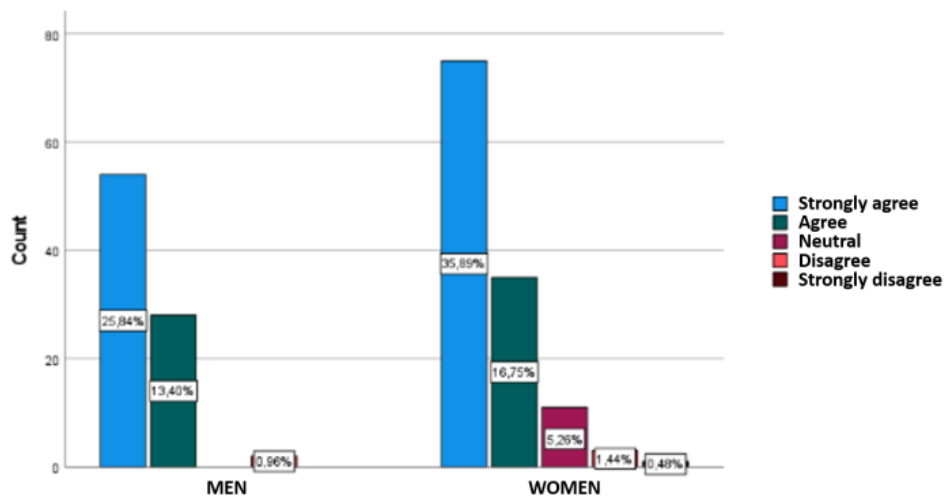


Fig. 3 Bar chart about the correlation of gender with environmental sensitization.

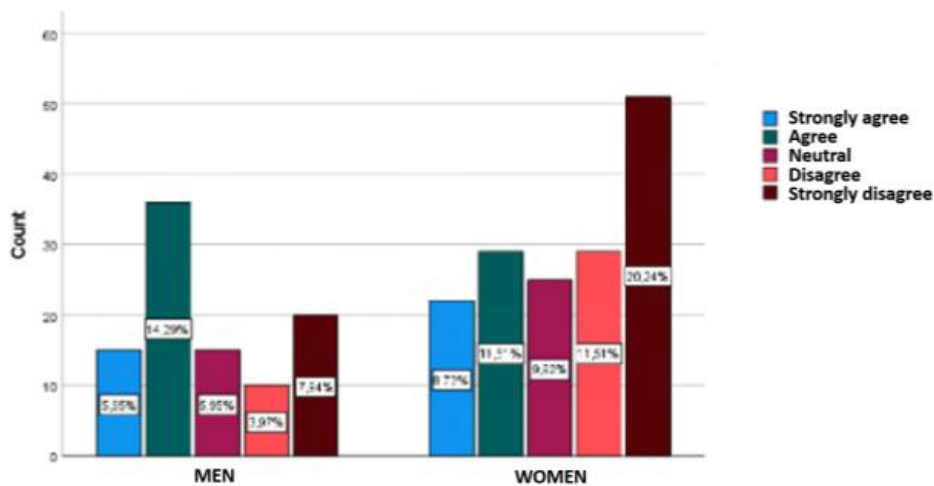


Fig. 4 Bar chart about creating feelings of guilt through Trash Art in relation to the two genders.

The third question is: Do you agree that Trash Art can provoke sadness? The results show a correlation between the gender and the emotion of sadness. Most of the women strongly disagreed at a percentage of 23.51%, whereas most of the men strongly agreed at a percentage of 9.16%, as shown in Fig. 5.

The following yes/no pie charts refer to the question:

Have you ever attended any edification relevant to the environment? The first pie chart refers to primary school teachers (Fig. 6) and the second one to secondary school teachers (Fig. 7).

Most teachers at primary schools haven't attended any edification relevant to the environment (58.90%).

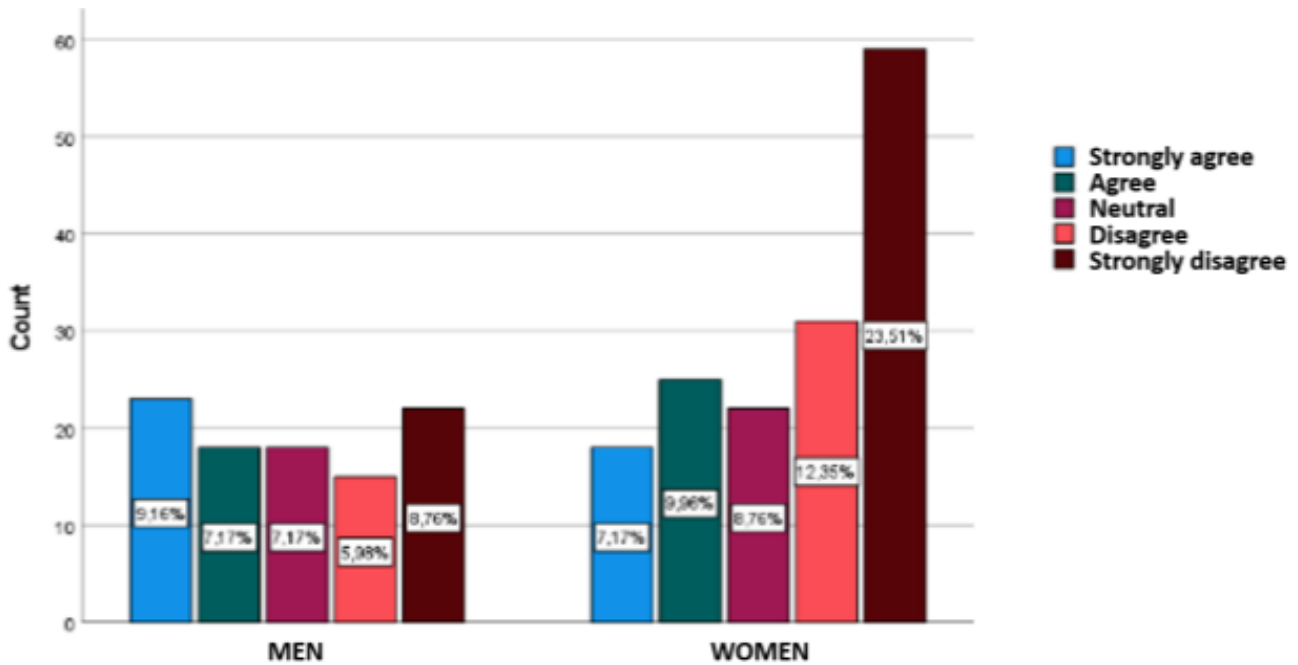


Fig. 5 Bar chart about creating feelings of sorrow through Trash Art in relation to the two genders.

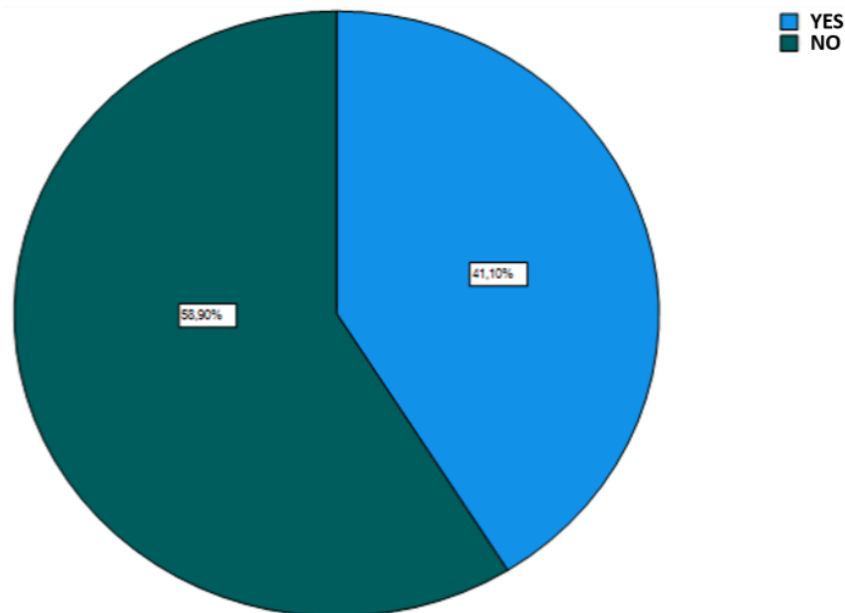


Fig. 6 Pie chart regarding the participation of primary education teachers in environmental programs.

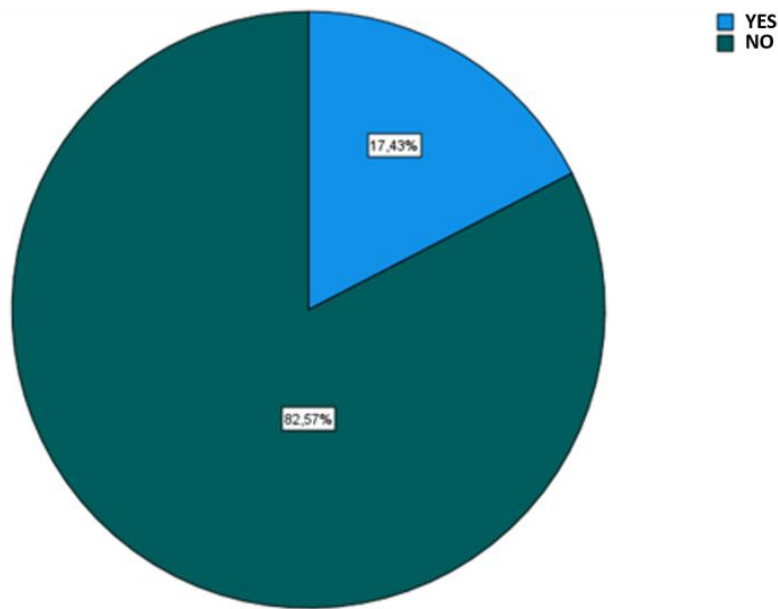


Fig. 7 Pie chart regarding the participation of secondary education teachers in environmental programs.

At a percentage of 82.57%, secondary school teachers haven't attended any edification relevant to the environment (58.90%). Primary school teachers have involved a higher percentage in environmental edification than secondary school teachers due to their participation in the school lesson flexible zone and at the skill laboratory of the Institute of Educational Policy (IEP).

3.2 Result Summary

The aim of this study was initially to gather demographic and prevalence data concerning the environmental sensitivity of primary and secondary education teachers. Additionally, the study aimed to investigate the relationship between environmental sensitivity and art, specifically through an activity that involved participation in an art workshop for creating mosaics with recyclable materials (Trash Art). More specifically, the objective was to explore the levels of teacher awareness regarding the issues that our planet is facing, as well as the correlation this has with their pro-environmental behavior. Another aim of the study was to investigate differences in levels of sensitivity among teachers belonging to different educational stages. The final objective was to also investigate the

predictive power that teachers' attitudes/opinions on the environmental problems our planet is facing have in relation to their attitudes/opinions on the use of art as a tool for environmental sensitization after participating in an art workshop.

To achieve the aforementioned objectives, a quantitative design was chosen, specifically the design of a cross-sectional and comparative study. The measurement of the variables was conducted through a tool specifically structured for the purposes of this study, based on existing literature, and it provided satisfactory reliability and validity during the conduct of the pilot study. The participants in the study were primary and secondary education teachers from Attica, specifically teachers who were approached through the College of Athens.

In summary, the results showed that there were no correlations between the participant's gender and their opinion regarding the extent to which the environment is at risk. However, gender was found to be associated with the individual's view on the use of art as a tool for environmental sensitization, as well as their attitude towards changes in their pro-environmental behavior, with women scoring higher on each respective scale.

The level of education was found to differentiate the levels of opinion about the degree to which the environment is at risk, the opinion on changes in pro-environmental behavior, as well as the use of art as a tool for environmental sensitization. Teachers in secondary education recorded lower scores on both scales.

Additionally, the investigation of the research hypotheses showed that there is a positive, albeit not strong, correlation between the overall score of attitudes towards environmental problems and the overall score of perceived changes in educators. This means that as the overall score of educators' attitudes and views on the problems facing the planet increases, so does their pro-environmental behavior and sensitivity, and vice versa. Moreover, primary school teachers were found to have higher scores on sensitivity levels, as well as on levels of using art as a tool for environmental sensitization, compared to secondary school teachers who scored lower on both scales.

As for the investigation of the last hypothesis, the overall score of attitudes and views regarding environmental problems facing the planet was found to have the ability to predict the attitudes and views of participants regarding the use of art as a tool for environmental sensitization. It is also worth noting at this point that in the predictions made to determine the average score of attitudes and views regarding the use of art as a tool for environmental sensitization for individuals who had an overall score on attitudes and views on environmental problems facing the planet from educators, higher performance percentages seemed to have the higher selected score.

Consequently, based on the literature review conducted earlier, the conclusion can be drawn that art indeed contributes to environmental sensitization, and thus influences the relationship of humans with their environment, and consequently their health. However, as [16] mention, awareness and knowledge about environmental health cannot directly change human

attitudes and actions. It takes more than that to shape human behavior related to environmental health. Furthermore, according to J. L. Meinhold and A. J. Malkus [17], consciousness is a decisive factor in students' knowledge, attitudes, and behaviors associated with environmental health.

3.3 Discussion

Primary and secondary school teachers view art as a valuable tool for emotional expression and cognitive understanding, enhancing lesson comprehension and critical thinking skills. They regard art as a significant component of environmental education and experiential learning, fostering knowledge acquisition, active participation, and enjoyment. By implementing certain modifications, they believe the application of art can be made easier.

Art is widely acknowledged in educational literature for enhancing learning processes and attaining educational goals [18]. This study concurs with these views, noting that art-based learning experiences make educators more informed and sensitive to environmental issues, thereby achieving learning objectives. Moreover, art creates a sense of group responsibility and collaboration, crucial for fostering environmental awareness. Thus, it's perceived that the sense of responsibility cultivated through art projects can readily translate into a sense of environmental stewardship.

Art's creative process aids participants in addressing personal issues, managing emotions, and boosting self-esteem while reducing anxiety. Art therapy, accessible to all irrespective of technical prowess, serves various purposes. It can supplement counselling, therapy, rehabilitation, and psychotherapy. Essentially, it uncovers individuals' inner selves, fostering self-understanding.

4. Conclusions

4.1 Summary

The study has offered valuable insights into the relationship between Trash Art and nature, showcasing how this unique form of art can effectively cultivate environmental awareness and foster pro-environmental behaviors among primary and secondary school teachers.

Teachers at primary and secondary schools believe that art is beneficial on sentimental and gnostic levels. It is found that art contributes to the free expression of their emotional life and awareness. At the gnostic level, teachers believe that through art the comprehension and understanding of examined lessons are easier while they develop skills such as critical thinking. Teachers believe that art promotes environmental education and is a tool and a way to express. Moreover, art is considered to be a way of experiential learning. Experiential learning plays a key role to promote art. Based on the teachers, knowledge acquisition, active participation, and pleasure are basic characteristics that promote art. Moreover, based on the teachers' opinion, art contributes to sentimental and gnostic levels. Its application is considered easy if some edifications are carried out. This study is focused on environmental actions through the art of the teachers from Athens College in the academic year 2021-2022. In future research, a higher number of teachers and schools could be examined for further analysis.

4.2 Future Research

A first approach to conducting future research could be to initially replicate the same study, with the only difference being the introduction of an equally distributed sample. This would firstly allow to identify whether common results can be reproduced, and secondly, to investigate whether and to what extent this limitation has affected the other methodological constraints as discussed earlier.

Moreover, given the low degree of correlation identified between the overall score of attitudes towards environmental problems and the overall score of perceived changes in educators, it is deemed

appropriate to further investigate this relationship, both in terms of its direction and the nature of the relationship, as well as the possible existence of different mediating variables and/or factors.

Based on the literature of V. Papavasileiou, E. Nikolaou, N. Andreadakis, Y. Xanthacou and M. Kaila [19], the participatory nature of an activity is capable of contributing to the understanding of information, a fact that seems to be confirmed by the present findings. Therefore, it might make sense to qualitatively investigate this specific experience with the aim of exploring the way that participation, in an artistic way, ultimately had this impact on the participants' mental composition.

However, according to A. Molosiva [20], educators often transform their teaching and primarily focus on activities that will provide better resources for students for examinations. Given that material related to environmental issues is not usually included in an examination framework [21], it is easy to perceive that it is marginalized as a subject. This fact should be seriously taken into account in future studies as it could be key to further addressing the issue.

Furthermore, it would be worth exploring the creation of the mosaic as a tool, given that existing literature has already highlighted its benefits [22], but at the same time, the positive findings of the present study possibly intensify the need for further understanding of this particular application, as well as the elements that comprise it, with the aim of being able to reproduce and represent the benefits it appears to bring.

Another issue that is worth further exploration is what has been proposed by D. Corbett, M. McKenney, G. Noblit and B. Wilson [23], that is, the participation in artistic activities of the entire school network, a stance that was also supported by G. Teksoz, E. Sahin and H. Ertepinar [24] who argued that Environmental Education should start from pre-school age and continue throughout education. Therefore, an

important research gap seems to be how a more general artistic approach would affect an education system.

It is also worth noting that according to G. Teksoz, E. Sahin and H. Ertepinar [25], the roles of educators and students can be transformed through the innovative characteristics of new technologies. Based on this, it might be interesting to explore artistic technological activities and their impact on education in general, and on environmental sensitization specifically, considering that in such an environment, it has been discussed that each individual will be able to utilize different resources and ways of functioning [26]. An important basis for proposing this exploration is the work of Rozin, which shows that art from recyclable materials can also be supported through technology [27].

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