

9. ART FOR CIGARETTE WASTE AWARENESS

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Abstract: *The habit of discarding cigarette butts on the ground is an old but still recurring problem around the world. Having noticed this problem at a higher education institution in Portugal, the aim was to use art as an environmental education activity to raise awareness among smokers. It is well known that art, in its many forms, can be used to raise awareness of environmental conservation. This work is more than just an environmental education activity to raise awareness in the community, it is also a data collection project aimed at ascertaining the impact of the work in question on the community. This study can be methodologically classified as a participatory action research study, using art as an educational intervention and data collection instrument for environmental awareness. The data showed that the respondents encouraged more initiatives of this nature and were sensitized to the problem after seeing the work.*

Key words: *art, awareness, environmental education, education*

1. Introduction

As society developed, the ties maintained with nature became increasingly fragile. The impact of humans on the environment is becoming increasingly serious. There is an exploitation of resources as if they were infinite. Human beings are visual creatures by nature, absorbing information in graphic form that sometimes escapes us when speaking with words (Mason, 2019). Art can connect the relationship between human beings and their natural environment, being a unique and powerful way to connect people on an emotional level and encourage them to reconsider their relationship with nature, inspiring other people to act (Down, 2023). Raising awareness through art can sometimes arouse more emotions than viewing data graphs (Li et al., 2023).

Various artists use art to express their sociopolitical concerns through various artistic tools, including paintings, photographs, music, and films. Art can indeed shed new light as a form of awareness or a form of activism. These works are intended to encourage viewers to reflect on their daily actions in a socially responsible way to preserve and protect the planet (Soo, 2020). According to Brandão (2004), the education that represents the structure of the citizen is increasingly fragmented, often not including art or placing it in the background.

2. Discussions

The school reality is based on a structure that prioritizes the repetition of models

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in a mechanical process where the automatism of actions stands out, generating teaching with a predominantly scientific, mathematical character and with compartmentalized information. The arts and their artistic forms should and deserve to be increasingly highlighted within schools, as they provide space for creativity and freedom and invoke emotions favorable to causes (Bentz & Obrian, 2019). In fact, it can be said that art was the first way to communicate and raise environmental awareness this already represents that once in Paleolithic caves, still without knowing how to read or write, sapiens sketched the animals that should be hunted or those that should be avoided hunting (Maccout, 2019).

Up to a certain point in human history, artists (and art) were seen as individuals with a gift, who through their art, could invoke the deepest sensations in the viewer later with the advent of industrialization, school, and society, they began to prioritize the so-called man-machine, adapted to industrial rhythms, opening doors for art to take a backseat (Fonseca, 2019). Individual or collective sensations such as fear, anger, disgust, or joy are common in art that aim to raise environmental awareness. These sensations help us reconsider and renew how we inhabit and behave towards nature.

When these sensations are combined, we obtain a cocktail that can influence our values. The role of art in environmental education is a concept that has existed at least since 1995, called «Arts-based environmental education, with the acronym in English AEE (Arts and Environmental Education), a concept created by Meri-Helga Maintainer who defined AEE as a form of learning that aims to develop environmental understanding and responsibility, through sensory observations and using artistic methods to express personal environmental experiences and thoughts (Milgrom & Kirstina, 2009).

Several thinkers argue that school curricula, methodologies, and pedagogical practices end up killing creativity due to the hierarchization of subjects by imposing a logical-mathematical thinking system on students (Robinson, 2006). In the book “How Creativity Works”, author Jonah Lehrer notes that 95% of second-year students are creative – they draw, paint, and create different stories. However, in the fifth grade, this percentage drops to 50%. Only 10% of high school students are considered creative (LaHerer, 2012).

Another study calls creativity and learning into question, in which children who have never been to school and who live in a hunter-gatherer society show that they are more creative than Western children (Diamond, 2015). This may be due to the school starting to serve industries by indoctrinating individuals and the arts being left aside, at least in the school setting. A social reflection that can demonstrate the negative aura that surrounds the arts is that even today, in the Portuguese language, the word “artist” appears in the dictionary associated with pejorative meanings such as “sly,” “finesse,” or “impostor”. Several studies have shown the potential of the arts in both education and environmental awareness, such as the study by Quina et al. (2022) or the study by Boal (2000) when referring to the potential of art to transform.

Theoretical framework

After noticing the amount of cigarette butts in inappropriate places, we wanted a piece of art that would draw attention to the lack of civility and environmental

awareness in the school community, despite there being designated areas for smokers and several ashtrays and trash cans scattered around the school. Smokers continue to deposit butts on the ground, where they can later be transported by the action of wind or rainwater to waterways and later oceans, contributing to microplastic pollution (Carmines, 2002). These cigarette butts are made of microfiber and cellulose acetate, meaning they take an average of up to 14 years to decompose fully (Novotny; Slaughter, 2014). Furthermore, butts contain toxic substances, such as nicotine and tar, which are harmful to different ecosystems and human health, through soil and aquifer pollution (Bluetter, 2023). When discarded in the environment, the filters decompose into microplastic, the nicotine and other heavy metals in their composition are absorbed by the surrounding environment (Root, 2019). Cigarette butts inhibit plant growth and contribute to marine litter, often ending up in the animal trophic chain (Santora, 2019).

Even though the problem of poor disposal of cigarettes and butts is an old problem, smokers continue to ignore the problem, we just need to look at the ground in our cities and beaches. Cigarette butts are in the top 3 most common litter in northern hemisphere countries (Mokdad, 2004; Danaei et al., 2009) cigarettes continue to be the most common type of litter in the last 25 years on beaches in Europe and the USA (Ocean Conservancy, 2023). Every year, it is estimated that around 1.2 million tons of cigarette butts are indiscriminately deposited into the environment, which represents one of the biggest environmental problems worldwide. Identifying this problem, this activity consisted of developing a work considering materials that had already been used previously and that now would not serve any purpose, being used and giving them a second life.

3. The problem and Research methodology

We considered the so-called Place-Based approach, which stands for Placed-Based Education (PBE), which argues that for greater effectiveness in raising awareness, we will have to address issues in a place or community that is familiar to our target audience (Smith & Sobel, 2014). Bragança Higher Education School had been facing this problem for several years; despite the existence of ashtrays in several places outside the building, there was a huge amount of discarded cigarette butts on the floor. Cigarette butts are one of the most common residues.

Figure 1 The external floor of the Higher Education School before the intervention (photograph taken by the authors)



Faced with this situation, we believe it is important to find sustainable solutions that respond to the need to reduce this waste at the Higher School of Education of Bragança-Portugal-. We thought about carrying out an environmental education initiative in the form of an activity focused on raising awareness and education and encouraging responsible behavior in the correct disposal of cigarette butts. The

choice of the piece of art fell on the artistic representation of the figure of a roe deer, a species of fauna present in the Montesinho Natural Park that surrounds the city of Bragança. Considering the recommendations of Sousa (2017), the following exercise was carried out as a stimulus to the process and creative thinking:

- 1st – Recognition of the Problem.
- 2nd – Information Collection.
- 3rd – Mental activity processing this information.
- 4th – Proposal of solutions.
- 5th – Verification.
- 6th – Putting it into practice.

Firstly, collecting materials that would be discarded in common waste was considered. For this purpose, scrap wood was collected to make the deer's antlers. An extruded polystyrene platform was used, (commonly called Styrofoam in Brazilian Portuguese and Styrofoam in Portuguese European Portuguese), which was being discarded in a building project, which was used to make the base. The representation of the figure of the animal's body, commonly known as a Roe Deer, was made by reusing material that a clothing store was throwing away. The only product that we needed to buy was the gold paint spray. Due to the artistic intention of invoking gold as a representation of gold or value, when applying this color to the work.

Some of the other necessary materials are frequently used and easily accessible materials, belonging to the group's collection, such as glue and adhesive tape. Subsequently, cigarette butts were collected in the school lobby, which was used to glue to the base and legs of the deer, giving the impression that garbage was slowly taking over the animal. With a three-dimensional shape, the texture of the paper created a different effect to this work. Finally, some vegetation, such as lichens and mosses were brought to give the base a more natural appearance. When collecting this vegetation, it was considered that it did not cause any impact or interference with the ecosystem, removing only small amounts spaced out, in the area around the Higher School of Education of Bragança, Portugal.

Figure 2 Result of environmental awareness work (photograph taken by the authors)



This work of art presents visual and symbolic elements that help tell a story, with the Corsican and/or nature as the victim. We see that cigarette butts seek a symbiosis with the shape of the animal, from the paws to the stems, making us feel that over time this waste could culminate in the death of the Corsican or bring difficulties to his life and consequently to all of us. The functional burden evident in this work is clear, with the aim of raising awareness about the problem of cigarette

butts on the floor and seeking a change in behavior, demonstrating that cigarette butts not only affect humans as visual pollution but can later spill over for other species.

Furthermore, the work was accompanied by a QR code, inviting students and the entire community to participate by answering a brief online questionnaire on Google Forms, where a free and informed consent form was included, that is, informing that the questionnaire was for academic purposes only and participation was voluntary, and the data would be safeguarded considering ethical principles. We decided to ask just three brief questions. Two closed-response and one open-response. In fact, there are both disadvantages and drawbacks to designing short questionnaires, depending on the focus of the research. In this case, the researchers' experience in other previous studies told us that students' busyness means they do not feel particularly motivated to respond to questionnaires that are too long, which sometimes leads to participants responding randomly, leading to biased results. The questions were as follows:

- Awareness of the problem, received 34 responses: “Do you agree that cigarette butts harm the environment?”
- Motivation for changing behavior, received 32 responses: “After viewing this work, are you willing to resort to more appropriate behavior when it comes to disposing of cigarette butts and trash in general?”
- Impact of the work, received 18 responses: “Did this work make you aware of the cigarette butts on the floor of our school? If so, how?”

This study can be methodologically classified as a participatory action research study, using art as an educational intervention and data collection instrument for environmental awareness. In this specific case, the art piece acted as the means of intervention to promote awareness. At the same time, the attached QR code allowed the direct collection of responses from viewers, assessing its impact in terms of changing attitudes and perceptions about the disposal of cigarette butts.

4. Results

A closer look at the questions may lead one to think that this questionnaire could have been explored better, with space for other variables, such as gender, age, residence, whether you smoke, the university course you attend, etc. Making this work richer by correlating the different variables is perhaps the main limitation of this study. On the other hand, we knew in advance that a longer questionnaire might discourage participants from dropping out. By designing this shorter questionnaire, we wanted to obtain a greater number of responses and, therefore, obtain a greater representation of the sample. Below are the results and their analysis:

Figure 3 Data resulting from question no. 1, do you agree that cigarette butts harm the environment?



The 38 respondents to this question, all, without exception, agreed that cigarette butts harm the environment. Although this issue seems obvious, another study found that smokers do not always believe that a simple cigarette butt can have such a huge impact on the environment (Rath et al., 2012). It leads us to believe that the respondents have the information that cigarettes harm the environment, but that this may not be reflected in behaviors in favor of the environment since butts continued to be seen on the ground, even without wanting to quantify it in smaller numbers.

With this question, everyone, without exception, understands that cigarette butts are harmful to the environment and cause visual pollution, however, we must read this data with caution. Sometimes, knowledge about a certain issue does not mean that it is reflected in behavior. In fact, the literature states that there are three types of environmental literacy: nominal, functional, and operational. The latter is the one that translates into a greater ability to perfectly understand environmental issues, gather, and evaluate pertinent information, and examine and choose between alternatives (Mafra & Moreno, 2019). Obviously, with this type of question alone, we can't quantify the individual's level of environmental literacy. Still, this suggestion can be left for future studies that want to delve deeper into this topic.

Figure 4 Data resulting from question no. 2, after viewing this work, are you willing to resort to more appropriate behavior when it comes to the disposal of cigarette butts and trash in general?



Most respondents admit that the artistic function pre-established by the authors, and which served as motivation for creating the piece of art, had an impact after viewing the work, making them more aware of the problem in question. Perhaps here we should agree with Vasko (2016) that art often manages to create personal connections with ecology, the arts can be a means for a deeper and more appreciative perception of these natural environments and environmental problems. The same author also states that different forms of arts can contribute to a deeper interrelationship, because unlike literal language, the arts offer means to learn and express what is known about the world around us in embodied, symbolic, and ineffable, as has always been the case for thousands of years, even before the creation of writing.

That seems to have happened in this example, the respondents seem to have become aware of the work in question, with a strong tendency of 93% admitting that they could adopt better environmental behaviors when it comes to the disposal of cigarette butts. Question 3 was open-ended, and we wanted to know in more detail the impact of the work. Open-ended questions give greater freedom of response, and can provide richer, more detailed, and detailed data for research. We considered that the open response would not make participants uncomfortable, so we avoided knowing too many details to avoid distrust and abandonment of the research. There were 18 answers to this question, but many had a short answer "Yes" with only one

“No”. Therefore, we will only transcribe those that seemed more complete to us, whose respondents explained themselves in more detail.

Question 3: Did this work make you aware of the cigarette butts on the floor of the school? If yes, how?

Answer1: “Not only at school but throughout the city, there are places to play outside, people don't play because they don't want to see, so it shows that students/inhabitants are not interested in maintaining a cleaner and more pleasant city/institution”

Answer 2: “This work tells us that we should always leave a world a little better than we found it”

Answer 3: “Yes, this art should convince future teachers to leave the cigarette butts in the right places”

Answer 4: “In my opinion, much more is needed than this work, especially because the minority who will see it may not even understand the meaning. Cigarettes' butts are an old problem; I don't think the work alone will raise awareness among smokers. Although I liked the work and the idea behind it, there should be greater effort towards this issue, especially on the part of the leaders”

Answer 5: “This made me reflect because I am a smoker, but I think the school should have more places to deposit cigarettes”

Answer 6: “This work is very well done and makes us reflect. Despite always trying to put the rubbish in the bin, I admit that sometimes out of laziness I threw it on the floor, but after this work, it seems to have had some impact on me”

The open responses, overall, suggested that the work asks the school community to reflect on the impact of an inappropriate action when disposing of cigarettes on the general community. In this last question, both in the role of artists and as researchers, we consider the piece's impact on the community. Most responses indicate that the feedback was positive. Most of us know the feeling of being moved by a work of art, be it a song, a play, a poem, a novel, or a painting. When we are touched, we are moved; we are transported to a new place, a new reality or thought that we had often never thought of before. Is this a transformative experience that art should have for people (Eliasson, 2016)?

5. Conclusions

Although most respondents were sensitized by the work in question and insinuated that there should be more civility on the part of smokers, an artistic and educational project about the creation of a work of this nature does not dispense with the necessary (re)conduct of an education more progressive environment that follows the individual from elementary school to university. As has already been said, environmental education and art can and should go hand in hand, as they share something tremendously valuable, both for artistic and environmental education. This is because if the latter seeks to create personal connections with ecology, the arts can provide a deeper and more appreciative perception of these natural environments (Quina et al., 2023). As we are at a university that will train new teachers, future professionals are required who can raise awareness among the following generations.

The arts can support ways of communicating, often knowing the limitations of

traditional scientific communication. The classroom must make space to explore the role of art, cinema, literature and music as an effective means of connecting intellectually and emotionally with the problem. In this study, based on the community's response, there appears to have been a positive effect, even though we cannot quantify it in numbers, there appears to have been a decrease in the number of cigarette butts on the ground. The responses to the questionnaire seem to show that the work had an impact on raising awareness among people. It is expected that more actions of this nature will be carried out, so that there is an even deeper and more effective impact and awareness, as well as if environmental education and art are to be routine within classrooms.

6. Recommendations

The finding revealed that the lack of training for both teachers and students was the main factor that prevented them from using educational technology tools in teaching and learning Ecology. Therefore, training on educational technology for both teachers and students is recommended. Since educational technology tools have generated excitement and curiosity amongst students, they recommended that other module tutors use educational technology tools as well. Educational technology tools integrated in the module will be further replicated by the student's teacher during teaching practice or as a full-fledged teacher. Therefore, tutors were recommended to use various educational technology tools in learning, teaching, and assessment.

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