

# Promoting sustainability: Environmental education activities in a social institution

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## ABSTRACT

Environmental education should not only act in the context of formal education but can also be applied in informal contexts, allowing a multipurpose application, serving to raise awareness, and transmit knowledge, allowing individuals to develop attitudes and behaviors that go against a more eco-centric posture. Given this fact, we developed a series of activities within the spectrum of environmental education applied in a social IPSS (social solidarity private institution), Obra Social Padre Miguel in the City of Bragança in Portugal. In this work, we used a qualitative approach, specifically study of exploratory nature, since it involved users and employees of the entity in the developed action, subsequently, we collected statements through interviews. A short interview script was drawn up and validated by professionals. In the development of these actions, we collect some data, such as water saving, food waste, and testimonials from users and employees. In the development of this work, we can observe that there was a decrease in the ecological footprint of the institution, and these actions can serve as an example that can be replicated by other entities. Given the results of this work, we conclude that the application of these actions in environmental education in addition to helping those involved in environmental awareness, can help entities to reduce their ecological footprint.

**Keywords:** ecological actions, awareness, environmental education, institutions, ecological footprint

## INTRODUCTION

Humanity is currently in a new geological era called the Anthropocene, which can be described as a ferocious form of humanity's relationship with nature, where various socio-environmental conflicts of immeasurable proportions are taking place (Herzer et al., 2019). Environmental education has emerged as a key pillar for reconnecting humanity and nature. Environmental education in the formal context has been thriving around the world for several decades, with abundant positive results in terms of improving students' environmental attitudes and behaviors. However, environmental education outside of schools, and in social institutions, has been less explored. In the face of the current environmental crisis, companies, institutions, and entities cannot fail to consider the state of the environment, and these institutions often exploit various resources, yet several authors and studies have discussed the benefits, both social and financial, of addressing sustainability issues in non-school entities (Feldman et al., 1997; Kierman et al., 1997). Although there is a call for organizations to be more and more eco-friendly, finding advantages in this type of stance, at the same time it still does not seem to be a universal trend (Perron et al., 2006; Voss,

1996). In the case of Portugal, companies are increasingly assuming that they care about the environment and their management is governed by environment, social, and governance in which they develop a portfolio of products and services that can reflect a philosophy of sustainability in the community. Sustainability concerns are becoming transversal to all sectors (Dias, 2023). However, it is not enough for the philosophy of organizations and companies to pass on an image, it is necessary for employees to feel that they meet this more environmentally friendly philosophy, being the bridge between the organization and the clients or users and that they can see in them the mirror of the organization/institution (Stone, 2000). That said, employees must be encouraged to take part in this more environmental stance imposed by institutions (Klinkers & Nelissen, 2017). In this sense, this work was carried out at Obra Social Padre Miguel, an IPSS (private social solidarity institution), in addition to having several areas of expertise, we only focused on the residential center, which aims to provide a differentiated and adjusted response to the needs of each elderly person, taking into account the provision of services appropriate to their biopsychosocial process, humanization, and an active aging process. Obra Padre Miguel is characterized by being an institution that guarantees the best conditions for its users,

being a structure that supports 60 elderly people, and allowing them to age healthily and with quality. Its values are Ethics and social responsibility, orientation towards the client, quality, and respect (Obra Padre Miguel, 2019). Its facilities are modern with enough space to have several gardens, where some activities have been applied.

The aim is to develop a set of four activities, to awaken a more ecocentric attitude in employees, users, and even visiting families. Despite some challenges like resistance to change, in medium term, there was a change in environmental perceptions of all those involved. In this way, seeing importance of environmental education, we aim to show that environmental education is transversal to all spheres of society and in this case, has contributed to construction of environmental perceptions of users and employees.

## ENVIRONMENTAL EDUCATION & AWARENESS IN INSTITUTIONS/COMPANIES

The importance and advantages of environmental education within organizations and companies have been well-established in the literature (Beard, 1996; Birda, 2017; Conklin et al., 1991; Wehrmeyer, 2017). When discussing changes in environmental attitudes and behavior, Bernstein (1992) states that this change is only possible within companies and institutions that manage to train employees. Many small actions can make a big difference to an institution's ecological footprint, but for this to happen, employees must be made to understand how they can contribute (Parron, 2006). Fostering and raising public environmental awareness, enhancing people's sense of responsibility for protecting the environment, and promoting harmony between humankind's behavior and the environment using environmental education and training are the fundamental ways to resolve problems of the environment (Jinliang et al., 2010). Although the actions we have developed are aimed more at employees, the elderly people have been included. Despite their passive role in society, we believe that these actions are aimed at inclusion and that the elderly have been able to play an important role during the process of the various activities, as we will see in detail later. In addition, promoting lifelong learning is important for enriching each person's life and is the way to build more cohesive societies (Griswold, 2017). In this particular work, the environmental education actions, although well-intentioned, were met with some resistance from the staff, as we will see later, much of which was encouraged by environmental skepticism, in the idea that ecological movements or actions are considered to be a growing threat to social and economic progress and civil liberties (Zhou, 2013). The elderly people are sometimes skeptical and negative about climate change and other environmental issues because there can sometimes be the idea that the consequences of these environmental issues will no longer affect them, or that their actions will make little difference (Moody, 2017). Even so, the elderly play a role as voters in society, and may or may not elect politicians who are more committed to environmental causes. Authors such as

**Table 1.** Quantity of water bottles & costs involved

Type of water bottle	Quantity (units)	Weight (kg)	Value in €
1.50 l	26,000	45	5,720
0.75 l	11,500	56	1,025
Total	37,500	70	6,755

Smyer (2022) also argue that the elderly are sometimes seen as voices of knowledge, so the author argues that the elderly should not only be seen as victims of environmental crises, such as climate change but should also have an active voice and want the best for their children and grandchildren.

## ACTIVITIES IMPLEMENTED

As we have said in this work, we used a qualitative approach, where we chose to collect feedback through interviews. To do this, we drew up a short interview script, which was validated by professionals in the field of social education and psychology. This step was important to understand how the questions should be addressed or if we needed to improve any of the questions in the interview script. We opted for semi-structured interviews because, as Howe (1988) and Thelwall and Nevill (2021) mention semi-structured interviews are a powerful tool for collecting rich qualitative data in case studies. They offer several advantages; semi-structured interviews allow participants to share their experiences, opinions, and perceptions in-depth, revealing valuable insights into the case in question.

There were four activities, all of which had the same objective: To make people sensitive to possible actions that could contribute to the institution's ecological footprint. The target audience was the institution's daily employees of which there were around 34 and 60 users (elderly people users and employees) but we only, but we chose only a few people to interview, and they expressed their interest in volunteering to respond. We also mentioned that the collection of interview information was for academic purposes only, and we would respect the anonymity of the participants. The activities implemented are detailed below.

### Reducing Water Bottles

After observing the significant quantity of water bottles used in the institution and the negligence with which they were disposed of, we tried to find a solution to this problem. The proposal had to be presented to the heads of staff. To assess the magnitude of the issue, a preliminary study was carried out for the previous year, which consisted of surveying the number of water bottles purchased, as well as the amount of plastic produced and the associated costs. The results of the plastic waste from water bottles were presented, and we also showed the economic and environmental sustainability benefits of reducing the amount of plastic produced and the waste of water (Table 1).

After carrying out this survey, institution's management decided to purchase four water dispensers, which were installed in all the institution's facilities. This option arose because the machine is connected to the mains water supply and is used to filter water quickly and effectively, guaranteeing its quality for consumption.

These dispensers have been placed in an easily accessible location so that they can be used by the entire population of the institution. An information poster was also produced, entitled: "Plastic reduction campaign", which aims to raise awareness of this issue, making the entire population of the institution aware of the number of plastic water bottles consumed, and calling for a behavior change, to start using a reusable water bottle, which can be filled in the water dispensers, replacing the plastic bottles available at the institution. An informative video was produced, which is a more sustainable and effective alternative for publicizing this awareness-raising activity, as opposed to flyers, due to the use of paper, allowing for a greater public reach and in different places, since it aims to be shared on the institution's social networks and online platforms, it is possible to achieve greater dissemination without the need to use additional resources. The main aim of this activity was to raise awareness among the entire community of the institution of the problem inherent in the use of plastic water bottles. To try to understand the impact of the activity, a semi-structured interview was carried out with some of the users to get their feedback on the action:

"At first I took it as an affront, but then I realized that it was very expensive to buy all the bottles and this way we do not pollute the environment" (J. D., 87 years old).

"At first I thought they were making fun of us, so I do not even get a new bottle of water when I want one?— That's all I needed. Then I realized that it does not make that much difference after all and we're saving nature" (S. N., 80 years old).

"I realized that this change was not on the whim of those in charge, but for the sake of the environment, and besides, water tastes better" (F. R., 72 years old).

The same interview was conducted with the organization's employees:

"Now I always carry my water bottle" (C. A., 55 years old).

"Since this system of filling bottles was adopted, I drink more water, it tastes better" (C. L., 39 years old).

"Until you spoke to us I had no idea how many bottles of water we used here, but it is a very high figure. I do not buy water at home anymore, I bought a water filter and now we all have our little bottle. And if we can help the environment, all the better" (P. M., 40 years old).

"I loved this initiative, at first I thought it was not going to be successful, but the way you approached the subject and spoke individually with each user and employee was very empathetic and enlightening. I was one of the people who took the longest to get used to bringing my water bottle, but now it's part of the ritual before I leave the house" (F. L., 50 years old).

This kind of initiative has turned out to be an asset in economic terms for the institution, as it has reduced costs. On an environmental level, considering the waste of plastic, only

14% of the world's plastic is recycled, the rest being incinerated or ending up in landfills or the sea (Geyer & Law, 2017). In the case of Portugal, only 35% of packaging is recycled (Silva, 2020), although there has been a gradual effort to recycle in Portugal, we are still below the European Union.

### **Sustainable Vegetable Garden: Cultivating Awareness & Health**

The project to create a vertical vegetable garden with aromatic plants, aimed at the elderly residents of the institution, was conceived to approach environmental education in a constructive way and in line with the interests of this target audience. The activity was designed to make the residents more aware of the healthy diet recommended by the institution's health team. We felt the need to address this issue by exploring the benefits of healthy and sustainable eating. Through the vertical vegetable garden, we tried to involve the elderly, allowing them to grow their aromatic herbs without having to buy them, reducing the product's ecological footprint, and encouraging cultivation practices that respect natural resources.

Throughout the project, we emphasized the importance of saving and using water, showing the elderly how to make conscious use of this precious resource. We also addressed the principles of sustainability, such as reducing waste, using recyclable materials, and valuing biodiversity.

The activity began by obtaining aromatic plants, which were purchased from a local organic plant supplier. The planting structures were built with the collaboration and support of the institution's employees, who helped reuse wood and plastic to build the structures.

The activities of building the herb garden, accompanied by an information session on food, played a transformative role in the residents' behavior. The creation of the herb garden allowed the residents to have a direct connection with nature and to experience growing their food. By following the growth and development of the plants, they gained a deeper understanding of the importance of fresh, quality food grown sustainably. **Figure 1** shows planting the aromatic herbs in the structures. **Figure 2** shows aromatic plants used in food.

### **Composter**

Obra Social Padre Miguel has a large vegetable garden and garden, where some of the food consumed at the institution is produced. This space, together with the kitchen, generates a significant amount of organic compost when meals are cooked. This proposal was presented to the institution's management, and the benefits of creating compost to create organic fertilizer were presented. The first approach was made to the professionals who work directly in the areas that produce the most organic waste, the garden and green space maintenance technicians, and the kitchen staff. They were introduced to the project and the need for cooperation on both sides.

An information document was drawn up and posted in the kitchen to clarify which waste can and cannot be sent to the composter. Through this communication, it is possible to instruct employees on the correct separation of the waste generated, to maximize the efficiency of the composting process.





**Figure 1.** Planting aromatic herbs in structures (photograph taken by the authors)



**Figure 2.** Aromatic plants used in food (photograph taken by the authors)



**Figure 3.** Construction & final result of composter (photograph taken by the authors)

Among the waste that can be put in the composter are leftover raw fruit and vegetables, such as potato peels, onions, carrots, etc., eggshells, coffee grounds, tea leaves, and uncoated paper scraps.

On the other hand, it is important to note that waste such as animal products, meat and fish, fats, oils, dairy products, plastics, and contaminated materials should not be deposited in the composter, as they can compromise the quality of the compost and the proper functioning of the decomposition process. The composter was placed directly on top of the garden plot to make it easier to access the compost, avoiding

any large movements. Lower part was covered with leaves from cleaning institution's sidewalks.

**Figure 3** shows construction and final result of composter.

We have seen a significant reduction, of more than 50%, in the amount of waste deposited in ordinary garbage cans. Composting has enormous potential, being relatively easy to carry out, it transforms rotten waste into a valuable fertilizer for the soil, often referred to as "black gold" (Gibbens, 2022). Synthetic fertilizers have brought the world enormous socio-economic and developmental benefits, improving crop yields, and giving us the possibility to grow more food and use less



**Figure 4.** Central theme of mural painting was nature/environment & to convey message of importance of intergenerationally (photograph taken by the authors)

land for agriculture. However excess nitrogen also brings other environmental problems, such as contamination of water lines and nitrous oxide, which is a GHG gas that contributes greatly to climate change (Ritchie, 2021).

Farmers apply around 115 million tons of nitrogen to our crops every year, but only around 35% is absorbed, which means that 75 million tons of nitrogen flow into our rivers, lakes, and natural environments (Lassaletta, 2014; Ritchie, 2021). On the other hand, much of the food that is wasted could be reused in composters to turn it into natural fertilizer, as it is estimated that 24% of the food consumed worldwide ends up wasted (Poore & Nemecek, 2018; Searchinger, 2018).

### Intergenerational Project–Art & Nature

To mark world environment day on June 5, we carried out an environmental education activity that involved creating a nature-themed mural. The different generations that make up the entire community (children and adults) of Obra Social Padre Miguel took part in this activity, to promote environmental awareness among the participants, highlighting the importance of intergenerationalism and environmental preservation. The activity took place in the institution's garden, an open-air space providing a direct connection with nature, a space often used for socializing among the diverse population. More environmentally friendly water-based and washable paints were used during the activity in which participants were invited to paint the mural with their hands, providing a tactile and sensory experience, to stimulate creativity and physically involve participants in the project, with a playful and inclusive approach. The mural itself became a visual symbol of the collective commitment to caring for nature. With the use of vibrant colors and representative elements, it stood out as a concrete expression of commitment to the environment. The children and the elderly people, worked together to prepare the soil and carry out the planting. Under the guidance of the elders, the children learned about the different needs of each plant, watering, and their fragilities, they were explained the care that plants need to grow and that you cannot cut them or step on them, otherwise "they get hurt and die". This interaction provided a valuable

sharing of knowledge between the generations, where the elderly shared their knowledge and experience and the children showed enthusiasm and curiosity in learning.

The location of the flower bed was carefully planned to be a visual and conceptual extension of the mural, seeking to create a connection between the two spaces. The selection of flower species considered criteria such as native species, beauty, diversity, and attractiveness for the location, creating a pleasant and harmonious environment.

This exchange of knowledge and experiences contributed to the formation of emotional bonds and the building of a collective consciousness about the importance of caring for the environment. Through the mural, it was possible to convey an important message: "Elderly people teach, children learn, and together they care". This phrase, used as a slogan, reflects the spirit of collaboration and unity that was felt throughout the activity. By painting with their hands and leaving their mark on the wall, they were able to express their commitment to protecting and preserving nature. The mural became a visual symbol, a lasting reminder that we are responsible for looking after our planet. This painting shows the importance of art as a powerful form of expression and communication. Art can also address and transform emotions, creating hope, responsibility, care, and solidarity (Ryan 2016). Human beings are visual creatures by nature, absorbing information in graphic form that sometimes escapes us in speech with words (Mason, 2019; Quina et al., 2023). **Figure 4** shows central theme of the mural painting was nature/the environment and in order to convey the message of the importance of intergenerationally.

## CONCLUSIONS OF ACTIVITIES IMPLEMENTED

Environmental awareness in companies or institutions can make valuable contributions to a more sustainable future, meeting various sustainable development goals, such as four (quality education), eight (decent work and economic growth),



11 (sustainable cities and communities), and 12 (sustainable production and consumption) (UN, 2019).

Regarding environmental education actions, they can promote awareness of the importance of preserving the environment, encouraging more sustainable behaviors such as reducing environmental impact, promoting sustainable practices, environmental citizenship, and improving quality of life (Giesta, 2013) when carried out in private institutions can pass the image of positive image: The adoption of sustainable practices and the promotion of environmental education can strengthen the public image of institutions and companies, making them more attractive to consumers, investors and partners.

**Cost reduction:** Adopting sustainable practices can reduce operating costs, such as energy and water consumption, waste generation, and natural resource management (da Silva et al., 2019).

**Increased productivity:** A sustainable and healthy work environment can increase employee productivity and well-being (Lima, 2023).

**Innovation:** Environmental education can stimulate innovation and the development of new sustainable products and services (One Tree Foundation, 2024; Sales & Catarino, 2011).

Faced with such a heterogeneous audience, in terms of age, beliefs, and culture, it was necessary to take a different approach that was sensitive and adaptable to the different generations. This diversity was an invitation to explore different perspectives, forcing us to explore new methodologies and approaches. Initially, there was some resistance and misunderstanding on the part of the vast majority of the institution's community. Many people were used to their established habits and routines, without ever questioning the consequences of such habits and the real impact on the environment. When confronted, it was noticeable that there was no clear understanding or reason for carrying out certain practices, revealing a disconnect between actions and environmental awareness, as well as demonstrating low levels of environmental literacy. The idea of change seemed unnecessary to everyone involved in the association—staff and the elderly. The idea of abandoning established habits and adopting more sustainable practices seemed far removed from reality. It took a continuous effort to break down barriers. In addition to words, it was sometimes necessary to bring data and examples to demonstrate the direct impact of our actions. An example was the case of water bottles consumed and the amount of plastic produced. Only with concrete figures and values was it possible to demonstrate the environmental impact of our daily actions in a tangible way. The pollution of the oceans by plastic was seen as a distant problem, unrelated to their individual actions. By presenting concrete data, it was possible to raise awareness and connect individual actions to a global problem, realizing that each individual action has a collective impact. The replacement of plastic water bottles with reusable bottles at the institution has resulted in a reduction of around 75% in the purchase of these bottles. However, this residence is something common in the literature, in expected institutions or companies, it may be because initially, people do not see the

economic, social, or environmental advantages. But companies and public and private entities must recognize that in the 21<sup>st</sup> century, there must be changes for the well-being of the environment (Orji, 2019). In this case, this transition has had a significant impact, but it represents an ongoing process of gradual change that has taken place over time (two months). It has been gratifying to see the significant progress that has been made in such a short period. The mural and the planted flowers are a visible symbol of the institution's commitment to environmental education and inspiring concrete actions, inviting reflection, education, and engagement, consolidating the collective commitment to building a sustainable future. It's good to question what we are destroying on the planet and reflect on what we can do to make the world we live in more sustainable, a concern that should be everyone's. We believe that, through these actions, we have been able to promote a change in mentality and awaken a deeper environmental awareness. And we have managed to transform the institution into a space committed to sustainability. With this work, we can inspire other institutions generations and communities to follow the same path towards a more sustainable world. May the legacy of this journey echo as a constant invitation to preserve our planet, reminding us that each action is a big step toward a better future.

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