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A NEW ACTION IN ENVIRONMENTAL EDUCATION

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ABSTRACT

This work shows two actions of the Environmental Education group (EE) FISHERMEN OF DREAMS, in two schools of the city of Manaus / AM. Through the knowledge acquired in the graduation FISHERMEN OF DREAMS, leads to sustainable practices for young students of elementary school. Working with children is divided into teams with specific themes that cover current EE themes such as: Water Uses, Water Pollution, Water Scarcity on the Planet, Solid Waste Management, Solid Waste Treatment and Recycling, Toys with recycled materials, Renewable Energies and Sustainable Practices such as herb and vegetable gardens. And the themes were divided according to the complexity of the theme and age group. The actions showed that the children had knowledge in the subject, probably due to the easy access to the media.

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INTRODUCTION

During the last decades, the environment has been constantly assaulted by humans, one of the results of this constant aggression is the effects caused by climate change (Jaco et al., 2001, NOBRE et al., 2007). Moreover, in a world in which society is experiencing a globalized panorama, which has been demonstrated by the speed with which information is disseminated across the globe and the way society interacts with the speed of this information. are growing and replacing the green spaces with the concrete, the children's direct contact with the elements of nature has been increasingly limited. The subject of this questioning revolves around "Education", as a passage for the knowledge of Environmental Education, Environmental Conception and Edu communication. Environmental Education (EE) emerged in the 1960s because of the concern and need to understand the environmental losses that had already occurred (TOZONI-REIS, 2008).

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Afterwards, several authors showed the evolution of this concept of AS, as one of the pillars for the education of the individual (DIAS, 1991; Pardo-Diaz, 2002; Gonçalvez, 2011). It was during the 1970s that man came to think of the environment and its preservation as a new way of preserving life, and "[...] EE was defined as a dimension given to the content and practice of education , oriented towards the resolution of the concrete problems of the environment, through interdisciplinary approaches and an active and responsible participation of each individual and of the community (DIAS, 1991). In Brazil, it was during Rio-92, a document was elaborated by the Ministry of Education (MEC) to implement the EE in all levels of education. But only in April 1999, the National Environmental Education Policy was instituted, through Law n. 9,795 (BRASIL, 1999). Despite this, most schools do not have specialized teachers who are trained to apply EE practice day-to-day at school. These days, children are subject to increasingly restricted spaces and it becomes more difficult to contact the elements of the environment and are forced to stay indoors at home, having as a source of leisure the use of technology. Most of the time, the children do not realize the changes that the environment has

been suffering, and in addition, in their homes often the parents do not have the knowledge to guide them about the environment and even to answer small questions such as , where milk comes from, where it comes from the "box".

Therefore, Alves (1999) says that: "There are children who have never seen a real chicken, have never smelled a pine tree, never heard the song of the goldfinch and have no pleasure in playing with the earth. They think the earth is dirt. They do not know what earth life is. " In this way, environmental education is of paramount importance and must be questioned in schools, so that all members of society develop an environmental awareness and have responsible behavior towards the environment. The preservation of the environment needs a lot of action from present and future generations and their willingness to reduce the environmental impact on their actions. We know that some habits are acquired during our childhood, and therefore, we sought the alternative of implementing the EE Project "Sustainable Joint Action" for elementary school students, more specifically, the first to fifth fundamental year. The Sustainable Joint Action (FISHERMEN OF DREAMS) is a project created by a group of students of the Environmental Engineering and Renewable Energies course at the FAMETRO University Center, under the coordination of Professor Alexandra Lima. The group's mission is to train individuals concerned with environmental problems, to enable sustainable involvement, environmental conservation and the improvement of the quality of life. In addition, the school is a place for new experiences, and in the case of EE it can lead the student to a more realistic view of the world in which he / she lives (DIAS, 1999, NARCISO, 2009). So, if EA is treated continuously, it can create a new consciousness and implement more ecological and sustainable habits for students. Based on this context, the students of the project "Joint Action Sustainable", developed this project where they seek to train public and private school students concerned with environmental problems, enable sustainable involvement, environmental conservation and improvement of quality of life.

METHODOLOGY

Created on May 18, 2017, the group has been showing the importance of conservation, preservation of natural resources and sustainability. This can be seen through the work done in two schools. It is worth noting that the work is continuous and will continue to be applied in other schools. The EE - FISHERMEN OF DREAMS group works in smaller teams, where each of them is responsible for a theme associated with the environment and climate, among them are: water pollution, recycling (treatment and toy workshop), deforestation, air pollution, treatment of solid waste, among others. This information is passed on in a playful, correct and consistent way using recreational methodologies. According to Almeida (2009), the use of play is a way of combining ideas and behaviors that do not necessarily use conventional teaching methods and patterns, leaving the environment more friendly to learning, since playing is a creative activity. Before each EE activity, visits are made to schools so that it is possible to have an idea of the number of classes and students that will be served by the project. In addition, knowing the facilities of the school allows us to have contact with the teachers and to know the possible deficiencies of the classes. The work with the classes is divided into groups with specific themes that cover themes related to EE. The themes are current as: Water Uses, Water Pollution, Water Scarcity on the Planet, Solid Waste Management, Solid Waste Treatment and Recycling, Toys Workshop with Recycled Materials, Renewable Energy and Sustainable Practices. In addition to the lectures, vegetable and herb gardens are built for children to learn how to plant and care for plants. And the themes were divided according to their complexity, and age group.

Group 1: This group works on the theme "Uses of Water", which addresses the general concept of water, water cycle, importance of water on the planet, water pollution and water scarcity on the Planet (Figure 1). The themes are shown in the form of a lecture where there is interaction at all times with students, games and games.

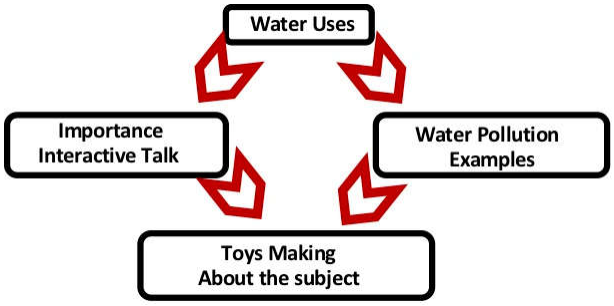


Figure 1. Activities developed by group 1 - Water

Group 2: Using a playful and simple approach, this group talks about solid waste, solid waste treatment and selective trash collection by teaching the use of trash cans and the meaning of the colors (Figure 2).

Figure 2. Activities developed by group 2 - Trash.

Group 3: This group is a continuation of the work of group 2, while it is done during the activity class as teacher of communication teachers. At this stage the materials of the day are used, such as PET bottles, bottle caps, used paper, etc. (Figure 3).

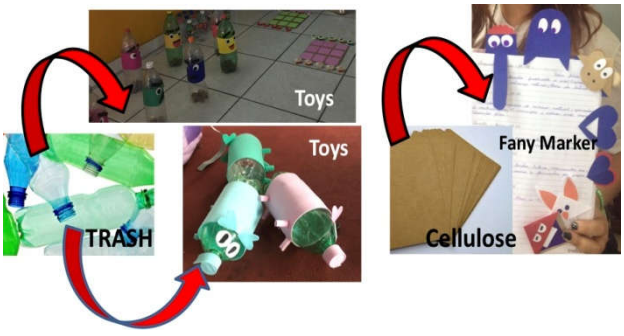


Figure 3. Activities developed by group 3 - Trash processing in toys

Group 4: Sustainable Practices. This group works with students who are 12 years of age or older (pre-adolescence). In this way, the topics covered are much more comprehensive and complex, such as the "use and types of renewable energy available". To exemplify the energies, during the practices are presented models that the students developed for the interdisciplinary activities, where the theme is Renewable Energies. Through the models, the students can show and briefly exemplify some types of energies, such as a Hydroelectric Power Plant with all its components. All activities described in the methodology are performed during two shifts. In the morning shift, the activities are carried out in the classroom environment, where workshops, lectures and awareness-raising workshops are held. Later, with the students of the afternoon shift, a class is selected for the assembly of the vegetable garden of herbs and vegetables.

Source: Authors (2017)

Figure 4. Lectures on the uses of water, water waste, etc

Source: Authors (2017)

Figure 5. Activity on water uses, where each student cut a drop of water, and in it drew what he understood from the talk

RESULTS AND DISCUSSION

The human being constantly changes the environment to which he lives, an example of this is the increases of emissions of greenhouse gases, mainly CO2 emissions, which in a way has significantly increased the temperature of the planet (IPCC, 2014). In addition to the environment, in recent decades man has changed the way he has acquired information. The influence of the media and globalization allow children today to have an excess of information, which can affect the development of their personality (ZAMBUJA, 1995; VIDIGUEIRA, 2006). However, on the other hand, when it comes to the environment, it seems that the media has not clarifiedthe population as it should. This can be verified through the results of the EE actions carried out in the schools. Still, according to the Theory of Development of Piaget, this shows the phases of the child and when it acquires its main cognitive functions. According to the author, between 7 and 12 years is the period of concrete operations, where the child is apt to processes such as learning, develops logical thinking, acquires experiences, develops notions of transitivity, conservation, serialization, classification and numbers. In addition, it is possible in this age group to develop cognitive structures that allow logical thinking (operations) about experiences that occur here and now (need for concrete support) (COLL and Gillièron, 1992; MACEDO, 1994). During the actions we can verify that children and pre-adolescents of today are growing more and more without information of the importance of the environment, this is possible to be verified through the information shown in Tables 1and 2. The activities of Groups 1, 2 and 3 took place in the morning in the classroom, where the workshops were made of recycled materials toys, educational lectures. Each group consisted on average of 6 to 7 members of FISHERMEN OF DREAMS. While one of the students did a demonstration and / or lecture the others circulated in the classroom, with the purpose to help the speaker by asking questions of the children.

Group 1 presented in a playful way a lecture on "Uses of Water". The theme is part of the daily life of everyone: students need water daily to take, to brush their teeth, to bath, laser; but, although the children know the theme, it is not approached in a scientific and environmental way in their daily life, therefore, the students of the 1st year in the two schools (as shown in Table 2) were chosen for this activity . To introduce the theme, Engineering students talked about wasting water during toothbrushing and bathing, that some simple habits such as - closing the faucet at the time of toothbrushing, and closing the showerhead while they are soaping (Figure 4 and 5) - can contribute to the preservation of this natural resource. Through play the child can learn and at the same time, the teacher has the possibility of introducing new methodologies, learning tools (MALUF, 2003). It is through the playfulness that the child can attribute to his world what he assimilates from the real world (MALUF, 2003), so it was through the games that the theme of water was reinforced. After the lecture, each student drew his Water Drop and drew everything they learned during the water saving lecture (as shown in Figure 5).

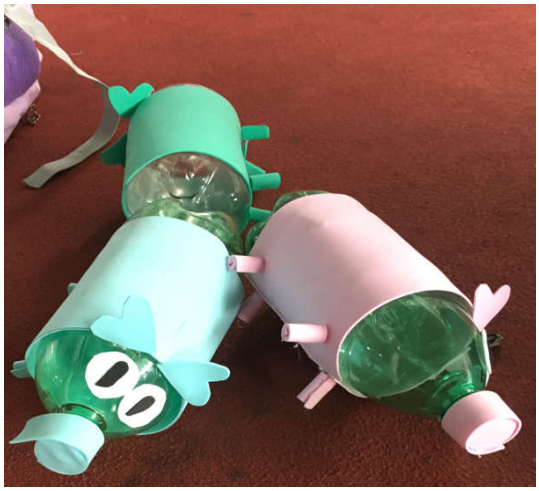
The theme on Solid Waste was addressed by Group 2 with the students of the 2nd year, through a lecture on the topics addressed: Correct use of the trash by color / materials (metals, plastics, organic, paper) and correct disposal of materials, such as batteries. After the lecture, a fixation session was held with questions related to what was presented previously. With each question the student who answered the answer correctly received gifts (Figures 6 and 7). Group 3 worked with 3rd year students, developing the Solid Waste theme, but with another approach. In addition to the students receiving some notions about recycling, they receive guidance for a toy workshop. According to Machado and Nunes (2012), the use of games and games during learning reproduce "emotions, making it possible to name and organize a world of chaos for a world of discoveries".

Source: Authors (2017)

Figure 6. Group 2 performing the sets of fixation on the correct use of the dumps

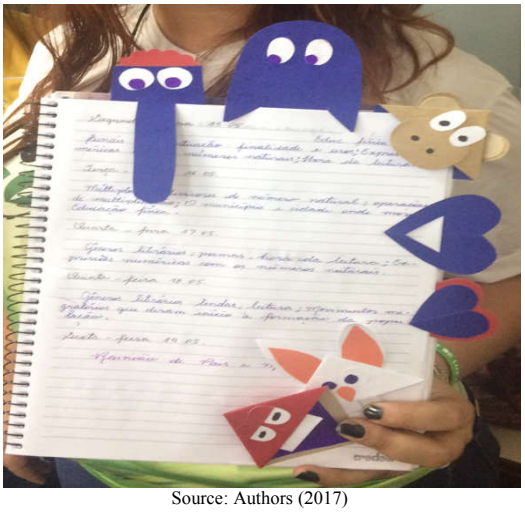
Source: Authors (2017)

Figure 7. Group 2 performing the sets of fixation on the correct use of the bins



Source: Authors (2017)

Figure 8. Group 3 Workshop of recycled toys made with PET bottle



Source: Authors (2017)

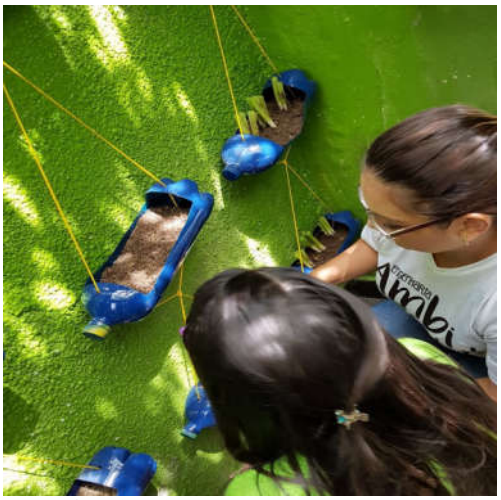
Figure 9. Group 3 Book Markers made with recycled paper / not

Source:Autores (2017)

Figure 10. Group 3, PETbottlebowling and old set with PET bottle caps

Source:Autores (2017)

Figure 11. Group 4 model of a toy powered by solar energy



Source: Authors (2017)

Figure 12: Gardening with 5th year students.

Source: Authors (2017)

Figure 13. Fishermen OF DREAMS Team explaining to students how to care for and maintain the garden

Table 1. Information referents of the School 1

Class	Students	Students with knowledge in EE
1□school year A	18	6
2□schoolyear A	26	7
3□schoolyear A	28	5
3□schoolyear B	29	6
4□schoolyear A	21	5
4□schoolyear B	23	6
5□schoolyear A	37	9
Total	182	44

Table 2. Information referents of the School 2

Classes	N. de Alunos	N. de alunos com conhecimento em EA
1□schoolyearA	36	7
2□schoolyear A	26	6
2□schoolyearB	16	4
3□schoolyear A	28	5
4□schoolyearA	21	6
4□schoolyearB	23	5
5□schoolyearA	37	8
Total	187	34

The toy workshop teaches children to create: checkerboard games with bottle caps, bowling, hoops, turtle, piglet, built with PET bottles, and book markers with recyclable paper (Figures 8, 9 and 10). The toys were created by Environmental Engineering students and distributed to 3rd grade students, showing that materials that are often dumped in their homes can be turned into toys. It was found that during the presentation of toys created with recycled material, children were surprised by the quality of toys that can be made with a simple PET bottle. Public school children (School 1) were more interested in assembling and making toys, as they did not have the slightest notion of how it might work. On the other hand, in relation to the students of the private school (School 2), they affirmed that they had seen something similar in children's TV programs. The lectures on Renewable Energies presented by the Group 4, showed to the students of the 4th year the existence of several forms of clean energy that does not attack the planet. During the talks, models were used that simulated the energies: wind, hydro, solar, biomass. This activity was true only in School 2, in which the students had some knowledge about the subject. School 2 students interacted with students from Environmental Engineering, showing the fourth-year students' knowledge about clean energy. The children have been curious about how the models work and how each of the energy sources works (Figure 11). The FISHERMEN OF DREAMS team, during the afternoon shift, planted a vegetable garden and selected a class from the school to follow the process of: preparation and planting of seedlings. The 5th grade class was selected so that they understand the process and know how to take care of the garden after the action is over, and understand the importance of caring for the environment, as we can see from Figures 12, 13. The results presented in Tables 1 and 2, show that as the age and the series of the increase, the students show a greater knowledge in the environmental area. Today this knowledge is not only acquired in the classroom, with the media having a very important role. Borba and Penteado (2001), have shown that new technologies have changed the profile of students and that teachers are constantly challenged.

Final considerations: The present work shows the actions of students of the Environmental Engineering and Renewable Energies course, who formed an EE group to carry out actions with elementary students.

The actions described in this work were developed, one in the municipal public network and the second one in the municipality of Manaus / AM. This was developed in four stages, where each one was carried out in the classroom environment, developing the following themes: water uses, solid waste, trash processing in toys and sustainable practices. In addition to the themes mentioned, during action in the private school was incorporated into the work the installation of a vegetable garden, at which time is shared with the more mature students the construction, planting of the garden and it is shown how they will take care of it in the future.

It was observed that the great majority of the students of both public and private schools already had basic knowledge about environment and sustainability, regardless of age group and socioeconomic level. This wealth of information is due to the media of all kinds that indiscriminately disseminate this information and having children access to it more easily. The actions will continue being carried out by the laboratory, in the city of Manaus, and should only be extended to the adolescent public. Emphasizing also that these small citizens are in the phase of consolidation of habits and that at this stage, EE has a strategic role in training, aiming at the necessary care for the preservation of natural and environmental resources. Given this, it should be said that education has the capacity to promote values, not only a means of transmitting information, but a process that involves transformations in the individual who learns and reflects on their way of acting before the world.

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