

Environmental Education: Household Solid Waste Problem in the Urban Site of Paripiranga-BA

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Abstract: Environmental education should be a continuous process, carried out in a formal and non-formal manner, seeking citizens' social and environmental awareness about a certain problem that affects society, caused by anthropic activities. Since man through these activities tends to generate environmental impacts, such as household solid waste: organic and inorganic, which are present in the generation of environmental impacts on the environment when not intended for recycling, causing soil contamination, air, groundwater and river water. This article aims to demonstrate the actions taken to mitigate the household solid waste problem in the urban site of Paripiranga-Ba, made by trainees from Chemistry Degree course, in the development of Environmental Education activities in municipal schools: President Emílio Garrastazu Medici, Our Lady of Coité Educational Center and Professor Francisco de Paulo Abreu. The target audience (children, adolescents, youth and teachers) have been sensitized and instructed to carry the message to other family members and thus will be disseminating information about the correct procedures regarding waste separation and management. Be proactive in society, aware of the responsible citizens duties in household waste management.

Key words: environmental education, environmental impacts, household waste, environmental awareness

1. Introduction

Regarding household solid waste, Philippi (2004) [1] states that there are three classifications: by their physical nature (dry or wet), by their chemical composition (organic or inorganic matter), by the potential risks to the environment (hazardous, inert and non-inert). Rodrigues (1998) [2] adds that, currently, people practice in households is to pack solid waste in plastic bags, as a simpler and hygienic packaging process, but it is necessary to adopt other correct ways of packaging the waste, separating it by class or at least recyclable and non-recyclable waste.

According to Mucelin Bellini (2008) [3], improper disposal occurs when people handle and pack household solid waste by mixing organic with inorganic waste, disposing of it on vacant land, streets, roads or being collected by a responsible company and destined for dumps.

And, as discussed by Massukado (2004) [4] and El-Deir (2014) [5], when discarded to the environment cause an overload, because it exceeds its absorption capacity, generating impacts such as soil, air and groundwater contamination.

The old habit of not separating household solid waste-materials, in solid and semi-solid states resulting from human activities performed daily on domestic tasks, consisting of food, plastic or paper packaging, fabrics waste, among others. Properly, it may come

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from an enculturation that perpetuates from generation to generation, a common and customary people custom, and it is up to the public company responsible for urban cleaning to collect, because it is more convenient and practical to discard your household waste without any treatment.

An example of this situation is the municipality of Paripiranga, in the Bahia state, in which many Paripiranguenses who do not properly separate household waste justify their actions by claiming that there is no selective collection in the municipality. This justification contradicts the information of the Agriculture and Environment Secretariat, which claims that in the municipality there is selective collection in the urban site, with time and day demarcated by street and the distribution of receiving boxes (called garbage dumps) in the streets, carried out by an association contracted for this purpose, which triages solid waste by separating recyclables (for recycling) from non-recyclables (directing them to uncontrolled landfill).

In this case, Environmental Education on solid waste becomes important because it is essential to raise awareness and guide people to learn about the proper management to be adopted in the separation and proper disposal. In this sense, according to the Ministry of Environment (MMA), environmental education should be used as a tool for people's reflection in the awareness process to adopt as an attitude the proper waste disposal [6].

According to MMA, formal environmental education occurs when it is carried out by the teaching unit in compliance with the syllabus curriculum or as a cross-cutting theme and non-formal education is carried out by social bodies, public or private sector and aims to sensitize individuals to have critical thoughts in the search for solutions to the given problem worked [6]. According to Araújo and Luvizotto (2012) [7], formal education requires a pedagogical planning fulfillment while the non-formal one simply has its well-structured planning and

well-defined objectives. As an example, environmental actions such as lectures are non-formal educational procedures, since they do not have structured lesson plans in school curricula, but do not rule out the need for prior planning [7].

According to El-Deir (2014) [5], working to raise awareness is a challenge in the educational field, as it is necessary to change the internal customs and values in society for centuries in a different way of seeing and relating to the waste it produces, to understand the difference. Seeking to encourage the correct packaging, with separation of dry from wet, organic from non-organic residue, or various existing typologies.

In view of this, this article was a joint action between a group of trainees from the College of Chemistry degree from the University Center AGES - UniAGES, in the municipality of Paripiranga-BA, with the Town Agriculture and Environment Secretariat. This action aimed to sensitize the students of the municipal education network about residential solid waste, through lectures and workshops, involving the following themes: solid waste classification, environmental impacts of solid waste; the chemistry of waste; organic waste composting. Therefore, as a process of social and environmental awareness this article deals with the execution of non-formal educational activities in formal education fields, carried out in three public teaching units: President Emílio Garrastazu Medici, Our Lady of Coité Educational Center and Professor Francisco de Paulo Abreu.

2. Methodology

As a project from students in the Chemistry course at UniAGES, which was held during the first semester of 2018 during the Compulsory Curricular Internship, held at the Department of Agriculture and Environment, of Paripiranga - BA, the project was initially presented to the secretariat team, composed of an agricultural technician, an environment coordinator, an administrative assistant and the secretary. Na tomada

de conhecimento de que a secretaria ainda não tinha realizado ações de cunho socioambiental voltado para conscientização dos estudantes, reiterou-se ainda mais a importância do projeto.

Due to the lectures be in the teaching units of the municipality, a meeting was held with the Paripiranga - BA Department of Education, to present the project and the intent of what was aimed with the planned lectures, obtaining the consent of the secretary to what the project proposed, as for the transmission of information and school students' awareness: President Emílio Garrastazu Medici (held on 17/05/2018, in the afternoon shift); Our Lady of Coite Educational Center (held on 24/05/2018, in the afternoon shift); Professor Francisco de Paulo Abreu (held on 05/05/2018, in the morning shift and on 05/25/2018, in the afternoon shift). In the teaching units there were lectures entitled the project theme: Solid Waste Impact in the Urban Site of Paripiranga - BA, addressing the global and local issues generated by solid waste, soil contamination, water, air and groundwater; the correct waste separation, separating the recyclable from the non-recyclable; composting as a recycling strategy for the organic waste itself.

It is noteworthy that, in view of the pertinent existence of an association responsible for waste collection in the municipality and the appropriate recyclable waste destination, a meeting was held with the director of the Selective Collection Association and

of Recyclable Materials Collectors from the State of Bahia - ASCOSEBA, to gain knowledge of the largest proportions existing regarding the handling and separation of solid waste collected in the urban center of the city. At this time, as expected, it was identified that the lack of separation of recyclables (plastic, paper, aluminum, iron, among others) of non-recyclables (organic waste made up of food) at home, by the population, ends up hindering the sorting made at the time of collection and in the shed.

After these surveys, the slides were constructed with objectivity and specificity to serve the existing audience in the three schools, composed of children, adolescents and youth. The lectures took place as scheduled, in a time interval of 1 hour and 40 minutes within the school schedule, in the morning and afternoon shifts, assigning students to disseminate information and actions within their homes, as responsible for the waste generated at home.

The lectures in the teaching units took place with all students of the morning and afternoon shifts, as well as the teachers present, with openings for questions throughout the lectures, taking doubts and questions made by students and teachers, as shown in Fig. 1. It was always sought to make clear to students and teachers that waste is the responsibility of each individual and the efficiency of selective collection only works when everyone does their part.



Fig. 1 Lecture at the teaching unit: Schools reunited professor Francisco de Paulo Abreu, Paripiranga-ba.

3. Results and Discussion

The lectures (Fig. 1) specified the household solid waste generated by people from paripiranga city, dazzling about the existence of selective collection in the city, emphasizing the importance of the separation according to their classes, proper destination for selective collection, besides the acquisition of common sense in development of creative skills, critical thinking about anthropogenic and environmentally sensitive activities that are polluted and degraded.

Como as palestras foram as práticas The lectures (Fig. 1) specified the household solid waste generated by the paripiranguenses, dazzling about the existence of selective collection in the city, emphasizing the importance of the separation according to their classes, proper destination for selective collection, besides the acquisition of common sense in the city. Development of creative skills, critical thinking about anthropogenic and environmentally sensitive activities that are polluted and degraded. Internships at SEMMA, contributed to the idealization of its role as a public environmental unit with responsibilities and duties towards the local society. An action of this magnitude can arouse the question: why not encompass the whole society?

In fact, the lectures may come to cover all the citizens, but due to the time (mandatory 40-hour internship workload), they were performed only in the public schools of Elementary School junior and senior, besides contributing to the students from Chemistry Degree had direct contact with students and teachers, improving their personal and professional skills when giving the lectures.

It is noteworthy that one of the most stressed points in the lectures was the importance of waste separation at home for recycling. Educational actions and activities such as this enhances the awareness about solid waste, considering that it should be a continuous and indispensable process for the population in the knowledge of waste, adopt measures for proper

separation and correct destination. The implementation of selective collection programs is of fundamental importance to minimize the impacts generated by solid waste to the environment [1].

According to the Ministry of the Environment [6], environmental education should be used as a tool for people's reflection in the awareness process to adhere to changing attitudes towards proper waste disposal and the environment enhancement.

According to Drugg (1980) [8], education is an indispensable tool in raising people's level of knowledge, be critical and reflective about their behavior in society, problematizers and have the ability to engage socially discussing appropriate solutions. The author puts the lectures as a great tool for disseminating knowledge and boosting people engaging in causes for every society's common good.

Therefore, it is important for children and adolescents to be aware that they are also responsible for the more sustainable future and the lectures provoke reflection on everyday problems, in particular solid waste and the environment.

According to Dias (2000) [9], environmental education deals with reality, adopting an approach that considers the socio-cultural, political, scientific-technological, ethical and ecological environmental issue aspects, presenting itself as an important tool for the global consciousness construction. Thus, all the approaches made in the lectures bring forward the students' reality in their family life in household waste management, so that they can have a better understanding of them.

Students' awareness of the proper disposal and waste separation emphasizes that each individual is responsible for all household waste, i.e., it is their duty to properly separate and proceed with the correct disposal and not solely of the public authorities. Separation can be made by the criteria established by Philippi (2004) [1]: by their physical nature (dry or wet), by their chemical composition (organic or inorganic matter) and by the potential risks to the

environment (hazardous, inert and non-inert).

During the lectures there were moments of debates with experiences and knowledge exchange involving professionals (executive director and environment director), teachers from the teaching unit present at the time and trainees in the formation process. Moments like these contribute to the personal and professional skills development, as everyone gets a real insight into the world and their point of view signals the construction of a teaching learning¹ [10, 11].

It is not a mechanical process, it is not. During the lecture, there were moments of openness for questioning by the students and teachers who attended the classes. The questions were from questions and questions about what “and” how Paripiranga citizens have done to contribute to the process of mitigating the solid waste impacts, given that, according to El-Deir (2014) [5], the waste ends up being discarded. Mostly in improper places, such as dumps (places destined by large and small municipalities for disposal) cause impacts such as soil, air, water and groundwater contamination.

4. Final Considerations

Working on household solid waste topic with students through an on-site environmental public agency was made possible by being an environmental educational internship action and the department could then pulverize action in the municipality in other formal or informal places with greater coverage in the territory, reaching all residents. And precisely because it is an internship action in undergraduate, immediately it was necessary to have a specific audience, chosen students in the process of personal and citizen formation, to work in their homes with their families as critical citizens to solid waste generated in households.

Government action to mitigate this situation has not yet taken place. So far only solid waste campaigns have been carried out by the Agriculture and Environment

Secretariat. (“D” day of pesticide packaging, community lectures on proper pesticide packaging disposal, in order to raise separation awareness and proper solid waste disposal. However, it was not specifically focused on the Urban Site and residential solid waste; which makes the Environmental Education pertinent with the holding of lectures and workshops for elementary students a Junior and Senior from public schools of Paripiranga, contributing to the knowledge about solid waste.

The actions proposed in the internship project were carried out as planned: project presentation and lectures in schools. What went unplanned came from the planning meetings in common agreement with the Secretariat staff responsible for the internship and the group of trainees, such as visits to the broom factory and the ASCOSEBA material recycling sorting shed .

The first non-formal education actions in formal education spaces carried out by the Secretariat thus fulfilled its role as a environmental responsibility public organ: the members’ knowledge of the environmental education importance being a constant process as part of the procedures necessary to comply with Law 12.305/2010, that deals with solid waste management by the public power, which should extinguish the dumps. The municipality of Paripiranga is within the deadline for extinguishing the dump, because it is a municipality with less than 50 thousand inhabitants that has until July 31, 2021.

It was an action based on non-formal education worked within schools (formal environment), with the target audience of children, adolescents and young people in formation process, sensitizing them to be proactive in the transmission of correct procedures regarding the separation and waste management for the other family members who sometimes have a misguided conduct regarding the correct procedures to be adopted in the separation of waste generated at home.

The students’ awareness about solid waste, makes a positive viability because they are in formation process,

¹ It is not a mechanical process, it is not a teacher’s simple transmission who teaches to a student who learns, it must happen in a mutual way [12].

contributing to be critical citizens and active in society, reorienting adults with inappropriate customs in the waste separation, and gradually changing their personal behavior.

References

- [1] J. R. Philippi Arlindo, Saneamento e Saúde Ambiental: Fundamentos para um desenvolvimento sustentável, Barueri – SP, 2004, p. 842.
- [2] A. M. Rodrigues, *Produção e consumo do/e no espaço*, São Paulo, SP: Hucitec, 1998.
- [3] Mucelin Carlos Alberto and Bellini Marta, Lixo e impactos ambientais perceptíveis no ecossistema urbano, *Ocidade & Natureza, Uberlândia* 20 (1) (2008) 111-124.
- [4] Massukado Luciana Miyoko, Sistema de Apoio à Decisão: avaliação de cenários de gestão integrada de resíduos sólidos urbanos domiciliares, Dissertação Mestrado em Engenharia Urbana), Programa Pós graduação em Engenharia Urbana. Universidade Federal de São Carlos, 2004.
- [5] El-Deir Soraya Giovanetti, Resíduos sólidos: perspectivas e desafios para a gestão integrada (1st ed.), Recife : EDUFRPE, 2014.
- [6] Brasil, Ministério do Meio Ambiente, Educação Ambiental e Agricultura Familiar, *Coleciona: Fichário da Educador Ambiental* 1 (2015) 13, Brasília, accessed on 20 de març. de 2018, available online at: http://www.mma.gov.br/publicacoes/educacao-ambiental/categ_ory/99-periodico-coleciona.
- [7] Araujo Joselaine de. Luvizotto and Uras Carline. Educação não formal: A importância da educação social na constituição de saberes para a vida em coletividade. *Colloquium Humanarum, Presidente Prudente* 9 (2012) (2) 73-78.
- [8] Drugg Kátia Issa, Comunicação, educação e engajamento, in: Machaddo Nilson José, Hernández Isabel, D'Antolla, Arlete, Pimenta Selma Garrido, Fazenda Ivani Catarina Arantes, Drugg Kátia Issa, Penteado Wilma Millan Alves, Severino Antonio Joaquim, *Educação* (3rd ed.), Cortez, 1980.
- [9] G. F. Dias, *Educação Ambiental: Princípios e Práticas* (6th ed.), São Paulo: Gaia, 2000, p. 552.
- [10] Guimaraes Mauro, Educação Ambiental: Participação para além dos muros da escola. Vamos cuidar do Brasil: conceitos e práticas em educação ambiental na escola /[Coordenação: Soraia Silva de Mello, Rachel Trajber]. – Brasília: 2007.
- [11] N. M. Wendlandt, Addressing the college-to-work transition: Implications for university career counselors, *Journal of Career Development, Sociedade & Natureza* 20 (2008) (1) 111-124.
- [12] Libâneo José Carlos, *O processo de ensino na escola*, São Paulo: Cortez, 1994.