

Relations between Universities and Recyclable Material Collectors:

an analysis of the production of knowledge in an action research

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Abstract

The waste pickers organized into waste picking associations have low income and are probably the only alternative found to maintain their basic needs. In this context, the extension project "Solidary and Inclusive Recycling in the Post-Tragedy-Crime of Brumadinho: strengthening of waste picker cooperatives in the management of urban solid waste" aims to develop actions with four cooperatives of waste pickers located in cities of the Paraopeba River basin affected in the stretch affected by the environmental crime that occurred in Brumadinho. Minas Gerais state, Brazil, and aggravated by the COVID-19 pandemic. Thus, through the relationship between university and waste pickers, the project, supported by the logic of Inverted Extension and the Ecology of Knowledge, sought to develop actions to promote the emancipation of these workers. These actions are linked both to management aspects, in order to help the development of the association's activity, and to human development aspects, which will provide improvements in the quality of life of these workers and their families. This leads us to infer that the relationship between waste pickers and the university is indispensable given that this interaction seeks to promote awareness and environmental education in society so that the same may seek to strengthen selective collection and the recognition of the importance of waste pickers to the social, economic and environmental environment.

Keywords-word: University Community Projects; Waste Pickers; Cooperatives, Recycling.

1. Introduction

University community project make up, together with teaching and research, the principle of inseparability that governs Brazilian universities, highlighted in Article 207 of the Federal Constitution of 1988. The articulation of these three areas enables the transforming relationship that links the University to society (PUC Minas, 2019).

According to the University Community Projects strategies of PUC Minas, "University Extension, as an end-activity, integrated with Teaching and Research, is one of the places where the social function of the University is exercised". By enabling the articulation between academia and society, it works towards the promotion of citizenship, inclusion and social development. This is reflected in the citizen and humanist education of students and teachers, from the perspective of integral development of the human being, the primary mission of the University (PUC Minas, 2019).

Thus, the extension projects aim to provide students with a practical experience that, together with the theoretical knowledge, will compose their academic trajectory whose experience differs from that purely acquired in the classroom. Besides, it is worth mentioning the potential contribution that research can bring in this context, which can be widely explored during the activities, aiming to find future answers to the problems experienced by the Cooperative and its components.

Thus, it is intended, with this extension project, to combine teaching and research in an attempt to alleviate or mitigate the effects of these conditions in order to provide more citizenship, dignity and safety in the work of collectors of recyclable materials, professionals so important to society. Furthermore, we sought to contribute to a greater professionalization of the cooperatives' activities, as well as to promote the health of their members.

Pickers of recyclable materials constitute a community at risk, not only for their own physical integrity and health, but also by the condition of marginality, which is often confused with the very concept of rubbish (Siqueira & Moraes, 2009). Thus, by exercising the selective collection service in the streets, the collectors were "doubly marginalized: at the margins of the economy and at the margins of society, given the precariousness in which they live" (Barros & Pinto, 2008, p. 71 and 73).

The stigma of waste pickers is present to this day, since it involves cultural discrimination to the extent that the identity of the waste pickers is associated with the trash named as "rubbish collector", economic exploitation, while the sale values of recyclable materials are imposed by those who buy (companies) and not by those who sell (waste pickers), and finally social exclusion, which prevents them from acting in competitive markets (Oliveira & Góes, 2019).

Thus, a paradigm shift as to waste picking services and the valorization of this sector is required. Thus, it is of paramount importance an integrated management of municipal solid waste through recycling practices and the implementation of environmental education projects that seek an inclusion of waste pickers in the processes of selective collection (Moura *et al.*, 2018). It is through the actions of waste pickers that the waste reuse cycle begins and is subsequently sent to recycling industries (Gonçalves-Dias *et al.*, 2008).

In order to promote changes in this scenario of stigmatization of the collectors of recyclable materials, during the years 2020 and 2021, due to the COVID-19 pandemic, the extension project Solidary and Inclusive Recycling acted remotely in four cooperatives of recyclable materials, being them: ASCAPEL - Association of Collectors of Paper, Cardboard and Reusable Materials in Betim,

ASCAVAP - Association of Collectors of Recyclable Materials of the Paraopeba Valley in Brumadinho, ACAMARES - Recyclable Materials Collectors Association in Sarzedo and ASCAMARE - Association of Recyclable Materials Collectors in Esmeraldas, all located in the metropolitan region of Belo Horizonte. Brumadinho, Sarzedo, Esmeraldas, and Belo Horizonte are municipalities of the Minas Gerais state, Brazil. The biggest city is Belo Horizonte, capital of the Minas State.

This action is related to Sustainable Development Goal 10 (Reducing inequalities), providing waste pickers with access to tools and techniques that can assist in their personal and professional growth, meeting the target 10.2 whose goal is to "by 2030 empower and promote the social, economic and political inclusion of all, regardless of age, gender, disability, race, ethnicity, origin, religion, economic or other condition". (UN Brazil, 2022). The achievement of this goal requires courage from these people, because in the face of threats to all rights, the lack of resources and support makes this public increasingly vulnerable. The SDGs have as a prerogative the "development of actions aimed at eradicating poverty, promoting prosperity, the well-being of all, the protection of the environment and the fight against climate change". (UN Brazil, 2022).

Corroborating these initiatives, Pope Francis called, for March 2020, a meeting with all the countries of the world to deal with a new economy, symbolically called "Francis' Economy" (ANEC, 2021). The Economy of Francis brings in the core of its initiative the opening of revolutionary processes, as it focuses on "[...] occupying oneself more with initiating processes than possessing spaces." (Francisco, 2013). Francisco assumes that "there are not two separate crises: one environmental and one social; but a single and complex socio-environmental crisis" (Francisco, 2015). Thus, it becomes imperative to aggregate, in a transdisciplinary perspective, the principles of Francis' Economy in teaching, research and extension, through reflections and actions, collaborating to form agents of transformation in a critical way, who are committed to direct the economy for the common good. (Deyber, 2021).

Based on this, the extension project's actions at waste picker cooperatives are geared towards strengthening them, as it seeks to provide means to assist in their independence in relation to the execution of the processes associated with them. These actions are intended to help reduce the vulnerability of the cooperatives in the recycling chain, where the waste pickers and the cooperatives themselves are not recognized for the important role they play. Subsequent topics will present the methodology employed as well as the results and discussions of the project's actions.

2. Methods

To achieve these objectives and aiming at the protagonism of the collectors of recyclable materials and the university students, the project adopts as methodology the "Ecology of Knowledge" (Morin, 2007, 2008) and the Inverted Extension (Santos, 2010).

According to Morin (2007, 2008) the Ecology of Knowledge aims to generate knowledge that can be incorporated into life. For him, this process is uncertain, because information and unforeseen events may arise along this action. Moreover, each human being is the owner of its own "I", which is different from the others (Morin, 2007, 2008). Based on this conception, the present project does not establish actions for the cooperatives that they should perform, but creates a space for knowledge exchange, where they first listen to them and then suggest actions together, which will meet the demands exposed by them.

Complementarily, Inverted Extension understands that society itself becomes the subject of interpellations to science, i.e., it starts building solutions by means of knowledge sharing with researchers (Santos, 2010). In sum, the extension project, as a representative figure of university knowledge, seeks to produce knowledge that can actually be applied in cooperatives and that are aimed at their real demands.

This methodological choice is in line with the project's motto: "Doing with them and not for them". This is possible through horizontal management, which allows all those involved to interact with each other, adding knowledge from various fields. For this, the extensionist team is multidisciplinary, with students coming from different areas, such as Administration, Design, Information Systems, Medicine and Psychology, both from Undergraduate and Postgraduate (Masters and PhD).

With regard to the project's contact with cooperatives, the same was conducted face-to-face before the Covid-19 pandemic and, during the same, it became virtual through the *Google Meet*, *Teams*, *Zoom* and *Whatsapp* platforms. This transition allowed other waste pickers to have access to the actions developed by the project. With this, the exchange of knowledge was even greater to the extent that the remote meetings brought together waste pickers from various parts of Brazil such as Belém, São Paulo and Bahia and allowed them to share their experiences with the cooperatives linked to the project.

2.1 Project Beneficiaries

The Association of Collectors of Paper, Cardboard and Reusable Materials of Betim, Minas Gerais state, Brazil (ASCAPEL) was founded in 2001 and is a cooperative of "Cataunidos Network". This network was created with the aim of promoting better living and working conditions for the waste pickers. It has sought alternatives to increase the income of these workers, the education and training of its members and their families and, at the same time, the preservation of the environment. The "Cataunidos Network" is formed by 450 (four hundred and fifty) waste pickers from 09 (nine) associations and cooperatives in the Metropolitan Region of Belo Horizonte. (INSEA, 2018). Since its formation, organized by the collectors as an association, it has always presented difficulties to maintain the activity. It faces internal problems of various natures, ranging from management aspects, structural

issues to carry out the work of sorting the material subject to recycling, to human resources problems. As an aggravating factor to the problem of organized waste pickers and arising from the external environment, there is an inefficiency in the city's selective collection process, as verified in Betim's Municipal Plan for Integrated Solid Waste Management, which acknowledges that "there is a deficiency in the territorial coverage in the performance of selective collection services" (Betim, 2015). This situation limits the association's recycling potential, which directly reflects on the income of associated pickers.

The Association of Catadores of the Paraopeba Valley (ASCAVAP) is located in Brumadinho, Minas Gerais state, Brazil and was created to offer shelter, work activity and income generation to people with mental suffering in a situation of social vulnerability in Brumadinho/MG. As is common in several inclusive and solidary recycling enterprises, there was a division of tasks within the cooperative. The leadership and management of the activities remained for many years under the command of a single person, a charismatic leader who was also involved with the actions of the National Movement of Collectors of Recyclable Material. However, in recent years with the death of his wife, also a waste picker, and himself, the Cooperative remained with its management activities and institutional leadership compromised. Alongside this, the tragedy crime of the rupture of the Vale Mining Company dam in Córrego do Feijão, which occurred in 2019, deeply impacted the Cooperative's activities, in addition to the consequences arising from the COVID-19 pandemic, which further worsened its situation. The other cooperatives around Brumadinho, also contemplated by the project, respecting their particularities, also have a similar vulnerability situation to that of ASCAVAP, which is why they were also selected as beneficiaries of the project.

The Association of Collectors of Recyclable Materials (ACAMARES), inaugurated on 22/11/2013, is a matrix of the Private Association type which is located in Sarzedo - MG. Its main economic activity is the activity of associations for the defence of social rights. Amidst countless varied piles of recyclable materials, works a fierce team, composed of 9 women collectors and 1 man collector. The warehouse is divided into an office, a meeting room and a workshop, as well as rooms for packaging, sorting and presses for making bales of recyclable materials. Currently, ACAMARES receives the largest volume of material from the neighbouring municipality, Mário Campos, Minas Gerais state, Brazil, and from some local companies. The intention of the ACAMARES team, which belongs to the National Movement of Collectors of Recyclable Materials (MNCR), is that the National Policy for Solid Waste (Lei nº.12.305/10) is fully complied with in the city of Sarzedo.

The Association of Waste Pickers of Esmeraldas/MG (ASCAMARE) is the youngest of them all. It was created a little over a year ago and, before that, all the residents' waste was disposed of at the city's "rubbish dump". According to the president of Ascamare and also a waste picker, "the work team is composed of 5 men and 13 women" and, when the dump was closed in July 2020, the workers had no income and no material to sell, which culminated in the opening of the Association.

3. Results and Discussion

The actions linked to the extension project "Solidary and Inclusive Recycling in the Post-Crime Tragedy of Brumadinho/MG: strengthening of waste pickers cooperatives in the management of urban solid waste" are developed together with the waste pickers. Thus, these are actions focused on the reality faced by cooperatives and that contribute to their strengthening, since the aim is to bring to cooperatives the knowledge they lack, and not what they already have. Thus, by developing activities together with the waste pickers and recognizing that they are holders of the knowledge of waste picking and important environmental agents, the project is a space of voice for them, who are so vulnerable to society and the recycling chain.

In this context, the project aims to develop actions that promote the emancipation of cooperatives and their respective members both in terms of management and human development. To this end, it worked on three axes: management, health and communication.

The management axis sought to help develop the cooperatives' core business. To this end, the extensionists carried out a management consultancy, diagnosing the strengths and weaknesses through categories related to financial and material resources, learning and growth, market management, partners and management of internal and operational processes. From there, the management axis held weekly online classes with topics of interest to the cooperatives.

Within this context, the training on the National Policy of Collectors of Recyclable Materials offered to the cooperatives of collectors partners of the project stands out. The choice to address this issue is justified by the fact that many cooperative members are unaware of their rights and duties established in Law 12.305/10.

In addition, a "Breviary of Plural Knowledge" was developed on Environmental Sustainability with a focus on recycling. The Breviary had the format of short videos, which were made by the collectors themselves and by the project team, with themes focused on Circular Economy, Resilience, Environmental Education in Childhood, Plastics, Electrical and Electronic Waste, Waste Separation, 3 R's (Reduce, Reuse and Recycle), Recyclable Materials, Risks in Selective Collection, among others relevant to the collection and internal practices of the collectors' cooperatives. The videos were made available in schools, to society in general and to the collectors, and were also made available on YouTube under the title "Solidarity and Inclusive Recycling Brief".



Figure 1 Screenshot of video recorded by waste picker Marli Beraldo (ACAMARES) on the importance of waste pickers and waste separation, 2021

The health axis performed the donation of face masks and food baskets for the cooperatives, informative booklets for the collectors with a focus on the prevention of contamination of COVID-19. Surveys were also conducted on the health and ergonomic profile of the collectors, food health and zoonosis conditions in the cooperative. From this, videos and lectures were produced that discussed the health of men and women, correct use of Personal Protective Equipment (PPE), among others.



Figure 2 Delivery of face protection masks to waste pickers, 2020

The communication axis conducted a survey to analyse the cooperatives' communication profile. After this survey, a communication plan was developed, and from this, a project page was created on Instagram and YouTube, which enabled the actions carried out to be disseminated on social networks. Given the difficulty of communication due to Covid-19, the project continued the rounds of conversation, training and lectures on issues related to the theme of recycling, on videoconferencing platforms such as *Google Meet*, *Zoom* and *Teams*. This contact provided a sharing of knowledge between the academic audience and the cooperative members.



Figure 3 Capacity Building: Financial Education for waste picker cooperatives with Prof. Antônio Dias (UFMG), 2021



Figure 4 Standup against sexual harassment: Training on sexual harassment with the network of women waste pickers in Minas Gerais (Project partnership with NGO Cruzando Histórias), 2021

Based on the synthesis of the project's main actions, it is noted that all activities are developed to strengthen and increase the self-esteem of the cooperatives, that is, they are carried out according to the demands presented by them and which they believe are necessary to improve their performance. Thus, the project adds new knowledge to the cooperatives and recognizes, on the other hand, that the pickers have all the knowledge of picking and that they also have much to teach.

4. Final Remarks

The theme of solid waste management has become recurrent in international and national discussions in order to establish targets and strategies to minimize the damage caused by inadequate waste management. With the great technological and industrial advances, products and consumer goods with low useful life have emerged, thus increasing the disposal of waste involved in the production cycle of each product. The inadequate management and disposal of these wastes cause several socio-environmental impacts.

In line with the Sustainable Development Goals and supported by the premises of the "Franciscan Economy", this extension project sought to carry out its actions with the cooperatives, promoting, according to its main objective, the emancipation of cooperative members, both in terms

of management in the development of the cooperative and in terms of human development, in order to provide advances in the quality of life of these workers and their families.

The different activities developed by the project were evaluated and monitored during its implementation and execution, in order to correct any problems and distortions, as well as feed back the actions with perspectives of socio-environmental intervention more oriented to the needs of the actors in the territory, especially the collectors of recyclable materials. To this end, different methods of feedback were used in the planning of the project's actions, with methodologies based on action research, social cartography, and the protagonism of subalternized actors, made invisible, stigmatized and forgotten in the contemporary socio-economic dynamics in the context of this project. As an example, we cite the Participatory Rapid Diagnosis, the Activity Clinic, Semi-structured Interviews and Life History.

Furthermore, the project sought to act in association and solidarity, seeking to combat the distinctive bases of the hegemonic pattern of life, career, work and quality of life that mark hyper-consumerist societies, which are socially unequal, culturally excluding and prejudiced, and founded on systematic exploitation and environmental degradation.

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