Estudos de Psicologia

Estudos de Psicologia, 27(1), janeiro a abril de 2022, 115-126

Practices of the self and pro-environmental behavior in ecovillages: ethnographic study in Brazil and Switzerland

Luiz Guilherme Mafle Ferreira Duarte. Centro Universitário Una
João Leite Ferreira Neto. Pontifícia Universidade Católica de Minas Gerais

Abstract

This article aims to analyze the relationship between practices of the self and pro-environmental behavior in the daily life of ecovillages. We rely on Foucault's notion of practices of the self to understand the changes in the behavior of the inhabitants of ecovillages regarding the environment. We made participant observations in two ecovillages in Switzerland and one in Brazil. The analyses show that the presence or absence of practices of the self in each ecovillage led to different pro-environmental subjectivation: passive-structural, active-individual, and active-structural. From these different positions, each community achieved different degrees of preservation of the environment. The results provide evidence that practices of the self are relevant factors for the inhabitants of ecovillages to develop pro-environmental behaviors.
Keywords: pro-environmental behavior; ecovillage; practices of the self.

Resumo

Práticas de si e comportamento pró-ambiental em ecovilas: estudo etnográfico no Brasil e Suíça. Este artigo tem como objetivo analisar a relação entre as práticas de si e o comportamento pró-ambiental no cotidiano de ecovilas. Nos apoiamos na noção de Foucault de práticas de si para compreender as mudanças no comportamento dos habitantes das ecovilas em relação ao meio ambiente. Fizemos observações participantes em duas ecovilas na Suíça e uma no Brasil. As análises mostram que a presença ou ausência de práticas de si em cada ecovila levou a diferentes subjetivações pró-ambientais: passivo-estrutural, ativo-individual e ativo-estrutural. A partir dessas diferentes posições, cada comunidade alcançou diferentes graus de preservação do meio ambiente. Os resultados fornecem evidências de que as práticas de si são fatores relevantes para que os habitantes das ecovilas desenvolvam comportamentos pró-ambientais.
Palavras-chave: comportamento pró-ambiental; ecovila; práticas de si.

Resumen

Prácticas de si y comportamiento proambiental en ecoaldeas: estudio etnográfico en Brasil y Suiza. Este artículo tiene como objetivo analizar la relación entre las prácticas de sí y el comportamiento proambiental en la vida diaria de las ecoaldeas. Nos basamos en la noción de prácticas de sí de Foucault para comprender los cambios en el comportamiento de los habitantes de las ecoaldeas con respecto al medio ambiente. Hicimos observaciones de los participantes en dos ecoaldeas de Suiza y una de Brasil. Los análisis muestran que la presencia o ausencia de prácticas de sí en cada ecoaldea dio lugar a una subjetivación proambiental diferente: pasivo-estructural, activo-individual y activo-estructural. Desde estas diferentes posiciones, cada comunidad logró diferentes grados de preservación del medio ambiente. Los resultados proporcionan evidencia de que las prácticas de sí son factores relevantes para que los habitantes de las ecoaldeas desarrollen comportamientos proambientales.
Palabras clave: comportamiento proambiental; ecoaldea; prácticas de si.

DOI: 10.22491/1678-4669.20220011 ISSN (versão eletrônica): 1678-4669 Acervo disponível em http://pepsic.bvsalud.org

With the escalation of environmental degradation, the discussion on pro-environmental behaviors has gained prominence in the sciences that discuss the subject. Kollmuss and Agyeman (2002) define "pro-environmental behavior" as the sort of behavior "that consciously seeks to minimize the negative impact of one's actions on the natural and built world ..." (p. 240). Among the approaches used on the subject, two have stood out and have been part of a discussion between scholars (Batel, Castro, Devine-Wright, & Howarth, 2016; Shove, 2010; Whitmarsh, O'Neill, & Lorenzoni, 2010): environmental psychology and theories of social practices.

Environmental psychology deals with the interaction between individuals and natural and built environments (Steg & de Groot, 2018). Concerning pro-environmental behaviors, the studies revolve around the analysis of the reasons that lead to this type of behavior, such as family influences, norms, and contact with nature (Coelho, Pereira, Cruz, Simões, & Barata, 2017), and inter-group comparison (Rabinovich, Morton, Postmes, & Verplanken, 2012). Others focus on several individual aspects that serve as predictors of pro-environmental behaviors, such as: identity (Withmarsh & O'Neil, 2010), affection (Coelho et al., 2017), values (Ruepert, Keizer, & Steg, 2017), and self-assertion (Graham-Rowe, Jessop, & Sparks, 2019).

Studies relating to social practices and pro-environmental behaviors focus more on practices and less on individuals. Anantharaman (2018) and Hargreaves (2011) highlight the importance of considering the following as conditioning factors for pro-environmental behaviors: the relationships between different practices; the material, legal, and social infrastructure; and power relations. Theories of practices also address individual aspects such as emotions (Sahakian, Godin, & Courtin, 2020), body and behavior (Roysen, 2018), and motivations (Johannes & Islar, 2019).

However, both theoretical perspectives lack a discussion about the subjects' practices over themselves and their consequent results on pro-environmental behaviors. Studies on this theme have emerged (Pisters, Vihinen, & Figueiredo, 2019), and the concept of practices of the self (Foucault, 1995) is promising to advance the theme.

For Foucault (1998), practices of the self are the reflected and voluntary practices that the subjects exercise to establish rules of conduct and transform themselves. It is in this way that each one can constitute a singular existence. For Foucault (1995), based on historical analyses, the consequent subjectivations arising from these practices do not occur exclusively through symbolic means but also real practices.

Following this reflection, ecovillages have proved to be a good research field for studying changes in behaviors and attitudes toward the environment (Roysen & Mertens, 2019). Ecovillages are described as an "intentional, traditional or urban community that is consciously designed through locally owned participatory processes in all four dimensions of sustainability (social, culture, ecology, and economy) to regenerate social and natural environments" (Global Ecovillage Network, n.d.).

However, Pratt (2012) points out that the ideals of supporting community cohesion projects and preserving the environment are rarely effective due to the dissolution of groups or the difficulty of achieving environmental objectives. Such findings highlight the importance of studying the relationship between community life, the practices that individuals exercise on themselves, the consequent processes of subjectivation, and their pro-environmental behaviors.

This article aims to analyze the relationship between practices of the self and pro-environmental behavior in ecovillages' daily lives. This work focuses on comparing the subjectivation processes that emerge from the practices of self in different ecovillages and their correlations with the preservation of the environment.

In the following subsection, we present the theory of practices of the self. Next, we describe the methodology used to carry out the research. Then, we analyze the collected material. Finally, we present our conclusions.

Practices of the self

Practices of the self are one of the aspects present in the processes of subjectification, as pointed out by Foucault (1998). According to Lea (2009), subjects constitute themselves in institutional contexts, organizing relationships, consumption possibilities, work routines, faith practices, childcare, education, investments, security, and punishments. In this sense, practices of the self-play a crucial role in engaging subjects with the world.

Foucault (1998) explained the practices of self as ethical works that the subjects carry out on themselves to transform themselves. They are relational experiences between individual and social dimensions, sustained by

existing socially fabricated meanings and practices. For Foucault (1998), this way of relating oneself with oneself would be an exercise in freedom. Most recently, scholars (Papadopoulos, 2008; Rose, 2017, 2021) have assigned freedom as a stable number of possibilities through which individuals exercise the self-enterprising or how each individual behaves themselves. These analyses aim to highlight the strategies to govern through freedom from an authoritarian populism perspective or to show how the neoliberals try to submit the population to the discourse of self-entrepreneurship aiming to improve their own economic achievements. However, recent studies (Duarte & Ferreira Neto, 2021; Shiffer, 2018) show how the ecovillages try different strategies through practices of the self in which their residents can struggle against what they call mainstream society perspective, creating new processes of subjectivation within the communities and keeping their contact with the surrounding contexts, trying to modify these ones.

It is noteworthy that the practices of the self are not just the exercises that the subject conducts exclusively in the stillness of one's interior. They are also efforts to articulate different forms of subject governance with other things, whether they are the individual themselves, other people, objects, or the environment (Luxon, 2008). In this sense, practices of the self are more than reflective exercises. They are also performatives, as Luxon (2008) states. In a given context, subjects are what they do. To develop their ethics, they must not stick to an ideal but work on themselves in contexts where ideals are present. More than being driven to know, subjects are invited to act. The practices generate space for transformation, deidentifying with a single way of being and aiming to build others.

Ferreira-Neto (2017) points out that the subjectivity in Foucault has three aspects: 1) it may present as submission and as a critical attitude or practice; 2) practices of the self do not consist of intra-individual works but collective and institutional ones; and 3) In both forms of subjectivity, there is a relationship with the norm extracted from culture.

Methodology

Data collection took place in three ecovillages, one in western Switzerland, another in northern Switzerland, and the third in southeastern Brazil. The process involved 10 to 8 weeks of immersion in each research field (January–March, June–August, and October–November 2019, respectively), participant observations, and interviews. Our data consists of 34 individual interviews (16 at the first ecovillage, 13 at the second, and five at the third one) and field notes of the daily lives of each community, their events, and meetings for administrative discussions or self-reflection. The authors shared the findings with the participants to receive feedback and improve the data's accuracy.

The participant observation method involves participating in a group's daily activities to learn the explicit and implicit aspects of its routines and culture (DeWalt & DeWalt, 2011). Spreadly (2016) shows that participant observation allows comparing participants' subjectivity and behavior, reporting their beliefs and actions. It helps us to understand the physical, social, cultural, and economic contexts in which the participants live. It is possible to witness the relationships between people, contexts, ideas, norms, and events.

People's behaviors and activities are another data source: their actions, how often, and with whom. However, Desmond (2014) points out the need to consider the object of study as "processes that involve configurations of relationships between different actors or institutions" (p. 587). We also apply the method to verify personal changes in the relationship with the context.

The analyzed data is about each ecovillage's physical and administrative structure, the residents' relations with themselves, others, and the environment. All interviews were recorded and later translated. For analysis purposes, we encoded the selected data around three themes (Creswell, 2014): (a) structure and practices of the self, (b) subjectivation processes toward pro-environmental behaviors, and (c) the behaviors' effects on the environment. After encoding and comparing the structure, the strategies of government, and the outcomes, we created the respective categories.

Data analysis was carried out from an ethnographic perspective, in which interpretations were based on each community's routine and key events, presenting different perspectives of the participants about each event. To make the intercultural comparison between ecovillages, we applied the case study approach to analyze the ethnographic perspective, studying the cases' similarities and differences (Creswell, 2014).

We invited all ecovillage residents to participate in the research. Those who accepted the invitation

signed the Free and Informed Consent Term, submitted and accepted by the Ethics Committee of the Pontifical Catholic University of Minas Gerais, under the code CAAE: 89152318.5.0000.5137.

Data analysis of the three ecovillages

This section describes the structure of each ecovillage. Then we analyze the inhabitants' strategies for managing their population to live together and promote pro-environmental behaviors. We also highlighted how each community promoted its practices.

At last, we analyze which subjectivation processes have emerged in ecovillages' life, the pro-environmental behaviors that have appeared, and the subsequent results on environment preservation.

Ecovillage in Western Switzerland

The first ecovillage is an intentional community managed by a cooperative. The community is in a western Switzerland house, with easy access to public transport and urban centers. During the observation, the house population was composed of 16 inhabitants. Among the residents, some worked for the community while others had regular jobs outside there. One was a member of the cooperative, and the others were not. The residents' ages ranged from 1 to 60.

The house serves as a showcase to advertise the bioconstruction and community lifestyle brand promoted by the cooperative. The cooperative members affirmed that this proposal was a way of "saving the planet", reducing the people's consumption of resources, and producing a more meaningful life. They called this process "happy degrowth."

All inhabitants must sign a social contract before living in the ecovillage. As written in the social contract, its main objective is to develop a notion of community that "has common bases, a common intention, and adapts to different contexts." They had a monthly meeting with all inhabitants to discuss the rules and the organizational life in the community, such as the time of work, who was taking care of each task, money, and other things they judged necessary. With this material and social structure, the cooperative intended to create a lifestyle by which people wished to live in the ecovillage for a lifetime, reducing consumption, consuming less, and being aware of the origin of the products.

Thinking about the strategy to achieve the cooperative aims, they wanted the ecovillage inhabitants to develop pro-environmental behaviors based on explicit norms. These are written norms that explain how to act in each situation. They used the social contract, instructions glued to the walls indicating how to use the house more energy-efficiently, and direct instructions from the cooperative members. To avoid the failure of the community, the projects aimed at environmental sustainability, analyzed by Pratt (2012), the ecovillage aimed to intertwine the norms for reducing consumption and bioconstruction with community norms cohesion. However, we verify that a community structure based on norms and rules, aiming the administrative objectives, without the creation of practices of the self, did not successfully achieve its intentions. There was a constant turnover of inhabitants, moving away from the community, weakening the relationships inside the ecovillage.

In the observation notes and interviews, we found that not everyone agreed with the cooperative model. Community meetings, which took place once a month, were an information space. During the meetings, the activity in the community was reviewed.

Respondents said that these procedures centralized the decision-making power of the cooperative members. It was evident during a meeting, for example. Before starting, two cooperative members (one resident and one cooperative technician) announced that the heating equipment would be modified because the current equipment was underheating. They criticized the attitude of the residents. Some tried to argue that they did not have a chance to discuss the issue but were countered with claims that those responsible for the heating project were the ones who decided.

There were no situations we could call practices of the self (Foucault, 1998), such as meetings to discuss subjects' relationships with the environment, with others, or with themselves. The approach is concerned with reducing consumption instead of promoting the inhabitants' reflections.

The ecovillage incorporated a contradiction between the cooperative project and individual autonomy. On the one hand, the cooperative representatives focused on the prescribed rules, the community's needs, and the direction of each inhabitant's behavior during daily practices. These formed the moral code and the prescribed moral conduct (Lefebvre, 2017), crucial points of government conduct. They intended to foster an ethic that would make the community the goal of all residents' actions. On the other hand, most inhabitants would like to learn new skills, make decisions, and take responsibility for the ecovillage

as an ethical process (Lefebvre, 2017). However, the community did not promote collective spaces to exercise the practices of the self, reducing the autonomy of each one. We can affirm that the rule-based community, led by a professional administration, fragilizes the community because the administrative norms overcome individual priorities, leaving no space for self-development.

Regarding the strategies around the pro-environmental behavior, reducing the environmental impact was mainly linked to the building's physical structure. The house was constructed based on bioconstruction. The house's heating source was wood grains, which uses fewer natural resources than the canton's heating system, which uses oil and nuclear energy. The house had much glass in its structure, which increased the thermal insulation, so there was no need to keep the heaters on all day in the winter. With this structure, the house received a Swiss sustainability label (Minergie).

However, comparing the interviews, the residents' opinions differed concerning pro-environmental behavior. When they opined about the structure created by the cooperative, they said it allowed them to feel more environmentally friendly as they ate together, using local producers while optimizing the use of space. One of the residents, an architect, said: "Here I feel more ecological because we share the vegetables and buy organic food from a local farmer." He added: "The use of space here is brilliant. There is not much obsolete space here. The whole house is used all day."

The logistics proposed by the cooperative included the purchase of organic vegetables from a local farm. These vegetables were bought using the community cash and consumed by everyone in the house. The house was also used as a workspace, either by the cooperative or its inhabitants. As a result, there was always someone occupying the common spaces.

However, when they talked about the residents' pro-environmental behavior, opinions were not as favorable because the individual consumption of food and means of transport remained like what they had before entering the community. One of the residents, an engineer, said, "this is not the best sustainability. There are better designs. Here everyone has their car. Moreover, we consume the same as before, without worrying about sustainability."

Even though a new finding (Zhang & Yong, 2021) demonstrates that green buildings have the potential to motivate the residents toward pro-environmental behavior, it does not work out on its own. Čapienė, Rūtelionė, and Tvaronavičienė (2021) show that it is crucial to consider the perceived responsibility as a factor that conditionate the pro-environmental behavior, and not just the external structure. We can understand that the residents' behavior did not change substantially without a process of care for the self.

We can analyze that the government model, based on ecologically efficient construction (based on the Minergie certificate), norms, and the absence of practices of the self, promoted what we will call *passive-structural pro-environmental subjectivation*. We affirm that the ecovillage structure enables a platform where people do not need to reflect on having pro-environmental behaviors in their daily lives since the design is energy efficient. Without a space for practices of the self, the behaviors that depend on individual choice remained since people did not have the space to reflect on their attitude and behavior. The inhabitant kept the same subjectivation they had before living in the ecovillage.

Ecovillage in Northern Switzerland

The second ecovillage, located in northern Switzerland, was formed by five different spiritual groups that have teamed up intending to create a community that promotes "encounters and self-awareness" without having a spiritual guide, allowing for any form of reflection proposed. They also created a Seminar Center where they promote workshops related to the topic of personal development.

The ecovillage population was multigenerational (ranging from 1 to 65 years old) and multicultural. At the time, there were 57 residents, 34 adults and 23 children. Like the previous ecovillage, among the residents, some worked for the community while others had regular jobs outside there. The community receives approximately 6,000 visitors annually who visit the Seminar Center or get to know the community.

The community is in an 18th-century castle, three kilometers from the city center. They do not have easy access to public transport, needing to go to the city by car or bicycle to access buses and trains. To manage the community, the residents created a stakeholder company in which every inhabitant is a shareholder.

They also had rules, such as working hours for the community and presence at regular meetings. However, no one was responsible for checking compliance. Each was responsible for this self-assessment.

There were two central members' meetings to work on the practices of the self. They dedicated one

meeting that occurred regularly on Tuesday nights to self-reflection and interpersonal relationship discussions. The second one was three meetings, lasting four days each, throughout the year. During this period, residents invite someone from outside the community to train them in some new self-reflection techniques. With this structure, they believe that the stronger and more aware everyone is, the more stable the community will be.

Regarding the government strategies, the inhabitants invested in their individual development and trust through regular meetings. Duarte, Sahakian, and Ferreira Neto (2021) pointed out that the less the organization's intervention and the more engaged the inhabitants are in community life, the more empowered a community is.

The primary author participated in some ceremonies with the inhabitants. One of them was a meeting on Possibility Management. During it, one of the inhabitants received the news that she would need to leave the country due to the new national legislation for foreigners. She was angry and wanted to blame the government. The person who led the group asked her to express what she felt, and she said that she felt like an abandoned child and would like to feel welcomed by the community at this difficult time. One of the older residents was willing to start a movement to help in this situation. Practices of the self, as represented, were constant exercises in the community. The strategy used to maintain the ecovillage was self-knowledge and individuals' control over themselves.

The government in this ecovillage aims to direct each inhabitant's behavior toward self-government (Foucault, 2010) and improve interpersonal relationships. As seen in this passage, even though the inhabitants experienced collective situations, they guided the processes to look at what concerned each one, individually, in the situations and did not judge others' positions.

In these practices of the self, the most profound intimacy of those involved emerged. The person who took care of the permaculture garden stated, "We have these coaches every year. We have different tools with different coaches. And some of these coaches can really bring you to the point". One of the management board members said, "I think I have learned to talk about my inner world a lot. It also helps in relationships. I accept Shadows better than I had before. Shadow means qualities that I have difficulties with myself and other people".

As highlighted by Han-Pile (2016), the practices of the self can detach someone from a previous subjectivation, making possible the creation of different ones. Nevertheless, this process did not happen in the loneliness but during their relationships, based on a structure. As we showed, the community life imposed on the inhabitants the need to govern and care for themselves. This governance structure stabilized the community. As one of the community founders affirmed about the changes inside the community, "Things are like the processes of everyday life. Feeling safer, more natural, more relaxed. I am all trustful that I do not have to control what is happening."

Regarding pro-environmental behavior, even with personal and social development as the community's focus, ecological development was also present.

The buildings' physical structure hindered structural renovation, aiming at the more efficient use of natural resources. For example, they wanted to collect rainwater and change the buildings' heating, but they did not have enough financial resources. On the other hand, community life, with the self-reflection processes promoted by practices of the self, facilitated environmentally sustainable projects. For example, they jointly created the permaculture garden that served the residents and a small organic food market inside the community aimed at domestic consumption. As Duarte and Ferreira Neto (2021) pointed out, studying the ecovillages and the practices of the self transforms the subjects to achieve the specific objectives of each context.

Based on the interviews, community life produced a reflexive effect regarding consumption at the individual level. Even considering themselves low-resource consumers, many said that community life made them more critical of their consumption. They said they bought less on impulse and only out of need. According to one of the founders of the community:

> I was in the city today. I realized that everything I have, you know, is torn. I was really looking around for a while, and at one point, I thought, 'you are wasting your time. So, you keep the old things. I just gave up. I do not need this.

According to the interviewees, this attitude is due to contentment with life and reframing each thing's purpose. One of the more recent residents said: "So when you are happy with things, it does not matter how they are. Now I really started to appreciate things for their purpose".

During practices of the self, such as reflection circles, intensive periods promoted by the community, and community activities such as the garden's collective cultivation and the cleaning and organization of

buildings, they exercised the critic or self-criticism. As Han-Pile (2016) highlighted, it allows deidentification with a form of subjectivity, promoting the construction of new forms of existence. In the ecovillage of northern Switzerland, the practices of the self have allowed the inhabitants to overcome the influences of norms and social identity in their pro-environmental behaviors (Steg & de Groot, 2018). Emotions and individual morals (Sahakian et al., 2020) gained more relevance in decision-making, causing them to criticize and reduce their consumption needs.

Despite the changes in their processes of subjectivation and the intensification of pro-environmental behaviors promoted by community life, they expressed their disappointment with the possibility of being ecologically sustainable because of the buildings' structures. One of the current managers of the community affirmed:

> It is a joke that we want to call ourselves an ecovillage. There is no ecovillage at all. Furthermore, the worst thing is that we use 60,000 liters of diesel a year. On a sunny day, when I turn on the tap, I use diesel fuel to heat the water instead of solar energy.

Contrary to what we saw in the community in western Switzerland, even though the practices of the self they promoted can transform the inhabitants' subjectivities toward the environment, creating new perspectives of existence, the current construction structure limits these changes.

We found that a governance structure based on practices of the self had the side effect of changing the inhabitants' pro-environmental behavior. The model promoted what we call *active-individual pro-environmental subjectivity*. With this, we affirm that, in this context, pro-environmental behaviors are linked to self-reflection, self-criticism, and personal decisions. We do not mean that all behavior depends only on individual initiative, but that, even with the limitations of the structures, the subjects start to reflect on whether their behavior, in the construction of ethical life, is compatible with the environmental morals they wish to follow.

Ecovillage in Southeastern Brazil

The third ecovillage, located in southeastern Brazil, was created by a group of friends who have already done many community activities. At one point, they decided to study the ecovillage lifestyle, which had been expanding worldwide.

The original idea was to create a community and, at the same time, produce several events. These events would be inside and outside the community, facilitating dialogue with the surrounding society. The members wanted to create a model in which they could live in the ecovillage and support themselves with their work. This work would have the function of sensitizing people to a new worldview. In their routine and during the events, they used to have meetings for self-reflection, as we call practices of the self, where they could analyze their attitudes toward themselves, others, and nature.

The ecovillage is in an environmental preservation area. The land is 46 hectares and is 16 km from the center of a city of approximately 5,000 inhabitants. Access to the ecovillage is by car, as no paved street exists. The path is full of virgin forests, and the community has a spring on its land. The ecovillage members decided to transform nine hectares of the land into a Private Reserve of National Heritage, where they were obliged by law to preserve the area entirely.

During the participant observation, the community had eight residents. Most of them were over 40 and had a child. Differently from the previous ecovillages, all of them worked inside the community. The previous year had 23 residents, nine children and 14 adults. However, residents decided to move out for some reasons, such as taking care of children or finances. In addition to the residents, several people visit the community throughout the year.

Every month, they held at least one event, which could host 10 to 60 people depending on their nature. They also received visits from people who just wanted to visit the ecovillage or even take time to rest. With this very conceptual structure, as they said, they intended to have more meaningful lives integrated with nature.

The social structure of the ecovillage was like the second one. Even though the inhabitants had more rules around ecological sustainability, they also created spaces for practices of the self in their daily life. They had regular inhabitants' meetings for self-reflection. Because of this similarity, the outcomes of these different structures were similar. Living in the community, the participants felt that the collective should constantly confront individual opinions. They could not just do what they wanted, and they needed to learn to listen to others. One participant said, "This adaptation with the collective is the biggest challenge for me. To live with everyone and each one

peculiarity, understanding the performance within the group, and seeing how it reverberates in the other."

During the observation, the principal author took part in an internship to learn how community life and the practices of the self developed. He experienced the Forum's technique. The process was a meeting where a person who felt compelled to speak goes to the center and exposes their feelings, thoughts, and experiences. Then, three people go to the center voluntarily, one at a time, to say how the speech reverberated in oneself to collectivize feelings and experiences. Walking and reflection experiences were also carried out in the forest and waterfall to experience being a part of nature and reflect on themselves in this context. Each meeting, whether at lunch, on a walk, or visiting someone's home, was also a time to discuss the sustainability of each human action, such as food, construction, self-care, education, and finance, among others. Casey, Lichrou, and O'Maley (2017) show that this conceptual strategy to trigger reflexivity in inhabitants effectively improves the sustainability and cognitive changes inside the ecovillages.

The ecovillage uses several strategies to transform residents' behavior. The community structure used agreements and rules to regulate community life using bioconstruction, and they also added to this the practices of the self. These practices occurred not only at the reflective and interpersonal level but in direct contact with the environment. As Martin et al. (2020) pointed out, connection with nature promotes personal well-being and pro-environmental behaviors.

Regarding pro-environmental behavior, they combine a governance process based on practices of the self with more environmentally sustainable constructions. In an interview, one of the residents said: "So, knowing how to ponder these things is a daily learning experience. You question your relationship with yourself, your companions, your child, and the community."

From the interviewees' point of view, the creation of the ecovillage aimed to build a life system that would make its residents responsible for preserving nature and providing learning. As highlighted by the data, this governance process promoted radical changes in the inhabitants' processes of subjectivation. In this new system, they could be more reflective users of natural resources and physical structure. For them, the life model they created was a process of constantly problematizing their actions. They want to create a system that will set an example for others. This continuous reflection led them to denaturalize their consumption model. They pointed out that it was possible to create more ecologically sustainable ways of life as approached a resident:

> There is this constant problematization of what we are doing. As it is a small group, then we problematize everything. What was in the kitchen? What did we buy? How could we deal with the residue of what we did?

Moreover, it questions all the natural social dynamics; for example, waste treatment. Leave the garbage there so it disappears. I flush the toilet, the poop goes away, and I do not think about it anymore. Everything we did, we problematized. So, it is much learning.

The constant questioning of the sustainability of practices led to a transformation of reflecting the relationship with nature and their pro-environmental behavior. In the case of the present ecovillage, this questioning promoted an unlearning and relearning process, that is, disidentification with a form of subjectivity for the construction of another that is more coherent with the project (Han-Pile, 2016). They created subjectivities that saw themselves as part of nature and no longer subject distinct from the natural environment as consumers of resources. For example, the relationship with the land was not exclusively technical. They felt a mutual feeding interaction. The community educator said: "Interacting with [the land] produces food for me. I am feeding the land. I am taking care of the land in this interaction too. It is super interesting to do."

Ecovillage residents used different strategies to promote pro-environmental behavior. Mixing the permaculture principles and practices of the self (meetings and dialogues, whether in the classroom or contact with the environment), both at a reflective and practical level (Ferreira Neto, 2017), promoted noticeable environmental results. They changed their consumption habits, preserved and regenerated the surrounding vegetation, and modified the notion of the inhabitants' existence, who felt they were part of nature. One of the oldest residents said: "We are the self-reflective element of nature." This process has substantially impacted behavior and the environment. The most visible consequence was land regeneration. When they bought 46 hectares of land, it was a pasture. After 12 years, they reforested the land with native vegetation.

From the daily life of the third ecovillage emerged what we call *active-structural pro-environmental subjectivation*. On the one hand, pro-environmental behaviors are linked to a structure that requires specific actions and reflections on environmental sustainability

from its residents. On the other hand, this structure's functioning depends on the self-reflection and self-experimentation of the inhabitants in interaction with the environment (Luxon, 2008).

Discussion

As the data present, the promotion of the three processes of subjectivation and, consequently, the different pro-environmental behaviors depend on two factors: 1) the closer a community is to a preserved environment and, 2) the presence or absence of practices of the self.

We can identify how each ecovillage created a model for dealing with environmental issues based on the original group's ideals and the available physical structure. The first dealt with the subject in a more technical and normative way. They were concerned with the construction, standards, and prescriptions to promote pro-environmental behavior.

The second ecovillage did not preserve the environment as its primary focus, preferring everyone's development as a more reflective subject. The third ecovillage focused on preserving the environment and the residents' self-development: they had a technical approach to bioconstruction and environmental preservation and promoted self-reflection concerning self-knowledge and the relationship with nature.

Comparing the three modes of subjectivity that emerged in the daily life of ecovillages highlighted the importance of the practices of the self in the transformation of pro-environmental behaviors. The physical and government structures presented themselves as facilitators or hinderers in executing this behavior. However, the exercise of the inhabitants of ecovillages on themselves made it possible to change individual attitudes and behavior to preserve and recover the environment. We can also extract from the analysis that the higher inhabitant's dedication to community life (living and working there) facilitated the exercises over oneself and the respective changes toward some pro-environmental behaviors.

Conclusion

This article provides evidence that practices of the self are relevant factors for ecovillage inhabitants to develop pro-environmental behaviors. The two analyzed factors, structure and practices of the self, can induce resource consumption to be more conscious and less offensive toward the environment. However, the practices of the self proved to help develop subjectivities concerned with the preservation of the environment. On the other hand, the union of practices of the self with structures geared toward pro-environmental behaviors enhanced subjective transformations and the preservation and regeneration of the environment. On the one hand, these findings overcome the individualistic approach based on cognitive models, which overwhelms the individual as the solution for every environmental problem, as often fostered by environmental psychology. On the other hand, it shows that it is crucial to consider each individual's work over oneself, which is not considered by the theory of social practice.

We highlighted three different subjectivation modes that emerged in ecovillages from their strategies for preserving the environment: (a) passive-structural pro-environmental subjectivity, (b) active individual-pro-environmental subjectivation, and (c) active-structural pro-environmental subjectivity. Each of these processes presented its pros and cons.

In the passive-structural pro-environmental subjectivation mode, the ecovillage was concerned with building its structure based on eco-efficient models to receive energy efficiency certification. On the one hand, strategies based on rules and structure meant that the lives of inhabitants impacted less on the environment without requiring reflections and subjective transformations from the inhabitants. On the other hand, the lack of space to have practices of the self to question their behavior did not transform the inhabitants' behaviors that depended on the individuals themselves and made it difficult for them to link up with the project.

In the active-individual pro-environmental subjectivation mode, the community settled in a previously constructed building, which is not energy-efficient. The community's main focus was its residents' personal and social development. Even with the community's energy consumption higher than they wanted, self-reflection and social attachment, promoted by practices of the self, allowed individuals to question their attitudes and create pro-environmental projects.

Finally, we have the active-structural pro-environmental subjectivation mode, in which the community had as a premise: 1) the investment in infrastructure and rules that lead to the preservation of the environment; 2) the investment in practices of the self, aiming at personal and collective development,

and the link between human beings and nature. Practices went beyond reflection and also used experimentation with the surrounding environment. These processes promoted subjective transformations in which they started to consider themselves part of nature, and even led them to regenerate the environment in which they lived.

In this paper, we also have different findings from those of Rose (2021), Han (2015), and Lennon and Moore (2018), which show the neoliberal use of the practices of freedom to improve individuals' production. In ecovillage, when the practices of the self are present, they create a space in which the subjects who carry it out can distance themselves from their previous way of thinking and reflect on which path they wish to take. In this sense, they achieve more autonomy, with less submission to the established rules. As we followed the life of ecovillages, practices of the self empowered the subjects to decide how they would like to act to preserve the environment. Residents could reframe the consumption norms they carried out, promote new ways of being in the world, and understand that their actions were naturalized and could now be reflective.

We can also affirm that the practices of the self, associated with continuous contact with the environment, changed the reflection and the way of seeing oneself in the world. They reframed their relationship with nature, boosting the desire to take actions that preserve the environment.

We also found that the absence of practices of the self created obstacles in the community life of projects aimed at environmental sustainability. Pro-environmental practices, when worked in an exclusively normative manner, limit the freedom of its residents. Therefore, even if the project achieves the preservation of the environment, it does not succeed in linking people and promoting in them an interest in transforming their pro-environmental behavior.

We conclude that the present work sheds new light on the discussion around pro-environmental behaviors, opening a new area of discussion regarding the practices of the self. The results are also helpful for developing community projects to preserve the environment. The practices of the self prove to be effective instruments for the excellent execution of the projects and achieving the desired objectives.

The research has limitations in its generalization because it used a participatory observation method. The results must be analyzed from their context, considering the researcher's presence at the place. We considered that at some level, the presence of one of the authors could constrain and restrict the action of some participants, which felt assessed by an external observer. For this reason, coming researchers must replicate this research model on practices of the self and the models of pro-environmental subjectivation to test its validity and applicability in other contexts.

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Luiz Guilherme Mafle Ferreira Duarte, Doutor em Psicologia pela Pontifícia Universidade Católica de Minas Gerais (PUC/Minas), é Professor do Centro Universitário Una. Endereço para correspondência: Av. Itaú, n° 525, Bairro Dom Cabral, Belo Horizonte/MG, CEP 30.535-012. Email: lgmafle@yahoo.com.br ORCID: http://orcid.org/0000-0003-0686-9690

João Leite Ferreira Neto, Doutor em Psicologia Clínica pela Pontifícia Universidade Católica de São Paulo (PUC/SP), é Professor da Pontifícia Universidade Católica de Minas Gerais (PUC/Minas). Email: jleitefn@gmail.com ORCID: http://orcid.org/0000-0003-3900-508X

Received in 24.sep.21
Revised in 03.mar.22
Accepted in 05.apr.22