

# Involvement in sustainable occupations: changes on life habits from spaces of educational practice

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**Abstract:** Introduction: Daily habits and involvement in occupations can bring impacts to the environment, both in a micro and macro social context. Educational practices related to environmental issues have an important educational nature in order to build a new model of sustainable habits. Objective: This study analyzed, from the perception of participants in socio-educational projects, if spaces of sustainable practices change daily habits and the involvement in occupations that are also sustainable. Method: In a qualitative approach, open interviews with ten members of university extension projects focused on sustainable practices were held. The content analysis revealed daily habit changes among the participants after they were inserted in the projects. Results: Reports showed learning and acquiring new knowledge, besides dissemination of this knowledge among friends and family. The interviewees pointed barriers to implement sustainable practices such as lack of knowledge about environmental education, lack of adequate space for waste disposal, self-indulgence of people and authorities, and overconsumption. The participants also confirmed the importance of carrying out university extension projects for their personal and professional growth. Conclusion: Thus, the spaces of sustainable practices have become an important locus for environmental learning and daily changes aimed healthier and more sustainable habits.

**Keywords:** *Occupational Therapy, Environmental Education, Education Continuing, Sustainable Development, Habits.*

## Envolvimento em ocupações sustentáveis: mudanças nos hábitos de vida a partir de espaços de práticas educativas

**Resumo:** Introdução: Hábitos cotidianos e envolvimento em ocupações podem trazer impactos para o meio ambiente, tanto em um contexto micro quanto em um macrosocial. Práticas educativas direcionadas a temas socioambientais têm um caráter formativo importante, com o objetivo de construir um novo modelo de hábitos sustentáveis. Objetivo: Este estudo analisou, a partir da percepção de participantes de projetos socioeducativos, se espaços de práticas sustentáveis mudam os hábitos cotidianos e o envolvimento em ocupações também sustentáveis. Método: Em uma abordagem qualitativa, foram realizadas entrevistas abertas com 10 integrantes de projetos de extensão universitária com foco em práticas sustentáveis. A análise de conteúdo evidenciou mudanças de hábitos cotidianos entre os participantes após se inserirem nos projetos. Resultados: Os relatos mostraram aprendizado e aquisição de novos conhecimentos, além de disseminação destes conhecimentos entre amigos e familiares. As pessoas

entrevistadas apontaram barreiras para implementação de práticas sustentáveis, tais como pouco conhecimento sobre educação ambiental, ausência de espaços adequados para descarte do lixo, consumo exagerado e comodismo das pessoas e autoridades. Os participantes também confirmaram a importância da realização de projetos de extensão universitária para o próprio crescimento pessoal e profissional. Conclusão: Assim, os espaços de práticas sustentáveis tornaram-se um *locus* importante para aprendizado socioambiental e para mudanças cotidianas voltadas para hábitos mais saudáveis e sustentáveis.

**Palavras-chave:** *Terapia Ocupacional, Educação Ambiental, Educação Continuada, Desenvolvimento Sustentável, Hábitos.*

## 1 Introduction

With the approach we know today, the concept of sustainability emerged in the 1970s, especially after the publication of the Brundtland Report, in which sustainable development was conceptualized as development that meets current needs without compromising the ability of future generations to supply their own needs (JACOBI, 2005). Sustainable development was recognized in 1972 at the United Nations Conference on the Human Environment when the international community adopted the idea that socio-economic development and the environment should be managed in a mutually beneficial way (LIMA, 2006). Until then, these concepts were treated separately.

The United Nations World Commission on Environment and Development was established in 1983, which investigated the serious and negative impacts of human activities on the planet. This commission identified how patterns of growth and development could become unsustainable if natural resource limits were not respected (BARBOSA, 2008). In 1992, the concept of sustainable development became the pillar of the United Nations Conference on Environment and Development (ECO-92) held in Rio de Janeiro, Brazil. This meeting was an international reference that recognized sustainable development as the great challenge of these days and also marked the first international attempt to elaborate action plans and strategies in this direction (JACOBI, 2005; BARBOSA, 2008).

In general, *sustainability* is a term used to define actions and activities that aim to meet the current needs of human beings. Its practice is related to the economic development and the use of materials that do not harm the environment, enjoying the natural resources in an intelligent way. Thus, the concept of sustainable development has its structure organized into four components or dimensions: environmental, economic, sociopolitical and cultural (BARBOSA, 2008; DIAZ-SIEFER et al., 2015).

The environmental dimension is to maintain the functions and components of ecosystems to ensure that they remain viable and capable of reproducing and adapting to changes maintaining their biological variety. Economic sustainability is a set of measures and policies aimed at incorporating environmental and social concerns and concepts. The profit is also measured through a social and environmental perspective, which leads to the optimization of the use of resources and to the management of technologies that save materials and energy (JACOBI, 2005; BARBOSA, 2008; DIAZ-SIEFER et al., 2015).

The socio-political dimension is aimed at the human development, the stability of public and cultural institutions, as well as the reduction of social conflicts. It is a vehicle for the humanization of the economy and, at the same time, it seeks to develop the social web in its human and cultural components (JACOBI, 2005). In this sense, the sociopolitical dimension becomes inseparable from the citizenship process and, combined with environmental education, it builds the possibility of political action in society to contribute significantly to forming a more responsible collectivity in the world that they live (SORRENTINO et al., 2005).

Finally, the fourth dimension of sustainable development is the cultural aspects that considers how people perceive their natural resources. The integration of cultural specificities in the design, measurement, and practice of sustainable development is fundamental since it ensures the participation of the local population in the development efforts (BARBOSA, 2008). Searching for theoretical and practical answers to the environmental crisis, questions remain about how to use education as an instrument in the process of creating and promoting values, ideas, and attitudes favorable to the preservation of the environment. Therefore, it is a challenge to find ways to stimulate the reproduction of a culture capable of socializing the aspects of human life and nature, aiming at the transformation of a cultural heritage in which processes of social and environmental degradation predominate (LIMA, 2009).

In this context, socio-environmental sustainability goes beyond the economic approach to development and points to changes that re-signify social and economic practices already established in society. The challenge of sustainable development necessarily contemplates the interrelationships between the natural environment and the social environment, including the different actors involved. Thus, sustainability and sustainable development are concepts that could address the relationship between current human occupations and their consequences for tomorrow (PERSSON; ERLANDSSON, 2014). In other words, the daily occupations of human beings may or may not contribute in a sustainable, creative and healthy way to the Planet, both in a microsocial and macrosocial context.

A macrosocial perspective of sustainable development analysis focuses on the advancement of scientific knowledge about how individuals and groups are influenced by their contextual occupations, norms, and circumstances. The challenge involves understanding how the daily occupations of human beings can or can not contribute sustainably to a human, creative and healthy life for all. Thus, from an occupational science perspective, it seems important to explore sustainability by observing how human beings occupy their time and place on this planet (PERSSON; ERLANDSSON, 2014).

Traditionally, occupational therapists analyze occupational involvement as main to build the identity, enabling people to meet their basic needs for survival and health, enabling gain or maintenance of physical, mental and social health and well-being (AMERICAN..., 2015). Occupational therapists recognize that health maintenance is related to the ability of individuals to engage in meaningful occupations at home, at school, at work, and in community life (AMERICAN..., 2015).

This perspective allows moving forward in the use of Occupational Science as a basic approach to the study of the ways people deal as human beings and the impact of this engagement on their bodies, communities and the (CLARCK; LAWLOR, 2011). This is related to the engagement of social actors in occupations within social, cultural, political and historical contexts as well as with ecological constraints (CLARCK; LAWLOR, 2011; ALGADO, 2012). A discussion on the impact of human occupations on the health of the environment and planetary systems is then initiated in an innovative way (ALGADO, 2012; CAPON, 2014).

From this proposal, advances in the field of sustainable development must occur with the direct participation of all the actors involved, seeking

changes in habits and occupations. Participating in sustainable practices spaces can contribute to the development of new habits and involvement in occupations with more sustainable attitudes. Habits and occupations interrelate with people's daily life, providing sustainable actions. In the literature, spaces of sustainable practices have an educational character, based on open and experiential dynamics, and they have been proved as important in the production of a social and environmental development culture (JACOBI; TRISTÃO; FRANCO, 2009).

Thus, advancing in the discussion about environmental education, it is important to discuss the role of educational practices, promoting knowledge in environmental education, besides introducing the theme of sustainable development in the reality of specific groups. In this sense, some questions arise: (1) Does participating in spaces of socio-educational practices change daily habits and involvement in occupations? (2) Do participants in these practices realize that their habits and occupations cause impacts on the environment? (3) Are everyday activities, habitual to the human being, really transformed with this proposal? (4) Do participants in socio-educational practices perceive changes in their habits and occupations after insertion into these projects?

Therefore, it was sought to document the perception of participants in sustainable practices spaces on changes in habits and involvement in daily occupations.

## 2 Method

This is an exploratory study with a qualitative approach that sought to analyze how the participation in spaces of sustainable practices changes daily habits and involvement in occupations among participants in environmental education projects. To compose the target population, students from different courses that participated in extension projects were selected at the Federal University of the Triângulo Mineiro (UFTM), focusing on the development of sustainable practices from educational spaces. This study was approved by the ethics committee of UFTM (opinion number 1,417,189; CAAE: 50117215.6.0000.5154) and all participants signed the Free and Informed Consent Term.

UFTM is located in Minas Gerais, Southeast Region of Brazil and recently approved its Sustainable Logistics Management Plan (PLS) (UNIVERSIDADE..., 2014). PLS is a planning tool that guides the University in establishing sustainability practices

and streamlining expenses and processes throughout its administrative and operational structure. Among the nine sustainability programs presented in the PLS, the Environmental Education Program is highlighted, which encourages the development of actions and projects that seek to raise awareness and engage people in sustainable actions.

## 2.1 Participants

Participants were selected for convenience and took place in three stages. In the first stage, the coordinating teachers were asked for the names and contacts (e-mails) of the students participating in projects focused on sustainable actions and socio-environmental education. There were 30 students participating in these projects at the time of data collection who were invited to participate in the research. Participants who joined the projects for less than six months and those who in the month before the interview did not have the activities developed in the project were excluded. The second stage was in sending e-mails to the students, inviting them to participate in the research. Finally, a new e-mail was sent to the students who agreed to participate in the survey, thanking them for availability and scheduling the interview. In this way, the selection process resulted in 10 female students who met the inclusion criteria.

## 2.2 Procedures

The methodological procedure used for the data collection was the open interview, and the information collection techniques were applied in two moments. Initially, the participants completed a questionnaire with sociodemographic and educational information to characterize the students. Secondly, an open interview was conducted, based on a script developed by the authors, which addressed questions about: (1) daily habits and behaviors of the participants before and after joining the projects; (2) occurrence of changes in habits and behaviors after admission as well as the possible factors triggering these changes, and (3) perceptions about their participation in a social-environmental education space.

The interview is considered a qualitative technique of apprehension of the perception and the personal experience of the situations and events of the world. It is a moment in which the participant speaks freely about the topic addressed and the questions are asked to give more depth to the reflections (MINAYO, 2008). In this study, interviews were recorded using a mobile device recorder (Motorola®

brand cell, model G3) and later they were *ipsis litteris* transcribed, with the permission of the participants. Ten interviews were carried out and the criterion used for interruption was the moment when the appearance of new data became rare and the information was sufficiently confirmed, with the saturation or point of redundancy (MINAYO, 2008).

## 2.3 Analyses

According to Minayo (2008), the presence of certain themes leads to reference values as well as behavior models in the discourse of the study participants. Thus, after the interviews were transcribed, they were submitted to content analysis by thematic units, understood as “units of meaning that are freed from a text analyzed” (BARDIN, 2011). The analysis of the narratives followed the following criteria: (1) pre-analysis: phase in which the raw material was submitted to the organization in thematic units, returning to the initial objectives of the research; (2) exploration of the material: when the material selected in the first reading was reorganized into categories, and (3) treatment of the results obtained and interpretation: a step in which the level of description of the statements and observations was sought to arrive at the interpretation information. Interpretation is a sequence of analysis and its goal is the search for meanings of speeches and actions, to reach an understanding beyond the limits of what is described (BARDIN, 2011). In the presentation of the results of this study, the names of the ten participants were replaced by names of characters, female heroines, chosen by the authors to preserve the identities of the interviewees.

## 3 Results and Discussion

The results of this study explored how university students perceive changes in their daily habits and their occupations, based on their participation in educational practices related to sustainability. Ten UFTM students were interviewed, seven of them being Environmental Engineering students, two studying Occupational Therapy and one of the Psychology courses. These students were between the third and fifth year of graduation and between 20 and 25 years old. UFTM, located in the Triângulo Mineiro region is headquartered in a medium-sized city, which corresponds to the seventh state economy, and it is known as the university hub and world breeding center for zebu breeds (UBERABA, 2017). Regarding to daily habits and occupations, all reported being in activities typical

of young adults and university students who study full time, with study activities, home care, rest and sleep, and recreation and leisure activities, such as going out with friends, dating and going to bars, shows, and movies.

According to the profile in Table 1, the participants are distributed in three projects related to sustainability and environmental education. The first project, entitled “Educating to Recycle”, aims to carry out environmental education actions in the university and in educational institutions in the city, aiming to raise awareness of the need to adopt sustainable attitudes and habits. The second project entitled “Sustainable Advisory Events (ASES)” is dedicated to advising events held at UFTM or linked to the Institution. Finally, the project “Sustainability and Innovation” aims to recycle used banners and present alternatives for their reuse.

The content analysis of the interviews allowed to identify the presence of broad themes involving the relationship between sustainability and changes in habits and grouped into four main categories: (1) changes in daily habits; (2) learning and acquiring new knowledge; (3) barriers to implementation of sustainable practices, and (4) importance of participation in university extension projects. These categories provide the analysis of the interviewees’ point of view about their participation in spaces of sustainable practices, providing information that allows a better understanding of the experiences and changes involved in this process.

### 3.1 Changing daily habits

Educational practices should point to pedagogical proposals centered on the contextualized and collective construction of knowledge, through participatory educational opportunities and aimed at changing habits, attitudes and social practices (DIAZ-SIEFER et al., 2015; BOEVE-PAUW et al., 2015). The practices focused on environmental education had an impact on the participants and on their actions, with the development of behaviors considered pro-environmental. This impact promoted by educational practices was observed in the interviewees who reported changes in habits and behaviors after their participation in the projects developed at the University. The following reports show some changes noticed by the interviewees:

*We begin to create a custom, a habit of trying to always make things better, trying to produce less garbage, trying to find a better destination of the garbage (Seline Keyle).*

*I was much more obsessed with what I’m throwing away if you cannot reuse it, try to use it differently (Diana de Medeiros).*

*I did not do the separation and today I do it in the house (Natasha Romanoff).*

Knowledge about occupation and its importance to the well-being and health of the individual is widely discussed in the literature on occupational therapy. Involvement in occupations contributes

**Table 1.** Sociodemographic and educational profile of study participants.

Name	Gender	Age (years old)	Course	Period	Project
Helena Pêra	F	20	Environmental engineering	5.º	Sustainability and Innovation
Diana de Medeiros	F	25	Environmental engineering	10.º	ASES*
Natasha Romanoff	F	24	Environmental engineering	10.º	ASES
Carol Susan	F	22	Occupational therapy	7.º	Sustainability and Innovation
Anna Marie	F	21	Environmental engineering	5.º	Sustainability and Innovation
Monica Rambeau	F	21	Occupational therapy	6.º	Sustainability and Innovation
Jean Grey	F	21	Environmental engineering	9.º	ASES
Susan Richards	F	21	Psychology	8.º	Educate to recycle
Gina Carano	F	22	Environmental engineering	7.º	ASES
Selina Kyle	F	23	Environmental engineering	10.º	Sustainability and Innovation

\*ASES: Sustainable Events Advisory.

to a balanced and functional lifestyle, providing individuals with physical, mental and social well-being (AMERICAN..., 2015). However, the role of occupations and involvement in meaningful activities are analyzed not only in a microcontextual perspective, aimed at the well-being of the individual, the field of vision for an occupational perspective is expanded on the links between health of people, places and the Planet (CAPON, 2014). The human occupations come to be understood as important factor that affects the health of the planetary systems.

Habits are structured from basic cognitive functions where the individuals organize their lives (AMERICAN..., 2015). These habits cause involvement in occupations to occur in the form of recurring patterns. In a practical way, they are almost automatic forms we learn to perform certain activities, from experience. As we understand everyday habits as an important factor in understanding people's health and driving environmental change (CAPON, 2014), there is an urgent need for a transition to livelihoods that respond to the health needs of people and the environment, being in tune with these needs.

Proença et al. (2012) argue that educational processes are agents of transformation that strengthen the potential for changing habits. The habits changes presented in the interviewees' speeches can be understood as a tool to increase the current involvement in more sustainable occupations. This point highlights an important contribution of occupational science to the issue of sustainable development, which, on the one hand, it examines the daily choices and actions of the individual and, on the other hand, the consequences and the contributions that these choices and actions represent in environmental and social terms (PERSSON; ERLANDSSON, 2014).

Considering this occupational perspective, the lines described in the sequence below point to the connection between the current perspective of sustainability and habits. What is perceived in these speeches is how the occupational therapist's knowledge of the occupation can be used as a tool to address sustainability issues for the future occupations in the well-being of the individual and the population (PERSSON; ERLANDSSON, 2014; CAPON, 2014). A detailed analysis of the participants' speeches refers to how the knowledge of the human being as an occupational being can contribute to the involvement in more sustainable habits and to the solution of ecological crises at local and global level.

*Before I did not do this recycling, to separate garbage or do something with garbage, right! When I started participating in the project, I started doing these activities every day (Carol Susan).*

*I already managed to change because of the project, replacing silly things, considered silly, but that make a big difference. One such example I think is the ride. Take a shower and close the shower. I did it sometimes. Now I always do it, because I've seen a great need for it after we see its lack (Gina Carano).*

*If you do not change your habits to get involved with environmental issues, sustainability for you will not mean anything (Susan Richards).*

These fragments highlights the occupational therapist's potential importance of the global ecological crisis of current days (SIMÓ; ABREGÜ, 2015). The analysis of socio-political, economic and ecological conditions allows the occupational therapist to promote changes in significant occupations between individuals, groups and/or communities, associating occupational performance and habits with environmental problems. This proposition involves the concept of occupational ecology, proposed by Algado (2012). Occupational ecology would be an important area of political and professional activities of the occupational therapist. This is defined as a double-action movement that involves awareness of the ecological crisis we face and taking proactive measures through changes in involvement in meaningful occupations, to restore balance to the environment (ALGADO, 2012).

Another aspect identified in the interviews and important to be analyzed is how the participants expanded the changes in habits and occupational behavior among their family and friends to getting in touch with the guidelines, information, and activities. Participation in sustainable practices projects collaborated in the formation of multiplier agents for the sensitization process of the local community for its co-responsible role in environmental protection actions (RIBAS et al., 2014). From the moment the participants actively engage in the projects, they begin to process the information they receive (guidelines, activities, examples), analyzing them for change. In other words, the participants became proactive in the elaboration of actions and the project took the place of facilitator of the changes in their daily life. These notes can be identified in the reports below:

*I pass on to my parents how the project is, 'Dad, look at this practice', 'Look how cool this is that we can suggest'. And they end up giving to other people too (Gina Carano).*

*I pass it to my family, yes, my mother did not do it and today she does the separation of the garbage (Natasha Romanoff).*

*We always share because it is cute and we want to show it, right, and my parents love it and they say thanks to God that you recycle because you do not have to buy another one, right! (Carol Susan).*

The above fragment points to a reflection of the economic impact that sustainable practices generate in everyday life. An analysis of the habits of UFTM teachers, administrative technicians and academics pointed out that the internal community reflects little on the possibility of reusing everyday waste before throwing it in the trash and that there are very few sustainable practices related to the recycling of waste produced (ALMEIDA; SCATENA; LUZ, 2017). The increasing consumption of goods and services together with high levels of waste reflect negatively in all dimensions of sustainability, as the generation of waste is intensified. The National Solid Waste Policy (BRASIL, 2010) points out the non-generation of waste - or at least its reduction - as a priority for the management of waste. However, once the waste generated, it is possible, through reuse or recycling processes, not only to minimize impacts to the environment but also to provide beneficial economic impacts. A practical example is the reuse of materials through sustainable practices, as they are directly related to the reduction of consumption and, consequently, to the reduction of expenses with the purchase of equivalent materials. Also, the reuse of waste transforms them into products with added value, with the potential to generate income and employment.

Jacobi and Besen (2011) studied the challenges of integrated and sustainable urban solid waste management and concluded that a sustainable solution must necessarily contribute to changing consumption patterns and population involvement in waste management. The Brazilian reality demands a lot of commitment from the municipal leaders in the choice of suitable solutions of low cost, but it is not enough to solve all problems without first defining strategies to promote the reduction of waste in the generating sources, through permanent environmental education.

### 3.2 Learning and acquiring new knowledge

The advancement of knowledge and environmental awareness is enhanced by the use of praxis in the teaching-learning process of socio-educational practices (JACOBI, 2013). The projects in which the participants were inserted were primarily developed to stimulate the practice of interdisciplinarity and the ways of being and acting of each student. Thus, the participation in the projects was configured in opportunities to receive orientation and new learning. During the practices, the participants learned how to do the waste separation, which can be reused and the process of collecting the recyclables. This is an important aspect to be analyzed since it points out how the participants, when coming in contact with the guidelines, information, examples, and activities developed in the projects, have integrated new knowledge into their daily life.

In this sense, educational practices extrapolate the limits of the classroom and expand the possibilities of developing a pedagogical work centered on a reflexive model, focused on the socio-environmental problematic (JACOBI; TRISTÃO; FRANCO, 2009). Opportunities for practice spaces impel professional training supported by the 'do together' perspective. Therefore, it is a challenge in which students and educators seek training with an emphasis on extended learning. In the following reports, we can observe how the participants see the orientations and activities developed as learning process and search for transformations in their daily life:

*Well, I learned a lot in the project, first on the banner itself, the destination of the banner that we can give. Once you present the work (in events), you would not use it for anything else. So you can turn it into several interesting things (Seline Keyle).*

*I did not even know how people survived recycling, as they survive it. How the process of separation is, the collection, how they survive from the collection of that material (Susan Richards).*

*We can always use something that we consider junk for something new, it was the main thing I learned. When would I think that a banner would turn into a bag that I could take to market to carry things? Or how the scraps of those bags could make toys that would fit the kids? (Helena Pêra).*

These reports point out how fundamental it is to think about the importance of socio-environmental education through a practical, group work based on participatory methodologies, to promote a

collective space for the exchange of information and experiences and for the construction of knowledge. Educational practices environmentally sustainable allow new forms of knowledge, creating spaces of coexistence that promote changes in perception and values, generating a knowledge of solidarity open to the possibility of building and rebuilding new possibilities for (JACOBI, 2013).

In this way, the spaces of practices of environmental education built in the projects in which the participants were involved allowed a continuous process of learning and training of more reflective, conscious and active citizens on social and environmental issues. Besides the knowledge related to socio-environmental practices, the participation of the students in the educational spaces also promoted personal and professional learning and maturation. Participants report that they learned to work as a team and to relate to people from different areas.

*It does not have much to do with sustainability, but it has made me grow a lot. I'm very shy, so with the project, I learned to communicate better with people, lose some of the shame, stay calm (Gina Carano).*

*I think I have grown a lot the spirit of leadership. Coordinating group is not easy, because it has different thoughts, different ideas, there are people who are more mad, there are people who are calmer (Diana de Medeiros).*

*I think the main thing was to work as a team with people I had no contact with, from different areas, completely different ways of thinking (Helena Pêra).*

Educational practices are born of a pedagogical movement that starts from everyday spaces and their real demands. Participants show that these spaces with their own dynamics, facilitate the opportunity of different learning contexts, in addition to textbooks and chalkboards (JACOBI, 2013). In practice, these educational spaces allowed the development of skills and abilities, which instrumented the students to respond to the personal and professional needs required in society.

### 3.3 Barriers for the implementation of sustainable practices

There are some factors that hinder the development of sustainable practices and the involvement in healthier occupations, both at the micro level and those related to macro-environmental levels. Silveira et al. (2014) describe the difficulties of internalizing the real meaning of sustainable development by people

and economic problems due to the lack of financial resources to acquire sustainable technologies, such as the main barriers to the incorporation of sustainable practices. These barriers can also be identified in the fragment of Jean Gray's narrative, which highlights the lack of information and knowledge about environmental education:

*What is primordial I think it is the lack of people to seek this information, which can minimize the impacts it causes in the environment; the lack of environmental education (Jean Gray).*

Regarding the level of knowledge about sustainability, only 26.16% of the internal UFTM community claimed to have control or to know the subject (ALMEIDA; SCATENA; LUZ, 2017). As pointed out in the interviews, the lack of knowledge implies the need to multiple social practices that strengthen access to information and environmental education. It is essential to add means to the educational contents, promoting access to socio-environmental information (JACOBI, 2003). Disenfranchisement of the population is mainly due to lack of information, lack of environmental awareness and lack of community practices based on participation and citizen involvement. Environmental education is a necessary condition for modifying socio-environmental degradation. However, environmental education is still insufficient, leading to occupational behaviors and unsustainable habits. According to the participants' perception, other barriers that limit the implementation of sustainable practices are the lack of adequate space options for garbage disposal and the comfort of people and authorities.

*I think it's the garbage issue that people play anywhere, they do not care. They do not mind chopping a tree, they think planting another will solve the problem. But not. And people are not worrying about it (Helena Pêra).*

*To think that the natural resources will not be exhausted, that the water that arrives in your house sprouts from within your own house. And you end up neglecting the use of water, the materials you use, you discard anyway (Diana de Medeiros).*

*Talking with friends. Trying to set up a group. I think it helps because it mobilizes people and it does not happen because people are accommodated. I think it's the main habit that influences this process of sustainability in general (Monica Rambeau).*

Jacobi (2003) highlights the need for each one's responsibility to build a more equitable and environmentally sustainable society. Lack of awareness of people to reduce environmental



problems caused by society and the current flaw in the structures and programs of municipalities focused on sustainable actions can be identified in the above reports. Although federal regulations establish the need for waste treatment, one of the major environmental problems found in cities - and cited by the interviewees - is the lack of appropriate waste disposal sites. As a way to respond to these barriers, it is important to develop socio-environmental policies and programs in municipalities. Thus, they are priorities and should be on the agenda of governments and society: (1) the reduction of waste in generating sources and final disposal in the soil; (2) maximization of utilization, selective collection and recycling; (3) composting, and (4) energy recovery (JACOBI; BESEN, 2011).

Consumption has also been pointed out as a barrier to changes in habits and occupations. Natasha Romanoff points out: "I think it's consumption... consuming too much, not worrying." This excerpt from the interview shows an awareness of the student about the environmental impact of the product to be acquired and on exaggerated consumption. Other participants also highlighted the relationship between consumption and sustainability, as can be seen in the reports below:

*Consumerism and self-indulgence. It is easier for me to go there to buy a lunch (marmitex) than to go to my house and have to make the rice, the beans, the salad. And this lunch (marmitex) will come with styrofoam, aluminum and I'll end up throwing it in the trash (Seline Keyle).*

*Even when it comes to buying food, it has sustainable food in the market, but you choose the normal ones for convenience or even because the sustainable ones tend to be a little more expensive (Diana de Medeiros).*

Sustainable consumption appears as a proposal that, besides encouraging technological innovations and changes in individual choices of consumption, it emphasizes collective actions and political, economic and institutional changes, to make consumption patterns and levels of consumption, if they are more sustainable (CAMARGO; VELHO, 2012). Changes in participants' habits can also be observed in consumption practices. This transformation is currently seen as the basis for reformulation of production and consumption patterns to support the growing demand for natural resources and environmental services of the human population.

### 3.4 Importance of participation in university extension projects

The environmentally sustainable educational practices point to pedagogical proposals focused on the criticality and emancipation of the subjects, changing behavior and attitudes. In the context of this research, these practices were developed in university extension projects and programs. In Brazil, university extension is defined as the educational, cultural and scientific process that articulates teaching and research in an inseparable way and enables the transformative relationship between university and society (FÓRUM..., 2012). The relationship between teaching and extension is linked to the process of training people and generating knowledge, with the student as the protagonist of their training.

Throughout graduation, students participating in extension projects deepen their knowledge about reality and lead the experience of these projects to their professional practice. Besides the theoretical and practical learning acquired in an extension project, there is the opportunity to know and relate to people from different areas, from an interdisciplinary practice. As can be seen in the reports below, the participants emphasize technical apprenticeship to obtain the necessary skills for professional performance, but also an opportunity for more citizenship training:

*The project showed me that everything can be really reusable. Even if you think you really do not have it, you're going to have to throw it in the trash, you still have a solution for that, you can still find a better destination (Seline Keyle).*

*The project opened a very big fan, well, besides people getting to know a new course, new people, we participated in fairs, which was an academic learning in which we see new opportunities in Environmental Engineering (Anna Marie).*

*I think the main thing was to work as a team with people I had no contact with, from different areas, completely different ways of thinking. Having contact with the Occupational Therapy staff and seeing how interesting the work they do, I did not really know the course, I met through the project (Helena Pêra).*

In this context cited by the students, the university extension allowed the formation of a professional citizen, critical and able to work in an interdisciplinary way. The students' approach to extension activity, essentially practical and in partnership with people from different areas, provided an efficient way to exchange knowledge and experiences. The importance

of extension as a teaching process with a fundamental role in human training is noted, with emphasis on lifelong learning and more horizontal relationships among professionals.

## 4 Conclusions and Recommendations

The participation of students in projects with socio-environmental themes structured from educational practices has proved to be an important tool for changing habits and engaging in occupations. These practices allowed for reflection on the relation of daily human activities and ecological factors. Great learning about sustainability was noted, as well as the development of new skills related to both professional and personal aspects in students' lives. The learning and acquisition of new knowledge, as well as the incorporation of new habits, were not restricted to the participants of the projects since they disseminated the knowledge acquired among their relatives and friends.

The results corroborate historical barriers to the implementation of sustainable practices, such as little knowledge about environmental education; absence of adequate spaces for disposal; excessive consumption, and self-indulgence of people and authorities. This study points out how the development of interactive pedagogical strategies - such as the extension projects in which the students were inserted - stimulated experiences that allowed reflection on habits and occupations, enabling students to make choices and transformations through social and environmental education.

Specifically for occupational therapists, who focus on the active participation of individuals in meaningful occupations, a field of new possibilities for the area of professional knowledge and practice opens up. Human occupation is now understood as a key factor in the genesis of the ecological problem and, at the same time, as an opportunity to encourage individuals and communities to engage in more sustainable occupations.

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### Author's Contribution

Fabiana designed the research, participated in the discussion of the results, the writing and the review of the article. Williane collected the data, analyzed the results and wrote the initial version of the article. Bruna and Ricardo participated in the discussion of the results and the review of the article. All authors approved the final version of the text.