

**EVALUATING PUBLIC PERCEPTIONS AND PREFERENCES FOR ENVIRONMENTAL EDUCATION ACTION AGAINST GLOBAL CLIMATE CHANGE AT RIO DE JANEIRO, RJ, BRAZIL**

**AVALIANDO A PERCEPÇÃO E PREFERÊNCIAS PÚBLICAS PARA AÇÃO EM EDUCAÇÃO AMBIENTAL CONTRA AS MUDANÇAS CLIMÁTICAS GLOBAIS NO RIO DE JANEIRO, RJ, BRASIL**

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## RESUMO

É fundamental uma avaliação prévia das percepções e preferências do público sobre um tema em que ele receberá um ato pedagógico posterior. Permite planejar adequadamente um projeto ou intervenção socioambiental. Este trabalho apresenta resultados de uma avaliação para um projeto de Educação Ambiental (EA) da UERJ (inspirado em Paulo Freire) para participantes do evento socioambiental "Desapegue-se". Ele é realizado na praça Edmundo Rego, cidade do Rio de Janeiro (Brasil), um domingo ao mês. Foi aplicado um questionário aos participantes do evento de abril-julho de 2014. Os dados foram analisados pelos testes Qui-quadrado e Kruskal-Wallis para verificar diferenças significativas ( $p < 0,05$ ). O público de 83 respondentes, foi na maioria feminino, de 24-43 anos, com nível universitário e ensino médio, salário mínimo nacional de 10-20. A maioria visitou mais de cinco vezes o evento. Diferenças significativas ocorreram apenas na ordem de preferência das estratégias metodológicas de EA quanto à procedência dos respondentes: a) Os habitantes do Grajaú priorizaram "filme e debate", "exposição de fotografia", "palestra e debate", "roda de conversa", "dinâmica de grupo" e "jogos de tabuleiro"; b) os de outros bairros priorizaram: "palestra e debate", "exposição de fotografia", "roda de conversa", "filme com debate", "dinâmica de grupo" e "jogos de tabuleiro". Os participantes não assalariados (70%) se interessaram em complementar sua capacitação, comparecendo posteriormente à UERJ. A EA de inspiração freiriana, tem entre seus pressupostos, a participação do aprendente no modo de aprendizagem. O protagonismo do cidadão, ao identificar as estratégias metodológicas que deseja para o seu aprendizado amplia sua capacidade dialógica e problematizadora de entendimento do planeta.

**Palavras-Chave:** Planejamento participativo, Extensão Universitária, Metodologia, Educação Ambiental

## ABSTRACT

Evaluating the perception and preferences of a target public, are essential for the planning and execution of environmental education projects. This paper presents the

results of a survey developed aiming future planning a university extension action of environmental education at UERJ at the event called "Desapegue-se" that means literally "Let it go", this event is held in the square Edmundo Rego, city of Rio de Janeiro (Brazil), inspired in Paulo Freire's principles applied in environmental education. Every month on Sundays from April to July 2014, questionnaires were applied to the square visitors. The data were analyzed by chi-square test and Kruskal-Wallis test to assess significant differences ( $p < 0.05$ ) in the observed patterns. The audience was comprised of 83 respondents of different profiles. Most (66%) were females, from 24-43 years (80%), college graduates and high school (71%), with wage between 10-20 Brazilians minimum wages (89%) The majority (70%) visited the event more than five times. Significant differences occurred only in the order of preference of methodological strategies for environmental education. The major results are presented here: a. ) The inhabitants of Grajaú prioritized "film and discussion", "photography exhibition", "lecture and discussion", "conversation circle", "group dynamics" and "board games"; b) the other districts prioritized, "lecture and discussion", "photography exhibition", "conversation circle", "film with debate", "group dynamics" and "board games". The self-employed respondents are the most interested in attending activities at UERJ. Environmental education has among its assumptions the participation of their public aiming its efficiency and the role of the citizen identifying the methodological strategies allows a more effective learning, expanding their awareness and potential for understanding the world in a dialogical and questioning perspective.

**Keywords:** Participatory Planning, University Extension, Methodology, Environmental Education

## INTRODUCTION

Education is an inalienable right of any citizen of the planet. In Brazil, it appears explicitly in public policies (BRASIL, 1996) as a state duty. The goals, objectives, methods and the creation of basic conditions for achieving National Education are presented in the National Education Plan (NEP) in the 2001-2010 period. To the 2011-2020 period, other NEP was approved with the same characteristics. They are the result of broad national debate through public hearings and consultations to various entities, including academic ones. This huge consultation work derived 2,915 amendments to the bill 8035/2010 created the second NEP. That Plan has 20 goals and 170 strategies, being for the first time allied to the goal of reaching 10% of Gross Domestic Product as budget to finance the plan (DOURADO, 2011).

According to Oliveira (2011), the relative extent part of the higher education in NEP reasonably advanced. One of these developments was to validate the inclusion of extension activities in graduate programs. Not only in postgraduate as an undergraduate is evident has the possibility of extension activities created a positive impact as the demands of society. One of these impacts may be the link between higher education and the elementary one by extension activity. This triad (extension activity + elementary

school + higher education) a long ago desired as a formal goal in the national education and is present in NEPs.

By the extension grows the formal claim of direct university interaction with the public as foreseen in the NEP of 2011-2020, according to Dourado (2011). Several issues concern the society, being one of them how to adapt/face the Global Climate Change (GCC) and its malefic effects. Tavares (1997) in a wide work that rescues the work of university extension by Brazil from its beginnings points some important questions. It is a worrying question because according to the IPCC (2014) the contemporary environment is already getting evil effects from them. Tamaio (2013) realized that the problem of GCC still generates widespread lack of motivation despite the daily media alarms. Among the various reasons given by him one seems to highlight that would be the scientific complexity of the theme.

In this context, the present project intends to contribute to this demand. According to Freire paradigm in Environmental Education (EE) the project, intend to implement a problematizer and dialogical action in the face of GCC and its effects at sea (SAITO et al., 2014; PEDRINI et al., 2015). We believing that surely a passive approach is the reflection of submission to a model of unfair and unequal economic development imposed by countries that are poisoning the planet with greenhouse gases (JACOBI et al., 2011). Participatory planning should involve a technical team and the target public working together, and it is a prerequisite that enables public awareness and at any level, activity or action (FREIRE, 1999). The activity/action in Education or Environmental Education has in participatory planning one of its pillars. The participatory planning is in the NEP (DOURADO, 2011).

This paper has an intention to present results of a survey conducted in the scope of university extension with visitors from a public square. With them was made a participatory planning in order to identify methodological strategies that they would like to know the GCC and their maleficent deeds and how to acquire a proper conduct of facing and adapting in the context of the city of Rio de Janeiro.

## **MATERIAL AND METHODS**

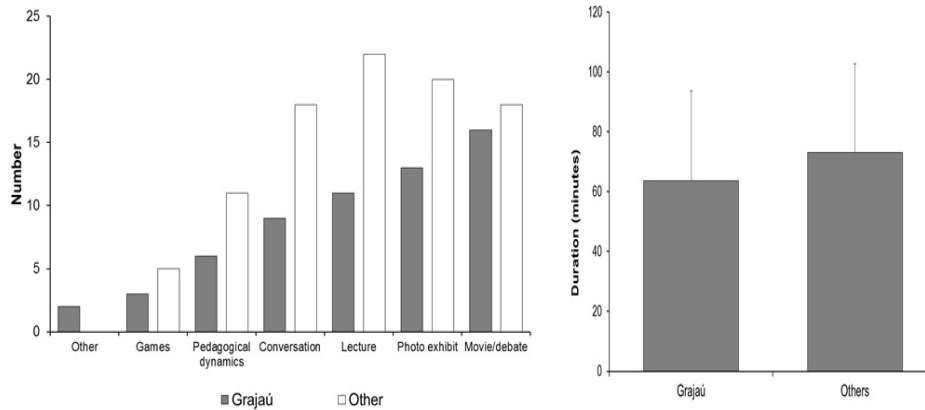
The research area identifies itself with the concept of public space of Habermas (2014). The public square named Edmundo Rego is understood as a political territory for environmental claims, located in Grajaú neighborhood at the north side of Rio de Janeiro city. There a socio-environmental event called "Let it go" occurs monthly at

Sunday mornings since 2011. The event addresses environmental issues, as a fair of organic and natural products, donations and trade of books, clothes and other materials (cf. PEDRINI et al., 2014, 2015; RUA et al., 2015). The questionnaire was randomly applied at four Sundays from April to July/2014. Textual answers were analyzed and categorized, according to their content, as proposed by Franco (2005). The categories for environment perceptions were adapted from Reigota (2007). All the 83 persons on the sample signed an ethical protocol allowing the use of their data and images in the study.

Non-parametric statistical analysis proved to be the most suitable method for obtained data. The questionnaire addressed about the meaning of the word environment, preferences for methodological strategies and length of EE actions, as their willingness to attend activities at UERJ. The obtained data was included in spreadsheets for calculating their relative frequencies, means, standard deviations and analyzed by Chi-square and Kruskal Wallis tests ( $p < 0.05$ ) using the software “Statistica”, to access significant differences among observed patterns presented at different categories.

## RESULTS

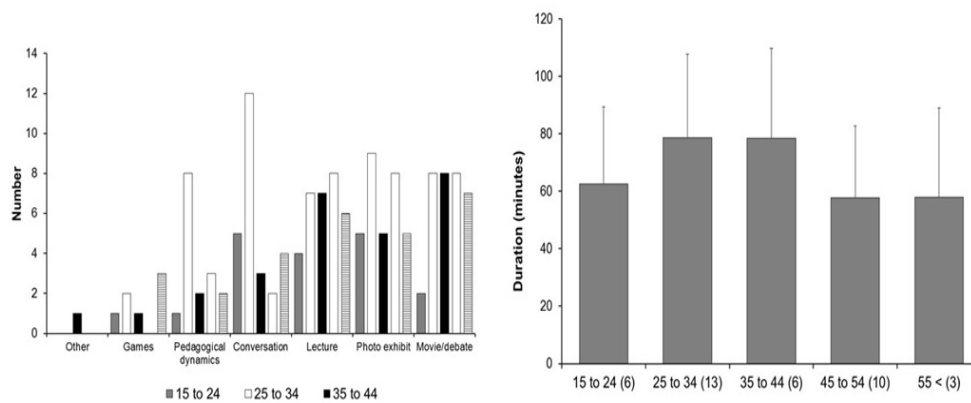
Among the audience studied, the inhabitants of Grajaú, cited mostly the following options for strategies, "movie and debate" (47%), "photo exhibition" (40%), "board games" (37%), "group dynamics" (35%), "lecture and discussion" (33%), "conversation circle" (33%), other kinds of methodological strategies not presented in the questionnaire were mentioned only by Grajaú inhabitants. Oppositely, residents of other neighborhoods prioritized "lecture and discussion" (67%), "conversation circle" (67%), "group dynamics" (65%), "board games" (63%), "photo exhibition" (60%), "movie and debate" (53%) (Figure 1), this patterns presented no significant differences ( $X^2=1.835$ ,  $DF=4$  and  $p > 0.01$ ). Although not significant, the differences reported suggest heterogeneity of visiting public of the square (Figure 1). 56% residents of other districts showed availability to go to UERJ, against 32% of Grajaú residents, although this has not been a significant difference ( $X^2=4.57$ ,  $DF=1$  and  $p > 0.01$ ). As also no significant differences (KW,  $H=5704$   $GL=3$  and  $p=0.127$ ) were presented between the durations of the activities suggested by residents and non-residents of Grajaú (Figure 1).



(Source: Authors)

**Figure 1: Frequency of methodological EE strategies choices indicated by respondents according to their origin (left) and average duration + STD indicated by respondents according to origin (right).**

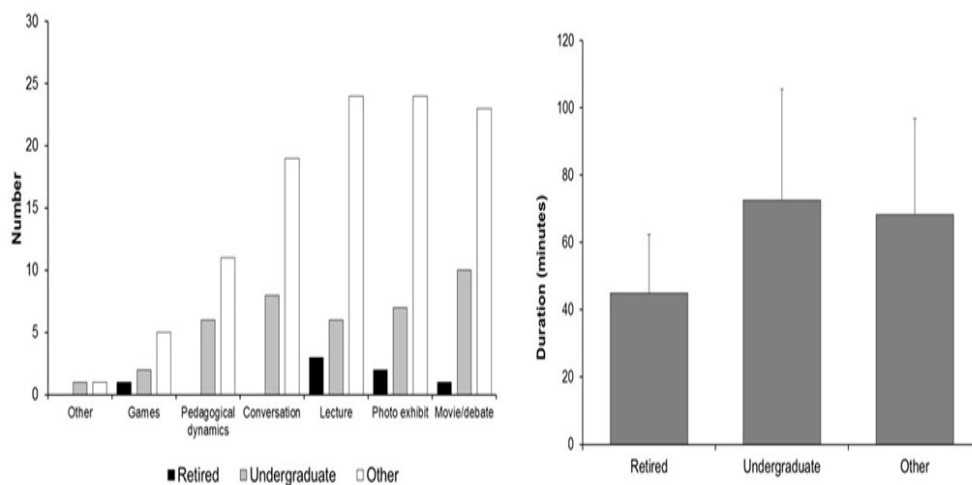
Between the proposed methodological strategies "movie and debate" was the preferred, followed by "lecture and discussion", being cited by individuals of all age groups. Except for people aged 25-34 years who cited more frequently "conversation circle" and "group dynamics", suggesting greater potential for interactivity with this age group, although these are not significant ( $X^2=17.06$ ,  $DF=16$  and  $p>0.01$ ) (Figure 2). The most willing ones to attend to activities at UERJ were the ones at the range of 45-54 years old (67%), followed by 25-34 (52%), 15-24 (50%), 35-44 (43%) and 55<(20%), although not significant ( $X^2=7.11$ ,  $DF=4$  and  $p>0.01$ ) (Figure 2). In addition, the respondents from 25-34 and 35-44 years suggested longer durations for the activities, with an average of 80 minutes, against 60 minutes from the ones among 15-25, 45-54 and 55, but with no significant differences (KW,  $H=9343$ ,  $GL=5$  and  $p=0.096$ ) (Figure 2).



(Source: Authors)

**Figure 2: Frequency of methodological EE strategies choices indicated by respondents according to their age (left) and average duration + STD indicated by respondents according to age (right).**

Among the proposed methodological strategies, there was a proportional pattern for the frequency of citations by individuals with occupations of high school degree and other occupations. Retired ones had major preference for "lecture and debate", although these are not significant ( $X^2=2.75$ ,  $DF=4$  and  $p>0.01$ ) (Figure 3). Occupations that does not require the high school have significantly ( $X^2=5.68$ ,  $GL=1$  and  $p<0.05$ ) higher number of persons willing to go to UERJ (60%). Those of high school level occupations suggested an average of 70 minutes for the duration of activities. The retired ones did not show willingness to go to UERJ, but they suggested an average of 40 minutes There were no significant differences (KW,  $H=3.058$ ,  $DF=2$  and  $p=0.217$ ) between the durations of the activities suggested by the respondents according to their occupations. (Figure 3).

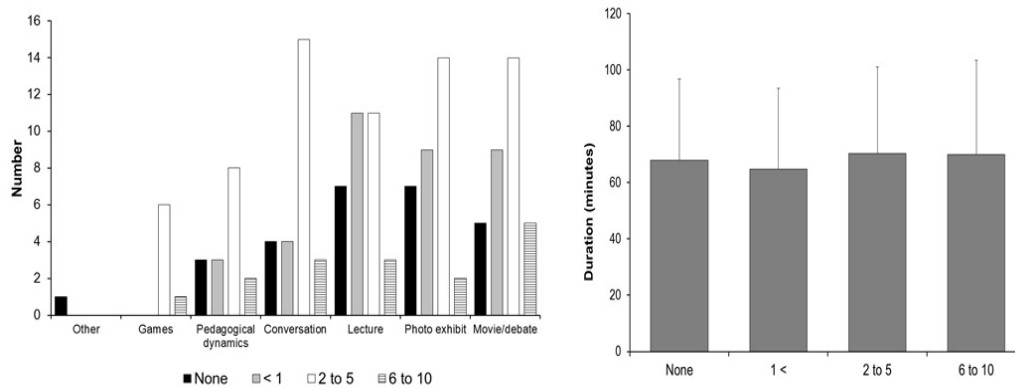


(Source: Authors)

**Figure 3: Frequency of methodological EE strategies choices indicated by respondents according to their occupation (left) and average duration + STD indicated by respondents according to occupation (right).**

There was a proportionality in the frequency of citations by individuals of different salary ranges, except for the ones that receive among 2-5 minimum wages that cited "conversation circle" more often, the ones receiving at least one minimum wage cited "lecture and debate" more often. No significant differences ( $X^2=11.99$ ,  $DF=15$  and  $p>0.01$ ) occurred for the frequencies of citation of methodological strategies between salary ranges (Figure 4). There was higher number of respondent of low wages willing to attend for activities at UERJ (74%), compared to the ones with higher wages (22%),

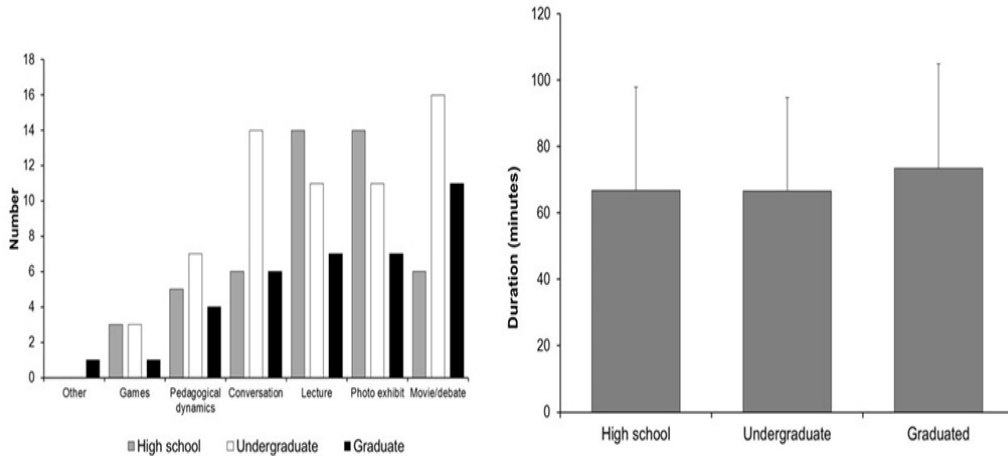
although not significant differences ( $X^2=6.74$ ,  $DF=3$  and  $p>0.01$ ) (Figure 4). The duration of activities suggested by individuals of different salary ranges had averages close to 70 minutes and no significant differences (KW,  $H=0.119$ ,  $DF=3$  and  $p=0.99$ ) was observed (Figure 4).



(Source: Authors)

**Figure 4: Frequency of methodological EE strategies choices indicated by respondents according to their income (left) and average duration + STD indicated by respondents according to income (right).**

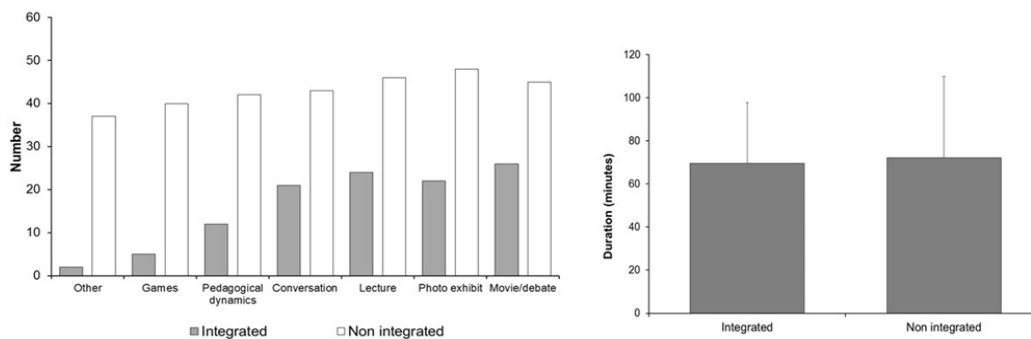
Between the proposed methodological strategies, there was a certain proportionality in the frequency of citations by individuals with different educational levels. Excepted for the persons of high school level that cited "conversation circle" and secondary level that cited "lecture and discussion" and "photo exhibition" more frequently than "movie and debate", although these are not significant ( $X^2=9.102$ ,  $DF=12$  and  $p>0.01$ ) (Figure 5). The ones more willing to go to UERJ, are the respondents of high secondary level (50%), the ones of high school level were the least willing ones (42%), although this fact did not reflect itself in significant differences ( $X^2=0.53$ ,  $DF=2$  and  $p>0.01$ ) (Figure 5). The durations of the activities suggested according to educational levels, did not presented differences among the levels of education, with averages around 70 minutes and no significant differences (KW,  $H=0.271$ ,  $DF=2$  and  $p=0.873$ ) (Figure 5).



(Source: Authors)

**Figure 5: Frequency of methodological EE strategies choices indicated by respondents according to their level of education (left) and average duration + STD indicated by respondents according to level of education (right).**

There was a proportionality in citation frequency according to respondent's type of environmental concept. Although those of other concept than integrated have been more frequent, this fact reflected in significant differences ( $\chi^2=22.80$ ,  $DF=6$  and  $p<0.01$ ) between the citation frequencies of methodological strategies among the respondents (Figure 6). The most willing to go to UERJ were the respondents of integrative concept (52%), although this fact did not reflect itself in significant differences ( $\chi^2=2.765$ ,  $DF=1$  and  $p>0.01$ ) (Figure 6).



(Source: Authors)

**Figure 6: Frequency of methodological EE strategies choices indicated by respondents according to their environmental awareness (left) and average duration + STD indicated by respondents according to environmental awareness (right).**



The suggested duration for activities according to environment perceptions averages around 70 minutes (Figure 6), with non-significant differences (KW,  $H=0.0152$ ,  $DF=1$  and  $p=0.902$ ).

## **DISCUSSION**

In Brazil, few researches deals with the complex context of a public square that surely consists in a challenging pedagogical and political locus. This work aims a dialogical approach for planning methodologies for non-formal Environmental Education activities, deeply inspired by Paulo Freire paradigm (FREIRE, 1999). To understand the target public is a prerequisite that should permeate all public policies such as Environmental Education in its prospective aspect and plans. This prerequisite allows citizens to plead what they want for themselves presently or in the future (BRASIL, 2005).

In the present study, aimed to subsidize a plan for an EE intervention in a public space as suggested in Habermas (1984). The selected place was a square at the north side of Rio de Janeiro. Second, Pedrini et al. (2015) the people attending this event consists in majority, of young people (51%) among 24-33 years, females majorly (66%) of high school level (41%). Characterized as middle class, with wages around 6 to 10 minimum wages. Most are native of Rio de Janeiro and 70% have already visited the square more than 5 times. They perform various professions that includes from students and civil servants to micro entrepreneurs. This profile suggests that mature and well-instructed people compose the target public.

The present results above showed that the target public requires methodological strategies of low cost, low construction complexity and of easy transportation. This fact will surely minimize any difficulties inherent to the proposed project. As the methodological strategies involving debate/dialogue after movie projection and lecture are the most cited as preferences, it was oversees that the target public will be very much open minded and interested (FREIRE, 1999).

Attesting that public squares are legitimate public space, to manifestations of political claims of any nature as proposed by Habermas (1984), as also environmental claims, emerged from the public debate that is understood here as the only acceptable teaching strategy. The duration of activities presented in the above results, around 60-70 minutes, indicate that an hour would be the best duration to be adopted for

methodological strategies, being also the common duration adopted for school classes (BRASIL, 1996).

Although the results reflect many individual variables of the respondents, few statistical significance were presented. The 83 respondents were very heterogeneous and their low number is explained by the fact that many people present at the square are not aware of the importance of spending a bit of their relaxation time in activities focusing citizenship and sustainability. As the project is present at the event since 2011 (PEDRINI et al., 2015; RUA et al., 2015) many persons believe they had already “made their contribution”.

The secondary level respondents were those most willing to participate in activities at UERJ (50%). This could be explained by their higher level of interest and curiosity to know about the university. Although, this low adherence presented by the other 50 % could be explained by the lack of public interest in issues related to GCC, as widespread in Brazil as stated by Tamaio (2013). As reported here, the presented results are, somehow, encouraging, as they will contributed to build a direct dialogue among citizens in order to identify which methodological strategies would be most appropriate for EE activities (FREIRE, 1999).

## **CONCLUSION**

This research was quite valid, being a prerequisite for a specific Environmental Education project that aims to change citizen’s attitudes and behavior in order to minimize/avoid harsh consequences of climate changes. Direct invitation to citizens in a public space aiming their reflection, in a suitable place, pleading social transformation through changes in consumerism patterns, is perhaps a new and exceptional practices of Environmental Education.

The results here presented demonstrated that strategies based on recreational activities and direct human contact were the mostly likely to succeed and that special attention must be paid on the targeted audience, especially regarding where they come from and their economic situation. Any posterior analyzes with the same approach will be useful for planning the most appropriate strategies to be applied in the context of other public spaces.

This work shows that the citizens present at the "Desapegue-se" event approved strategies that enabled the realization of problematized dialogical events and in their manifested opinions, it could be clearly seen that they question the development model

grounded in the exacerbated consumerism that is stimulated by economically developed countries. They surely seek another model that could better fulfill their anxieties and wills. Suggests that this can only be achieved by a profound change in attitudes inspired in Paulo Freire's Environmental Education Theoretical Assumptions.

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