

Environmental education and biodiversity in the media

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Abstract

In this paper we present the analysis of the content of a video about a biodiversity conservation project developed in partnership with the settlers of Movement of Landless Rural Workers of Brazil. The research questions are which components of the biodiversity education are in Ilhas de Biodiversidade (Biodiversity Islands) documentary and what the possibilities to use it to the environmental education with a critic perspective. To answer our questions we transcribe the words, images and sounds of the video and has made a categorization using to the dimensions of values, scientific education concepts and political activity of biodiversity education and the approach frequency and quality of these concepts was examined. We realize that the concepts related to values and political activity were the most frequently, so the video has a socio-environmental approach that converges with the ideals of critical environmental education. We consider this an appropriate video to foster discussions in the classroom and promote a liberating education. The method of analysis of the video, using the concepts related to biodiversity education under a critical perspective can be a good reference to substantiate the choice of media resources for use in the classroom, making more in-depth the discussions on biodiversity, associating it with socioeconomic and cultural factors, and human diversity incorporating like part of this same biodiversity. In another phase of our study we will be analyzing the responsiveness of teachers in relation to this media and which mediations will be proposed by them for the use of the audiovisual media in basic education.

Keywords: environmental education; biodiversity; media; documentary; content analysis

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Introduction

In this paper we focus on a documentary content analysis, discussing his critical approach to the relationship between biological and cultural diversity and issues related to environmental conflicts and their potential to motivate the discussion at school, providing a critical and contextualized approach environmental education. It is part of a project in which we seek to establish criteria for the selection and analysis of audio visual media with a biodiversity theme and to select media with the potential to generate discussions about biodiversity in a perspective of critical environmental education in elementary and high school.

Effective use of the media for educational demand care and skills by the teacher. Train teachers for the critical use of media has become a global concern. In line with this thinking, UNESCO (Grizzle and Wilson, 2011) published a book with guidelines for the development of media and information literacy for teachers.

Klostermann et al. (2011) adds that studying the media should reports and discuss the underlying message as well as the meanings and new meanings that it can provide. Stoddard (2014, p.8) highlights the importance of training teachers to work with the media.

The biodiversity education importance is highlight for authors like Weelie and Wals (2002); Taratsa (2010); critical environmental education is

defended for Sauvé (2005), Silva (2007) and Wals (2014). The research questions of this investigation are what components of the biodiversity education concepts are the “Ilhas de Biodiversidade” (Biodiversity Islands) documentary and what the possibilities to use them to the environmental education with a critic perspective.

Methodological procedures

The selection of media has used the following criteria: presentation of environmental issues related to biodiversity and a socio-scientific perspective. We selected the media Islands of Biodiversity who relates a social environment project employed in a natural reserve (State Park Morro do Diabo, Teodoro Sampaio, São Paulo, Brazil) and who has been recognized with the Whitley Gold Award at 2002, the “Green Oscars”. This media was transcript and categorized, and the data was analysing with the critical environmental education perspective. For our analysis, we use the concepts related to biodiversity categorized by Thiemman and Oliveira (2013) who are suited to a critical environmental education for biodiversity conservation focusing on aspects related to scientific knowledge, values and political action (figure 1).

The transcript of the video was broken down into sections, and these sections were categorized according concepts of biodiversity education and time spent in each of the concepts was recorded.

Figure 1: Biodiversity in the critical environmental education

BIODIVERSITY IN THE CRITICAL ENVIRONMENTAL EDUCATION		
CONCEPTS ABOUT VALUES	CONCEPTS ABOUT SCIENTIFIC CONTENT	CONCEPTS ABOUT POLITICAL ACTIVITY
(a) Human cultural diversity	(f) Interactions and interdependence	(L) Maintenance and conservation of biodiversity
(b) Environmental ethics	(g) Biodiversity origins	(m) Threats to biodiversity
(c) Activities contemplation and awareness	(h) Basic concepts: population, ecological niche, ecosystem	(n) Biodiversity loss
(d) Existential values as opposed to use values	(i) Biodiversity measurement	(o) Participatory management, critical education
(e) Biodiversity Importance	(j) Conceptualization of biodiversity	(p) Public policy , collective actions

*Adapted from Thiemann and Oliveira (2013)

The transcript of the video was broken down into sections, and these sections were categorized according themes of biodiversity education and time spent in each of the concepts was recorded.

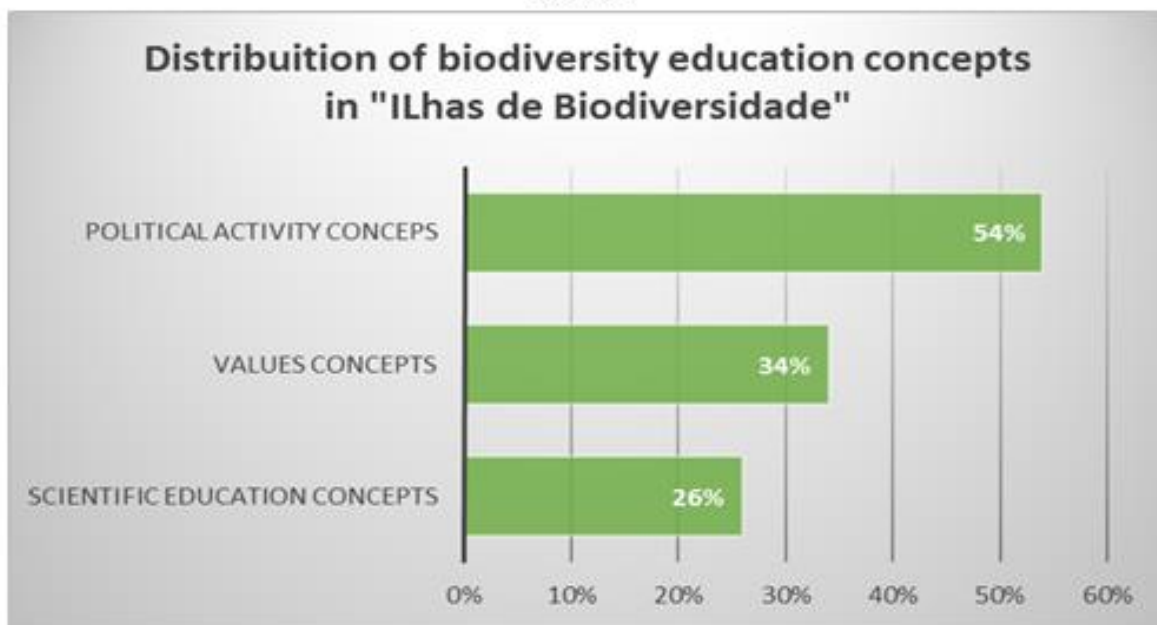
Results and discussion

The media Biodiversity Islands has described projects developed by researchers in partnership with the family farmers of smallholdings, settlement of the Brazil's Rural Landless Workers' Movement (MST), aimed at the production and cultivation of native seedlings and use make a "green hug" around

the State Park Morro do Diabo, the management of biodiversity islands, and protection against the edge effect in forest fragments. The video also features an environmental management to increase the population of the black lion tamarin and decrease the risk of extinction.

This video has had your content (talks, sounds and images) analysed and categorized used the concepts and dimensions of biodiversity education detailed at figure 1. The distribution of these concepts in the video was presented at figure 2.

Figure 2: Distribution of biodiversity education concepts in "Biodiversity Islands"



Concepts adapted of Thiemann and Oliveira (2013). Source: Bacic and Silva (2016)

The most common environmental education dimension was the Political Activity (54%), giving the documentary a socio-environmental perspective.

The dimension values appeared secondly with 34 % of the video time education and scientific concepts appeared in 26 % (Figure 2).

The media has spent about 218 seconds in the concepts of scientific content, about 26% of total time: measurement of biodiversity, basic concepts and interactions and interdependence. Several topics

were discussed in the sphere of scientific, explaining the ecosystem dynamics.

The concept of biodiversity was defined for Wilson (1992) as the variety of all forms of life, from genes to species, including species diversity, genetic diversity and ecosystems diversity, in this media there had not a formal definition of biodiversity, although the dimensions associated with this concept was been addressed (figure 4).

Figure 2: Biodiversity concept - addressed dimensions in the media

BIODIVERSITY CONCEPT - ADDRESSED DIMENSIONS	
Species diversity	[...] and so this amazing diversity of species here, both plant and animal.
Ecosystems diversity	"[...] it looks like an ordinary clover Atlantic Forest, one of the most threatened biomes and rich in the world's life forms [...].
Genetic diversity	[...] we started to survey the status of the species in general, studying genetics, demography, ecology, behavior, began to improve the species in captivity conditions [...]

Source: Bacic and Silva (2016)

Among the scientific concepts that have been discussed in the media Biodiversity Islands, highlight pollination and seed dispersal were well highlighted both in speech and in pictures, whose relevance of the subject is justified in the following excerpt.

[...] in Brazil 90% of the plants of our forests depend on pollinators (Islands of Biodiversity).

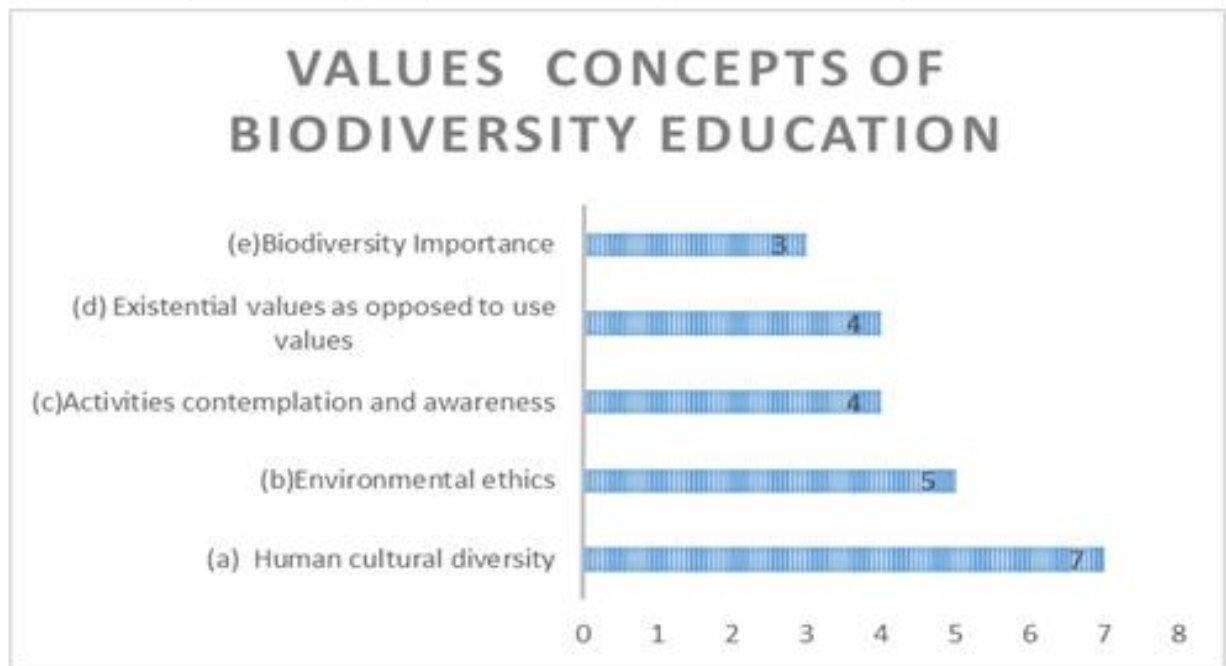
This documentary was not produced for didactic purposes and perhaps therefore the dimension

related to the scientific content was explored briefly in the video.

The frequency of concepts linked to values is shown at figure 4 and linked to political activity at figure 5.

The concepts related to values were present in approximately one third of the time. We highlight the concepts of environmental ethics and cultural diversity that were common and are associated with social and critical perspective of biodiversity education (figure 4).

Figure 4: Frequency of values concepts of biodiversity education

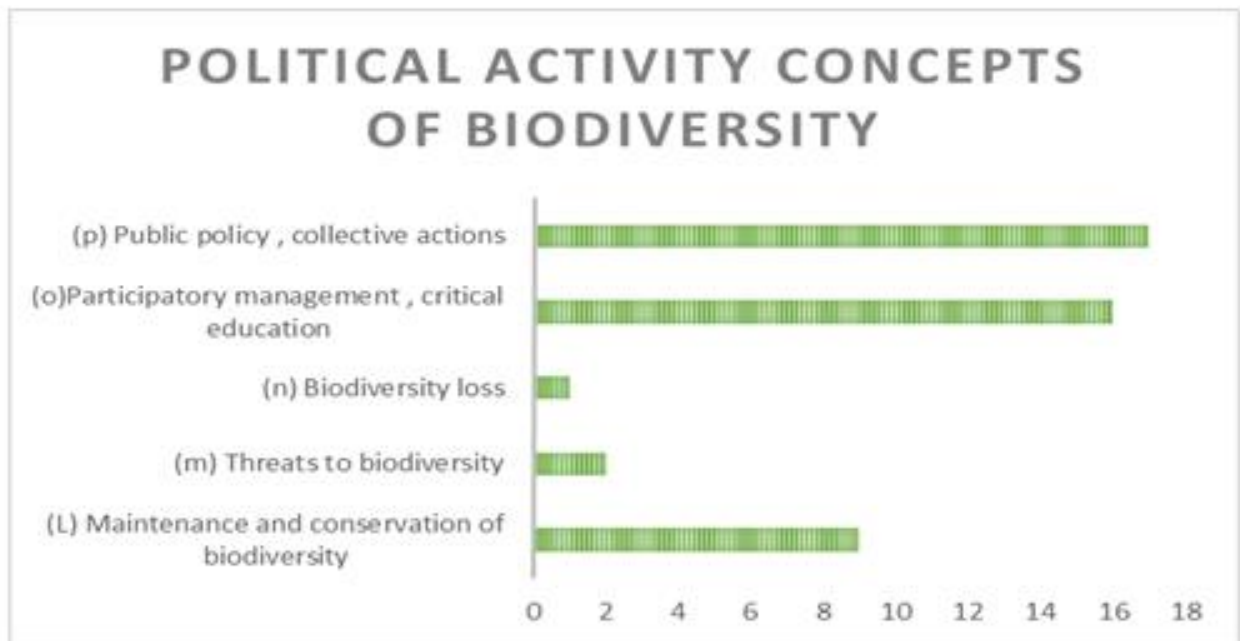


Source: Bacic and Silva (2016). Concepts adapted of Thiemann and Oliveira (2013).

All the concepts of dimension values were worked in the video, and was unique the predominance of human cultural diversity, followed by environmental ethics, two closely related concepts to a critical perspective of man's relationship with the environment, convergent with the ideals of environmental education popular (Carvalho, 2001) and the critical environmental education (Silva, 2007).

This documentary becomes interesting for a critical environmental education precisely this approach less biological and more holistic, bringing environmental conflicts to the table of school discussions.

Figure 5: Political Activity Concepts



Source: Bacic and Silva (2016). Concepts adapted of Thiemann and Oliveira (2013).

The concepts associated with the political activity (figure 5) took 405 seconds, which represents about 54% of the total of the media time. This demonstrates a special focus on concepts related to the political activity, showing critical actions in the face of environmental issues.

The concepts of political activity were found in several transcription extracts. Some images also reported political activity concepts, since they showed the work of farmers and agricultural

technicians in the production of seedlings, from the collection and treatment of seeds to planting (at the same time reported scientific content and political activity concepts).

The images of the video *Ilhas de Biodiversidade* reinforce concepts of political activity, example: (Figure 6). The park surrounding population appears not only in pictures, the settlers appears in some outlets explaining the partnership work.

Figure 3: Family of settlers farmers planting native seedlings



Source: Biodiversity Islands documentary (2002)

Something worth mentioning in this video is the participation of farmers including taking statements explaining the project. Below we highlight one of these explanations:

"Green hug is a eucalyptus area native, acacia, those things there, that one plant by the fragment of the settlement reserve area within the plot seated itself, which is to prevent fires." Mercês (setter)

Carvalho (2001, p.47, our translation) describes the focus of the popular environmental education:

"More than resolve conflicts or to preserve nature through specific interventions, this environmental education believes that the transformation of the relations of human groups with the environment is inserted within the context of the transformation of society".

The video, bringing the discourse of farmers themselves, breaks up with some prejudice against these disadvantaged socioeconomically communities. And this is another one of the advantages of using this video to foster discussions in the classroom.

Final considerations

The video brings a critical approach to environmental conflicts. The project described in the video has public participation for biodiversity conservation and brings income alternatives, environmental education and liberating ideals. Jacobi (2005, p. 244) has the size required for a critical environmental education "the politicization of environmental issues, the participation of the subjects, which explains an emphasis on less rigid social practices, based on cooperation between the actors." The emphasis on involving local and bring alternative communities for the preservation of the environment can be made without prejudice them and even bringing alternative income, is something that stands out in the video Biodiversity Islands, giving it a critical and transformative environmental education.

We believe that the video Biodiversity Islands, showing environmental education non-formal and intertwined with social and environmental issues converges with the ideals of critical and popular environmental education and it can be a good initiator of debates in environmental education classes in high school to promote a deepening on issues related to loss of biodiversity.

It is therefore a great resource to bring to the classroom a critical perspective of education for biodiversity, the research also seeks to identify the receptive process of teachers on these media and forms of teaching appropriation that can be afforded.

The method of analysis of the video, using the concepts related to biodiversity education under a critical perspective can be a good reference to substantiate the choice of media resources for use in the classroom, making more in-depth discussions on biodiversity, associating it with socioeconomic and

cultural factors, and incorporating human diversity as part of this same biodiversity.

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