

Biodiversity in scientific dissemination materials: implications for citizen science

ABSTRACT

Scientific Dissemination (SD) shows the other side of the scientist, that of a citizen. Scientists, journalists, and teachers share the responsibility of bringing science closer to society. Building bridges, engaging in dialogue, and committing to the planet. The research has descriptive and exploratory objectives, following a qualitative-quantitative approach. It is an exploratory study, which deals with the description and contextualization of the object of study. The research was carried out through a documentary research in SD magazines/materials from 1999-2020. The results reveal that scientific dissemination has been carried out by different media, with digital and free ones being the most inclusive. And that the ecological dimension of biodiversity is more perceived in these materials.

KEYWORDS: Scientific Dissemination; Biodiversity; Media.

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1 INTRODUCTION

After the first year of the Covid-19 pandemic, we survived! It was up to us to continue studies, research, work, tell the story, and bring science and society closer in a more optimized way. Faced with so many speculations about the cure for the disease, collective despair, and general society's distrust of scientific activity, the need to bring the population closer to scientific production becomes even clearer. Science Dissemination (SD) shows the other face of the scientist, which is the citizen.

Auler and Delizoicov (2001, p. 11) state that "the idea of democratization of science and technology as a prerequisite for exercising citizenship and democracy is increasingly taking shape." For decades, both scientific literacy and scientific literacy have been trapped behind the walls of school, with researchers/scientists responsible for productivity and teachers responsible for the difficult task of teaching science, making it accessible and understood by society.

During this time, the growing social problems and inequality, coupled with the precariousness of teacher education and training systems, have presented another problem for academia: the distance between the university and society in general. Science needs to reach other audiences beyond academia and its peers. Exact and natural sciences need to be accessible and, above all, human!

It is not only up to teachers to talk about what happens in the "backstage" of laboratories, in the "world of scientists" (contributions and controversies of science). Scientists, journalists, and teachers share the responsibility of bringing science closer to society in general. Building bridges, conducting dialogues, and committing to the planet. The distorted idea of neutral science without commitment and social influence has been demystified by history itself (SANTOS, 2012).

In this context, SD stands out as a means of bringing scientific knowledge closer to the general population. For Oliveira and Penido (2017), its function is to ensure the democratization of popular access to scientific knowledge and to facilitate the inclusion of citizens in the debate on specialized topics. The circulation of this knowledge can occur in various ways, such as texts in digital and print magazines, videos on social networks, podcasts, radio, etc. (ANDRADE; VASCONCELOS, 2021).

Given the increasing environmental degradation, the concept of biodiversity has gained more prominence. Biodiversity is understood as a public good, in addition to playing an important role at different hierarchical levels of service provision, and can be approached as a regulator of ecosystem processes or even as a good (biodiversity has cultural, aesthetic, spiritual, and educational values). The fact is that ecosystem services are affected by changes in biological diversity (PICHARILLO; RANIERI, 2019, p. 2).

In science education, these SD materials are suggested as complementary material for use in a playful and creative way. Texts with didactic potential that cover the various dimensions that biodiversity reaches serve to debate the topic. This helps students and teachers understand the concept in its complexity. Therefore, the objective of this research was to analyze scientific communication materials that deal with Amazonian biodiversity that can be used in science education.

2 METHODOLOGICAL DESIGN

The research is of a qualitative-quantitative nature, with a descriptive and exploratory character, which is concerned with the description and contextualization of the object of study. For this purpose, different meanings of biodiversity in scientific dissemination materials were identified, and different dimensions (social, cultural, ecological, political, environmental) of the concept in SD materials were verified through documentary research in scientific journals and digital media from 1999-2022. This period is justified because only results from this time interval were found on the internet.

The analysis took place in three stages: Reading of SD materials on biodiversity, which were presented in three media: digital, audio, and audiovisual, all of which were available for free. After this, materials with potential for school-aged audiences that addressed the concept of Amazonian biodiversity were selected.

The digital journals, audio and audiovisual materials were selected in 2022, after searches on Google and YouTube using the following descriptors: Amazonian biodiversity and scientific journal. Selection criteria were considered, such as presenting the content in the Portuguese language, being available for free, and discussing Amazonian biodiversity with language accessible to a school-aged audience. Credibility was also considered (CELLARD, 2008). After the selection of SD materials, the content analysis was performed according to the a priori categories presented by Souza and Rocha (2017), which are: concepts and definitions, explanation of unfamiliar terms, target audience, influence/relationship with the environment, accessible language, and aspects that attract attention.

After the selection of materials, 4 (four) categories were defined in order to identify the different dimensions that the Amazonian biodiversity theme can assume. The analysis was performed separately based on the adapted categories of Gonçalves (2014), presented in the chart below.

Chart 1: Categories of analysis of different dimensions of biodiversity.

Categories	Description
Social/cultural	Explains the relationship between humans and nature and conservation of a certain area, mainly due to the presence of traditional communities whose survival is directly related to local biodiversity.
Ecological	Encourages the reader to preserve species with a focus on ecological balance.
Political	Exposes citizenship actions and public policies related to sustainability.
Environmental	The text promotes knowledge about environmental interactions and their consequences.

Source: Adapted from Gonçalves (2014).

The inclusion of the social/cultural category highlights the need for biodiversity conservation, especially in relation to the conservation of areas

inhabited by traditional populations who require natural resources to survive sustainably. Environmental education can be considered a means of communication that can sensitize and motivate people to transform actions that harm the environment (LEFF, 2005).

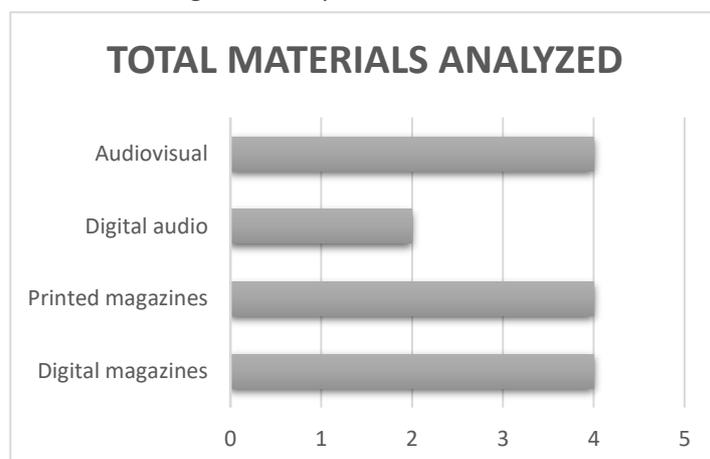
The "ecological" category is related to conservation biology, which arises as a response from the scientific community to the impacts caused by human interaction with biodiversity. According to Schaller (2007), conservation problems are social and economic, rather than scientific, meaning that research is easier to conduct than conservation. However, conservation is more complicated because environmental issues involve moral ambiguity. Given this scenario, it is important to emphasize the importance of the scientific community's engagement with other spheres of society, as human intervention in the environment generates numerous consequences.

The "political" category presents society's participation in public policies related to sustainability as a necessity for environmental conservation. It is understood that environmental education contributes to the process of constructing a society based on new civilizational and societal levels, distinct from the current one, in which the sustainability of life, conscious political action, and the construction of an ecological ethic are at its core (LOUREIRO; LAYRARGUES; CASTRO, 2009). The "environment" category is understood not only as the physical surroundings but also the interrelated social, cultural, economic, and political aspects.

3 RESULTS AND DISCUSSIONS

This research found 9 (nine) digital magazines, 16 (sixteen) podcasts, and 14 (fourteen) YouTube channels, totaling 39 (thirty-nine) scientific dissemination materials. Among these materials, 10 (ten) were selected, including 4 (four) texts in digital and printed magazines, 4 (four) audiovisual media on the YouTube platform, and 2 (two) podcasts. They were analyzed according to their means of dissemination and approach to the concept of biodiversity, as shown in Figure 1.

Figure 1: Analyzed materials.



Source: Authors' organization.

"Biodiversity is the contracted form of biological diversity and first appeared in a publication in 1988" (FRANCO, 2013. p. 24) and since then it has been a much debated issue in the scientific world, as its devastation affects both biological and cultural heritage. The environment is not just a means of circulation for species, but is also related to the way of life of human populations.

Oliveira (2005) points out that the context of biodiversity goes beyond the scientific. Conceptions related to ecological, social, political, and cultural contexts were also found, especially when the concept of biodiversity involves decision-making.

Environmental problems directly affect the balance and survival of life on Earth. Therefore, the importance of scientific dissemination and science education for the conservation of biodiversity is highlighted. The discussion moves towards the formulation and deepening of a process of awareness for sustainability that adds value to biological and cultural heritage, as well as forming citizens with social and political responsibility. One way to promote awareness for sustainability is to carry out scientific dissemination in the school environment, and based on this, the materials selected in the research are analyzed, which are the digital and print textual media, audiovisual media, and Podcasts.

3.1 Digital and Printed Textual Media

Revista Ciência Hoje (Science Today Magazine)

The selected text from *Ciência Hoje Magazine* by Praxedes *et al.* (2007) for analysis is entitled "The Amazon is changing". The text is available in both digital and print versions and aims to explain the changes in Amazonian biodiversity caused by deforestation.

Chart 2: Excerpts from the text "The Amazon is changing" from *Ciência Hoje Magazine*.

Ciência Hoje magazine: "The Amazon is changing"	
(i)	"Such an image causes desolation to many, but is a source of pride to others. The desolate think of the lost forest, the thousands of extinct species (many before they were known), the immense biological and evolutionary heritage wasted (and, with it, the lost opportunities for new knowledge, products and businesses) [...] Already the proud argue that this means progress and envision the Amazon finally inserted in the national development process, producing grains, exporting ores to the world and energy to the country."
(ii)	"They still think of the people of the forest devoid of their way of life, without the opportunity to materialize their culture, their beliefs and their art."
(iii)	"Biodiversity, therefore, does not refer exclusively to the organisms themselves, but also to the environment created from their presence. It's like a chess game. What are the pieces worth if good moves are not made? We need to understand the complex rules of this game, to avoid or minimize our harmful interference."

- (iv) Today, a flight over certain areas of the Brazilian Amazon, mainly in its northeastern and southern parts, will show huge patches caused by deforestation.”
- (v) Studies on the responses of species of flies and other animals reveal that forest fragmentation leads to the loss of local species and changes in the abundance of others, in addition to facilitating the entry of exotic species. It has also been found that pastures are more damaging to the species diversity of the remaining forested areas nearby than agricultural or silvicultural activities.”

Source: Praxedes et al. (2007).

Regarding the social/cultural dimension, it is observed that Praxedes et al. (2007) make use of a comparison of an overflight over the Amazon 50 years ago and a current overflight, based on what is observed, the author makes a comparison with the different views that human beings can have on forest deforestation (i) and later, the author makes a reflection related to the people who live in this region (ii).

As for the ecological dimension, the text mentions the preservation of Amazonian biodiversity through a comparison, in order to highlight human interference. Regarding the political dimension, the text does not expose discussions. However, in the environmental dimension, it promotes valuable reflection on the negative actions carried out through the human/nature interaction (iv) and their consequences.

It can be inferred a conception of the environment based on environmentalist ideals that have a preservationist vision, in which the protection of the natural environment is characteristic. In it, the environmental problems visible worldwide are presented; there is a look of separation between man and the environment, where the human being is the one who alters and destroys.

It is noted that the absence of the political dimension indicates that the author does not explore a new perspective on the power relations that connect the natural world to the globalized one.

Revista Ciência Hoje das crianças (Science Today for Children Magazine)

The text selected by Silva (2020) for analysis is entitled: “Global warming, the Amazon and the... lizards???” is available in digital and printed versions and aims to explain global warming by relating it to lizards in the Amazon.

Chart 3: Excerpts from the text: “Global warming, the Amazon and... lizards???” from the *Ciência Hoje das Crianças* magazine.

Ciência Hoje das Crianças magazine: “Global warming, the Amazon and... lizards???”

- (i) “Human beings are also part of nature and will of course suffer from climate change. What is different about this case is that the human species is the only one that can do something to reduce the problems that are arising with the increase in global temperature.”
- (ii) “The main measure would be to reduce the production of gases that alter the composition of our atmosphere, making the Earth increasingly hotter. [...] Less use of the car or motorcycle and more walking, cycling or public

transport (which takes a lot of people at once). Avoid producing a lot of waste, for example, consuming more fresh food and less processed food. Throw rubbish in the right place. Avoid wasting water, turning off the lights when no one is in the room, in addition to giving preference to objects that are recyclable.”

- (iii) “And what will happen to the Amazon? Well, according to research, the region will get warmer, and will have less and less rainfall throughout the year. These changes can affect all living beings that live in the immensity of the Amazon rainforest – from plants and fungi to vertebrates, such as amphibians, reptiles, birds, fish and mammals.”

Source: Silva (2020).

The social/cultural dimension according to Silva (2020) discusses the interaction of man with the environment (i), assigning responsibility for global warming to human activities. “[...] the Earth's temperature has been increasing in recent years, especially due to human activities, which result in pollution.” (SILVA, 2020)

About the ecological dimension Silva (2020) encourages the reader to preserve the environment as a way to slow down global warming. Unlike CH Magazine, CHC Magazine explains the political dimension, bringing sustainability measures that make it possible to slow down global warming.

(ii) “[...] Less use of the car or motorcycle and more walking, cycling or public transport (which takes a lot of people at once). Avoid producing a lot of garbage, for example” (SILVA, 2020). This excerpt shows the concern with preservation as an argument highlighting the importance of nature conservation, whose consequence is the appreciation of biodiversity.

Silva's text (2020) covers all dimensions on biodiversity, which makes the text important for the thematic approach in science teaching, as it presents the interrelated environmental and social dimensions, in addition to contributing to the formation of the subjects' critical awareness, in order to encourage the responsible participation of individuals in cultural, social, political, economic and technological processes.

Revista Pesquisa FAPESP (FAPESP Research Magazine)

The text from the FAPESP Research Magazine by Stam (2019) is titled: “Birds biodiversity decreases in an intact region of the Amazon”. It is available in digital and printed versions and aims to disseminate recent research on birds in the Amazon and its relationship with climate change in the region.

Chart 4: Excerpts from the text: “Birds biodiversity decreases in an intact region of the Amazon” from the FAPESP Research Magazine.

FAPESP Research Magazine: “Birds biodiversity decreases in an intact region of the Amazon”

- (i) “The decline of birds in the PDBFF suggests that broad processes are affecting specific environments more rapidly than previously thought. ‘The same happens with large works, such as hydroelectric plants, whose long-term effects are little known. By showing which species are the most fragile and the most resilient, the study provides important indicators that help to understand the impact of human interference on biodiversity’, says Ribas.”
- (ii) [...] the number of generalist birds, which eat fruit and live at intermediate heights of the trees, has increased. The reason for the change perceived by the study is not known, but there are indications that it is related to the ongoing climate changes in the Amazon. [...] The disappearance of birds contradicts a common assumption adopted in ecology, that intact forests preserve the biodiversity they shelter. [...] The main evidence that climate change is somehow related to the decline of insectivorous birds is the increase in mortality in trees in the Amazon basin over the last 50 years, as indicated by a study by INPA published in Nature Climate Change magazine in 2019.”

Source: Stam (2019).

Regarding the social/cultural dimension, Stam (2020) makes a brief list of the impacts that human action causes on the Amazon forest. However, it does not discuss incentives for preservation and does not expose public policies related to sustainability. The environmental dimension is cited several times, as the focus of the text is to explain the disappearance of the birds that live on the floor of the Amazon forest.

The text “Birds biodiversity decreases in an intact region of the Amazon” by Stam (2020) does not present the ecological and political dimensions, as it does not discuss the conservation of the environment and public policy actions for this. However, the social/cultural and environmental dimension is widely developed.

The Podcast has an important contribution to environmental education, through reflection on the impacts of human action on the environment, actions that cause social and environmental problems. This indicates that the discussion of this in the classroom can promote awareness regarding the use of natural resources (MEDEIROS et al., 2011).

Revista Mundo Jovem (Young World Magazine)

The selected text from Mundo Jovem de Silva Magazine (2007) for analysis has the title: “Setting expectations about global warming”. It is available in a digital version only and aims to understand scientists' expectations about global warming and its consequences.

Chart 5: Excerpts from the text: “Accepting expectations about global warming” from Mundo Jovem Magazine.

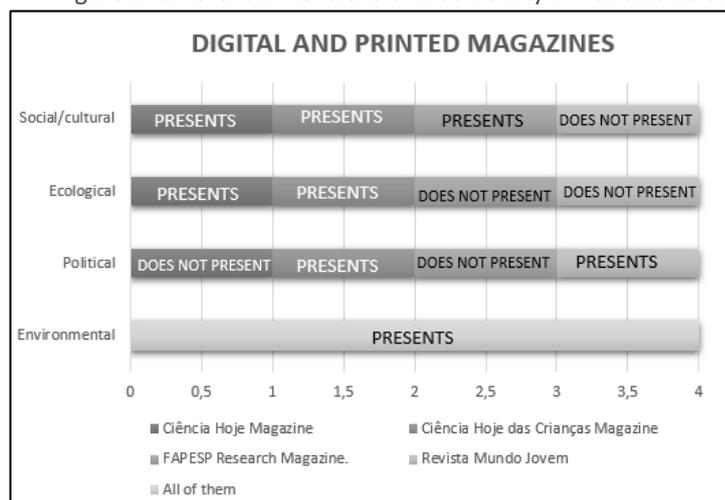
Mundo Jovem magazine: “Rightening expectations about global warming”	
(i)	“Miguez also drew attention to the fact that the Summary for Policy Makers, prepared by the Intergovernmental Panel on Climate Change (IPCC) of the UN, last February, does not take into account the effects of measures agreed by governments in the Kyoto Protocol.”
(ii)	“For the Amazon, the researcher issued a warning: Even if every precaution is taken to preserve the forest, a change in the climate could result in the loss of the forest. The change in the rainfall regime could affect the forest, which would be unable to maintain itself.”

Source: Silva (2007).

In relation to the social, cultural and ecological dimensions Silva (2007) does not mention the relationship between human beings and global warming and does not encourage environmental preservation. It also does not offer alternatives using public policies related to sustainability, and only mentions the global agreements signed for the preservation of the environment.

In several parts of the text "Getting right with expectations on global warming", the consequences caused by global warming are mentioned, such as the loss of biodiversity, with a special note being written for the Amazon region. The text is generalist with regard to considerations on the dimensions of biodiversity, not delving into the topic. For Gonçalves (2014) this generates a fragmentation of complexity and superficial readings of reality. Which fails to create conditions for deeper learning that brings new thoughts, values and attitudes towards the environment to the school community. Therefore, the environmental dimension is the most prominent category, as shown in Figure 2.

Figure 2: different dimensions of biodiversity in Revistas de SD



Source: Authors' organization.

3.2 SD In Audiovisual Media

Podcast Sintonia ambiental (Environmental Tuning Podcast)

The Sintonia ambiental Podcast has a vast playlist with 57 audios that address the theme of biodiversity. The audios aim to promote the discussion of environmental issues (SINTONIA AMBIENTAL, 2017).

The Podcast explains social/cultural and ecological dimensions, in an audio number 20 (twenty), which brings the relationship between man and his needs that only the environment can give him, such as water. In some audios, the project explains national conservation policies. In addition, the Podcast also has tracks related to the impacts of human action on the environment.

Because it is a collection of audios that addresses various dimensions of biodiversity, the Podcast also makes the connection between citizenship and the environment, addressing emerging environmental issues in the town of Ouro Preto and Mariana in Minas Gerais (MG). This makes this material important for the development of more aware citizens.

Podcast Revista de Pesquisa FAPESP (FAPESP Research Magazine Podcast)

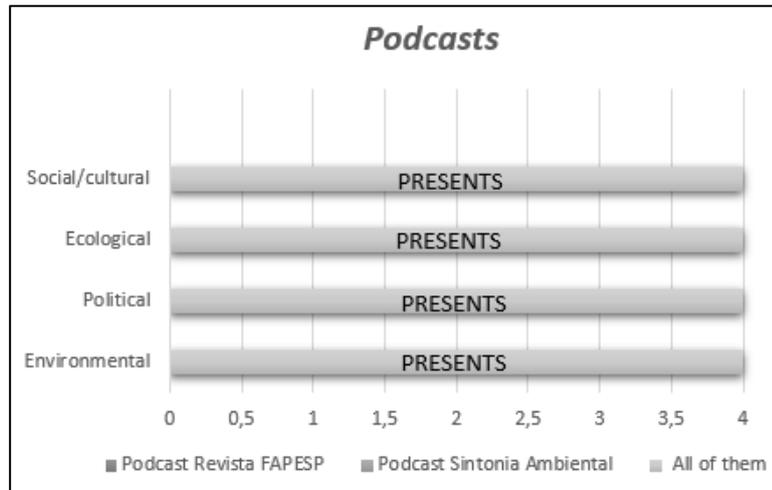
The selected Podcast has the theme: “Unreleased films and collections and impacts of Belo Monte”. The audio aims to explain the socio-environmental impacts of Belo Monte on Amazonian biodiversity. The Podcast takes the form of an interview with professor Guillaume Leturcq from the Federal University of Rio Grande do Sul. (PODCAST REVISTA FAPESP, 2019).

The Podcast highlights that the hydroelectric power plant caused damage to the local fishing biodiversity and to the population of Altamira and Vitória do Xingu, Pará cities neighboring the work, therefore, the relationship between local inhabitants and the environment in which they live is carried out. In addition to listing the social impacts of the construction of the plant. Regarding the ecological and political dimensions, he comments on the substitution of energy generation through hydroelectric power plants for energy generation through sources such as wind and photovoltaics, as a way of preserving the environment because they are more sustainable.

The podcast explains the consequences that the construction of the Belo Monte dam caused to the environment. Both materials, in addition to presenting all the dimensions that biodiversity can assume, are characterized as excellent SD material. Thomas and Shaw (2019) are optimistic about the inclusion of scientific topics in podcasts, due to the “accessible language” usually used in episodes, and the ease of access to the files.

Figure 3 shows that all the analyzed dimensions are present in the selected materials, characterizing this means of scientific dissemination as a complete material to be used in science teaching.

Figure 3: Analysis of the different dimensions of biodiversity in Podcasts.



Source: Authors' organization.

Canal Bio'sFera (Bio'sFera Channel)

The video selected for this analysis from Canal Bio's Fera by Pigozzi (2019) is available on the YouTube channel and has the theme: "Amazon: what do the data say". It aims to present and analyze data on deforestation and wildfires that have occurred in the Amazon rainforest in recent years and their impacts on biodiversity. The is based on data collected by environmental agencies such as the Instituto Nacional de Pesquisas Espaciais (National Institute for Space Research) as shown in the following Chart 6:

Chart 6: Excerpts from the video "Amazonia: what do the data say" from Bio'sFera channel.

Bio's Fera Channel: "Amazonia: what do the data say".

(i) The rainwater collected in São Paulo by the Municipal University of São Caetano reveals the increase of sulphide in the water due to the burnings in the Amazon [...] an indication that the burnings in the Amazon affect other national and international ecosystems.

Source: Pigozzi (2019).

The social/cultural and political dimensions are observed in a few moments when they are mentioned, but the focus of the video is the presentation of data that demonstrate the consequences generated by deforestation and wildfires.

Regarding the environmental dimension, the video makes a connection with the action of humanity with the consequences generated. The only dimension presented in the video with emphasis is the environmental dimension.

Canal do Pirulla (Pirulla's Channel)

Nascimento's channel (2015) is entitled "Canal do Pirulla" and has several videos that complement each other on the theme of biodiversity. Therefore, the analysis of this channel will not be carried out with the selection of only one video.

The social/cultural and environmental dimensions are addressed in the video entitled: “Sea of mud in Mariana” (Available at: <https://www.youtube.com/watch?v=ErK4zlk7kPs>) where important considerations are made about the dam failure in Mariana (MG) and the consequences of the accident for biodiversity and the local population that lived on the banks of the ruptured dam. And that, as a result of what happened, had their soil unusable for planting and their rivers polluted and their aquatic life dead.

Chart 7: Excerpts from the video “Sea of mud in Mariana” from Canal do Pirulla.

Canal do Pirulla: “Sea of mud in Mariana”	
(i)	After the accident, the idea would be to reforest these springs and riparian forests.
(ii)	[...] The entire region closest to the Piracicaba River was filled with mud, and this mud makes the soil unavailable for planting.
(iii)	(iii) [...] In addition, water mixed with mud makes the water denser, which ends up killing aquatic life, making it impossible for the aquatic animals that inhabited those rivers to breathe.

Source: Nascimento (2015).

Regarding the ecological dimension, the video entitled “Why preserve species” (Available at: <https://www.youtube.com/watch?v=znJMRvpZXyQ&t=966s>) explains the importance of preserving our species. The channel mentions diseases that today plague mainly the northern region of Brazil, such as dengue transmitted through the bite of the *Aedes Aegypti* mosquito, brought from Africa to Brazil through the slave trade. When these mosquitoes arrived in Brazil, they found disorganized urban areas and a favorable climate for proliferation, in addition to deforestation and recurrent fires in the Amazon rainforest, which also favored the proliferation of insect vectors of diseases. Therefore, human action impacts both the ecosystem and human well-being (NASCIMENTO, 2017).

Canal do Pirulla covers, in the form of a discussion based on scientific materials, most of the dimensions of biodiversity, especially in relation to the ecological dimension that is constantly addressed in the videos, which according to Gomes, Santos and Aparecida (2018) is essential to form conscious subjects of its ecological role for the welfare of society.

The ecological vision evidenced in this analysis presents speeches that are characterized by detailing the impacts related to ecosystems based on theoretical concepts seen in scientific ecology. This ecological bias contributes in a positive way so that the viewer of the video can understand important processes that govern biodiversity.

Canal Blá Blálogia (Blah Blalogy Channel)

This channel has few videos on the topic of biodiversity. For this analysis, the video by Pires (2019) entitled: “Biodiversity matters to whom?” As for the social/cultural dimensions, right at the beginning of the video, the announcer,

together with the guest, explain the importance that can influence the life of each living being in the environment.

Chart 5. Excerpts from the video “Biodiversity matters to whom?” from Canal Blá Blálogia.

Canal Blá Blálogia: “Biodiversity matters to whom?”	
(i)	[...] the world we live in even the smallest living beings has an importance that can influence the life of entire ecosystems, and that includes of course the people themselves.
(ii)	[...] biodiversity is going through a crisis, this is how we refer to this loss of species from the most varied groups, our biggest challenge in relation to this crisis will be to understand the consequences of this loss of species not only for the maintenance of the ecosystems themselves and their functioning, but also for our health and our well-being, since we depend on the ecological processes that occur in these ecological systems.

Source: Pires (2019).

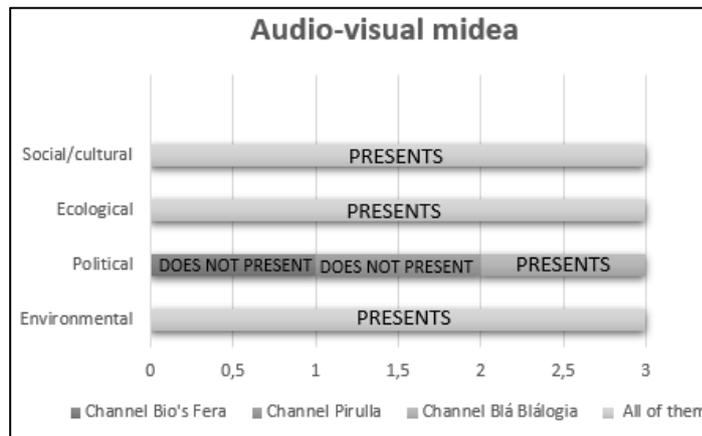
Excerpt (i) evidences a speech with a vision that grants a relationship between people and ecosystems. For Begossi (1993), man and nature are not considered distinct elements, but places society in its ecosystems to study their relationships and impacts.

On the ecological and environmental dimensions, the participants in the video reflect on the biodiversity crisis. As for the political dimension, one of the participants in the video comments on an alternative for the preservation of these species. Of all the channels analyzed, the video “Biodiversity matters to whom?” from Canal Blá Blálogia was the one that went deeper into the different dimensions of biodiversity.

Menezes *et al.* (2018, p. 189) point out that the main means of accessing information on the topic of biodiversity is mostly (35% of respondents) through newspapers/magazines. The analyzed video represents an excellent scientific dissemination material to be mediated in the classroom by the teacher, “so that students act as protagonists in the development of a sustainable planet and not as spectators of its destruction.” (MARQUES; GONZALEZ; XAVIER, 2017). Since YouTube channels are of considerable importance for social development, since their use has brought science and society closer together (SILVA NETO, 2018).

Therefore, it is observed that the materials selected in the audiovisual format do not develop the political dimension in their videos, however the other dimensions gain great prominence, as shown in figure 4.

Figure 4: Dimensions of biodiversity in audiovisual media.



Source: Authors' organization.

FINAL CONSIDERATIONS

The research showed a scarcity of texts addressing the topic of Amazonian biodiversity. Out of the 10 materials analyzed, only 4 discussed Amazonian biodiversity, while the other texts only covered the topic of Brazilian biodiversity in general.

Among the analyzed dimensions, the most addressed in the texts, videos, and podcasts were the social/cultural, ecological, and environmental dimensions. Few materials were found that addressed public sustainability policies contained in the political dimension of biodiversity.

It was also observed that the following structure was predominantly used: the texts generally begin with a dialogue, establishing a relationship between humans and nature, and only the *Ciência Hoje* Magazine establishes the relationship between local biodiversity and the local people who depend on their natural resources to survive in their text.

In the analysis carried out, podcasts and audiovisual media stood out for being the scientific dissemination media that addressed biodiversity dimensions in a more comprehensive way. Videos are rich in scientific data and use a conversational tone to engage listeners, often providing a connection to the topic with their local realities.

The use of these DC materials as teaching support in science education makes a valuable contribution to the formation of future citizens who are more aware of their responsibilities.

BIODIVERSIDADE EM MATERIAIS DE DIVULGAÇÃO CIENTÍFICA: IMPLICAÇÕES PARA CIÊNCIA CIDADÃ

RESUMO

A Divulgação Científica (DC) mostra a outra face do cientista, a de cidadão. Cientistas, jornalistas, professores compartilham a responsabilidade de aproximar a ciência da sociedade geral. Construir pontes, realizar interlocuções e comprometer-se com o planeta. A pesquisa tem objetivos de caráter descritivo e exploratório, seguindo uma abordagem quali-quantitativa. Trata-se de um estudo exploratório, o qual ocupa-se da descrição e contextualização do objeto de estudo. A pesquisa foi realizada por meio de uma pesquisa documental em revistas/materiais de DC no período de 1999-2020. Os resultados revelam que a divulgação científica tem sido realizada por diferentes mídias, sendo os digitais e gratuitos os mais inclusivos. E que a dimensão ecológica da biodiversidade é mais percebida nestes materiais.

PALAVRAS-CHAVE: Divulgação Científica; Biodiversidade; Mídias.

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