

1. Introduction

The Propagas Foundation was created in 2007 with the aim of channeling the corporate social responsibility strategies of the Propagas Group, a company dedicated to the importation and distribution of petroleum products. Since then, it has strengthened its commitment to raising awareness and to educating the public about caring for the environment through various educational, cultural and conservation programs.

One of the main focuses of concentration of the Propagas Foundation is on the educational community and research. The programs Recycled City, Healthy Readers, Young Scientists and Natural Literature, and other programs of this nature, are implemented in public and private schools in different parts of the country. The production of audiovisual materials and the editing of literary and informational texts are some of the other interests of the institution. In this way, we build teaching resources that support our learning spaces in schools and community centers nationwide with a view to promoting a culture of love and respect for nature.

Training and sociocultural animation, after gathering information within the communities, reaches residents of areas that have suffered great environmental impacts since redirecting the habits of the community is the key to the preservation of our parks and vulnerable species. The practical efforts in these communities are also noticeable through the Rural Gas Program, through which the communities living in buffer zones receive grants to replace their consumption of firewood for gas. This change not only prevents the indiscriminate felling of trees but also reduces the pressure on nearby forests, thereby improving the environment, health and the quality of life.

This report, which we call *Pedagogía de la Tierra* (Pedagogy of the Land) covers the main aspects of reflection on the relationship between Society and Nature as it appears in the Natural Science textbooks of the First Cycle of Elementary School that were used for teaching during the 2010-2012 period in the Dominican schools. This report was

carried out, jointly, by the PropaGas Foundation and the Centro de Reflexión, Encuentro y Solidaridad (Center for Reflection, Gathering, and Solidarity): ONE RESPE.

The research on textbooks ran parallel to the “Educación, Sociedad y Naturaleza” (Education, Society and Nature) monitoring and training program, through workshops and follow-up visits to 50 public sector teachers of Santiago, La Vega, Constanza, San Cristóbal, and Haina. The monitoring program sought to promote dialogue between the Team and the teachers, to incorporate the teachers to the discussion about the Dominican school system, and to seek information regarding the educational practice(s) in the teaching of Natural Sciences, as well as on the culture of the classroom, the school, and the community.

A third significant component of the project involved the development of games and educational materials: five stories about the environment and the relationship with Nature to be used in the First Cycle of Elementary Education. Also, various games with Nature motifs whose subject is endemic and/or endangered animals; a board game that some or all the students in a course can play called “La Excursión” (The Excursion), and musical instruments made from recycled materials. In addition, we conducted a school survey of “the song that is sung at school”.

The research we have conducted reaffirms the relevance of the use of textbooks as privileged objects to be considered in the study of school culture, including the curriculum, in its various dimensions. The results of this exercise invite to continue and expand this line of research and reflection on “the school world”, the cultural practices that support it, the pedagogical and curricular proposals, including the ecological ones, and the ideological frameworks that are part of the Dominican school.

We examined, particularly but not exclusively, the implications they may have on the formation of environmental awareness among the students of the First Cycle of Elementary Education, what they say about these concepts and the way textbooks

present and address them. We seek to establish if textbooks show any indications of an ecological and social awareness that is critical, hopeful.

We explored whether the school, a socializing institution of such magnitude and consequence in this society, contributes to form a deep, liberating, critical ecological awareness which promotes harmony and respect for life, and the scientific, civic, and solidarity attitude towards all forms of life or, on the contrary, if it encourages a predatory culture through instrumentalist, manipulative concepts that favor and legitimize looting, selfishness, the superiority of relations of exploitation and domination, and mercantile strategies in their relationship with Nature.

The research carried out was based on a review of 19 textbooks of Natural Sciences of the First Cycle of Elementary Education, used in Dominican schools in the 2010-2011 and 2011-2012 academic years.

I will now provide a brief overview of some reflections that arise as a result of this research.

2. Development

“The textbook speaks to us from ‘outside of life’... It delivers impersonal, anonymous, and cold science, even if it is artificially reheated by procedures that only deceive educators. It does not address the man-child but the student who already is a stark being, who only reacts as a student...” In light of the discussion, Freinet’s assertion remains relevant. In our view, it is a valid conclusion. Despite protests and declarations of love and constructivist affiliation found in prefaces and introductions of different publishers or perhaps because of them, the reviewed textbooks are still located “outside of life”.

In the textbooks that were reviewed, teaching is the center of the educational process, not learning, defined in terms of the expected results or achievements. The textbook

becomes the match of the educational program, in the concrete expression and management of the curriculum. The educational process must adapt to the textbooks, check on its achievements, its objectives, and its expected results. Despite the repeated insistence on the “creative” vocation of the pedagogical approach, when it lies in textbooks, the student is subject to play a passive role in the educational process that favors memorization and repetition. The “search”, the definition, the selection of significant issues, of interest, of “awe”, for children does not arise from them, or from a process shared between teacher and student; it does not respond to their perceptions of urgency, importance, relevance, nor does it participate in the discussion of the “design of a pathway”, in defining how to get there, how to explore, how to proceed, how to know... how to “build knowledge.” The textbook has defined all of that beforehand; for this, it has the teachers’ complicity, although, as Martínez Bonafé stated: “The use of the textbook is a powerful device of intellectual, cultural, and professional disavowal of the teacher”.

When contexts are standardized, they end up downplaying and nullifying the appreciation of cultural diversity in Natural Sciences textbooks.

The textbooks do not value the local or spatial contexts that they are part of. They tend to isolate their biological components, the “systems”, and to minimize their cultural dimensions. They do not turn the bioregion, the towns, these places settled in coexistence, interdependence, culture, and history, into points of reference and meaning of the educational process. They do not encourage direct contact with it, to act there, the affective encounter with nature, frequent visits, the “education of the emotions” that are a product of those encounters. They do not stimulate broad understanding of the inter-relationship, the diversity, the complexity that articulates the place, its geological, biological, social, and human dimensions, present and past.

Unlike the pedagogical approach of the reviewed textbooks -that of the “Disintegrated Textbooks”-, the proposal we are exploring and presenting, does not operate in a vacuum, nor is it limited to work with the individual. It represents a historical socio-

cultural approach where the place and context dimensions are highlighted. From the place understood as “centers of experience”, as “meaningful contexts” of participation and sense of belonging. It is interested, for example, in knowing how human beings relate to these natural, socio-cultural contexts, how education takes place in schools and in the communities, how information, knowledge, and cultural appreciation about society, nature, and the relationship with it is being transmitted. It pays attention to the “pedagogic practice” of teachers, the strategies and cultural objects being used (songs, textbooks, teaching resources in general), and to the interaction with parents, other adults, and peers (other children). It recognizes that in this search the “voice”, the views, and the knowledge of children and the communities play a central role.

It is necessary to allow that voice to express itself and to be heard, it is necessary to know those views. In this context, the “dialogue of knowledge is not a teaching technique, it is much more than a heuristic resource, it is an indispensable component of the “reality reading” in the educational process.

It seems as if the textbooks did everything possible to avoid questioning reality. They do not face conflicts, debates, the contradictions that exist in society, in “real life”; they do not examine the history of these conflicts and their consequences.

The Earth suffers, however the reviewed textbooks do not address the environmental crisis, its current situation, its components, its causes, its severity and intensity, its perspectives, the way it is reflected in our towns, the measures that could be taken from the school. They do not examine this key problem; they do not alert the students regarding its complexity, its multidimensionality. They do not take advantage of this educational opportunity. In contrast, they disperse, fragment, truncate knowledge, they reduce it to “parts”: they are decontextualized, “disintegrated”, and disintegrating textbooks. As Martínez Bonafé has stated: “The textbook, by definition, cannot have a constructivist nature. The reconstruction of the experiential knowledge requires reconstructionist strategies, not instrumental ones.”

Textbooks situate the students “outside” towns and nature, outside the meaningful and relevant contexts, i.e., outside of life. The intervention, the educational activity, does not encourage the identification with Nature, it is not conducive to the shaping of a vision, of an overall awareness, which acknowledges the complexity and context, as well as a sense of belonging of the student; it does not seek to turn students into custodians and guardians, into participants, into an integral part of the Earth, or to encourage solidarity with other human beings and other forms of life.

The reviewed manuals do not take into account the temporal contexts, the history of those spatial contexts, of its members; the history of the cosmos, of the Earth and of the land; the history of life and its origins, of wildlife and flora; natural and social history, the history of the interrelationship, the co-evolution in the relationship between society and nature, its stages; the history of the land, the community space, the island, and the region. The stories, the narrative plots in textbooks, happen on the sidelines of history: they play a background role.

Let’s consider a “bad” example of this: the way textbooks deal with the subject of the “Gran Explosión” (the Big Bang Theory). This is how it is summarized in one of the reviewed textbooks for students of 4th grade of Elementary Education: I quote at length.

The “Big Bang Theory” is a theory formulated by scientists and is based on observations and measurements that have been made. The theory tells us of a great explosion that occurred in a very short period of time, in less than a second, and which continues expanding and cooling materials. This gave rise to the planets and stars that exist today”.

What do you think? How confusing! What was it that blew up? When? Why? What caused the explosion? How does it expand? Where, if the universe is everything? And the plants and animals, did they emerge from that explosion? And human beings, did they emerge from those stars? From all of them? From some of them and not from the others? Does it make any sense having the summary that the textbook presents of this

theory? Does it help to understand what a theory is? Is it a presentable summary, something that is intelligible and, above all, significant for a boy or girl between the ages of 6 and 10? Or even for adults who read the text carefully? Does it encourage, somehow, the desire to know, the imagination, the fantasy in children? Does it help them relate it with other mythical stories that they know?

The reviewed school textbooks pay little attention to promoting bonding, empathy, and a sense of belonging and closeness of the students to Nature. They do not explore that bond. They ignore the emotional world of the students; they do little to remedy this flaw, and they block this dimension while ignoring it. They much less reinforce the sense of affinity, similarity, the interdependence with other forms and expressions of life. They do not educate the imagination, creativity, fantasy, or feelings in that regard. They do not foster an attitude of wonder, respect for nature and for life. And in all this, they neglect to discover, share, recognize, and celebrate the similarities with other expressions of life, a sense of wonder. Educational success, underlines Egan, "is not to make the strange familiar, but the familiar strange. [...] What is important from the educational point of view is to contemplate the wonders hidden behind what seems obvious." Should we insist that textbooks overlook this dimension? Are we surprised to know this? Should we insist on the critical, decisive need to educate imagination for and in favor of solidarity with life?

David Sobel says that: "The important thing is that children have the opportunity to establish a bond with the world of nature, that they learn to love it, to feel good in it before we ask them to take care of it, to heal its wounds... One of the problems we have in (the field of) Environmental Education is that we try to refer (its programs) to knowledge and the sense of responsibility before allowing a love relationship (with nature) to flourish."

But how do we foster that bond with nature in a society that understands, that sees its relationship with Nature as one of domain and exploitation?

The not so small “Petit Larousse”. The dictionary gives the word Setting the following meaning, among others: “Element or set of factors that determine the life of a being”. The word Environment is defined as: “A set of physical circumstances surrounding a living being and which influence its development”. The surrounding, to add a related expression that is familiar to the others and that is often used as a translation for “environment”, defines it as “setting, circumstances, people and things that surround and affect someone or something”. If the surrounding is what is around us, is the environment half of what surrounds us? Isn't the word environment a redundant expression? Who does it surround? What is the environment? Is there one environment or many, as many as there are beings, and subjects present in it?

These definitions of the surrounding and environment do not mention Nature and place emphasis on this, that, or those, which is/are surrounded, which is a defining, central, and determining element in a given field. The environment is the background, the surrounding space. The central role, the main reference in the relationship describing the definitions, is the subject, the organism they surround. Each subject may be part of the surrounding of another subject. Thus, the term “environment” becomes relative.

Textbooks define surroundings and environment with ambiguity, in an imprecise manner. So, what does it mean “to protect the environment”?, to protect the surroundings?

Nature and environment are not synonymous. Replacing nature for environment is not without consequences. It contributes, subtly but markedly, to strengthen the notion that nature, disguised as the environment, is a passive object that is subject to manipulation, which lacks autonomy, which is to be dominated, controlled, and ordered according to the needs of human beings and in accordance with the laws of nature. In that sense, this substitution contributes to the process of commercial exploitation of nature and, by extension, to the human-Nature separation, to the denial of their bond.

In 2002 UNEP/UN (the United Nations Environmental Program and the United Nations) sponsored a Symposium on Ethics and Sustainable Development that concluded with the drafting of a document, "A Manifesto for Life: In Favor of an Ethic for Sustainability", which begins as follows: "The environmental crisis is a crisis of civilization, a crisis in the economic, technological, and cultural model that has plundered nature and subjugated alternative cultures. The prevailing civilization model degrades the environment, looks down on cultural diversity, and discriminates against "others" (indigenous people, the poor, women, black people, and the South) while it gives priority to an exploitative form of production and a consumerist lifestyle that have become dominant in the globalization process. The environmental crisis is the crisis of our time. It is not an ecological crisis but a social one. It is the result of a mechanistic worldview that is accelerating the global warming of the planet by ignoring the biophysical limits of nature and the lifestyles of different cultures".

These statements are in close affinity and coincide with the results of the analysis and evaluation that we conducted on textbooks. Textbooks, as elements of a state's cultural apparatus of distribution and social reproduction, contribute to support and reproduce the ideology of a "predatory culture", "a mechanistic view of the world", a "prevailing civilization model, an instrumental rationality, which degrades the environment, looks down on cultural diversity, and discriminates against the Other".

Further on, the Manifesto states: "Scientific progress has accompanied an ideology of economic progress and the domination of nature, giving priority to mechanistic and quantitative models of reality which ignore the qualitative, subjective and systemic aspects that nourish other forms of knowledge. The breaking up of scientific thought has made it unable to understand and address the complex socio-environmental problems. Although sciences and economics have been effective in intervening natural systems and expanding the borders of information, paradoxically they have not resulted in any improvement in the quality of life amongst the majority of the world's population. Many of the most devastating effects of economics and the sciences are deeply rooted in their assumptions, axioms, categories and procedures".

If the textbooks, as we have seen, also favor the mechanistic and quantitative models of reality and ignore the subjective and systemic qualities that nourish other forms of knowledge, if the breaking up of the scientific thought we find in them has made it unable to understand and address the complex socio-environmental problems: isn't it time, then, to revise them extensively and radically?