



FINAL WORKSHOP OF THE ARENAS PROJECT

PRESENTATION OF THE BOOK

“URUGUAYAN COASTAL ECOSYSTEMS: A GUIDE FOR DISCOVERY THE COASTAL ZONE”

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FRAMEWORK OF THE PROJECT

The final workshop of the Arenas Project represents the closing point of a project that started in 2006 with the groups of Averaves, Cetáceos Uruguay and Karumbé, who joined together to create The Arenas Project. “The Uruguayan Coastal Ecosystems: a proposal for educators”, emerged within this context, and it was supported by the Consejo de la Facultad de Ciencias (Council of the Faculty of Science) (Resolution Nº 74 voted in the ordinary session of March 12, 2007: "Exp. Nº 240300-002006-06 Adj. 240300-000130-07) and obtained the financial support from five international organizations: Yacu-pacha, Conservation Leadership Programme, SeaWorld & Busch Gardens Conservation Fund, Columbus ZOO and Rufford Small Grant Foundation, plus the national financing of sources such as Proyecto SNAP-DINAMA (GEF URU/06/G34), the Extension Unit* of the Faculty of Science and the Extension and Activities for the Community Commission of the Republic University.

The aim of this project from the very beginning was to contribute to promote citizens with environmental awareness, promoting sensitivity and a sense of identity with the coastal ecosystems that surround us, stimulating positive attitudes towards the care and respect for the environment, and including ideas for a sustainable use of the natural resources.

* Extension Unit and the Extension and Activities for the Community Commission of the Republic University are responsible for extending the presence of the University to the society and for relating it with the people. They are dedicated plenty to transfer the university knowledge to the society, as well as, to include it in the university dynamic.

To achieve this goal we performed different activities with the teachers of the coastal schools, who we believe, are fundamental actors in the transmission and multiplication of knowledge. In this context, the objective of the proposal was teaching about the structure and functioning of coastal ecosystems, as well as providing the necessary tools to study them in the schools.

Our specific goals were:

- To train Primary School teachers about the characteristics of the Uruguayan coastal ecosystems, including the biotic and abiotic components, as well as plans for its conservation and the sustainable use of the ecosystem goods and services.
- To create educational material about the Uruguayan coastal ecosystems intended for teachers, as a mean to facilitate the approach to environmental issues in school.
- To stimulate teachers to incorporate environmental education in all school activities.

Process of the Project

Workshops with teachers

During 2007 we started working with teachers from all the Uruguayan coastal area, from Colonia to Rocha. The first part consisted in an initial workshop (replicated in four areas of the coast), where the ideas of the project were introduced and the teachers were invited to participate in it. During the workshop a draft copy of the educational material was handed out to the teachers, so they could read it, criticize it and make contributions that would be included in the final version. After this, all during the year, the teachers carried out environmental educational activities with their children, and the members of the Project offered long distance support and they participated in person. At the end of the period, there was a final workshop, in Piriápolis, which gathered all the teachers that had participated in the project. They exhibited posters with the activities they had done with their children and there were several discussion boards analyzing the whole experience and the educational material that had been handed out to them.

Final elaboration of the book

During the period 2008-2010 we worked in the text, the design and the edition of the final version of the educational material. We modified the book according to the needs stated by the teachers in the final workshop, we included the changes they suggested and we also included new issues. We also had the help of many specialists in the different areas, who reviewed many of the issues and many of them even collaborated writing certain boxes, offering other ideas and sharing photos. This book now has 355 color pages and it is divided in four chapters that describe the characteristics of the Uruguayan coast, its biodiversity, the ecology, the society and nature. Every

chapter includes interviews to national investigators on the issues included in the book and didactical educational activities to perform in the school and in the field.

Final Workshop

All the workshops we organized all along the Arenas Project showed us the importance of generating spaces so that teachers could interact. This was especially evident during the last workshop that lasted two days, during which we brought together teachers (mostly school teachers) from all along the coast (from Colonia to Rocha) and we were able to see the potential of grouping people, from so many different environments and realities, to work together. Many enriching discussions took place and plans were made for future meetings and joint activities. These successful results gave us the idea of organizing a new workshop with the people that were directly involved in the project, so that we could personally give them the copy of the printed book, and put into action *and kind of test the book. "Uruguayan Coastal Ecosystems: A Guide for Discovery the Coastal Zone"*

Objectives of the final workshop

The objective of this final workshop was to gather all the people involved in the Arenas Project (teachers and researchers) so that we could go over the final version of the newly edited book, which was enriched by all and to evaluate its usefulness in the school.

The specific objectives of the meeting were:

- To gather all the people involved in the project from the very beginning, and hand out the printed book
- To introduce the final contents of the book, pointing out the differences comparing with the first version that had been given to the teachers at the beginning (draft copy).
- To carry out some of the activities included in the four chapters of the book so we could see them in action.
- To carry out some of the activities created by the teachers that participated in the project, to encourage them to create and develop their own formulas, according to the local environment.

Workshop dynamics

The workshop, which lasted two days, was directed to the teachers of the coastal schools that had participated in the different stages of the Arenas Project, either in the workshops, or performing activities in their own schools. All of them were a very important part of the modifications that were

made to the first draft copy of the book *“Uruguayan Coastal Ecosystems: A Guide for Discovery the Coastal Zone”* either by correcting directly the material in the book, or by suggesting new issues and activities to be included. This is why the main objective of the workshop was to work with the newly edited version of the book, and including the presentation and carrying out some of the new experiences that were being proposed in it.

We were interested in promoting an exchange between the teachers’ experiences in environmental education and the projects of the Faculty of Science in special, so we invited to the workshop the key actors involved in community activities from the university and in environmental education and we held a plenary session to discuss the subject. Some of the activities that are in the book were put to practice, but we also wanted to consolidate the bond between teachers and investigators, promoting future activities to be done together.

The meeting took place on August 21 and 22, at the Escuela N^o 52 “Elena Marroche de Mussio” and at the Colonia Escolar N^o 85 in Piriápolis. A total of 62 people, teachers, educators, collaborators of the authors of the book, researchers and students and the members of the Arenas Project participated in the workshop. (Table 1)

Introduction to the workshop and meeting dynamics

The workshop began with welcome words and a breakfast for the entire group. Later the schedule for the workshop was presented and we carried out an activity called *“Look for someone with these characteristics”* with the purpose of breaking the ice, approximating and getting the participants to interact and generating a friendly and relaxed situation in the group.

Handing over and presentation of the book

Each teacher received two copies of the book, a personal one, and one for their educational institution. We handed out 138 books and we presented them recalling the objectives of the Arenas Project and its process beginning in 2006. We explained the structure the book had, and the contents in each chapter, putting emphasis in the issues that were presented, in the educational activities that were suggested, and in the many ways the book could be used.

Marila Lázaro’s presentation

We invited Marila Lázaro PhD, professor from Science and Development Unit of the Faculty of Science, who had followed closely the work of several members of the Arenas Project and has been a counsel and guide in environmental education. Marila made a speech on the evolution and development of science and its relationship with society, the appearance of ecology and environmental education as an answer to the crisis that science suffered in the decade of the 60’s.

The speech was a trigger for a discussion about the problems that teachers face when they try to generate changes in the attitudes and in the conscience of the children in there schools, which sometimes collide with the values that their families sustain.

Group Dynamics

For this dynamic we formed five groups of educators, each one of them with two of the coordinators of the Arenas Project and/or cooperators. We tried to share the experiences of the use of the manual by the teachers during 2007-2010; to learn from and share the problems they faced when they performed the educational activities in the classroom, in the school yard or in the field. Finally, they chose issues that everybody in the group was interested in, they selected some educational activities in the book and they prepared them to be executed the next day.

Round-table meeting between teachers and investigators

We had a round-table meeting between teachers and researchers, so everybody could express and discuss the limitations and the advantages of working together in environmental education activities. We had invited the following panelists: Gabriel Calixto (National System of Protected Areas, Ceibal Plan[†]), Christian Clavijo (National Museum of Natural History), Ignacio Berro (Extension Unit- Faculty of Science), Verónica Piñeiro (Caubá Group Native Flora), Carla Rivera (Southern Mammals), Mariana Pereyra (Academic Assistance-Faculty of Science), Andrés Ligrone (Rapana and Franciscana Project), Ángel Segura and Eliana Arismendi (Robin-Punta del Diablo Project).

The panelists introduced themselves, their activity and their institutions. Then they proposed, invited, or commented the activities that might be done at each of their institutions, thus creating relationships, offering all kinds of information, among other things.

This was very enriching for teachers, as they received information from different researchers about activities that this different groups are doing in Uruguay by various NGOs. Furthermore, the teachers were invited to generate relationships and visit these groups, and to make field trips and get information on issues they might be interested in.

[†] The Plan Ceibal is a plan that started in 2008 in Uruguay, called “one child one computer” and the government handed out a computer to every child in the public schools and also to some very poor private schools. The government connected every school in the country to internet, (even in the rural areas where there was no electricity) and because the child takes his computer home, all the rest of his family has access to the computer. Beginning this year, the plan has been extended to the high school kids and after this is finished, the child who enters school in the first grade gets his computer and keeps it for life. The computers have a repair service paid by the government so that every one of them is working properly.

Later on, a plenary session was held, where everybody asked questions, exchanged ideas, comments and advices on how to continue with this communication and repeat the experience of the environmental educational activities and learning about the Uruguayan Coastal Ecosystems (in absence of the Arenas Project) . The researchers tried to mitigate the educators' fear because they feel they do not know enough of environmental issues to be able to teach it. The teachers were stimulated to teach children to think and research on their own, promoting their curiosity and guiding their searching process, instead of handing down all the knowledge they might have (for example, in the book).

Teachers insisted on the need that the researchers do more of these activities in the school. On the other hand, the importance of researchers and teachers working together was evident, learning from each other, using a common language, combining the scientific knowledge with the transmission of knowledge. Several proposals were made, for example: 1. Organizing departmental meetings of teachers to share experiences of environmental educational activities that are performed in different schools and fieldwork. 2. Creating a feed back on behalf of the teachers towards the Arenas Project to show the way and the frequency in which the book is been used. 3. Commenting with and encouraging other teachers and researchers, the many ways of contacting, proposing activities together and find a way to be able to evacuate doubts and ask questions.

Carrying out the educational activities proposed

Every group carried out the activity that had been selected the previous day, without the participation of the members of the Arenas Project. The activities were chosen from the book and modified or adapted by the teachers according to the situation and geographical place they were in. In each of the activities they tried to answer a specific question related to a certain environment or to a specific issue of the coastal environment. After the activities were performed and the results were analyzed, the educators presented them to the rest of the participants analyzing and discussing the problems and the difficulties they had had to elaborate and accomplish the activity.

Specifically, the teachers commented on some common problems they all have to accomplish activities and also problems that were specific to the activity that had been selected. They emphasized the importance of having activities in the field to motivate and raise awareness among children, because changes in their behavior can be observed after the experience, but if the activities are not continuous the changes disappear rapidly. The importance of the teacher's role helping them discover what is beyond their daily life is vital. They commented on how difficult it is to get the teacher to leave the classroom, because many would rather work with these concepts in a more traditional way, inside the classroom. Even though there are school directors who are interested that teachers work in contact with the environment, the common attitude many teachers have, do not facilitate on the field researchs, or researchs in the surroundings of the schools, among others.

An important barrier the teachers mentioned is the little or no value that Primary school authorities give to this type of activities. Teachers who make field trips with the children, taking them to the coast, or simply out of the classroom, for example, are not only not valued, but on the contrary, very often they are considered lazy “they prefer to take them out rather than Work”.

The teachers commented the value of any activity outside of the classroom and the in situ research, emphasizing that first hand experiences are important to sensitize children to respect nature and teach them to be critical y discover beyond what they see. They expressed that it is important to raise awareness and work environmental issues from a positive vision of the environment. They considered that the interaction between teachers and researchers is very important, because they are not equals and their experiences are not interchangeable, but luckily they are complementary. They also commented that it is important to rise awareness among teachers and that it is fundamental to work in teacher’s formation. They expressed the importance that Primary Inspectors institutionalize and value these initiatives.

In respect to the activities that were practiced during the workshop, the teachers emphasized the importance of adapting the activities the book proposes to the environment where they have to work, to the context of the school and the materials available. They also considered the time to make the outings, to plan them carefully, to know the place before you take the children and to establish beforehand the criteria or guidelines for the activity (what we are going to see, what we are going to look for, what we are going to measure and how, etc.). It is also important to plan the purpose of the activity (why we are doing this activity, what the goal is) and decide “what we want the child to learn”. According to the experiences that were done, they agreed that it is not necessary to go to the field with sophisticated equipment or tools, but it is necessary to make a valid comparative study for the child that may generate multiple results to think about. They may for example, measure things with whatever they may find in the coast, even inventing instruments.

After the presentation of the activities that were done, there was a general discussion with all the participants, where researches and teachers made specific contributions to the investigations that were made, general advices to improve. We can mention for example:

Making polls, as a kind of activity, which is very important to connect children with different sectors of society. Making polls children communicate with fishermen, investigators, tourists, etc. and they can get much more involved with reality.

The importance of including games in the activities, to represent what was observed in the field and think it over while they are playing.

To take into account the questions that come up while they are in the process of the activity, which in general are much more interesting for the children, as they are their own questions.

There are many ways to make simple biodiversity monitoring and long term ones with school projects that can go on during several years. This is done throughout the world and this information is taken into account by managers, politicians, etc. It is just a matter of learning how to take the standardized data (all the schools that participate doing the same thing).

CONCLUSIONS

This workshop was a really excellent experience of exchange, valuation, rise awareness, learning and motivation for all participants. The cooperation and joint work between teachers and researchers in the process of the Arenas Project has turned out to be a great advance in the generation and strengthening of a very important bond between the two groups. This will enable a more conscientious and convincing work to develop an environmental conscious and knowledge for the future generations.

EVALUATION

During the final workshop, we handed out a questionnaire to all participants about their perception of the Arenas Project, the activities that were proposed and the book that we had given to them.

Results of the evaluation

Participation

During the four years of the Arenas Project a total of 71 teachers of Uruguayan coastal schools and more that 1300 children participated.

The 24 teachers that participated in the Final Workshop express their perception about the Uruguayan coastal ecosystems after their experience with the Arenas Project (Fig. 1), and it was enriching for 84% of the teachers.

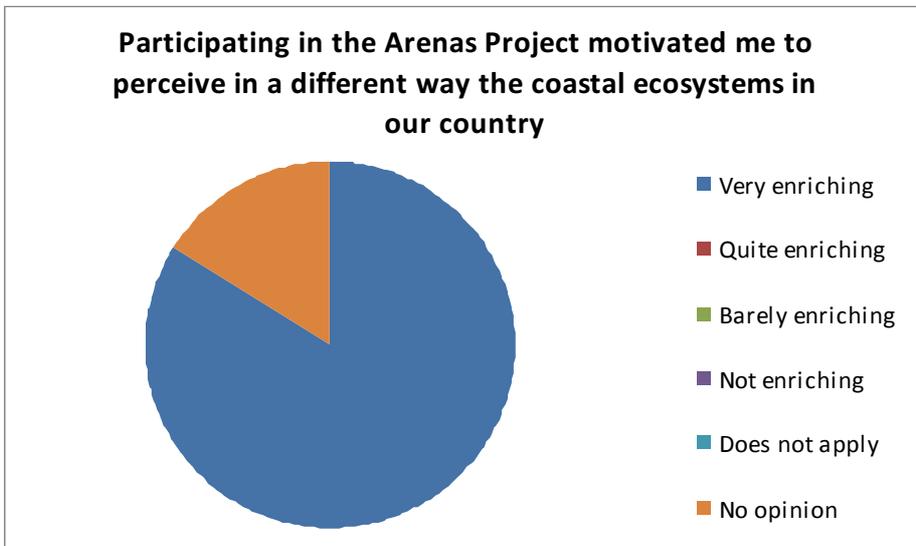


Figure 1. Perception of the Arenas Project by the 24 teachers that participated in the Final Workshop.

Likewise, the exchange among teachers and between teachers and biologists turned out to be very enriching for most of the participants (87% and 92% respectively) (Figure 2.)

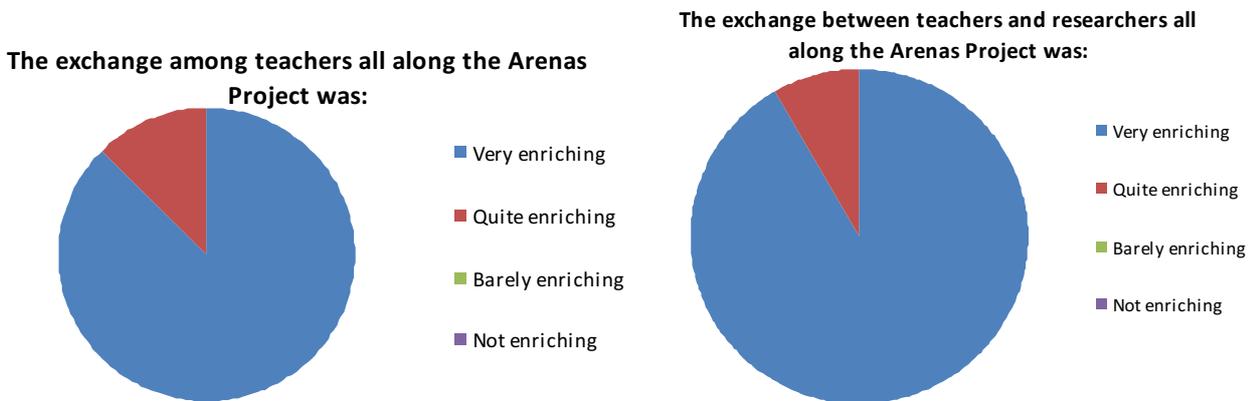


Figure 2. The exchange among teachers and teachers and biologists all along the Arenas Project.

Educational activities

All the participants of the workshop carried out research activities in the classroom, in the school yard and at the beach, after their participation in the Arenas Project in 2007. These activities had different origins, some had been proposed in the draft copy of the manual and many were created by the teachers and designed by them. (Fig 3)

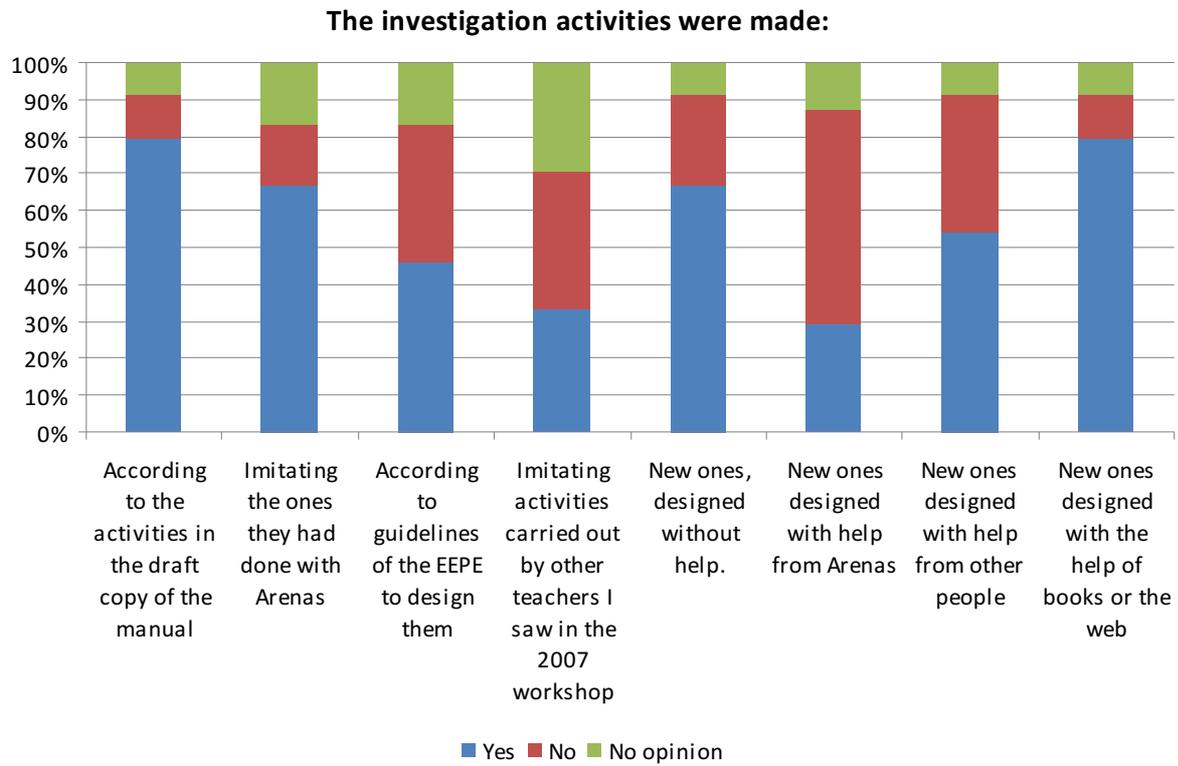


Figure 3. Origin of the investigation activities performed by the teachers participating in the Arenas Project.

The teachers experienced various situations, motivations and difficulties during the performance of the investigation activities (Figure 4). Furthermore, 75% of the teachers felt compelled to continue working on the coastal ecosystems after their participation in activities with members of the Arenas Project.

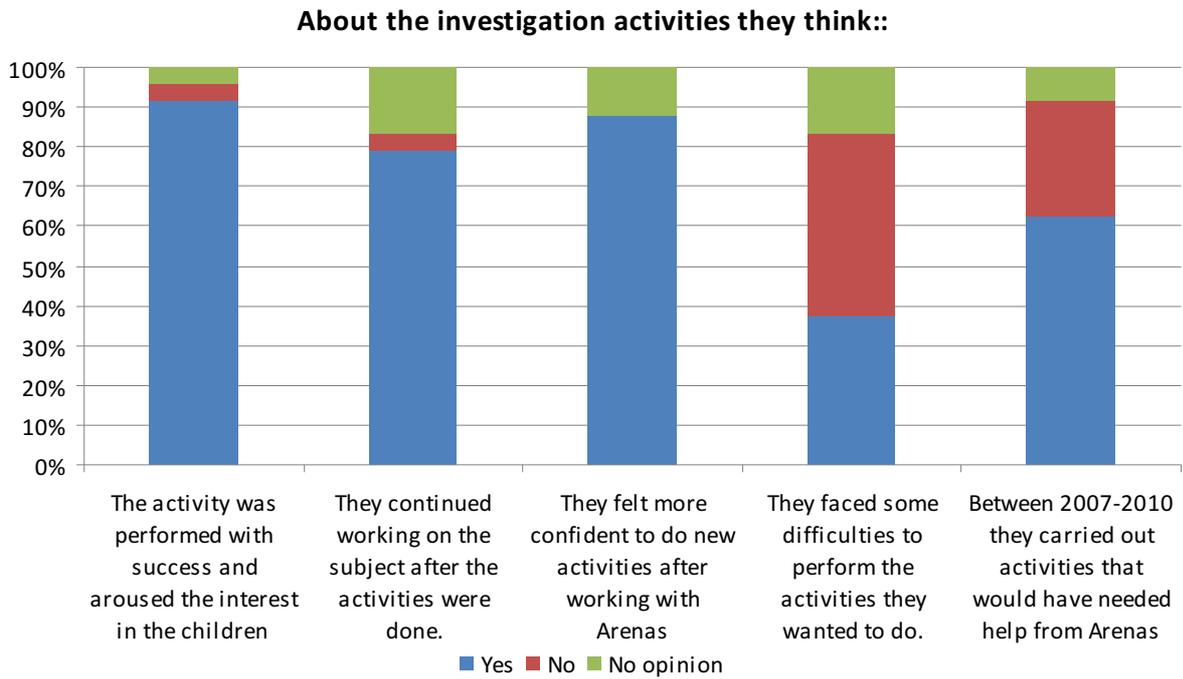


Figure 4. Teachers' experiences when performing research activities.

In most cases, during 2007 (79%) and 2008 (75%) teachers used the draft copy of the manual to carry out educational activities with the children.

Book

In respect to the book "Uruguayan coastal ecosystems: a guide to knowledge" 87% of the teachers will read it and will try to use it to the maximum (Figure 5).

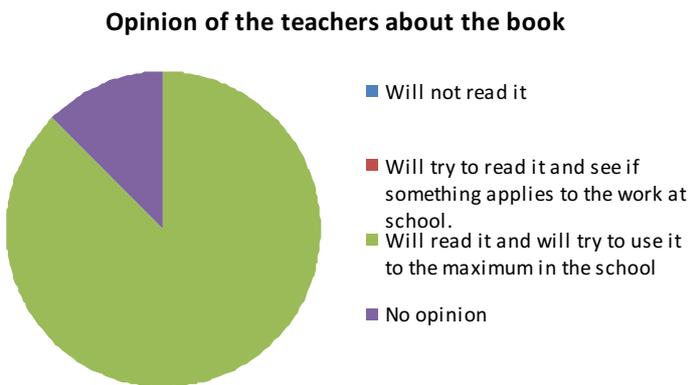


Figure 5. Opinion of the teachers about the book.

Workshops

The final workshop, in special, proved to be more than most of the teachers had expected (Figure 6).

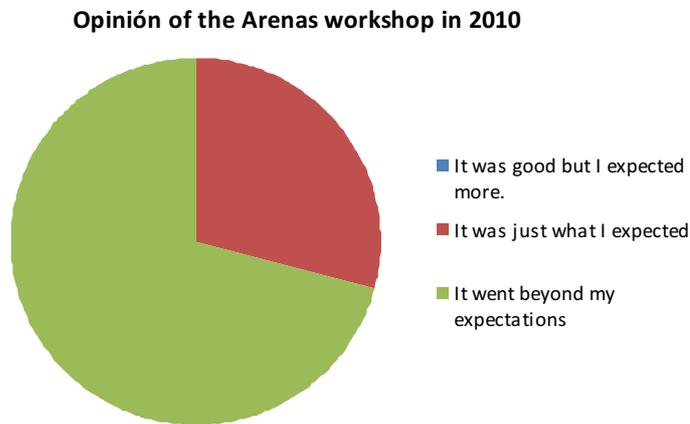


Figure 6. Opinion of the teachers about the Final Workshop of the Arenas Project

The activities that took place in the workshop were considered as very good by the teachers that participated in the event (Figure7).

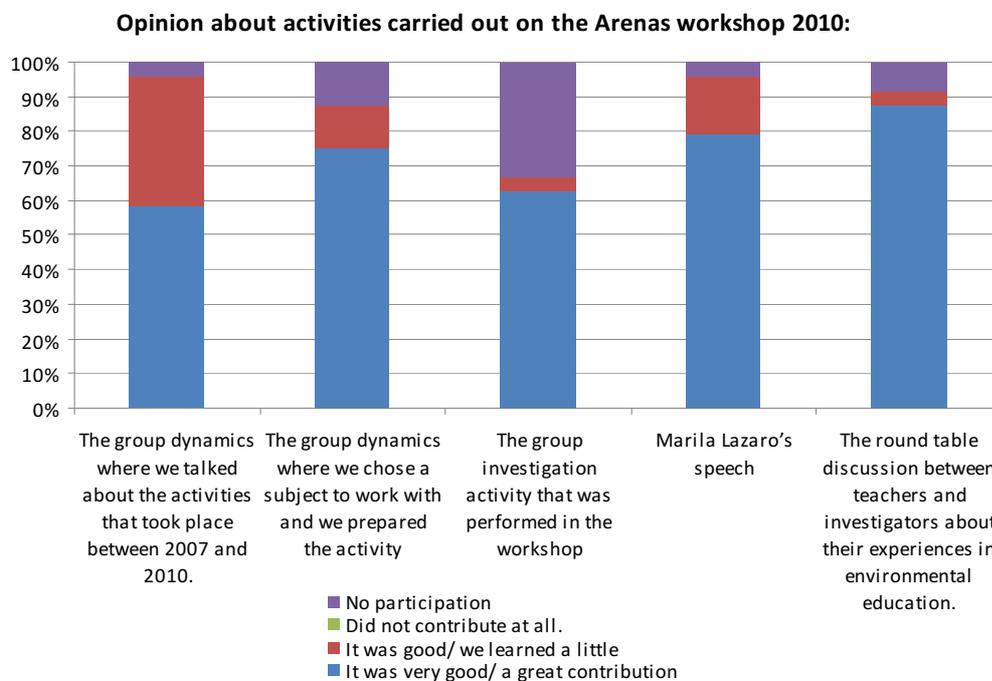


Figure 7. Opinion about the activities carried out on Arenas Workshop 2010.

Another positive result of the final workshop was the creation by teachers of a Blog (<http://arenasdelacosta.blogspot.com/>) and a Forum (<http://arenas.foros-activos.biz/>) in coordination with the Arenas Project. The book is available in a digital version and also there is a place for intercommunication so that teachers and researchers may share experiences, ask questions, ask for opinions, among other activities. Furthermore, a teacher, Eduardo Sánchez, had the idea of including the digital version of the book in the blog of Plan Ceibal* of the Department of Rocha <http://ceibalrocha.blogspot.com/>

DIFFUSION OF THE BOOK AND THE ARENAS PROJECT

The printed version of “Uruguayan coastal ecosystems: A guide for Discovery the Coastal Zone” was given to all the teachers that participated in the Arenas Project and to their educational institutions. The rest of the copies (462 books) will be distributed to the coastal schools in Uruguay.

The final digital version of the book, is available and free in the following web pages of our organizations

<http://www.karumbe.org/arenas/arenas.pdf>

<http://www.cetaceos.org.uy/>

<http://averaves.fcien.edu.uy/>

You can also find the digital version of the book in the web page of the High-school Educational Council

http://www.ces.edu.uy/ces/index.php?option=com_content&view=category&layout=blog&id=116&Itemid=208 and in the web page or “Los Refugios Naturales: periodismo desde los espacios protegidos” http://www.refugiosnaturales.com.ar/Noticias/23_001.php

There have also been reports in several media, written press and television:

Written press: Diario El País: “Lanzarán guía gratuita sobre la costa, para aprender investigando” (Periodista Deborah Friedman) <http://www.elpais.com.uy/100723/pnacio-503596/nacional/lanzaran-guia-gratuita-sobre-la-costa-para-aprender-investigando>. 22/07/2010

TV: Channel 7 (Maldonado, local news). 22/08/2010

TV por cable: TV libre, Programa "Todo se transforma". 23/08/2010

TV por cable: TV libre, Informativo. 23/08/2010

Noticias online: Página web "El Paipo, el mar de hoy, hoy" (anuncia presentación del libro con link para descargarlo) <http://paipo.com.uy/novedades-2>. 23/08/2010.

Noticias online: Página web de la Universidad de la República (anuncia presentación del libro) <http://www.universidad.edu.uy/prensa/renderItem/itemId/26289/refererPageld/86>. 24/08/2010

Noticias online: Página web del Ministerio de Turismo y Deporte (anuncia presentación del libro) http://www.mintur.gub.uy/index.php?option=com_content&view=article&id=332:una-guia-para-conocer-nuestros-ecosistemas-costeros-sera-presentada-en-la-facultad-de-ciencias-&catid=37:boletin-no-93-semana-24-de-agosto-2010&Itemid=14. 24/08/2010.

Noticias online: Página web del Boletín Facultad de Arquitectura, Udelar, PATIO (anuncia presentación del libro) <http://www.farq.edu.uy/patio/novedades/presentacion-de-libro.html>. 24/08/2010.

RADIO: Océano FM, Programa "Abre palabra" (Anunciaron el lanzamiento del libro). 26/08/2010

RADIO: Uniradio (Programa que sale a las 11:00). 26/08/2010.

Noticias online: Diario Sociedad Uruguay mirate (anuncia presentación del libro) <http://www.sociedaduruguay.org/2010/08/feria-departamental-de-clubes-de-ciencia-de-montevideo.html>. 26/08/2010.

Noticias online: Diario el Este (anuncia presentación del libro) <http://www.diarioeleste.com/archivo/26-08-10/noticias.shtml>. 26/08/2010.

Noticias online: Página web Uruguay 365 (anuncia presentación del libro) <http://www.uruguay365.com.uy/noticias/1162-guia-de-ecosistemas-uruguayos>. 26/08/2010.

PRENSA ESCRITA: La Diaria, "Manual Costero the Arenas Project: aportes para el conocimiento y la comprensión del ecosistema de la costa uruguaya" (Periodista Amanda Muñoz) <http://ladiaria.com.uy/articulo/2010/8/manual-costero/>. 30/08/2010.

PRENSA ESCRITA: El Observador (Periodista Valentín Trujillo). 26/08/10.

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