

NATIONAL REPORT - VENEZUELA

Inquiry Based Science Education in Venezuela:

Ciencia en la Escuela. 2009-2010

Vision. The Academy of Physical, Mathematical and Natural Sciences of Venezuela, with the valuable cooperation of Fundación Empresas Polar (Polar Foundation), supports the Inquiry-Based Science Education as a Pilot Program to catalyze best the practice of science education with the assistance of nonprofit organizations, leaders representing school districts and other academic institutions.

Present conditions. The Academy seeks to increase public understanding of the importance of science education involving schools and communities in future reform movements that will change the course of schools of science education, with a clear focus on the quality of the science that is taught. Unfortunately at present the political orientation of the government in education is far from these goals, and the Academy is very well aware that, even with the support of the Polar Foundation, this effort cannot be conceived at a national scale without the assistance and cooperation of the Ministry of Education. However, the idea that students can be enabled to develop a better understanding about the scientific aspects of the surrounding world through development and use of inquiry skills, generally motivates good educators, and for this reason in the less than five years that our program is running, we have received many requests to apply the program in their schools.

Main achievements. In 2005-2006 we started our project in 5 public schools of a less privileged area of Caracas. Now we are attending 24 public and private schools, located in the metropolitan area of Caracas and in the State of Miranda and Sucre. 6500 children, mainly of fifth and sixth grades of primary education, are involved directly in the program. Since last year we are working to implement the project in the first to the fourth grades. The topics that are selected are included in the official science program.

They then have to be reinforced using the inquiry-based methodology. For this purpose, we have been developing:

- (a) appropriate teaching materials;
- (b) 119 school teachers, and 14 new trainers of the staff (trainers that prepare the school teachers to implement the program) have received formal instruction;
- (c) 19 workshops have been given to 250 additional teachers in the cities of Valencia, Cumana and in the State of Aragua.
- (d) In addition, we have also increased and improved our resources for children and teachers, producing new books and educational material to increase the scope of the Science Education Program. Our first product is the book “Ciencia para nosotros”, “Science for us”, that includes 24 experiments for children of fifth and sixth grade. The experiments are designed to encourage the teaching of science and to complement the upgrading of teachers, for them to develop and improve the content and their methodological strategies, according to the current trends in science education. We do hope that the use of these books in the classroom links science with other areas of the curriculum.
- (e) We are also working on the elaboration of children’s books for the first through to the third grade, and for the Secondary level of Education.

(f) On the other hand our group has gained significant experience in the evaluation of teaching materials generated in other countries, and in developing its own material tailored to the needs of our school system. As a matter of fact, we have adapted to the level of our science program teaching modules prepared in the United States, Chile and France that have so far been successfully used.

International relationships. In order to continue to increase the relationship with teachers of other Latin American countries, in collaboration of Fundación Empresas Polar, we have organized two Workshops on Inquiry-Based Science Education, under the auspices of IANAS and FEMCIDI (OAS). Colleagues from Brazil, Colombia, Costa Rica, Guatemala, México, Peru, Bolivia, Dominican Republic and Nicaragua have shared their experiences in the implementation of the program in their countries, and have tried to establish agreements for mutual support at a Regional level. Members of our professional staff have been invited to participate in workshops in Bolivia, Colombia, Peru and Dominican Republic as lecturers, and to participate in events organized in Colombia, Chile, Peru, Argentina, Brazil, México, Costa Rica, Dominican Republic and Bolivia. Through the good offices of the Embassy of France, our Academy has signed a agreement with the French Academy of Sciences to complement our program using the methodology of "La Main à la Pâte", in coordination with the framework established by the Venezuelan program and teachers training. Thus far two workshops have been offered to our group of school teachers by French colleagues.

In October 2010 will take place in Caracas the II Regional IndagaLa Meeting, in which guests of Latin American countries will participate to show the achievements of their programs and to call the attention about the difficulties to develop it –in each country-- to a national scale. As a second point the future of IndagaLA portal will be discussed.

Our key objective. The main objective of our efforts is to develop and test the validity of a model for teaching science and to stimulate children's interest in science. We hope to offer this model to the Ministry of Education, the national organism responsible of education, as a proposal of formal science education at primary school that could be applied at national level.

Claudio Bifano. May 2010

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