

**Hands-On:
An Innovative Program for Teaching Science
In the Trnava Primary Schools**



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One Group, Two Marques

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On May 12, 2005, a partnership protocol aimed at promoting the teaching of science in primary schools based on the experience of the La Main à la Pâte (Hands-On) program in France was signed in Bratislava by Guy Ourisson, a member of France's Academy of Sciences at the Institut de France, Martin Plesch, a member of Slovakia's Academy of Sciences, Martin Fronc, Slovakia's Minister of Education, Daniel Vitry, director of international relations and cooperation at France's Ministry of Education, Peter Blaho, representative of the Trnava Faculty of Education, Anna Butasova, director of the Slovak Institute of Education, Stefan Bosnak, mayor of Trnava and Jean-Martin Folz, chairman of PSA Peugeot Citroën.

I – The Hands-On Program

In 1995, Georges Charpak, winner of the 1992 Nobel Prize for Physics, led a delegation of French scientists and educators on a visit to schools in underprivileged Chicago neighborhoods where an experimental science teaching program was achieving striking results. Subsequently, the French Ministry of Education launched a task group and 30 French schools in three different regions were selected as pilots for the new approach during the 1995-1996 school year. The results led to a commitment to revitalize the teaching of science in primary schools, officially launched on July 16, 1996 with the Hands-On program ("La Main à la Pâte" in French). At launch, 350 classes began using the method.

Many observers have noted that not enough classroom hours are devoted to science teaching and that even when the requisite number is spent, the teaching tends to focus on theory and book learning. Recent international evaluations show that French students reaching the end of secondary school lag behind in their science testing results and that science does not have a very positive image in their minds. The same is true in most other countries around the world.

Given the fundamental role that science and technology play in modern society and the manifest benefits of science teaching in awakening investigative abilities, observation skills and critical thinking in children, it is simply unthinkable to passively accept this state of affairs.

The Hands-On approach is based on the acquisition of knowledge through exploration, experimentation and discussion. This active process calls for inquiry, investigation, experiments and brainstorming, as opposed to rote memorization of facts and formulas. Students devise and carry out experiments themselves, discussing the results to broaden their understanding.

Learning is active, and direct involvement leads to the gradual acquisition of knowledge. Mistakes become opportunities to learn by sharing findings with peers and more advanced students, explaining one's ideas and opinions in writing and presenting them to the class. Different viewpoints are compared, as are different results from experiments to check their validity and reproducibility.

By 1999, the program was being used in around 2% of French schools, although its impact was much broader. A survey at the time underscored the very positive effects of the Hands-On method, not only for learning science, but to an even greater extent for improving social and psychological behavior. The method had an equally positive effect on language skills and general formation of thinking processes.

In June 2000 the French Ministry of Education decided to extend to all children the benefits of a method that had clearly proven its success. The Ministry recognized both Georges Charpak's insight and the contribution of the French Academy of Sciences.

This decision led to a program to revitalize the teaching of science and technology and progressively introduce a method based on Hands-On in every French school.

The Hands-On science teaching method has had an equally resounding impact around the world, in Africa, Asia, South America and other European countries. The content of the method is adapted to the material and cultural environment of each country.

[II – The Hands-On Program in Slovakia](#)

In Slovakia, the Ministry of Education and local educators have noted the same challenging issue facing many industrialized nations, namely the lack of interest among young people for technical and scientific studies. In response, they asked a delegation of experts to take a closer look at the French Hands-On program.

Following PSA Peugeot Citroën's decision to build a plant in Trnava, the innovative nature of the Hands-On method and the program's extremely positive results in France led the Group to sponsor **a Franco-Slovakian partnership to launch a similar program in three of the city's primary schools**. The support also reflects PSA Peugeot Citroën's longstanding belief in the importance of close relations between schools and businesses.

Spanning four school years, the partnership has already equipped the schools with teaching materials recommended by France's Academy of Sciences, trained Slovak teachers in the Hands-On method, and helped them put it into practice. Group support includes €35,000 in financing per school year, the participation of engineers from the Trnava plant, and the twinning of the Slovak schools with primary schools in the Group's host communities in France.

The partnership also enjoys support from a large number of institutions:

- France's Academy of Sciences is involved in the teacher training and information process, organizing exchanges of best teaching practices and providing teaching materials developed in France.
- Slovakia's Academy of Sciences is providing support for every phase of the program's educational activities, both in the Trnava region and the rest of the country. The Academy is helping promote science and technical teaching through conferences and scientific events designed to make science more accessible to primary schoolchildren.
- Through the Slovak Institute of Education, the Slovak Ministry of Education has helped to set up the pilot Hands-On program for participating schools in the Trnava region.
- The Slovakian Institute of Education is managing the pilot program, introducing Hands-On teaching in the three schools and tracking results. The Institute also prepares teaching materials used in classrooms in Trnava schools.
- The city of Trnava has created a resources center and is facilitating implementation of the Hands-On project at the three schools selected. If the project proves a success, the city will help to replicate it in other municipal schools.
- The Trnava Faculty of Education is helping to train teachers in the fundamental principles behind the Hands-On method. It is providing them with classrooms, conference rooms and labs, as well as computers and teaching materials, plus technical and science teaching facilities at Modra-Harmónia.
- The International Relations and Cooperation bureau of France's Ministry of Education is facilitating application of the partnership protocol. It is also providing financial support, covering the cost of training Slovak teachers in France and the cost of project follow-up by Hands-On teams at the French Academy of Sciences.

The partnership protocol comprises three phases:

- ▶ The initial development phase, now underway, runs from September 2004 to September 2008, during which the pilot project is being conducted at the Atomova primary school, the K. Mahra primary school and the Vancurova primary school in Trnava. In June 2004, six Slovak teachers from the three schools came to France for special Hands-On training, and in September they returned home to apply the new teaching method in their classrooms. Since then, a professor from the teacher-training institute in Poitiers has come to Slovakia to help get the program up and running.
- ▶ The second phase will see extension of the program to other primary schools in Trnava, based on results from the pilot classes.
- ▶ The third phase could see gradual extension of this exciting new way to teach science to the entire Slovak primary school system.