

Lessons from the experience and the role of the Academies

Academia Mexicana de Ciencias

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June 12, 2010

2001

Survey on adults going out of a mall

- V1** ¿Es cierto o falso que las plantas de la tierra evolucionaron?
57.2%
- V2** ¿Cuánto tarda la tierra para dar una vuelta completa alrededor
del sol?
53.9%
- V3** ¿Qué temperatura tiene el cuerpo humano (sin fiebre)?
48.0%
- V4** ¿Qué determina el sexo de un niño?
a El óvulo
b El espermatozoide 22.0%
c Dios
- V5** Después de que salga en cuatro volados cuatro veces águila,
¿qué es más probable que salga en el quinto volado?
a águila
b sol 28.3%
c los dos igual

S1 ¿Cree usted que los aries tienen dificultades para encontrar satisfacción en la vida?

- a Sí.**
- b No.**
- c No cree en el zodiaco.**

73.3%

S3 ¿Se dejaría hipnotizar para saber algo de sus vidas anteriores?

53%

S4 ¿Cree que las fotografías de ovnis son fotomontajes?

43.2%

R4 ¿Existe el diablo? 54.8%

**02 ¿Cree usted que hay personas con
poderes de magia negra? 59.6%**

**03 ¿Cree usted que una cruz le puede
proteger de los malos espíritus?
52.7%**

WORKSHOP WITH TEACHERS

IN PROBLEM SOLVING

**Pablo buys a horse in \$10,000, he sells it in
\$12,000, he buys it again in \$14,000 and
finally
he sells it in \$16,000”
P r o f i t o r L o s s ??**

The majority answer that Pablo got a profit of \$2,000.

Some answer that there is no profit or loss.

Other group answer that Pablo got a profit of \$6,000.

Very few have the correct answer.

A sample of the explanation:

He bought it in \$10,000, he sold it in \$12,000, so he got a profit of \$2,000. He bought it again in \$14,000, so he lost \$2,000, now he is with no profit or loss. Finally he sold it in \$16,000, so he has a profit of \$2,000. Final answer \$2,000 profit

Pablo bought it twice so he paid \$24,000

and sold it twice and got \$28,000

so he got a profit of \$4,000

2002

**First year of “La Ciencia en tu
Escuela”**

First Steps

- Program designed, structured and coordinated by the **Mexican Academy of Sciences**
- Supported from the Ministry of Education and the National Council of Science and Technology.

Goals

- Change the **teachers'** and **students' attitude** towards Sciences and mathematics
- Bring together teachers and scientists to find new and attractive ways to teach mathematics and sciences
- Look for alternative teaching methods to raise the interest and curiosity of the children through more interaction with experimentation to promote a better and more dynamical learning.

Guidelines

- Follow the Mexican official curricula.
- Benefit teachers and students .
- Focus on 5th and 8th grades.
- Evaluate all of the work.

Evaluations

Internal and external evaluations:

- Qualitatives (videos interviews)
- Quantitatives (questionnaires)

At the beginning everybody in the group was evaluated (teachers, their students, lecturers, social service students, administration people)

2003

Conclusions of the first evaluation

- Include **language** besides sciences and mathematics.
- Carefully select the teachers trainers.
- Work with all 9 grades in primary teachers(language, sciences and mathematics) and with specific guidelines for 3 grades of secondary school teachers.
- Teachers applied the material and what they learn immediately.

2004

First IANAS meeting
Santiago de Chile

Academies of Sciences.

- In this meeting the program Science at your school faced some questioning and had to state clearly their lines:
- Science at your school is a unique program concern about **teachers**, their knowledge and their methodology. (Does not work with students)
- Science at your School design units and didactical material for **teachers**.
- Science at your School is a program that works with the specific national problematic.
- Science at your school must work out a good evaluation system.

2007

Fourth IANAS meeting
Mexico City Mexico

Some results

- First national prize to the best social service of university students in UNAM
- Several thesis (master, BA) about the program (evaluations, impact, pedagogy...)
- Promotion for teachers that got the diploma
- Evaluation(made by the government): Good impact on students of teachers participating in the program in rural areas
- We had a waiting list to attend the program

2008

Fifth IANAS meeting
San José, Costa Rica

- We were ready to share our experiences (funding, politics, academy, organization, materials at no cost...)
- We were ready to grow the program.
- We had funds from private enterprises

International Presence

The Mexican Academy of Science signed a cooperation agreement with other academies in order to help their teachers work with the program Science at your School.

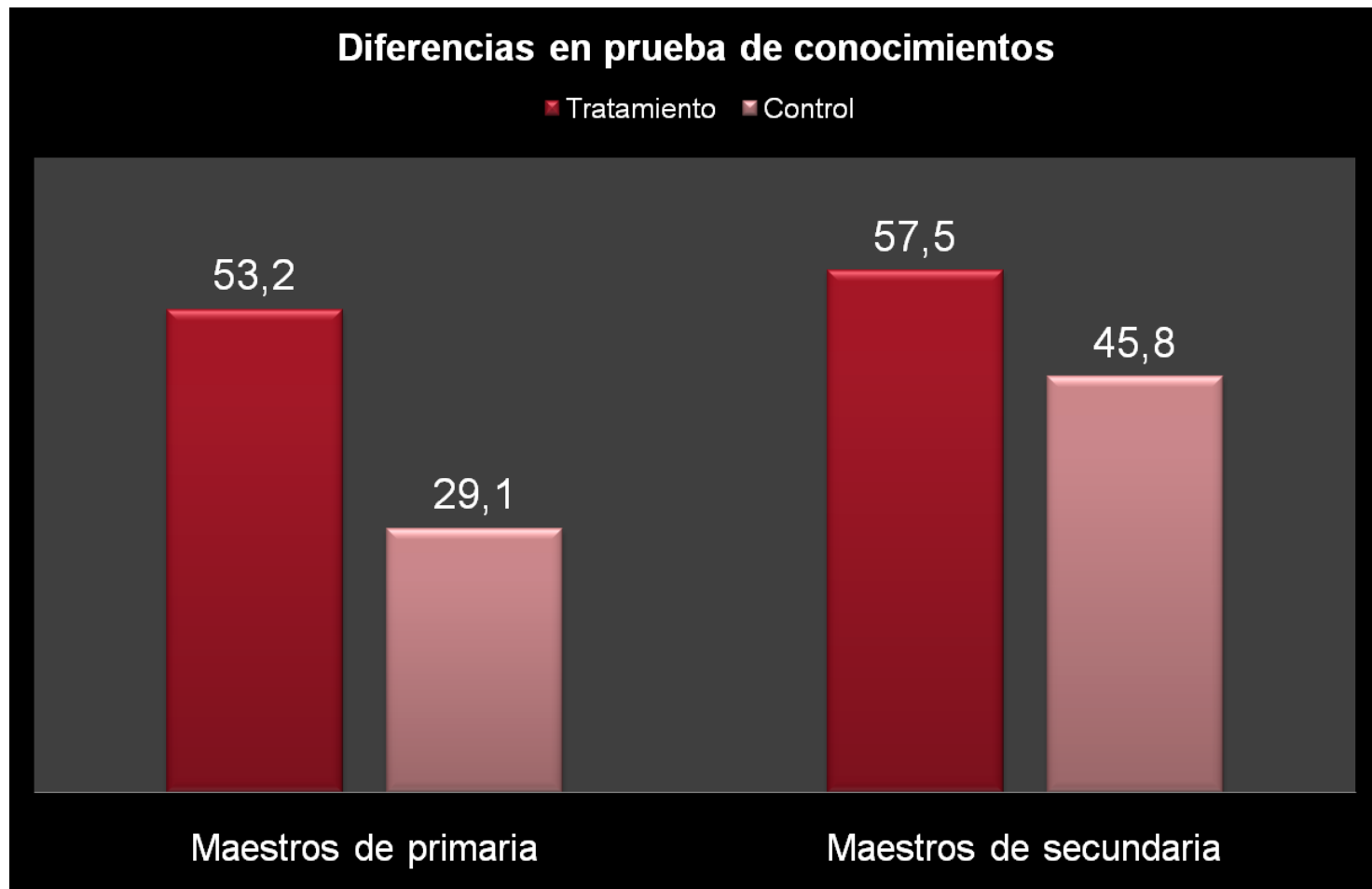
We have done some international seminars, 59 workshops and lectures in Guatemala, Panamá, Perú, República Dominicana.

More than 200 “experimenta kits” for teachers offered.

Science at your School cluster hosts the web site “Indágala” at no cost.

- Internal and external evaluations with very **good results** have been done .
- By the Mexican government (presence and distance program).
- An external evaluation made by an educative consultancy “Valora” was done. (First program to have an evaluation of this type).

An example



Turning point **EVALUATIONS**

Nowadays

- The program Science at your School work with more than 1000 teachers and rural teachers every week in the presence mode.
- The distance mode started training 400 teachers from 29 states last October.
- We have 3000 teachers for the next generation in the distance mode.
- Summer Camp is done every year with all the teachers attending the program.

To new academies and programs

- Start with a small group.
- The program must be adapted to the country.
- The program must be evaluated at least internally.
- Follow the evaluations and be confident on what you are doing.
- It is important to have the support of the Academy , it gives credibility, they can help to raise funds...
- Be open to different points of view.
- There are three programs in Latin America and the Caribbean countries, take what can be adapted best to your country and create your own program.
- We, IANAS have to help the new programs