

PAUTA

Programa Adopte un Talento



Virtual Educa, Suriname 2012



PAUTA

Programa Adopte un Talento

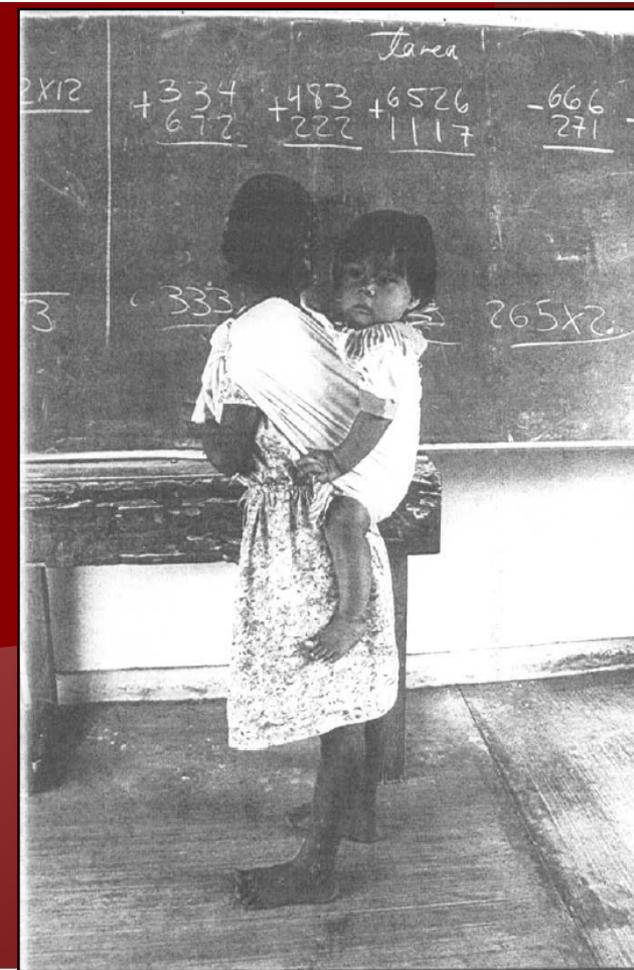
PAUTA

Programa Adopte un Talento



PAUTA

Programa Adopte un Talento



A project endorsed by the Mexican Academy of Science and directed by members of the academy.

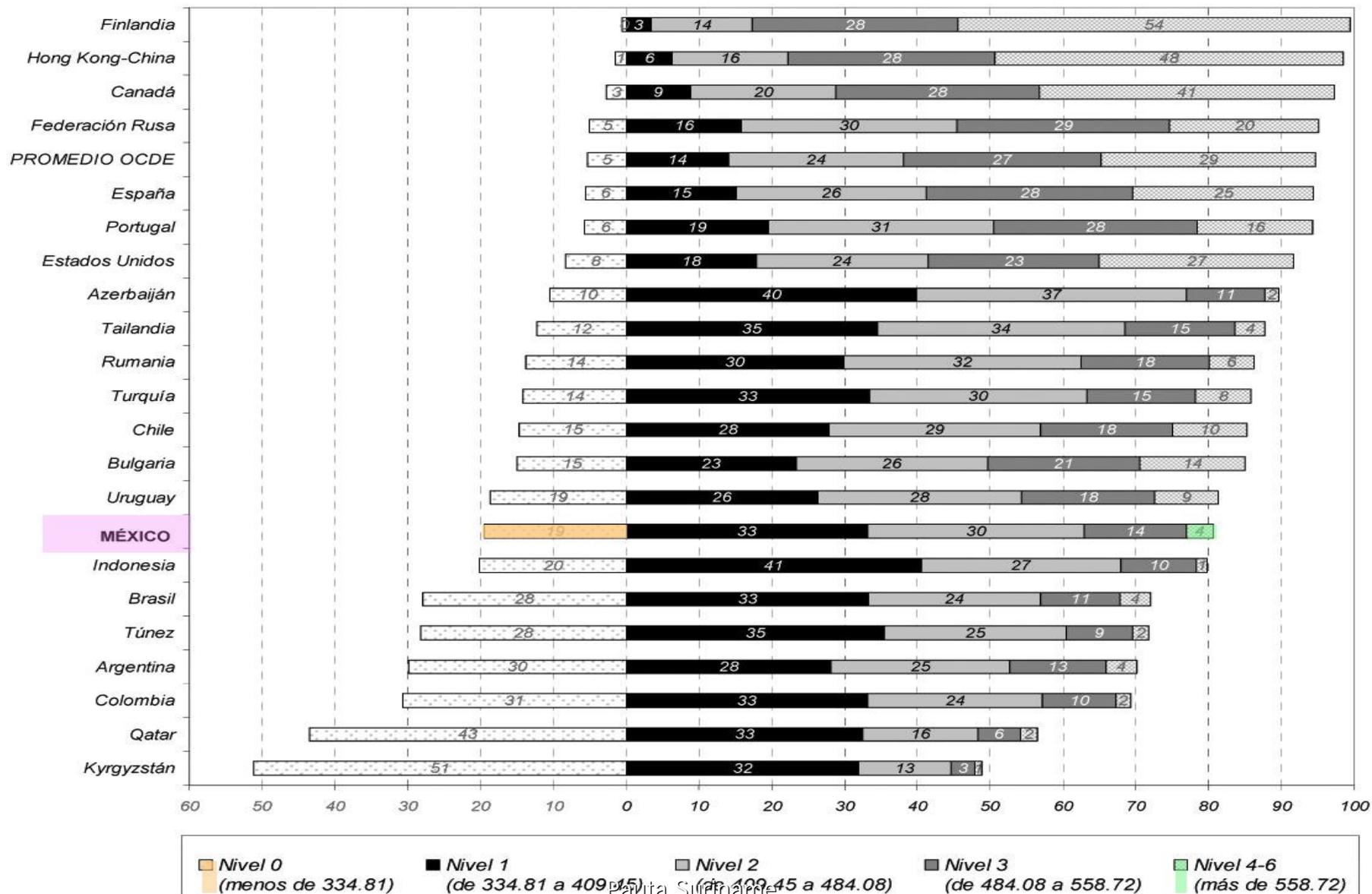


# PISA (OECD)

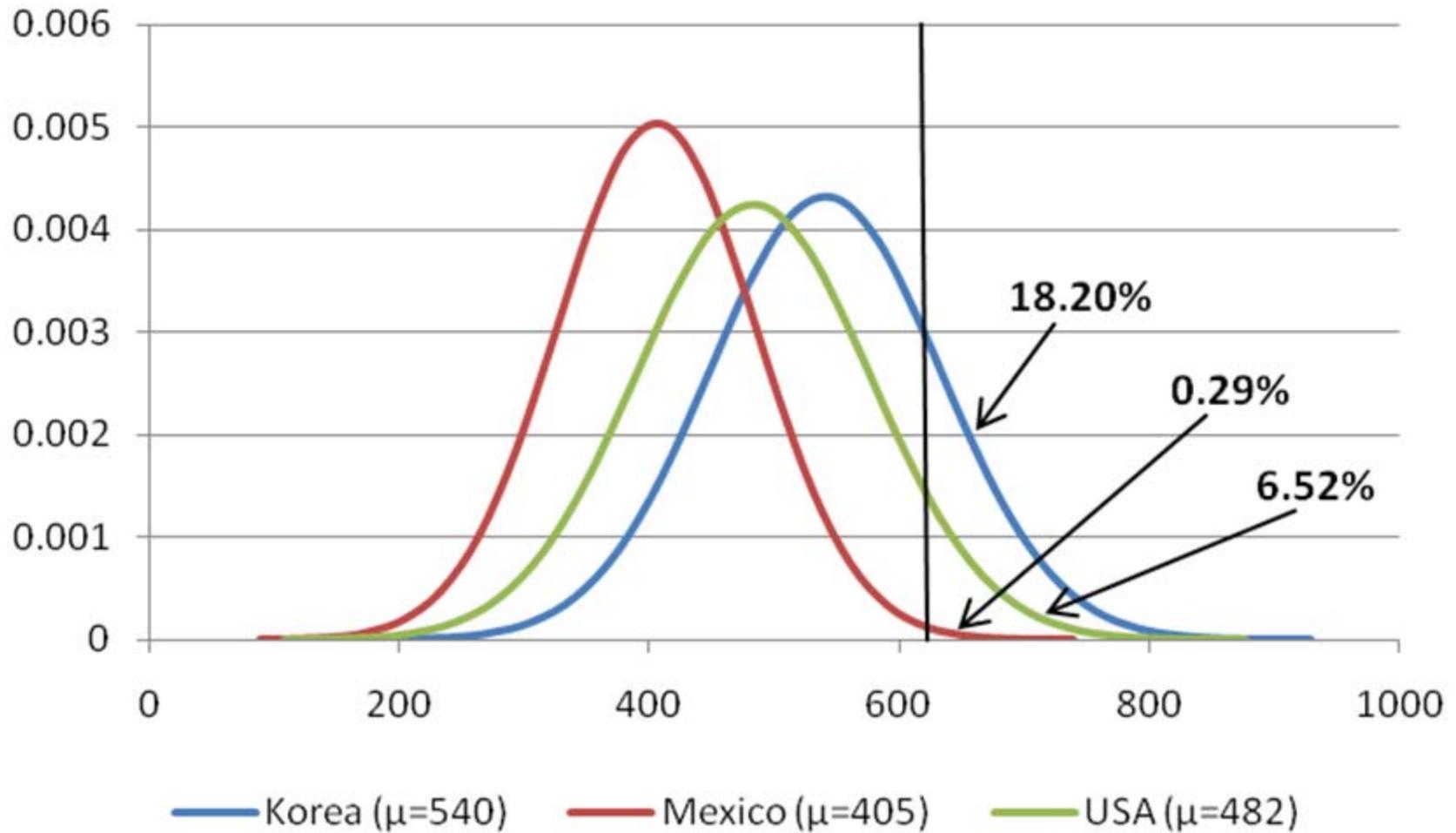
PISA (*Programme for Indicators of Student Achievement*) attempts to establish international indicators of the level of education in each country.



# Natural Science PISA 2006



# PISA Results for USA, Korea and Mexico



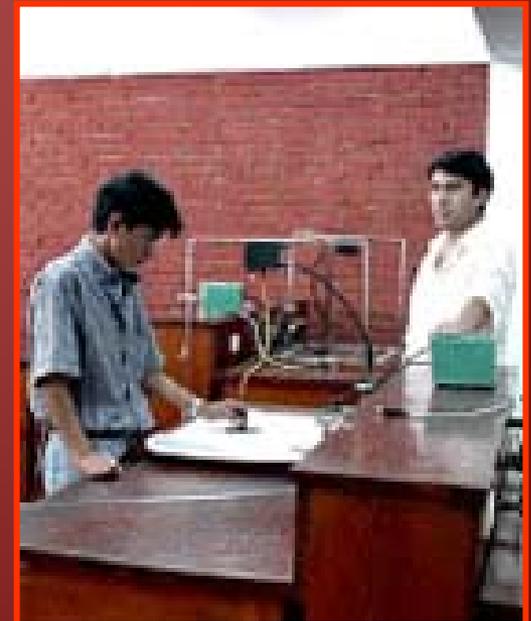
# Secondary School

64%



33%

# Highschool (last 3 years)



2.7%

In Scientific-Technological Areas



Students at professional levels  
~20%

How to consolidate scientific and technological development in Mexico?



# Some Well-Known Facts

- During the period 1970-2000 the GNP (in dollars) grew in Mexico **3.8 times**, in Brazil **6.3**, in Spain **7.4** and in Corea **25.3 times**.
- In the same period, investment in S&T as a percentage of GNP, grew by a factor of **two** in Mexico, **4.5** in Brazil, **five** times in Spain and **nine** times in Corea.
- While the US invests **960** dollars per inhabitant in Science and Technology and Spain spent **400** dollars, in Mexico the amount is around **20** dollars.

# Science Education and Research in Mexico

**Opportunity  
Access to the Economy  
of Knowledge**



# How to Achieve the Aims of this Meeting?

Innovation Competitiveness Development

Education should be a common good.

- As has been stressed here: **Education should drive educational technology and not viceversa.**
- We believe that an educational/scientific framework, face to face program is needed, including expert human resources and a support system for teachers and students, before technology-based methods can be successful.

# We need to deal with the apparent incompatibility of two fundamental requirements of education



**Equity**



**Excellence**

# PAUTA

## Scientific Project: our children

**pauta: model, guideline, rule**

- The Adopt a Talent Program (PAUTA) is a national project that aims to reconcile these two fundamental educational demands.
- PAUTA identifies talented students in scientific areas and math, to offer them academic, financial and logistical follow-up and support during their school experience up to the university level.



Pauta Suriname



Programa Adopte un Talento



Programa Adopte un Talento



## What is PAUTA? : Programa Adopte Un Talento

- We encourage the natural inquisitiveness of children to grow and thrive and to think critically about the world.



Pauta Surinar



Programa Adopte un Talento



## What is PAUTA?

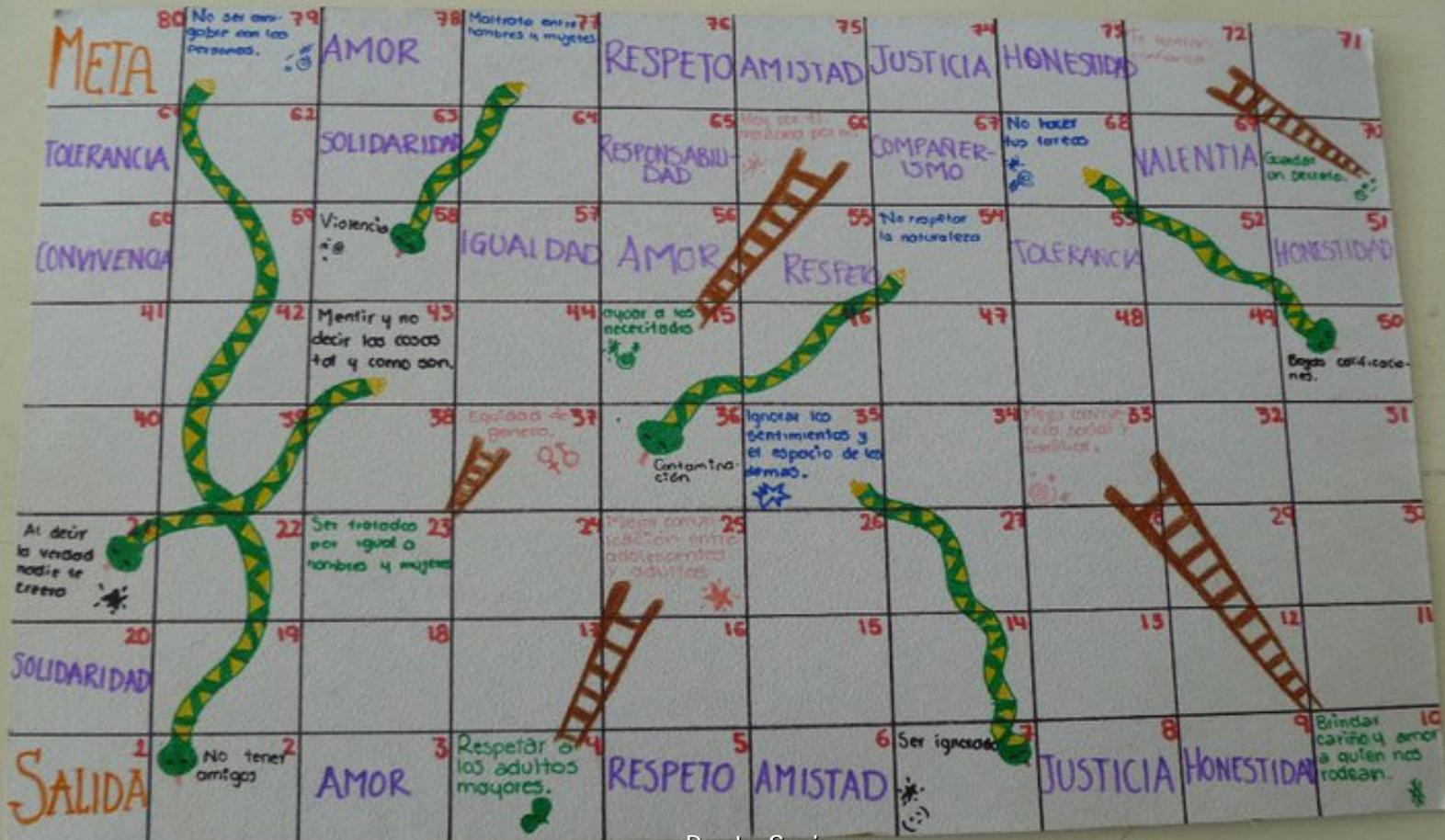
*PAUTA offers free extracurricular, enrichment workshops to teachers and students of primary and secondary schools.*



# Pauta Wokshops in Chiapas



# Pauta incorporates teaching of communitary values to children. We promote an egalitarian society.





# Talent

- The debate in Mexico has focused on the lack of opportunities for the most outstanding scientists of our country and the subsequent brain exodus. This, in effect, exists as a constant leak.
- However, rarely a much greater loss is talked about. It is the millions of children that never have the opportunity to reach a university education; our wasted talents.

# TALENT

Wide definition: can be **cultivated** and it can manifest itself in diverse forms, if properly supported.



Programa Adopte un Talento

- 1 Admits a wide range of definitions for the existence of special skills, capabilities and performance.
- 2 Recognizes the critical importance of both individual and environmental variables for the development of talent.
- 3 Proposes operational criteria to define appropriate extensions of the concept. (Gagné, 1993).

# La Educación de Niños con Talento en Iberoamérica



Oficina Regional de Educación  
para América Latina y el Caribe

(UNESCO)

Gagné (1993): "La emergencia de un talento particular resulta de la aplicación de una o más aptitudes al dominio y maestría del conocimiento y destrezas en ese campo particular, mediado por el apoyo de variables o catalizadores intrapersonales (ej. motivación, confianza en sí mismo) y ambientales (ej. familia, colegio, comunidad), como también por el aprendizaje sistemático y la práctica continua"

- Chapter 1 Education and diversity
- Chapter 2 Towards a definition of talent
- Chapter 3 Identification and evaluation of talented children

# Bridge

- Adopt A Talent Program (PAUTA) establishes direct ties between the Mexican scientific community and the educational structures and human resources of elementary and middle school levels.
- Facilitators are advanced students in science, math, medical, engineering and others.

# We directly involve the teachers

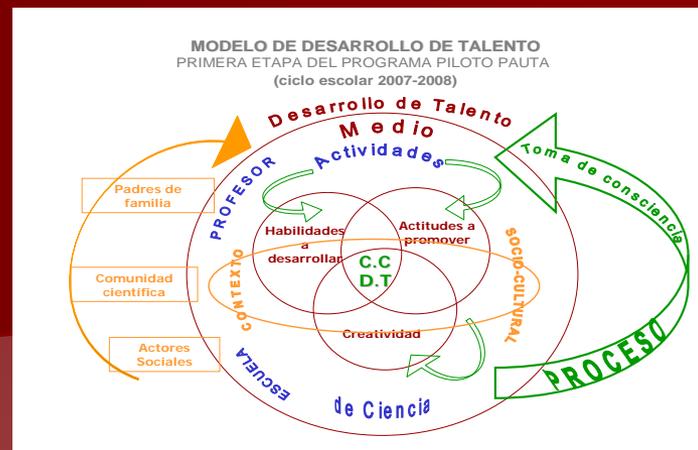
Key to improve the teaching and learning processes, and the detection of **talent**.



# What is the Pauta process?

## In essence:

- We generate **Scientific Workshops** at schools and out of school, specifically directed to children and used as a means of identification and development of talent.
- **The teachers** work in groups using the same materials and methods that will be transmitted to the children, using specially developed materials. (Grupo Pauta, CECADET, Universum, Pollen,...)
- The **“Pauta students”** are selected and given academic support and scholarships through a follow-up program that accompanies them till they reach higher studies.



## What is a Pauta Workshop?

A Pauta Workshop is a space dedicated to the teaching of science and mathematics that promotes abilities and attitudes that stimulate the development of talent

Pauta workshops are designed on the basis of processes that promote the development of knowledge -> horizontal and group work, discussion and presentation of conclusions.

**Pauta has teams of experts that advise in diverse scientific fields and the teaching of science.**

**Parents are given orientation talks.**

Pauta Suriname

## Some contents

### **Biology:**

Butterflies in Time: Natural Selection

Acid Rain: Ecology and Environment,

Chocolate and Cacao: trees, fruits and flowers

### **Physics:**

The trip of electricity: electric charge.

Water: Potential and Kinetic Energy. Hydroelectric dams

Playing with Light :Reflection and Refraction

### **Mathematics:**

Find the number: Variables, Constants

Children games: Linear equations

Construct a dimension: Surface, Volumen

# Three moments

- Group is divided into subgroups of 4 or 5 children (or teachers) per working table. Facilitators accompany the process but do not direct activities or necessarily provide answers.

## Time

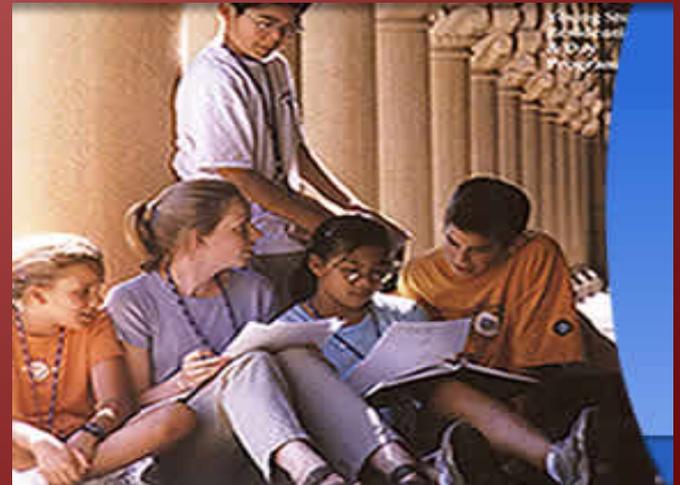
- 1) Materials Manipulation, Experiment (50%)
- 2) Discussion among group members(25%)
- 3) Presentation of each group's results(25%)

# A Pauta workshop: moments and related abilities

I. Presentation of the Problem	II. Construction	III. Finding Sense
<ul style="list-style-type: none"> <li>□ Define and Analyze</li> <li>□ Define significant factors.                             <ul style="list-style-type: none"> <li>□ Elaborate predictions and conjectures.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>□ Identify, collect and register data.                             <ul style="list-style-type: none"> <li>□ Describe and classify.                                     <ul style="list-style-type: none"> <li>□ Test ideas, predictions or explanations.</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>□ Detail possible solution of the problem.                             <ul style="list-style-type: none"> <li>□ Evaluate data-                                     <ul style="list-style-type: none"> <li>□ Identify patterns and relationships.</li> </ul> </li> </ul> </li> <li>□ Justify inferences.</li> </ul>

# Follow-up

- Pauta students of higher and advanced levels and groups of researchers will become tutors that will coordinate and guide younger Pauta students.



# Other Actions

- Public spaces, museums and libraries.
- Science Camps, Communal Experiments
- Direct entrance from Academic Olympic competitions (highschool, under construction).
- Early stages: **PAUTITA** (pre-scholar, under construction)



# Science Camps



# Further Activities

- Visits to research facilities, Pauta Meetings.
- Researchers visit Communities and lecture.
- Acknowledge, recognize and support



S.

Pauta Suriname



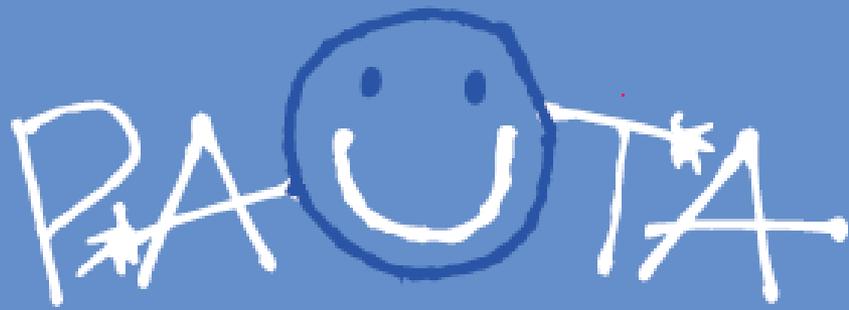
# Integration

- Program ends when students obtain University degrees, but will continue association to the project as tutors.
- Conacyt higher education scholarship holders.



# FINANCING:

- Public and private donors. We have obtained resources from Conacyt, Educational Ministry of Federal Government, UNAM and diverse Foundations, individuals.
- Main source in the future: civil society campaign of “adoption”. Personalized Information.

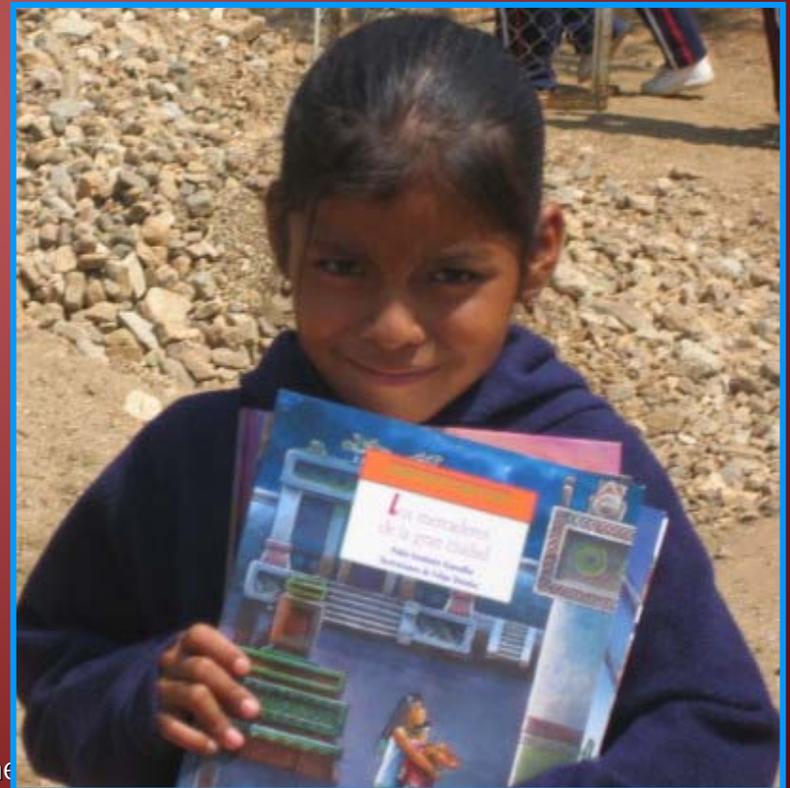


Programa Adopte un Talento

# ADOPT A TALENT

## General Scheme

We aim to create an **"adoption" scheme** whereby private citizens or organizations will directly support the Pauta children.



# PAUTA in Mexico

Sinaloa\*

MICHOACÁN

DISTRITO  
FEDERAL

MORELOS

TABASCO\*

CHIAPAS



# Example: PAUTA

## CHIAPAS

- Multiculturality workshops related to regional interests and languages. Gender Programs.



# Chiapas

- Pauta in tsel'tal and tzotzil as second languages.
- Ecology and Biodiversity gatherings.
- *Teachers Groups that follow Pauta training.*



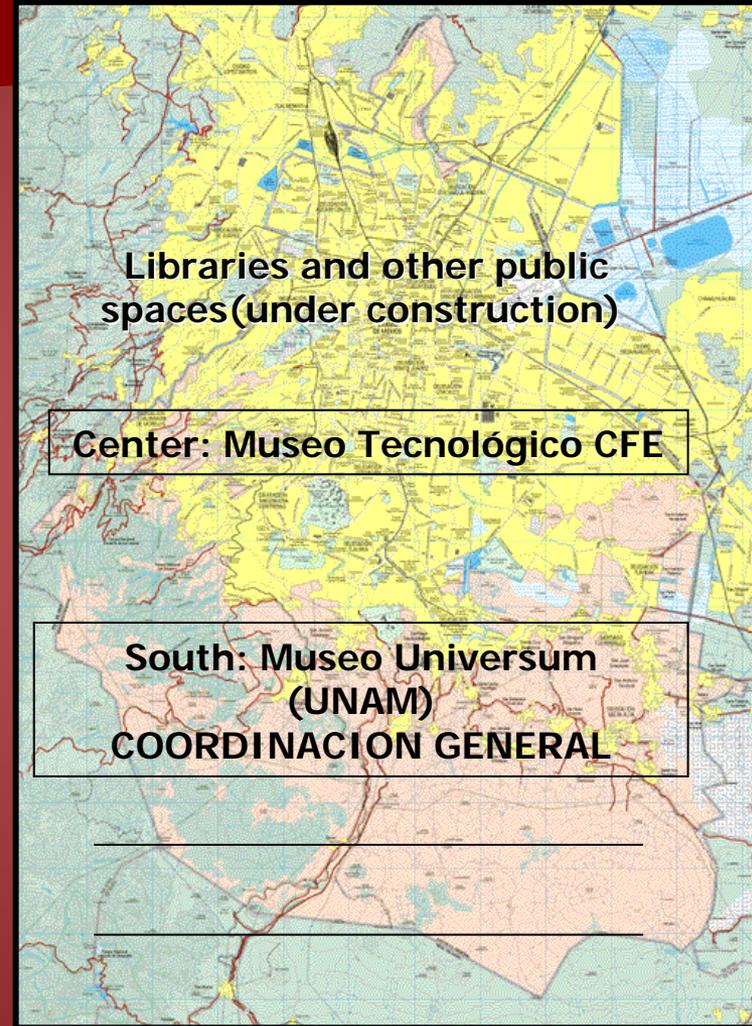
Pauta Suriname

# PAUTA

## Mexico City



Pauta surname



# Mexico City

- Pauta workshops for Normalists , elementary education teachers and hundreds of children in two Museum locations.
- “Desafíos Pauta”: science contests.



# Morelos and Michoacán

Morelos has a very strong and participative scientific community. Numerous activities with highschool students.

Michoacán: a close alliance between primary school teachers and scientists. They concentrate on young children.



# Looking for an interactive platform

## New Communication Technologies: Pauta Portal (Financed by Conacyt -under construction)

In collaboration with CCADET, UNAM. Group leader Dr. Francisco Cervantes, former Director of Education at a Distance at UNAM, e-learning, online education.

- Incorporate information and communication technologies to the Pauta workshops.
  - Follow-up program for Pauta students.
  - Tutor-student communication pyramid.



Pauta Suriname

# Near Future

**New Materials, Increased association with gubernamental offices, private sector and individuals; improved telecommunications (in association with experts at UNAM), Foundations, Other States of the Republic.**

**We hope to collaborate with the OAS, to share the PAUTA project with our neighbors in the American Continent and exchange experiences.**



Pauta Suriname



# Outlook

**PAUTA is establishing itself as a program that attempts to increase scientific culture in our country, contributing to a more egalitarian society through opportunity.**

**PAUTA: Our talented children and their teachers require a solid communication channel with the academic and scientific communities.**

**Civil Society can participate directly, by "adopting a talent" and establishing a long-term link with the Pauta children, till they reach higher education.**

**We are searching for strategic associations with non-profit organizations and Foundations to extend our activities, both to online education and to other countries.**



Programa Adopte un Talento



*"We make our world significant by the courage of our questions and the depth of our answers"*

*"Science is a way of thinking much more than it is a body of knowledge."*

*"Bright and Curious children are the most valuable natural resource of the nations of the world. They need to be cared for, appreciated and encouraged. But this encouragement is not enough. We need to provide them with the essential tools to learn how to think"*



Carl Sagan

[www.pauta.org.mx](http://www.pauta.org.mx)

[janet.verjovsky@pauta.org.mx](mailto:janet.verjovsky@pauta.org.mx)

[frank@nucleares.unam.mx](mailto:frank@nucleares.unam.mx)

Pauta Suriname

**Scientific Directory Pauta**

Dr. Alejandro Frank

Dr. Jorge G. Hirsch

Dra. Julia Tagüeña

Dr. Leobardo Serrano