Programa Adopte un Talento

Virtual Educa, Suriname 2012
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.
Secondary School

64%

Highschool (last 3 years)

33%
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

Pauta Suriname
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 vice versa.

- 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.

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We need to deal with the apparent incompatibility of two fundamental requirements of education.
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.
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.
What is PAUTA?

PAUTA offers free extracurricular, enrichment workshops to teachers and students of primary and secondary schools.
Pauta Workshops in Chiapas
Pauta incorporates teaching of communitary values to children. We promote an egalitarian society.
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.

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

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

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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.

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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.
- Playing with Light: Reflection and Refraction

**Mathematics:**
- Find the number: Variables, Constants
- Children games: Linear equations
- Construct a dimension: Surface, Volumen

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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

<table>
<thead>
<tr>
<th>I. Presentation of the Problem</th>
<th>II. Construction</th>
<th>III. Finding Sense</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Define and Analyze</td>
<td>□ Identify, collect and register data.</td>
<td>□ Detail possible solution of the problem.</td>
</tr>
<tr>
<td>□ Define significant factors.</td>
<td>□ Describe and classify.</td>
<td>□ Evaluate data-</td>
</tr>
<tr>
<td>□ Elaborate predictions and conjectures.</td>
<td>□ Test ideas, predictions or explanations.</td>
<td>□ Identify patterns and relationships.</td>
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<td>□ Justify onferences.</td>
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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 PAUTA Schools.
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.
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*

CHI APAS
Example: PAUTA

CHI APAS

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

- Pauta in *tseltal* and *tzotzil* as second languages.
- Ecology and Biodiversity gatherings.
- *Teachers Groups that follow Pauta training.*
Mexico City

 Libraries and other public spaces (under construction)

 Center: Museo Tecnológico CFE

 South: Museo Universum (UNAM)

 COORDINACION GENERAL
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.
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.
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.

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“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

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Scientific Directory Pauta

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