NATIONAL PROGRAM OF EDUCATIONAL INFORMATICS, OMAR DENGÒ FOUNDATION, COSTA RICA: DIGITAL TECHNOLOGIES AS LEARNING TOOLS

Laureates’ Seminar of UNESCO King Hamad Bin Isa Al-Khalifa Prize for the Use of ICTs in Education
13 January 2016, UNESCO HQ, Paris
A non-profit organization that develops and implements innovative education proposals focused on learners and their appropriation of digital technologies to stimulate cognitive capacities, collaboration and innovation.

Mission: to contribute to improving quality and equity of learning opportunities and to promote critical, creative and productive citizens.
The Omar Dengo Foundation
Learning opportunities: access and inclusion

Rural communities
Small entrepreneurs
Senior citizens
Indigenous communities

National Children’s Hospital
Special learning needs
Children & youth out of school system
Teenage mothers
THE NATIONAL PROGRAM FOR EDUCATIONAL INFORMATICS
PRONIE MEP-FOD

- A public-private partnership: Ministry of Education and Omar Dengo Foundation
- A sustainable program: 29 years
- A growing national coverage: 80% student population
- A particular use of ICT’s aim to develop cognitive & social skills
- Equity and inclusion perspectives
PRONIE MEP-FOD

ICT-based educational proposals

Educational Informatics Lab: problem solving, logical thinking and creativity

Mobile technologies in the classroom: curricular support and equity

Extracurricular robotics and programming

Entrepreneurship and innovation

Promotion of scientific abilities

Digital literacy
Number of students benefited and national coverage percentage per year
PRONIE MEP-FOD
1988-2015

2,500 schools
580,000 students
An integrated implementation model

- Inter-institutional coordination
- Teaching-Learning proposal
- Financial & administrative management
- Equipment and technical support
- Teacher professional development
- Monitoring, evaluation and research
PRONIE MEP-FOD
Objectives: The use of the computers as tools to develop student’s high level thinking skills and train teachers in the methodology to be used rather than on the computer hardware and software.

**Thinking skills**
- Creativity & Innovation
  - Critical thinking, problem solving & decision making
  - Learning to learn/ Metacognition

**Living skills**
- Citizenship—local & global
- Social and personal responsibility
- Cultural awareness and capacity

**Working skills**
- Communication
- Collaboration

**Working tools**
- Informatics literacy
- Digital literacy
PRONIE MEP-FOD
Objectives: The use of the computers as tools to develop student’s high level thinking skills and train teachers in the methodology to be used rather than on the computer hardware and software.

**Digital citizenship**
- Use technology to participate in the local and global community, using effectively web collaboration tools

**Thinking and problem solving skills**
- Use technology to think, research and solve problems drawing on different formal thinking frameworks

**Entrepreneurship and innovation**
- Use technology to create new ideas and ventures, and to lead them to success

**Digital technology ownership**
- Use technology to create useful products and know how to use tools effectively with an understanding of digital systems

**Communication**
- Use technology to think, research and solve problems drawing on different formal thinking frameworks

**Collaboration**
- Use technology to create useful products and know how to use tools effectively with an understanding of digital systems

**Creativity**
- Use technology to create useful products and know how to use tools effectively with an understanding of digital systems

**Information literacy**
- Use technology to create useful products and know how to use tools effectively with an understanding of digital systems

**Self-direction**
- Use technology to create useful products and know how to use tools effectively with an understanding of digital systems

**Ethics and security**
- Use technology to create useful products and know how to use tools effectively with an understanding of digital systems
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Educational Informatics Lab: a place to think, collaborate and create

Expected learning outcomes:
• Problem solving and research
• Citizenship and Communication
• Productivity

Pedagogical methodologies:
Project Base Learning
Design Base Learning
Programming

Didactic Guides for teachers
Monitoring and formative evaluation
Teachers training and support

1170 schools
2 lessons per week, 90 minutes
An on-line learning platform specially designed for teachers

Professional Development Program: initiating teachers program, updating courses, personal interest courses, didactic materials, learning communities, etc.

Personal publication of products

Follow-up and coaching processes
<table>
<thead>
<tr>
<th>OUTPUTS</th>
<th>OUTCOMES</th>
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<tr>
<td>Contributions to the educational policy</td>
<td>In its direct and indirect beneficiaries</td>
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<td>• Clear learning expectations in a key learning domain</td>
<td>• A largely documented effect on the students’ self-efficacy</td>
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<td>• An educational proposal based upon a solid conceptual and methodological framework</td>
<td>• A positive and accumulative effect on dimensions such as problem solving skills</td>
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<td>• An efficient and sustainable institutional architecture and management model</td>
<td>• An evident -though hard to measure- impact on the national productive structure and economy</td>
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<td>• Systematic monitoring and evaluation system</td>
<td>• An acknowledged contribution to reducing the digital gap inside the country</td>
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Current challenges

• Complete the incorporation of rural isolated communities
• Access to Internet for all
• Professional Development Opportunities
Digital gap: an expression of social exclusion
Distribution of technologies in schools alone does not impact learning outcomes
Clear learning objectives and methodologies are required to impact learning outcomes
Teachers need to learn how to use the new technologies to mediate
Introduction of ICT’s in schools need short and middle term planning
Scaling and sustainability of programs should be resolved from the design phase
Logistics and administrative issues are important
The educational design and the organizational model should be able to adapt to changes through critical thinking, evaluation, research and development
Collaboration, international cooperation and accountability: key elements
“The future has to be dreamed, desired, created”

Omar Dengo