D-lab Team Ecuador

Trip Leaders: Anna Young, Jose Gomez-Marquez

Students: Nick Pellegrino and six other anonymous students
Qualitative Needs Assessment

• D-Lab’s first trip to Ecuador!

• We hope to:
  • Identify projects for both D-Lab and D-Lab Health
  • Through:
    • Group assessments
    • Individual interviews

• Emphasis on participatory survey

• Both an asset-based and a needs-based assessment
IT Projects

- Deploying software to facilitate education
  - Emphasizing the creative process
- Introducing programming to computer students
  - Past background is in using programs, not changing/creating them
Hydroponics

• Problem addressed
  • Poor community health

• Hydroponic Systems
  • No soil, low cost, little land

• Project Goals
  • Improve health through increase in vegetable intake
  • Aid city microenterprise by making growth of profitable vegetables easier
  • Teach the technology to partners

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Encouraging Design Through Hydroponics Assembly

**Educational Program**
- Provide kits for building hydroponics systems
- Encourage students to change design to match their home
- Determine effectiveness through contact with partners

**Goal for Impact**
- Students gain confidence designing for their community
- Program will continue after we leave
- Provide a base for similar future D-Lab projects
## Background on MEDIK Project

<table>
<thead>
<tr>
<th>Identified Problem:</th>
<th>Work So Far:</th>
<th>Plan for IAP</th>
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</table>
| • Most medical equipment is donated  
• 80% of donated equipment fails because of lack of user knowledge and maintenance  
• D-lab Health team 2009 found centrifuges major limiting factor | • Turn the tables: instead of MIT students design, the users design  
• MEDIK project gives healthcare workers tools to innovate and maintain  
• 6 kits taught through class in Nicaragua | • Begin a new program in Ecuador  
• Set up class and workshop to work with microfluidics and diagnostics  
• Identify both urban and rural partners  
• Tailor program to different situations  
• Modify kits to meet specific needs of partners |

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**Mt**

**Work So Far:**
- Turn the tables: instead of MIT students design, the users design
- MEDIK project gives healthcare workers tools to innovate and maintain
- 6 kits taught through class in Nicaragua

**Plan for IAP**
- Begin a new program in Ecuador
- Set up class and workshop to work with microfluidics and diagnostics
- Identify both urban and rural partners
- Tailor program to different situations
- Modify kits to meet specific needs of partners
Turn concepts into building blocks

Conceptualize the Technology

Test Read out

Chemical test

Sample entry

Chemical test and test read out

Sample entry

Different options to create different systems: multiple/different tests, sensors
Ensuring Reliable Water Sources

Right Now in Ecuador:
- In most areas: piped water is either unavailable or contaminated and unsafe
- Not enough water available to support hydroponic systems

To Do:
- Design household rainwater collection and purification systems
- Identify different levels of water needs and integration into their environments
- Analyze water quality and safety conditions through testing