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## Engineering South of the Border: A Librarian's Experience in Nicaragua

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# Engineering South of the Border: A Librarian's Experience in Nicaragua

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ASEE Annual Conference,  
San Antonio TX  
Monday, 11 June 2012





Source: Alexrk2 (2010).



# AGII / IGIA

## Applied Global Innovation Initiative

of Grand Valley State University

### *Iniciativa Global de Innovación Aplicada*

- **Vision:** Empowering people to change their world with their resources
- **Mission:** Through product innovation that is interdisciplinary, intercultural, and innovative in approach the Applied Global Innovation Initiative empowers individuals (communities, faculty, staff, and students) to address challenging environmental, economic, and social issues facing the world's poorest populations.



# AGII Partners

- Grand Valley State University
  - Dr. Paul Lane, Seidman College of Business
  - Dr. John Farris, College of Engineering
- UNAN-Managua & FAREM Estelí
- CENAC – Spanish language school, Estelí
- Tiger Studio Design – Industrial design, Zeeland, MI



Source: W. Beckmann



# AGII – May 2012

- ~130 Participants:
  - 100+ students from UNAN's campuses
  - 25+ UNAN faculty
  - Including various engineering disciplines, business administration, economics, computer science, psychology, anthropology, philosophy
- 4 Nicaraguan translators
- 5 AGII Project Coordinators and ~dozen project partners and volunteers with a range of skills and backgrounds



# Teaching Innovation in a Week

**PROCESO DE INNOVACIÓN**

-

**INNOVATION PROCESS**

IDENTIFICACIÓN DE OPORTUNIDADES

-

OPPORTUNITY IDENTIFICATION

LLUVIA DE IDEAS

-

BRAINSTORMING

DIAGNOSTICO DE CONCEPTO (DESARROLLO)

-

IDEA SCREENING

DESARROLLO DE CONCEPTO

-

CONCEPT DEVELOPMENT

BOSQUEJO

-

SKETCHING

DIAGNOSTICO DE CONCEPTO (APLICACIÓN)

-

SCREEN APPLICATION

PLANIFICACIÓN DE NEGOCIOS

-

BUSINESS PLANNING

MODELO EN 3D

-

3D MODELING

PRESENTACIÓN

-

PRESENTATION



# Getting Acquainted



“Human Knot”



Source: P. Haynes



# Brainstorming, Screening

## Grupo Café.

- Pino + Bambú + Material reciclable.
- Lopicero que marque la hora y de una alarma.
- Crear materiales de construcción a base de desechos.
- Abánico solar.
- Elaboración de jabones a base de aceite de cocina.
- ~~...~~

- 1- Adaptación en los...
- 2- Tratamiento de líquidos (Lactos)
- 3- Selección de residuos sólidos
- 4- Sustituir el método de iluminación por coc...
- 5- Implementación bidireccional de iluminación

N# 21

## Café

- \* Desarrugador de Ropa.
- \* Lava ropa recicladora de agua.
- \* ~~...~~
- \* Combustible natural para auto.
- \* Energía renovable Domestica.
- \* Lava plato económica.
- \* Deshidratador de alimento.

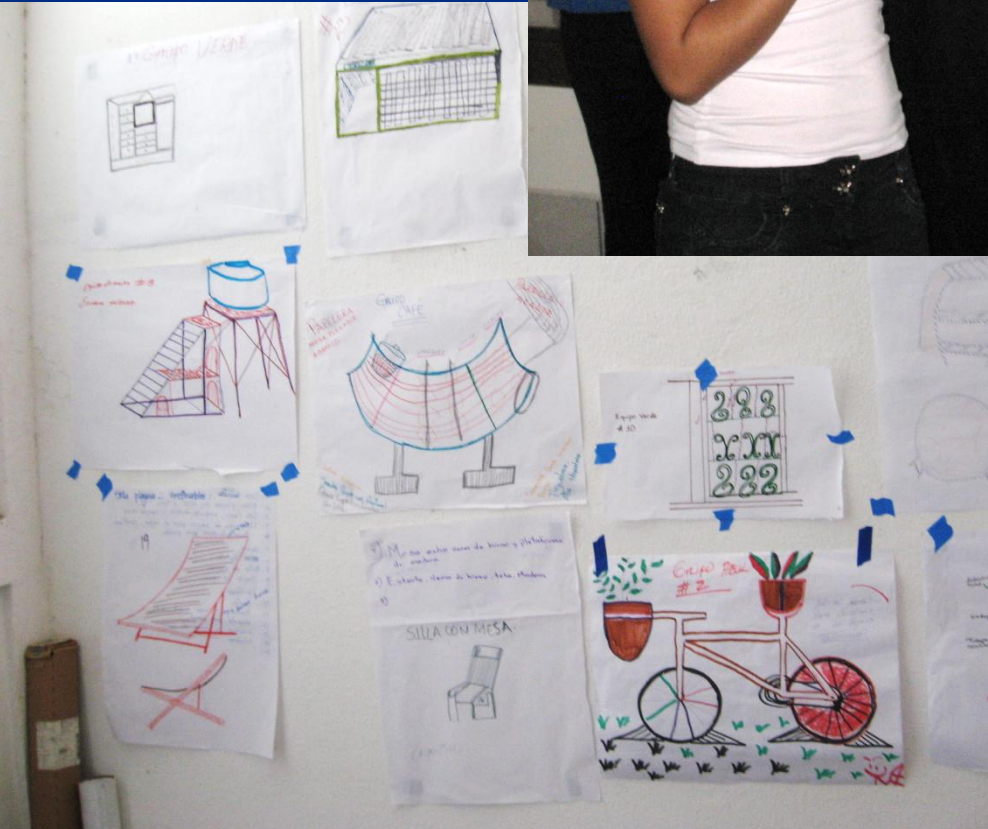
Verde

## Grupo Amarillo...

- ...a de energía en las zonas des. Eléctrica.
- ... organización de las actividades...
- ...va no orgánica.
- ... hábitos de alimentación o médico (Cardiología).
- ...costoso
- ...sitivo para medir la Sal



# Sketching and Refining





# Making Models



# “Taxi Pitch” aka “Elevator Pitch”



Source: P. Haynes





# Asking Questions



Using  
Data &  
Resources



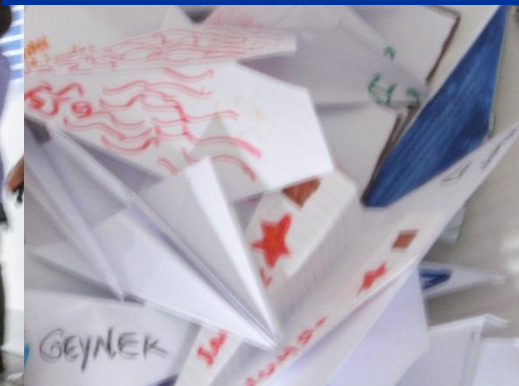


Recycling Plastic Bottles

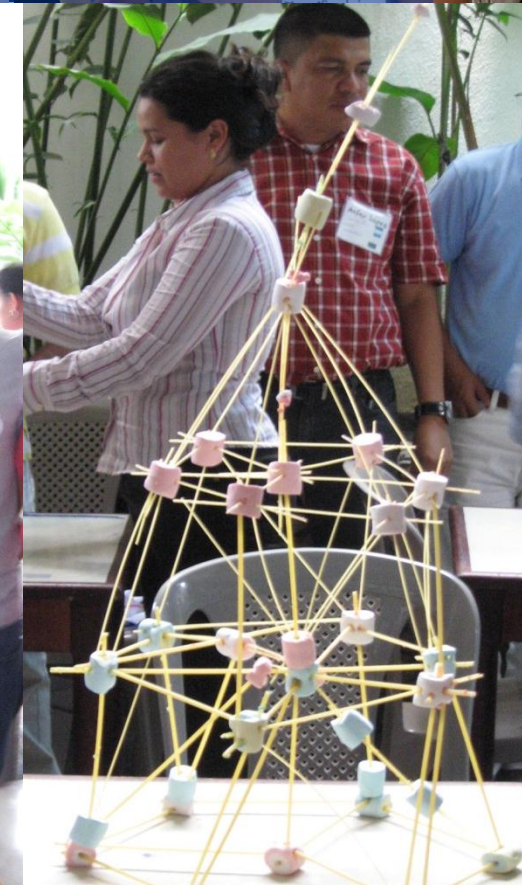


Hat-making Competition

And  
having  
fun!



Paper Airplane Competition



Spaghetti & Marshmallow Towers



# Receiving Recognition



# Next?

- AGII staff, with input from Tiger Studio Design, will select 1-5 ideas from among those developed and presented in May
- Program leaders Dr. Lane & Dr. Farris will return to Estelí with Tiger Studio staff for a week in August to provide support for further development
- **AGII Goal:** At least 1-2 new product roll-outs reported by Nica participants in May 2013





# Abstract

## Engineering South of the Border: A Librarian's Experience in Nicaragua

I will spend the first half of May '12 in Estelí, Nicaragua, as a volunteer member of a project to teach product innovation and development skills to students and faculty of the Nicaraguan national university system. The two leaders, Engineering and Business faculty members from GVSU, require no special expertise or language skills for volunteers, but are excited at the prospect of having a library professional among the support group in this year's seventh annual iteration of the program. I look forward to sharing what I learn about engineering and academics in a culture eager to develop.

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- Alexrk2. (2010). "File:Nicaragua relief location map.jpg." Wikimedia Commons. [http://commons.wikimedia.org/wiki/File:Nicaragua\\_relief\\_location\\_map.jpg](http://commons.wikimedia.org/wiki/File:Nicaragua_relief_location_map.jpg)
- Beckmann, W. (2012).
- Haynes, P. (2012).

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