International Entrepreneurship
Przedsiębiorczość Międzynarodowa

OPEN ACCESS

2018, Vol. 4, No. 2

10.15678/PM.2018.0402.04

Dreaming, designing, doing, developing, and innovation orientation: A case study of working in innovation Stanford style in remote rural Nicaragua

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ABSTRAKT

Objective: Since 2004, the author has worked in the cities of the Pacific Coast of Nicaragua in innovation and entrepreneurship. The message is innovation and the Stanford D School Design Thinking Model. In 2016, an invitation was received to work in the autonomous region of the Northern Caribbean Coast. This would be an opportunity to try the methodologies at the base of the economic pyramid in a remote rural location.

Research Design & Methods: This is a case study, taking the innovation work started in the United States and continued in Universities in Nicaragua to a very rural area with the guidance and support of UNICAM. UNICAM is the *Universidad en el Campo,* or, the University of the Country, an innovation in education. The goal is to take University-level education to the rural communities. The town is at the entrance to the RAAN, the developing northern Caribbean Coast of Nicaragua. The challenges were many in this rural community! Who would attend? Where would it be held? What would be a relevant theme for this community? What activities would help participants through a workshop on innovation?

Findings: The results showed that in this case study, you could take the theory and methodology directly to a rural population who did not have the advantages of a world-class education. They used the methodology of Design Thinking effectively.

Contribution & Value Added: The contribution here is opening the minds of the academic community that perhaps the goal should be to take applied education to the students wherever, and not expect the students to come to the cloistered halls of academia.

Article type:	case study
Keywords:	innovation; design thinking; UNICAM; rural sustainable development, inclusion
JEL codes:	L26

Article received: 17 July 2018 Article accepted: 15 October 2018

Suggested citation:

Lane, P.M. (2018). Dreaming, designing, doing, developing, and innovation orientation: A case study of working in innovation Stan-ford style in remote rural Nicaragua. *International Entrepreneurship Review* (previously published *as Przedsiębiorczość Międzynarodowa*), 4(2), 55-68. https://doi.org/10.15678/PM.2018.0402.05

INTRODUCTION

There are two major parts to the introduction. First is the introduction to UNICAM which is an innovation that could answer many of the challenges to provide access for rural peoples and possibly indigenous, African descendent and minorities in Latin America, the Caribbean, and around the world who do not have access to the urban universities. Second is the development of a culture of innovation and entrepreneurship for the students of UNICAM in Mulukuku, Nicaragua. This paper is a case history presented after the author attended three international conferences full of theory and calls for developing agendas, but few words about action, or how do you do it. How do you take innovation and entrepreneurship to more remote locations? How do we become more inclusive?

The aim of this article is to show an application method through a case history. First, there is the application of Design Thinking in the innovation workshop. Second, there is the application of the *Universidad en el Campo* idea that has been nourished by UNAN Managua.

What is UNICAM: A dream for innovation and entrepreneurship?

UNICAM has been the vision of the Rectora Ramona Rodriquez Perez of UNAN-Managua. As a Dean and as the Vice Rector General, she has tried to carry out the idea of education for all in the country. One of the areas under attention for education has been the rural zones. The idea of taking faculty to the rural areas for classes was born. The program exists under the Vice Rector for Teaching, who has overseen the implementation by the national coordinator.

In 2010, the European Union committed funds to develop and expand this program in four countries in Latin America: Nicaragua, Mexico, Columbia, and Bolivia (Ministry of Education Columbia, 2010). The program in Columbia was launched with much fanfare but seems to have disappeared. The author did not find support that Bolivia launched its program. There was to be a program in Mexico, but no literature was found. However, just before the hurricane, Puerto Rico was launching a program in 2017. Thus, Nicaragua, with multiple programs under UNAN Managua, would seem to be a leader in this innovative form of education, *Universidad en el campo*.

In 2017, there were extensive UNICAM programs from three of the campuses of UNAN-Managua: in Chontales, in Esteli, and in Matagalpa. In Chontales, to the East of Lake Managua, there were two programs, in Muelle de los Bueyes and in the Rio San Juan. In Estelí, UNICAM extends to the north with two programs, the first of which was in Miraflor and the second of which is in San Juan de Limay. In Matagalpa, UNICAM extends to the East with three programs in Tuma La Dahlia, Rio Blanco, and Mulukuku. Mulukuku is across the border into the RAAN (the name for the autonomous region of the Caribbean Coast).

UNICAM is the University reaching out to serve the very underserved. It is an example of University Innovation at UNAN-Managua that is really affecting lives. This program provides opportunities including the workshop subject of this paper to people living in remote rural areas. Increasing inclusion and access to all for postsecondary education is called for in the educational community. It is part of the UNESCO 2030 Objectives and was called for in the Third Regional Conference on post-secondary education in Latin America and the Caribbean (Hooker, 2018). This program not only reaches a market that is not included in most university programs, it has an innovative funding model including both the university and local community sources. For example, in Mulukuku, the author understands that the

funding came from the university, the Mayor's office, and from the large and successful Maria Luisa Ortiz Cooperative in Mulukuku. A dream has become a reality.

Developing an entrepreneurial orientation

One of the core programs of the UNICAM Program is Rural Sustainable Development (*Desarrollo Rural Sostenible del UNICAM*). This program encourages both innovation and entrepreneurship in a sustainable context. In May 2017, the author and team were honoured to visit a class in the rural school where muscular fathers and pregnant mothers squeezed behind small school desks to learn. They spoke eloquently of their program, their individual farm projects, and their professors from UNAN-Managua FAREM Estelí. After the talks by faculty and students, the class sang to us of the mother earth and the need to protect her with sustainable programs.

They packed us into trucks and took us to four locations to see the individual projects that students had and were developing. These are not huge innovations or born global ideas. These are innovations for a parched land to allow families to make a living. The projects varied starting as simple as using worms to make better fertilizer for a worn-out soil. A second student was trying to figure out in Nicaragua how to fatten chickens and pigs at a profit. In a country with chickens running loose in the patio or yard, you must pay attention to cost. He was experimenting and having some success at developing a tiny agri-business to compete with yard chickens and that which is now appearing from global retail chains. There were experimental water systems, pipes running through treetops to keep the water pressure up to water a garden or animals below. There was a brother and sister team using gray water from the house to increase the garden and then making jam and other things from the increased produce. In Nicaragua, as is true worldwide, much of the food is lost in the food chain from farm to table so the jam provided for better transport. The Rural Sustainable Development program is clearly sparking interest from young farmers in innovation and in entrepreneurship on a small business level. It is worth noting that in the simple examples that were shown that day they touched on four areas of the 2030 objectives: #2 Zero Hunger and the security of the food supply, #6 Water and Sanitation, # 12 Responsible Consumption and Production, and #15 Life on Land.

UNICAM is not only innovative, it is a program of inclusion. It is opening access to those marginalized by their rural or distant locations from the University Centers. A farmer or a small business person cannot leave their livelihood to go to a University Center. How does the University expand UNICAM rapidly to serve more and more of the underserved population? How do they reach Indigenous populations and those of African descent that are often underserved globally and particularly in Nicaragua (Hooker, 2018)?

Figure 1. UNESCO 2030 sustainable development goals the goals are used to select themes for innovation workshops as in mulukuku november 2017
Source: https://en.unesco.org/sdgs

DREAMING

Mulukuku was the first innovation program exclusively for UNICAM. A week after the program, the visionary Rectora MSc. Ramona Rodríguez Pérez (2017) was there for a graduation ceremony. Her words are paraphrased in English here:

> "UNICAM is an emblematic program that promotes rural development; Today we see that the synergy between the University, the local government, producers and families is giving important results. There is great potential in these young people, who have already demonstrated this in innovation and entrepreneurship fairs, for which we must continue to support their enthusiasm, which will also guarantee a better quality of life for the population."

The dream is developed by the UNICAM supportive administrators, by the University, UNAN-Managua, and by the local communities. It is a dream of empowerment using innovation and entrepreneurship. It is UNAN-Managua, showing many in the academic community one of many possible paths to make a dream a reality. It is the individual faculty who leave their classrooms and the comfort of their known classrooms and homes to do something innovative. It is, in many ways, educational entrepreneurship.

Converting dreams to reality takes work and an entrepreneurial spirit. At three recent conferences (*Congreso Universida 2018 de Habana,* February 2018; Globe Conference on Business and Economics in Sarasota, June 2018; and CRES 2018 in Cordoba, Argentina (see Hooker, 2018.)), the author heard people ask, "How do we do these

things?" At the request of the Rector of UNAN-Managua, work started in 2016. In a dinner meeting in Havana, Cuba, Claudia Mendoza, the Coordinator of UNICAM, had talked about running an innovation program out of Matagalpa. In a meeting in August 2017, in Managua, it was decided that this would be Mulukuku. This seemed to be well-timed to fit with the first graduating class in Mulukuku, as well as the Mayor's office announcing that the university was going to have even more of a presence in the community. Effectively, the idea took 18 months to bring the workshop to life for the two days. It took people pushing to make it happen and believing that the results would be worth the work. Many involved were not paid, or were underpaid, but the results would generate even more innovative and entrepreneurial thinking.

Mulukuku has a relatively short history. It formed with about five families in the middle of the contra wars in Nicaragua. It was a military training base until the wars were over in 1990. The little town 230 kilometres from Managua on the Tuma River took off, and in the last 28 years, has grown to a large community of approximately 30,000 people. The basic economic activity is cattle largely for meat and milk.

DESIGNING

Why take Stanford design thinking to Mulukuku?

You might ask why take Stanford Design Thinking model to Mulukuku? Over the years, the author and team have learned that this model is flexible and powerful. It can be applied in all kinds of situations with all kinds of people. In Mulukuku, it was only the generic groups that we knew, farmers, members of the mayor's office, cooperative members, small business people and entrepreneurs. The head of UNICAM for the area had selected water but in the beginning, their problems with water were not known. It has been our practice to let the host decide on the themes, either by developing in a workshop, which takes at least at least a day, or by the selection of a host administrator as in this case with UNICAM.

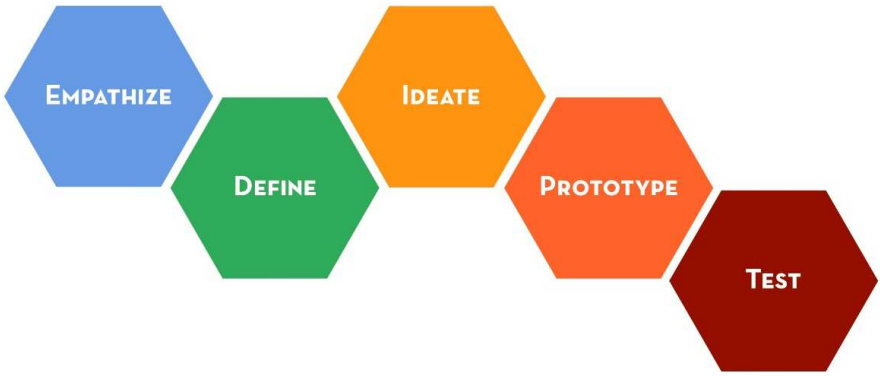

Figure 2. The Stanford model of design thinking the model used in the innovation workshops such as the one offered in Mulukuku, November, 2017

Source: Model depicted can be found at: http://www.anchorandleap.com/ideas/2015/2/11/intelligent-by-design-a-design-thinking-approach-to-storytelling

The way the model works is iterative. To help in the process of the Empathy stage, there was a video available that had been made the previous year, as well as some important facts and figures on the issues of water in Nicaragua. The author has more than a decade working in Nicaragua in various issues including water. Additionally, the author and his co-facilitator had toured looking at water issues. Thus, there was some logical basis to start the Empathy process. Empathy is a very important part of the Design School thinking and something that entrepreneurs in their rush to make something happen often assume away.

DOING

Preparation

The authors worked hard with coordinator of the Matagalpa UNICAM program to arrange a program that would be viable in the two days set aside. In fact, the author and colleagues had offered a program in Bilwi, Nicaragua for another university and for faculty, so there was a basis for development, but there was also a need to change the focus from how to use in teaching to how to use in the lives of the participants. One of the challenges was the lack of direct experience in Mulukuku and the strong ethic of not telling people what to think or do but rather showing them a way of tackling problems. The methodology is what is today called Design Thinking.

It was expected that the meeting would be held in a traditional room in Mulukuku. That was not to happen as the room we started to organize in Mulukuku suddenly became unavailable. The next stop was a very generous evangelical church that had a large cement structure available. The generous offer was wonderful, but the room was marginal. There was little electricity and the music from the church service was loud with voice and instruments. Our local guide, student, and host, Daniello, offered for us to have a coffee at his house while a space was found. He and his family had a medium-sized palm thatched commodore (small restaurant) behind their houses and that is where we went for coffee.

The authors and the mentors from UNAN-Managua really liked this space and asked if it could be used for the two-day program. The decision was made and everyone set about how to make a palm-thatched eatery work as a workshop space.

There were a few challenges:

1. No walls on which to hang ideas;
2. Tables were small café type, horizontal cuts of tropical tree about two feet in diameter;
3. There were not sufficient wooden chairs (matched the tables);
4. There was no evident front in the “L” shaped small restaurant;
5. No projection, screen, etc.;
6. No sound system;
7. One bathroom.

There were great opportunities:

1. Daniello’s family all jumped into help;
2. The great team from UNAN Managua who proved unusually flexible;
3. Neighbors, friends, and family, who made things appear;
4. Ambiance that was very Mulukuku;

5. Cool Shade of the soaring palm thatch;
6. Light breezes without the noise of air conditioning;
7. Location in a neighborhood which was great for investigation or research;
8. Good Nicaraguan Coffee.

It was an amazing couple of hours in which everyone pulled together to turn the commodore into a workshop center. Creativity ruled as soon there was a sheet for projection, a projector, a sound system, chairs appeared apparently from all over the neighborhood, were washed, dried, and placed, a few bigger tables were found, a clothesline was installed for hanging ideas, etc. In general, all was possible as the evening approached on November 23rd, 2017.

Making it happen is the important part of the process for these small business people, government functionaries, and the farmers. These people do not need a lot of theory; they need results. They need to learn how to do things that will make a difference. Therefore, the selection of the mentoring team was important. The "doing" is often a very hard thing for academics.

The team

This was an experienced team. Team members had been mentors at previous workshops. This helps with the understanding of the process. Most importantly, several were UNICAM staff people who really understood their clientele, the participants. Having as much understanding and empathy as possible in the process and surrounding turns out to be important in trying to develop innovation in more remote locations.

The participants

There were three main groups of people:

- The Mayor's office (the Mayor is a supporter; the Staff need to be prepared for change);
- Students (farmers, small business people, and students of the UNICAM Sustainable Development Program);
- Members of the Maria Luisa Ortiz Cooperative (See: http://www.peacehost.net/mulukuku/index.html).

INNOVATION ORIENTATION

The workshop program as designed (Appendix A) followed the Stanford Design Thinking Model (as depicted in Berman, 2015). The program started with the Empathy stage and exploring the problem. Fortunately, there were four major sources of material: a slide show prepared for a UNAN Innovation workshop six months before; an urban video demonstrating the problem; and a rural video showing the problem that was also less than six months old. Finally, it turned out that all the participants in Mulukuku had a problem with water in one form or another. There is biological contamination due to the lack of sanitation and there is chemical contamination from being a military base. Additionally, there is naturally-occurring problems like arsenic. There are also problems of the amount of water available in some neighborhoods in this rapidly-growing community.

In the first morning, these four sources were used to brainstorm problems with water. This is where the participants begin to learn about defining. You can think about defining as a funnel, with all the types of problems that can be faced with water at the top. There are many, and the hard work is trying to narrow them down to end up with a few.

DEFINFING THE PROBLEM

Defining is often hard work in innovation and in entrepreneurship. The entrepreneur wants to think that they have an idea for everyone, and the innovator seems to do the same, assuming all people are like the innovator and experience the world in the same way. This is not the case.

One of the things that the leaders tried hard to do in Mulukuku was to get the participants to focus on the doable. Can you define the problem small enough that you can do something about it? Can you define it to the point where you can see a solution that will make a difference for one person, or one household? This was actually very hard work. This comes from working with large international companies in innovation. Managers have repeatedly emphasized to the author to make it small: define it for a location, a person, a farm, a house, etc.

If a household has three water sources during the year (the river, the roof, and a neighborhood well), are they all contaminated in the same way? Can one filter handle all the types of contamination? It is possible that the river has chemical contamination and possibly heavy metals like arsenic. It is probable that the well has biological contaminants due to the lack of water sewage or sanitation systems in most homes in Nicaragua. The roof will offer other challenges if it is thatched, or clay, etc. Most Nicaraguans burn their trash including things like toilet paper, plastics, etc. The smoke from these fires can leave deposits of all sorts on the roof, as can birds and other animals that live in the trees. The result is another mixture of contaminants.

Defining a filter for one house may not be a small enough problem. It may be important to look at just water from the well, the river, or the roof. As part of the Empathy and Defining steps, it is important to go out into the community and get other opinions. This is often very hard to do for those with an entrepreneurial mindset as they think they have found the answer. It often comes as a surprise when they are forced in process to go to the community that people want different things.

To get the solvable problems, every person was asked to select three problems. Then, each team of five was asked to select the top three from the 15 ideas the members of the team presented. Teams were then asked to prepare a clear definition of their top three problems and a short survey to ask people in the surrounding neighbourhoods what is the most important of their ideas.

DOING EMPATHY RESEARCH

Every team was assigned an area in the surrounding neighbourhoods to talk with the neighbours to ask them questions about how they saw the problem, and, if possible, to get pictorial evidence of the problem or problems. The entrepreneur tends to want to focus on their solution at this point and finds it hard to step back and look, listen, and attempt to understand the problem as defined by others.

The teams went out to the community after lunch and got many results. One of the results was faculty who came back emotionally distraught by what they had seen. In most countries, faculty sit in a relatively protected world. When they go out with teams working with a program as innovative as UNICAM they may be forced to confront realities of their country that they have not looked at before.

The results, as usual, were very interesting. People do not see the same problems in the same perspective. With the new information, teams had to further define their problems, usually, smaller and smaller. This is preparation for the first ideation on solutions. All that has gone before is hard for those with an entrepreneurial mindset, as they would often like to simply think of an idea and build a company.

IDEATING AND DEVELOPING AN IDEA

Given a narrowly-defined problem, it was possible to start Ideating on possible solutions. The method used, which generates many ideas, is called “Corners” (Lindgren & Samii, 2018).

This method generates many ideas rapidly and there were quickly 384 ideas for solutions hung on papers attached to strings between the posts holding the palm-thatched roof in the air. The team with the least had 25 and the team with the most had 57 ideas to look at after about ten minutes. This is a process of broadening the possible solutions again and then the team is asked to narrow them down to what they think are the best potential solutions. Entrepreneurs often fight this process as they think when they have thought of an idea it should work and they do not want to work though Empathy, Definition, and Ideation into Development.

Next, we did a second Ideation with Post-It Notes hoping to get more refined ideas from each team. In both the Corners and Post-It process, they were asked to choose their top three so that at the end of the day there was a very limited set of potential solutions. After the closure and a great dinner on a farm in Mulukuku, the co-facilitators retreated to a terrace area to look at what the teams had produced. They had started strong but ended the day by choosing ideas that implied it was someone else’s responsibility to take care of the problems of water: the Mayor’s office, the national government, the regional government, the universities, etc. This is not what was hoped for in terms of some innovative thinking and an innovative product solution. This would not be entrepreneurial.

This is a common problem when running innovation programs in that the participants do not get the idea at first that they can change their own lives by taking charge of something. They seem to feel that others should solve their problems. Entrepreneurs are much more willing to make change and solve a problem the way that they see it, but are often not as willing to look at the problem as the people experiencing it see it.

PROTOTYPING AND INNOVATING

The second morning, the teams were started off with a task to build a model out of some simple material provided off of one of their ideas. In the process of constructing things, their ideas seemed to change; they seemed to feel empowered and quickly changed focus to what could they do. On the second day, there were two prototyping sessions. The first, with the simplest materials available, used plastic bottles, string, and some

colored paper. These very simple prototypes were shared with the entire group. This prototyping exercise often helps participants to see the world differently.

Prototyping also leads the participants to think about how something works: what is involved in developing or making something. In Mulukuku, the projects prototyped led to thinking about neighbourhood water collection devices to assure quantity of water to the group of homes. Another project used piping of bamboo to bring the potable water from in the mountains to the neighbourhood. There were also windmill pumps, filters of various kinds, water storage devices, and an interesting idea to develop a Mulukuku brand of water. This Mulukuku brand of water would sell clean water in bottles and use the profits to distribute water at greatly-reduced prices to those who have need in the community. In each case, the prototype helped to develop and define the idea or the innovation in some cases.

TESTING AN INNOVATION

In Mulukuku, there was not much time in the two days to go back to the community with models for the Testing phase of Design Thinking, but there was some input from the community and some was collected by sharing with community members who were participants but working on different projects or different neighbourhoods.

CONCLUSION

This case study of an Innovation Program for UNICAM at UNAN-Managua provides the opportunity to see the use of Design Thinking in a situation very different from an academic setting. It provides a background on a very innovative program of UNAN-Managua, UNICAM. It provides the chance to see how well an Innovation Program works amongst people who do not have much in the way of formal education but have great needs. It provides the chance to see that the process can be run relatively quickly and effectively. It is always better to have more time to do a more detailed work in testing and more iterations of ideas hoping to come up with some truly beneficial innovations.

There are many limitations to this case study. First, it is a case study of a unique opportunity that the author had to work with Innovation and Design Thinking in Mulukuku. There is no reason to believe that this can or can't be replicated until it has been taken to many places. There are several factors that could be missing in any attempt at replication:

1. UNICAM thrives in Nicaragua, but that may be the only country;
2. Getting the mixture of students and community members may not be easily duplicated;
3. Having the trained staff working with the facilitators may not be possible in other locations;
4. The charming palm-thatched location probably added an ambience that may not be easily duplicated;
5. The proximity to the community may not always be as easy or as deep as it was.

It is the intent of the author and the other facilitator to do more programs like this. Given the 2018 disturbances in Nicaragua, this may not be possible for some time in Nicaragua.

The last few words for this paper are written in Cordoba, Argentina, at the great celebration of the 100 years of autonomous universities. There have been many excellent discussions of what should be in the future. The dreams are big, but the making the vision or the dream real by application is much harder and something that academics are not used to taking responsibility for doing. If education is to be inclusive, academics may have to be willing to take education to the people as in the case of UNICAM of UNAN-Managua. If education is to include innovation, then academics may have to get out and work in workshops with those who are different from themselves.

Internationally, academics will have to learn to work within the cultures they are looking at instead of lecturing to those from the culture to change to be like academics, or what is expected of our regular students. Academics may struggle with how to help people to think differently without telling them what to do. Academics must remember that the people that we get to work with, as in the case of UNICAM, are smart people seeking to understand. The challenge is that they may not have the same kinds of smarts as successful academics.

As academics at the beginning of the twenty-first century, we have amazing opportunities to use to learn and share with all kinds of people. Perhaps we should do more Design Thinking about what education might look like in 2030! Will it be traditional or innovative and entrepreneurial? Will it be inclusive of those with different backgrounds, different knowledge bases, and different abilities? Will it be local or international?

There should be further case studies taking the methodologies of thinking and learning to those who may not have been able to participate before. Are great minds going to waste in rural areas for lack of a system to engage them in educational programs?

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Appendix A: Program for Mulukuku; Beckmann, Waltraud 2017

MULUKUKU AGII 2017 - 24 DE NOVIEMBRE BORRADOR 1

7:30	Registration, Welcome, Agenda, Rules	Registro, Bienvenida, Agenda, Reglas
8:15	Team Building Activity "KNOTTING"	Ejercicio para Equipos Colaboración "Anudando"
8:30	Problem presentation "WATER" – Video Defining a problem – Focus on doable	Presentación del problema "AGUA" - Video Definir un problema: concéntrese en lo factible
9:00	Brainstorm – Post-Its - Collect on Large Sheet	Lluvia de ideas - Post-it - Recoger en hoja grande
9:20	Individuals select their THREE Best (colored dots)	Las personas seleccionan sus TRES mejores (puntos de colores)
9:40 COFFEE	Teams Report out their THREE top choices (top # dots)	Los equipos informan sus TRES elecciones principales (puntos # superiores)
10:00	Teams choose THREE problems from the collective selection	Los equipos eligen TRES problemas de la selección colectiva
10:15	Teams define and clearly state the problems	Los equipos definen y expresan claramente los problemas
10:45	Teams work on problem verification – online activity	Los equipos trabajan en la verificación de problemas: internet
11:15	Teams report out - Statements of Problems, Research Support	Los equipos informan: declaraciones de problemas, apoyo de investigación
11:30	Team Creativity Activity "SPAGHETTI"	Ejercicio para equipos Creatividad "Espagueti"
12:00	LUNCH	ALMUERZO
12:45	Field Research – Testing & Verification of THREE problems in the community	Tema de investigación - Prueba y verificación de TRES problemas en la comunidad
1:30	Teams report out responses, Team Decisions Moving Forward	Los equipos informan, las decisiones del equipo avanzan
1:45	CONCEPT IDEATION# 1 Corner Activity – Dots = THREE best	IDEACIÓN DEL CONCEPTO # 1 Esquina - Dots = TRES mejor
2:15	CONCEPT IDEATION # 2 Post-It – Large Sheet	IDEACIÓN DEL CONCEPTO# 2 Post-It - Hoja grande
3:30	Closure, Review of day, Tomorrow's Agenda	Cierre, Revisión del Día, Agenda de Mañana

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7:30	Day's Agenda – Review Ideation	Agenda del día - Revisión de la Ideación
7:45	Business Canvas, Segmentation	Lienzo de Modelo de Negociol, Segmentación
8:05	Cost, Manufacturing, Labor	Costo, Fabricación, Mano de Obra
8:30	10 Ideas – Team Choices of THREE best	10 Ideas - Selección de Equipos de TRES mejores
8:45	Teams work on THREE Concept choices THREE concepts: Statement, Description, Sketch, Target Market, Manufacturing Feasibility	Los equipos trabajan en TRES opciones de Concepto TRES conceptos: declaración, descripción, boceto, mercado objetivo, viabilidad de fabricación
10:00 COFFEE	Teams report out, Critique Team Decision Moving ahead with ONE concept	Los equipos informan, Critica Decisión del equipo avanzando con UNO de concepto
11:00	Field Research, Concept Verification	Investigación de campo, Verificación de Concepto
12:00	LUNCH Past Project Presentations - Examples	ALMUERZO Presentaciones de proyectos pasados - Ejemplos
12:45	Team Model Activity "Design: Plastic Bottles"	Ejercicio para Equipos Modelado "Diseño: botellas de plástico"
1:15	Project Presentation Format	Formato de Presentación del Proyecto
1:30	Design. Modeling – Examples, Past Presentations	Diseño, Modelado - Ejemplos, Presentaciones Pasadas
2:00	Teams Work on Projects, Presentations Support for Help, ,Advising	Los Equipos Trabajan en Proyectos, Presentaciones Soporte para Ayuda, Asesoramiento
5:00	Team Presentations, Awards	Presentaciones de Equipos
6:00	Presentations of Awards, Closing Remarks Snacks, Coffee	Presentaciones de Premios, Palabras de Clausura Aperitivos, Café

Author

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Professor at Grand Valley State University. Ph.D. in Marketing, Finance, Management, Economics from Michigan State University. He is Co-Director of the Applied Global Innovation Initiative, and currently leads classes in Innovation, Sustainability, and Base of the Pyramid Economics in the Brooks College of Interdisciplinary Studies, Honors College and for the Seidman College of Business. Dr. Lane facilitates classes in undergraduate and graduate marketing for the Seidman College of Business. For the last decade Dr. Lane has worked closely with Dr. Farris of the engineering college developing interdisciplinary courses using various technologies, in this country and abroad. Dr. Lane is an entrepreneur who recently completed 20 years of service on the board of the bank he helped found, completed his teaching the entrepreneurship program he helped develop. He was one of a trio of faculty who developed the ecommerce program for Seidman College of Business. A former department chair, former holder of the E. Seidman Chair for his innovative work, and two time recipient of the Seidman Outstanding Service Award, Dr. Lane embraces the future and the opportunities provided with technology to transform the future of education and opportunities for those who are at the base of the pyramid.
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Acknowledgements and Financial Disclosure

Waltraud Beckmann has been a long-time partner in the Innovation work in Nicaragua and she was a key player in the workshop described in this paper.

Cherilyn Denomme has worked untold hours to edit the many papers and articles that go out every year. Without her assistance, the level of the papers would be greatly reduced.

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Published by the Centre for Strategic and International Entrepreneurship – Krakow, Poland