Global Entrepreneurship And Innovation

June 15 – 26, 2015
UMass Lowell - Lowell, MA

"Two weeks' learning and living experience in UMass Lowell will be the wealth in my life, in the future work and study, I will apply the knowledge which I learned here to all fields, and continuously break through myself." Undergrad from Nanjing Univ, China.

"… class was a great experience and great values and disciplines were learned and friendships made along the way. It had a great positive effect on my outlook on business and life. In business it opened my eyes to a whole new way of thinking as well as gave me an overview of some essential basic skills. Personally it helped me grow as an individual because of the personal relationships I made with people from countries I had never previously had an in depth cultural experience." A UML MBA student

The above two quotes from students summarize the experiences of 55 students participating in a two-week total immersion in entrepreneurship and innovation. Students from US, Japan, China, India, Thailand, Guyana and Haiti learned about how to think entrepreneurially, work in an interdisciplinary and multi-cultural environment, and how to form long lasting friendships that increase their networks.

What did they learn?

After receiving an introduction to entrepreneurship, including a few examples, students were divided into groups to go through an Ideation Process. It was a quick entry into how to work in a diverse group. The students had to present their idea to the class of 55 students and faculty: problems, ideas to solve, and how! One would not know that these students barely knew each other, had difficulties in communication, and never had any exposure to ideation.

Students learned from UML faculty guest speakers relevant entrepreneurship topics such as Innovation and Creativity (Ms. Holly Butler); Team Building (Mr. Ralph Jordan); Market Research (Dr. Michael Obal); Lean Start-up (Dr. Jack Wilson); Financing Ventures (Dr. Michael Ciuchta); Protecting Intellectual Property (Dr. Amad Tayebi); and, Communication and Presentation Skills (Ms. Karen Hvizda).

These lecturers and their discussions were useful to students in understanding and applying basic concepts to their project work (see below). Students also received important guidance from other UML resource for their project work. Donna Mullin of UML Libraries helped students with market/industry research and databases. Business School's Ph D students, Sandhya Balasubramanian and Atthaphon Mumi, as project mentors, guided students in their group projects.

Collectively, these special topic discussions motivated students to start thinking of taking their venture ideas to the next level (Tick Remover, Playable Therapy and Driver Pal).

Group Projects

Students worked on several technological projects from different sponsoring companies and organizations. In most cases, they focused on business concept validation, applying concepts discussed in class including business model canvas, marketing research, and lean start-up.
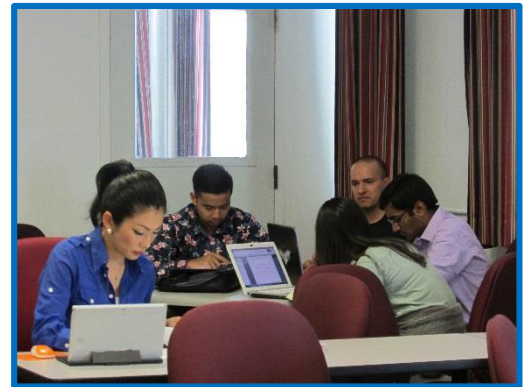
Project	Sponsoring Organization
Customer Acquisition for DDG	Disease Diagnostic Group
Knee stim	Articulate Labs
TODDD™ -Topical Ophthalmic Drug Delivery Device	Amorphex Therapeutics
Gel4Med	Gel4Med LLC
Driver-Pal	BVB Hubli Student project
NetLane	UML Eng student project
Assistive Navigation for the Visually Impaired	UML Eng student project
E-Tongue	UML Faculty Research
High Quality Mobile Audio Processing System (HQMAPS)	UML Eng student project
Playable Therapy	DifferenceMaker - UML Student project
Tick Remover	DifferenceMaker - UML Student project

Students enjoyed working on these interesting and inspiring projects, spending many hours after the class. More importantly, they had an opportunity to interact with sponsoring organizations, many are start-up ventures. And, students were so comfortable in making their final presentations!

Technology Company Visits

Students visited two area technology companies: MKS Instruments and iRobot. At MKS, they received a presentation about the company, its businesses, operational focus (customer and supply chain) and a tour of their facility. Students were very inquisitive and learned much from the visit about managing a technology company in an ever changing world.

The iRobot experience was equally interesting and informative. Students had a tour of the company's products and evolution. They received a presentation on the company's latest business, teleconferencing. Both company visits helped reinforce the lessons in the classroom, and provided real-life experiences connected to their learning.

Innovation Hub Visit

UMass Lowell's newest facility, the Innovation Hub, located at 110 Canal Street, Lowell, was a highlight for students. It provided them with an understanding of how a new venture can be initiated and how an incubation facility helps in starting a venture. Dr. Tello gave a presentation and answered many questions by students.

Prof. O'Donnell gave students a tour of the Innovation Hub facility and explained future plans to house M2D2 companies in coming months.

Students Reflection Results

We knew we could utilize the students' final reports to give us the traditional assessment view, but we wanted to explore open-ended teaching and student learning, and to determine if we could see this through student reflections. Kolb (1984) states, "Learning, the creation of knowledge and meaning, occurs through the active extension and grounding of ideas and experiences in the external world and through internal reflection about the attributes of these experiences and ideas (p. 52). The use of reflections to assess learning has been well studied (Ash, Clayton, & Atkinson, 2005; Grossmen, 2009; Molee, Henry, Sessa, & McKinney-Prupis, 2010). Studies show that reflections can be a way to assess students' descriptions of the learning they believe takes places in a course (McCrea, 2009; McGlam, Diambra, Burton, Fuss, & Fudge, 2008; Sessa et al., 2009). Utilizing student reflections, we were able to capture a description of their learning experiences. Many of the students' reflections referenced knowledge that would have been difficult to learn through a lecture/textbook only based course. Equally difficult for us as instructors would be to garner how the experience influenced their learning and how they might apply it in the future. Below are quotes from the student reflection papers.

A UMass Lowell undergrad business student wrote of his preconceptions and actualization of attending the program*:*

> *Registering for this course I did not know what to expect, knowing that it was going to be a global entrepreneurship course, I had three objectives in mind. To experience being in a learning environment with multicultural students, build relationships, and to learn from them how entrepreneurship is different in their respective country. To my surprise, the course had a lot more to offer than the three things I sought to accomplish. In addition to those three things I also received something that was unmeasurable and priceless,*

something that was more important than anything else to me. That was the inspiration and courage to work towards my future plans as an entrepreneur.

A UMass Lowell engineering grad student wrote:

> *I was quite unsure upon entering this course of the outcome and what I could possibly learn in two weeks and such an environment. I had taken intercultural classes before but mostly on communication and social sciences. I had never had one on business or entrepreneurship. It really was a joy to have such great speakers. I was not expecting to learn so much from all the lectures and was pleasantly surprised.*

This course was comprised of students from undergrad, graduate, and through doctoral programs, which meant there was an age discrepancy within the class. Older students shared their concerns relative to their age, as follows:

A UML Undergraduate in Information Technology stated:

> *Next, something amazing happened after we separated into project groups. For the first time, we had to introduce ourselves as a team. We started talking to each other and made that first connection. Since everyone was from different countries, the conversations expanded to their friends. We went to dinner, shopping, and I even took a small group of students bowling. I discovered we had quite a few older students in the class from Japan and the United States. Suddenly I did not feel like the oldest person in the class. While the dynamics were different between the older students and younger students, we all had a great time working together and hanging out.*

One UML MBA student wrote of his concerns:

> *There were many aspects of the class that struck me as fascinating and impacted me in a profound way, but none more than the team aspect function. Here I am, a 36 year old who has been living on his own for the past 18 years, had a full time job right out of college, went back to school for a master degree in molecular Biology and Genetics, transitioned jobs twice, got married, relocated his family for work, had twin boys, and is finishing his MBA in just 2 more weeks, was sitting around a table with three young international students whose primary spoken language was not English, two of which were undergrads who never had a job and one MBA student who quit her job in the cosmetic industry to pursue her MBA full time with a huge task in front of us; writing this business canvas plan in about 1 week.*

As to working in a multi-cultural, multi-disciplinary environment, one UMass Lowell business undergrad student wrote:

> *Despite our friendships, not all parts of working together were easy. There were times when all of our group's patience began to wear thin, and times when we disagreed over certain work details. I think that the most valuable takeaway from the last two weeks is what I learned about myself. It's not always easy to tell what a person is really thinking*

in their mind. You have to be ready for your ideas to be criticized, and can't be offended or take it personally if the entire group doesn't embrace everything that you suggest. I think everyone realized that by the end of the week.   From working in such a diverse group I learned I had to grow more patient, more understanding, and more humble. Working in groups is difficult on its own; adding several language barriers just makes everything that much more complicated.

An engineering student from BVB University wrote:

I don't think I will get another opportunity where I will be working with people from four different nations. The experience has been overwhelming and has had a deep impact on me in a good way. Even though we were so different, all of us shared the same values and beliefs. In spite being so different, we were alike.

Relative to the Entrepreneurial process, a UML English major stated:

One of the biggest things that I personally took away from this program was how valuable interpersonal connection seems to be to the entrepreneurial process. It really is a lot about knowing the right people. I was very surprised to see how native family and useful family ties seem to be for a budding entrepreneur. As someone with a considerable number of friends who are budding medical professionals, this makes me optimistic for my prospects as an entrepreneur in medical software.

Part of the program was the company site visits. Many students reflected on these visits as being helpful to them in understanding the big picture. A BVB engineering student stated:

The visits to MKS and iRobot were equally important in letting me know more about how companies and things function in real life, the marketing strategy, the end user segment, the technology and its applications in the future… all have just enhanced my knowledge.

An undergrad student from China stated:

What impressed me most in this visit (MKS) is about technology, as a business student, I have many ideas about management, marketing, finance and so on. But I have no idea about product and technology, so this tour gave me chance to learn it and get some new ideas about business.

Many students expressed interest in exploring ways to become more knowledgeable about bringing a product to market. A BVB undergrad engineering student stated:

When engineers build or develop the product, it has to be put in to the market. As an engineer, I knew only to develop the product and give it to others to do that work. But now, I know the procedure of marketing my own product and also realized the difficulty in marketing the product. … As an engineer I am really good at seeing the products in technical point of view. I would like to focus much on the marketing skills and business part of developing or manufacturing the product.

Due to the multi-national aspect of the course, students are sometimes anxious about their English speaking ability. A UML MBA ABITUS student stated:

I re-realized a few areas I want and need to improve. First one is my English. At some point, though I do not remember when, I stopped trying to improve it. However, when I could not explain something, for example some concepts of marketing to those who did not have any knowledge of marketing in plain English, I realized that I understood the concepts in Japanese even though I studied in English. No one corrects my speaking English anymore, as far as we can communicate, but talking to friends and speaking in a class are different things, thus I feel it is necessary to improve it then I can be confident of my English speaking ability.

One of the projects students worked on were a continuation of past projects from the Winter Program in Hubli, India. Two members of the Nonspec team were able to come to the US and continue work on the adjustable prosthetic limb developed by Nonspec. Here's what one BVB engineer had to say about her experience in the US.

...I got this wonderful opportunity to present the team at the event "Startup Spotlight" on June 15th at the Microsoft Nerd Centre, MIT, Boston. Nonspec was one amongst the top 30 startups that had been selected for this event, and the team was proud of this achievement.

Will this course impact students as they go forward? The reflections support a resounding, YES! A UML business undergrad student wrote:

We called the last two weeks the "Global Entrepreneurship and Innovation" immersion, but while looking back I feel that the name is not enough. So much more happened that the name cannot possibly describe. I would never have expected to learn so much about other people as well as about myself in such a short time. The learning experience went beyond the classroom, beyond entrepreneurship, and beyond academics. I learned so much about different cultures, different personalities and different relationships.

A BVB College engineer wrote:

As I am from an engineering major, Business was totally a new concept for me. And it's a known fact that to be a successful entrepreneur, it's not just enough to have the technology or a product but also have a good business model. Although the Market Research was a little difficult, it nonetheless provided me with great insights about the global market.

A UML undergrad business student shared this in her reflection:
After spending some time reviewing my experience as a whole, I realize that before entering the program, I would usually get discouraged when faced with failure, and in addition, it would be hard for me to get back up and keep trying. However, this class taught me not to give up because failure happens, and it would be unwise to give up after the first try. Meeting various people from various countries and interacting with them made me growth socially, personally as well as professionally.

A UML Ph.D Nurse Practitioner candidate stated:

Looking back at the Innovation and Entrepreneurship class, one thing I can say is that I am not the same person I was two weeks ago when I first begun this journey. I have embraced a new way of thinking: to be an entrepreneur and innovator as a way of life, whether I am working for an established institution or whether I start my own. I learned so much over these past two weeks, I could go on and on talking about them. Woe to my friends who will have to hear me elaborate on all these experiences for the years to come!

Student Feedback Survey

At the end of the program, students were asked to complete a short online survey. They were asked to rate their responses to specific statements from Strongly Agree to Strongly Disagree. These statements attempted to gauge students' experience towards entrepreneurial education, cross-cultural environment, cross-disciplinary class and collaborative environment. Below are a few statements and student responses:

Statement	Strongly Agree and Agree
The team experience has enabled me to better understand the need to communicate in cross-disciplinary and cross-cultural teams.	99%
This experience has helped me become more comfortable working in a multi-disciplinary environment.	91%
This experience has helped me become more comfortable working in a multi-cultural environment.	95%
I have gained a better understanding of how to start a venture.	84%
The course has given me basic tools and skills to consider becoming an entrepreneur.	94%
The company/organization site visits enhanced my understanding of business processes.	80%
The project helped me better understand the entrepreneurship process.	90%
I have a greater understanding of how business works from the project experience.	88%

Future Plans

The intent is to have this multi-cultural, multi-disciplinary program in global innovation and entrepreneurship self-sustaining. We are meeting with the University Administration to determine how best to make this happen. Though we have just wrapped up the June program, we are already planning for January 2016 in Hubli, India, and have set the date for the June 2016 program in Lowell, MA.

If you would like to know more about this program, and how you can help us make a difference, please contact us. We've come a long way in a two year time-frame! Let's keep the momentum moving!

For a copy of the full survey results, email Deborah_Finch@unl.edu or Ashwin_Mehta@uml.edu