

## **Global Immersion in Innovation and Entrepreneurship: an Experiential Learning in Inter-disciplinary and multi-cultural Environment**

**Lowell, June 16 to 27, 2014**

The Manning School of Business and the BVB College of Engineering conducted this program, which was a follow-up to the first held in Hubli India in January 2014. The prime objective of these programs is for students to open their eyes to new experiences and ways of thinking about problem solving, innovation, and entrepreneurship through experiential learning. The use of experiential learning in business classrooms helps “provide students with the knowledge, motivation and skills to contribute positively to society, in a way that more traditional pedagogies cannot (Baden & Parkes, 2013).

### **Program Structure:**

The Program was an intensive 2-week learning experience that included:

- Class room discussions of innovation and entrepreneurship frameworks, concepts and examples
- Guest lecturers discussing Building and Managing teams, Entrepreneurial Marketing, Communication and Presentation Skills
- Ideation exercise used as both ice-breaker and for problem solving skills development
- Visits to 2 technology companies (iRobot and MKS Technologies)
- Visits to area incubators (Cambridge Innovation Center, Greentown Labs and Artisan Asylum)
- And, most important, group projects dealing with the evaluation of commercialization potential of student, inventors and faculty projects. Students worked on 7 projects including 3 from UML engineering, 1 from BVB, 2 from M2D2 and one from CVIP

30 students participated in the program; 14 from BVB College (all engineering) and 16 from UML (14 business, 1 engineering and 1 Nursing)



### **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 MBA student wrote of her preconceptions and actualization of attending the program:

*I expected that as the days moved along some of that excitement may wane as the rigors of long days spent on studies and assignments took their toll, but, much to my surprise, I found that our class work and activities had the opposite impact on my enthusiasm. My eagerness for each new learning experience has grown instead of lessening. Every day I have felt more renewed and ready to experience new things, to collaborate with more diverse groups of classmates, to heed the sound advice of lecturers, and to undertake the varied lessons of the day.*



A UMass Lowell engineering grad student wrote what several of the students shared.

*When I first started this class I will admit to a decent amount of skepticism as to what I would outright learn. As the class progressed and I had the opportunity to work with new groups, I found that my initial preconceptions of the goals of the class were incorrect and that there was in fact much to be gleaned from both the teaching and the interaction.*



A BVB student wrote:

*This course has changed the way I perceive my surroundings, changed the way I look at the world.*

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

*My team was amazing to work with, and I would not shy away from working with any of them again. I think that the speed with which each person was able to adjust to new ideas and approaches was something almost legendary in execution.*

Here is a candid admission by one of the BVB Student.

*When the teams are formed I was little bit uncomfortable with the team because it was multi cultured and multi-disciplinary team. The thought process of my team members was very different because they all come from different culture and different streams. So, initially I taught they will dominate, but, in our first project we worked as a team and it was really a great experience for me. What I had anticipated was completely wrong and after completion of the first project my thinking towards them had changed completely.*

An MSITE student stated:

*It was important for me to learn how to work with the students from different disciplines and cultures. This is because it will be crucial going out into the work force, especially since I am a business major with no technical background. I will need to constantly communicate ideas and needs to engineers and more technical folks, so this experience was particularly valuable and is not something I would have gotten in some of my other classes surrounded by like-minded folks.*



An MBA student shared her thoughts on how the team composition reflected the need for a multi-disciplinary approach:

*Without an engineering viewpoint, or a MSITE student's inventive point of view, or a MBA student's business acumen our group projects might have been flat or missed key questions that needed answers before perusing a strategy for entry to market. An engineer, or healthcare student will ask different questions of a professor than a business student will, even though the topic of discussion and foundation of the questions is the same lecture.*

There are differences in what our students expected in terms of cultural/disciplinary interactions and what they actually experienced. A UMass Lowell business undergrad student noted:

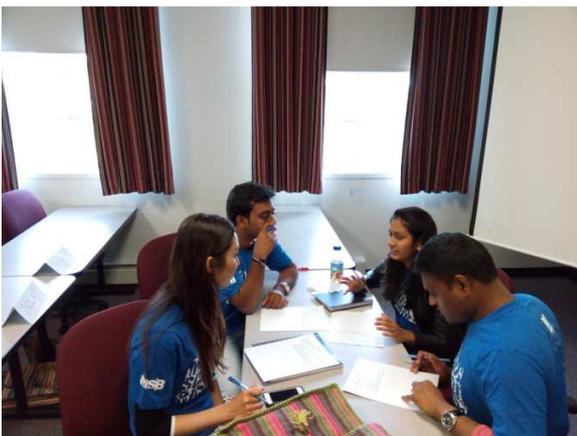
*The aspect of having a cultural gap was something that was initially difficult to bridge, and it was not between local and BVB students, it was between the business culture and engineering culture. Developing a professional understanding of technical engineering and the development of a product was something that required a different perspective of*

*business. Likewise, our engineering counterparts learned the value of having business minds provide guidance to develop a better product capable of better market success.*



A UMass Lowell engineering student found relevance to her prior work experiences.

*I was able to see and articulate why my last venture went under. The issues I was raising were valid, but I did not have the skill set to explain my case articulately. I did not know where to get the information to support my assumptions. Also, I did not truly understand how much customer and marketing plays a role in how you price and design devices. I have generally avoided the business side of my products, but I need to increase this knowledge to be a more complete designer.*



A UMass Lowell MBA student stated:

*As an Engineer I have developed many products in research and development and as a part time MBA student learning the various areas of Business, I found the Innovation & Entrepreneurship course to provide the link between a new product/service and evaluating/validating it to check if it a viable business.*



Large parts of the program were the company and site visits. Many students reflected on these visits as being helpful to them in understanding the big picture. An MBA student stated:

*MKS was my favorite company visit, because they truly brought us through all levels of their day-to-day business, their structure, and also their business plan. As someone who enjoys studying operations, and who hopes to transition into a role in operations in the future, I was especially interested in their efficient Kanban systems and lean manufacturing process. I had never seen these just-in-time processes in action before this visit. It was great to see it in person instead of simply reading about the topic in class.*

A BVB engineering student noted:

*The visit to CIC(Cambridge Innovation Centre) was the highlight of my travel in Boston. The experience I received from the CIC cannot be expressed in words. I could see so many people working tirelessly towards their idea in order to make it a success. My inspiration knew no bounds when I came to know that Google had their office in the CIC before they shifted their office to the Palo Alto, California.*



The site visit to MKS, Inc. was one of the highlights of the site visits for students. A BVB engineering student wrote:

*MKS was one of the best industrial visits, the critical niche market segment they were in and the innovative steps they take in order to keep the relationship with the customers intact also helped them in product innovation. To maintain such a kind of environment in your organization would be a challenge.... I'd like to put the same principles to test in my organization further.*

Many students expressed interest in exploring ways to become more entrepreneurial. An MBA student stated:

*Before this course I would never have put a serious consideration into entrepreneurship. However, now I feel it is something I am capable of, and has sparked my interest. Furthermore, seeing the real life applicability of the technology project, the Sensory Board, is something that I would absolutely be interested in seeing the completion of the proposal if it is technically something that can be market effective. I will encourage other students, of any discipline, to take this course.*



Will this course impact students as they go forward? The reflections support a resounding, YES!

A BVB student wrote:

*All in all, I feel I can never forget the experience and the teachings I received in the workshop and this was the most useful summer vacation of my entire life. This workshop has changed my thought process and I believe that I will be able to look at any product with a whole new perspective. Hence, I can't wait to go back to my college and apply my newly acquired set of skills and my ideology to the work that I undertake in the final year of my engineering any BVB College of Eng. and Tech.*

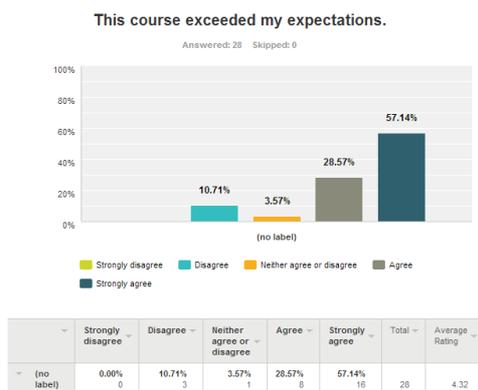
And, it was hard for students to say goodbye! One MBA student wrote:

*I will admit that I am not looking forward to the finality that I will feel when I hand in this reflection paper. I am not ready for this experience to end, but I can say with assurance that I have gained much insight that I will carry with me. I will be a better employee and a more engaged student now that I have gained this knowledge and had these experiences. In truth, that growth and betterment negates any perceived finality as we conclude the workshop. Those lessons are perpetually valuable, so there is no end to them in sight. I am eternally thankful that I will carry the lessons and memories with me.*



## Students Survey Results

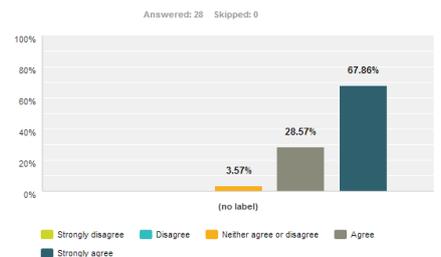
Below are a few key results from a survey of students:



***Over 85% of students expressed that the course exceeded their expectations!***

***Over 95% felt that the course made them understand and appreciate different cultures***

**This course has made me understand and appreciate different cultures.**

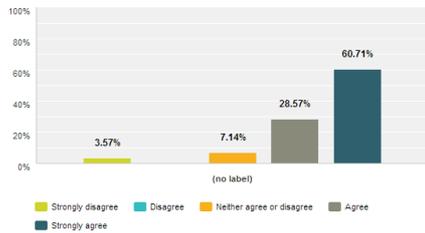


	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	Total	Average Rating
(no label)	0.00% 0	0.00% 0	3.57% 1	28.57% 8	67.86% 19	28	4.64



The team project helped me to understand the need for collaboration in the entrepreneurial environment.

Answered: 28 Skipped: 0

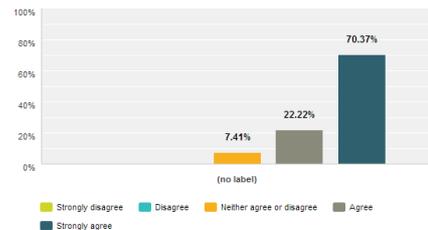


	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	Total	Average Rating
(no label)	3.57% 1	0.00% 0	7.14% 2	28.57% 8	60.71% 17	28	4.43

*Almost 90% of students appreciated the value of collaboration in an entrepreneurial environment*

This experience has helped me become more comfortable working in a multi-cultural environment.

Answered: 27 Skipped: 1



	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree	Total	Average Rating
(no label)	0.00% 0	0.00% 0	7.41% 2	22.22% 6	70.37% 19	27	4.63

*Over 90% of students feel that they now are more comfortable in working in a multi-cultural, interdisciplinary environment*

Full results of the Survey are available on Google Drive

## Final Remark

This experience has been the culmination of lots of preparation. Though there are things we would like to tweak going forward, we believe that the groundwork has been laid for continuation of this program and the development of similar models in the future. The planning for the next program in January 2015 is in progress and shortly after the fall semester starts, an active student recruitment will begin. We are expecting to bring 12 to 15 students to India and are confident that we can reach this ambitious target!

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