The Building Blocks of Learning: An Innovative Approach applied in BUS 4030

Learning is "the process whereby knowledge is created through the transformation of experience" (Kolb, 1984, p. 41[1]). I believe that experiential learning provides a deep and profound learning experience to students by providing real world opportunities to apply their knowledge and skills. Based on this belief, WPI's motto of *Lehr und Kunst*, and my teaching philosophy, - *to improve upon my students' knowledge base and facilitate learning through creative, critical, and reflective thinking* - I redesigned a business undergraduate course to actively involve and engage students from STEM and related majors into learning business and marketing concepts and frameworks for strategic decision making. I achieved this by providing experiential learning opportunities, at the intersection of technology and business, to students who have little or no business experience.

The Context

BUS 4030 (Achieving Strategic Effectiveness) is a business and marketing strategy course offered twice every year by the Foisie Business School (FBS). Most of the students enrolled in this course are in their senior year. At least 50% of the course population is from across the campus (typically from STEM and related majors, minoring in Business) and the balance are from FBS (MGE, BUS, and MIS majors, most of which are closely related to technology careers). The goal of the course is to equip students with business and marketing skills that will provide them with a career edge and enable them to work effectively in cross-functional teams. The course structure enables students to understand consumers' value needs and based on this understanding, create, communicate, and deliver an attractive value proposition to consumers thereby making a profit for the organization.

An Innovative Approach: Building Blocks of Learning

I have the experience of teaching business and marketing concepts to business majors. However, in 2013, when I started teaching BUS 4030 at WPI, my challenge was teaching these same concepts to students in STEM and related majors. This challenge was further amplified when I learned that some of these students have never enrolled in a business course before this course, whereas, for some of them, BUS 4030 is their capstone course. So I (1) conversed with my students, colleagues, and mentors, (2) attended seminars and workshops offered by WPI's *Morgan Teaching & Learning Center,* and (3) read literature about experiential and active learning. While reflecting over this mélange of ideas, I constructed an innovative approach to

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[1] Kolb, D. A. 1984. *Experiential learning: Experience as the source of learning and development.* New Jersey: Prentice-Hall.

impart business knowledge to students from STEM and related fields by combining theoretical concepts and frameworks with experiential learning techniques.

Overall, I learned that some of our students plan to work in STEM roles in the industry (an opportunity to be intrapreneurs[2] and innovate) whereas some plan to start and manage their own ventures (entrepreneurs). To succeed in both these roles, possessing a blend of technological competences and business and marketing knowledge is imperative. Moreover, building an engine of Innovation and Entrepreneurship (I&E) is one of WPI's strategic pillars. With a purpose of contributing to the strategic plan of WPI and helping my students build successful careers, I developed a novel approach to train STEM professionals to become innovators and entrepreneurs. While bringing experiential learning techniques in class is not new anymore, the way in which I approach it in this course is innovative because I ensure that a common thread runs through all experiential learning tools I use in this course. I call it the "*building blocks of learning*", as illustrated in Figure 1 (appendix). Our brain is built from bottom-up just as building a house starts with laying the foundation, followed by the frame, walls, and finally the roof. Based on this analogy, I use four experiential learning activities as building blocks by tying them with one another, building upon them at each step, and linking them to students' career interests as a common thread binding all the activities together. I have observed that this ignites intrinsic motivation and improves learning effectiveness. I accomplish this in the following ways:

Step 1 (Theoretical Concepts) - <u>Real world examples, anecdotes, stories, and videos related to technology companies</u>: These are used to explain important business concepts. For example, I use the pricing model of a tech giant like Apple to explain pricing strategies instead of using McDonald's because STEM students relate well to technology examples. In addition, I explain how they can apply these concepts in their future careers as entrepreneurs and STEM professionals working with cross-functional teams.

Step 2 (Application of Concepts) - <u>Experiential active learning opportunities at the intersection of technology and business</u>: These activities help students, bridge the gap between business and technology. **For example**, after discussing the concept of customer-centric product design and sharing some real world examples (*step 1*), I give them an experiential learning activity to apply that concept (*step 2*). This activity involves designing a bike based on a ranked list of customer needs and preferences using a tool called Quality Function Deployment (QFD). Thereafter, we discuss their designs and reinforce how this concept can be used in their future careers, thus building upon step 1 above. **Another activity example** is related to branding and advertising where students are given a product category and a target customer and they have to create a brand name, a catchphrase, a short media plan, and a print advertisement for that product-

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[2] Intrapreneurs are individuals who use entrepreneurial thinking to create change or launch new ventures within existing organizations.

customer combination. Two examples of this activity are: **(1)** a challenging and unusual combination given to students was *nail polish for men*. Interestingly, students came up with very creative brand names and catchphrases such as "Male Polish" – *Stronger nails for a stronger you*. They presented it as a nail polish to harden nails instead of coloring them since the target customers were males. It was fascinating to see that they created a new use for the product, customizing to the customer's needs. (**2**) *Ride-on vacuum cleaner for kids* was another interesting product-customer combination for which they came up with, "Vac-tor" – *Your kid is the greatest attachment*. What amazed me was that they not only came up with creative names and slogans but also indirectly applied branding concepts of making them catchy, short, and memorable. They also understood the higher order difference between the customer (parent in this case who will buy the vacuum cleaner) and the consumer (the kid who will ride on it and indirectly clean the house). Students love this activity as it gives them a platform to present their creativity and apply branding concepts. The work they generate in this course is also very unique and different from what they have created in most of their technical STEM courses, which is another distinctive element about my innovative approach.

Step 3 (Frameworks and Strategies) - <u>Case analyses</u>: Steps 1 and 2 above are implemented at the concept level. However, students also need to be able to tie-in these individual concepts together into frameworks and strategies. So, we have a relevant tech industry-based case discussion after every two class periods, which involves application of the specific concepts learned in those classes. This further raises their learning experience up by one level. Students not only submit a written case note but also discuss it in class in an open forum. These cases provide students with an experience of real world business problems, gives them an opportunity to present their ideas to others, and improves their creative, critical, reflective, and strategic thinking skills. While discussing these cases in class, once again, I explain how they can face such a situation in their STEM careers and how they can apply these concepts to overcome those challenges.

Step 4 (Capstone) - <u>Business plan</u>: This step builds upon Steps 1, 2, and 3 above by providing a capstone opportunity at the end of the course to apply all business concepts, strategies, and frameworks learned throughout the course. At this stage, I provide a case of a technology company like Samsung, planning to launch a new product in an international market. Based on the case facts and figures, students design a full business plan for the product launch. This is their final reinforcement in the series of experiential learning activities where I once again discuss how as entrepreneurs or intrapreneurs, they will have an opportunity to work in cross functional teams with an aim of creating a business plan for a technology product and how all the concepts learned in this course will help them innovate and participate effectively.

The Impact

In conclusion, I believe this course offers a platform to FBS to blend and unite with the rest of the campus. The mission of FBS is *"to make a significant global impact by creating knowledge and developing innovative leaders who can see opportunity, harness technology and drive change to solve complex human problems."* The innovative approach with which I teach this course, takes FBS one step closer to achieving its mission of preparing leaders at the intersection of technology and business. This novel approach to bridging the gap between theory and practice as well as STEM and business domains, adds value to our undergraduate education at WPI. In fact, some of my senior year students have also mentioned that this course would have been very beneficial to them in their junior year during their Interactive Qualifying Projects (IQPs) because their projects involved application of these business and marketing concepts for a social or environmental cause. I have also consulted several IQP teams over the last few years whose project goals are related to business and marketing concepts by using elements of these building blocks of learning.

Students, from business majors and especially from STEM and related majors, are now more engaged and interested in the subject matter because they can clearly see how knowledge of business concepts will give them a career edge, equip them to work in cross functional teams, and prepare them to lead as entrepreneurs or intrapreneurs in their career domains. They do not memorize in this course, instead they imbibe this knowledge and develop business acumen through these connected experiential learning activities that build on each other. Students' comments demonstrate this impact:

- Excellent professor, great organization, lots of valuable information, great learning experience. Intellectually stimulating and invaluable for one's future.

- I really enjoyed all the real world and global examples used in this course. The professor cares about the way the class is taught and puts a lot of effort. It makes all the difference.

- Did a good job of broadening my view outside of Engineering.

- I liked the structure. Pr. Shah wanted us to have hands on learning as opposed to memorizing the subject for quizzes and tests. I actually learned the majority of content. I would actually encourage a friend to take Pr. Shah's class. She's very enthusiastic and has a unique teaching style.

- Straightforward. Engaging. Good use of time and develops business acumen.

- Before taking BUS 4030, my comprehension of marketing and its power within business was, at best, minimal. Professor Shah was adamant in teaching me about marketing strategy in a highly organized, favorably discussion-based format. Through in-depth analysis of marketing subjects, and beneficial practice within relatable yet provocative case studies, I was able to achieve a clear understanding of my own potential marketing skills and strategies.

Appendix

Figure 1: The Building Blocks of Learning: An Innovative Approach applied in BUS 4030