

2006-1714: DEVELOPING POSITIVE TEAMING IN A PRODUCT DEVELOPMENT AND ENTREPRENEURSHIP COURSE USING AN OFF-CAMPUS WEEKEND SEMINAR

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Developing Positive Teaming in a Product Development and Entrepreneurship Course Using an Off-Campus Weekend Seminar

Overview

One of the most important concerns in teaching a product development and entrepreneurship course with multidisciplinary teams is to ensure that the teams function effectively. This can be difficult when the course contains a significant workload for each team, such as the development of a new product idea along with a complete business plan for the product in a single semester. Experience with four semesters of classes shows that more cohesive, process driven teams are stronger and experience greater success on a variety of levels than less cohesive teams. To address these important team issues, the students at Penn State Erie, The Behrend College attend an off-campus weekend seminar. During this seminar, students participate in team-based activities, listen to guest speakers discuss their entrepreneurial ventures and the importance of teams, develop guidelines to manage how the team functions, and watch a video to provide a “real life” perspective on teaming. After each activity, a debriefing occurs to see how each team functioned and what could have been improved in the team performance. At the conclusion of the seminar, the students complete a survey to rate the performance of the activities and the weekend seminar overall. Results from student assessment indicate that the students generally find the weekend seminar to be a valuable part of the course and a positive experience. Students consistently report that the skills they develop are especially important when securing employment and performing successfully in a variety of business and professional situations.

Introduction

The Product Development and Entrepreneurship course has been offered for four semesters at Penn State Erie, The Behrend College. The course is three credits, meeting for 50 minutes three times a week. In addition to the scheduled class periods, the students spend one weekend at the beginning of the semester attending a seminar at an off-campus location. This weekend seminar is similar to that described by Swamidass and Bryant¹, except that, in addition to having students work on team-related activities, there are also guest speakers who present their entrepreneurial activities, and the teams begin to concentrate on identifying a single product idea. For each offering, three teams of between three and five students were selected.

One of the most important concerns in teaching a product development and entrepreneurship course with multidisciplinary teams is to ensure that the teams function effectively. This can be difficult when the course contains a significant workload for each team.

During this seminar, students receive instruction in effective team building, participate in team-based activities, listen to guest speakers discuss their entrepreneurial ventures and the importance of teams, develop guidelines to manage how the team functions, and watch a video to provide a different perspective on teaming. After each activity, a debriefing occurs to see how each team functioned and what could have been improved in the team performance. This debriefing serves to help students better understand the purpose of the activity and to reinforce the need to continually and consistently examine not only what the team did, but *how* they did it - the

processes employed to achieve the results, either favorable or unfavorable. This focus on process management is emphasized through the creation of detailed team process guidelines that are critiqued by the faculty, revised, graded, and reviewed/used throughout the course.

Engineering and technology curricula often focus on the technical abilities of students, neglecting the “soft skills” that will often determine success or failure for a graduate when (s)he enters the workforce. As an example, project management skills are often neglected in an engineering curriculum, requiring additional training for those engineers who end up in management positions². Skills such as the ability to lead and work effectively as a member of a team are frequently identified as critical to the success of an engineer, but typically are lacking in new engineering graduates³. The same is true of business students. While the business curriculum uses many team-based projects, students frequently resist building good, effective team-building skills, failing to realize the importance of fine-tuning these skills until they have some practical application in an actual work setting.

In teaching four semesters of students, it became clear to the faculty that the most cohesive teams tended to develop a more practical and effective business plan. According to Forsyth⁴, cohesion is the strength of the relationships linking the members [of the group] to one another and to the group itself. A cohesive team, as defined here, uses meetings effectively, distributes work fairly, provides constructive criticism, and encourages participation of all members. The development of positive team dynamics as it relates to an interdisciplinary team has been studied, but remains a complex area to evaluate and improve. For example, Ochs, et. al.⁵ indicate that the most reported problem with their entrepreneurship activities was related to teaming skills, both within student teams as well as between teams and their faculty advisors. Additionally, as Buckenmyer⁶ asserts, “the negative experiences that students often have with course team assignments can sour their attitudes toward all team participation, which may affect their performance in teams in later employment. Many negative experiences can be attributed to lack of development in team processes.” Students graduating from our course consistently report that the skills they develop during the weekend seminar and the subsequent course curriculum are especially useful in securing employment and performing successfully in a variety of business and professional situations.

An extensive review of the literature regarding the use of teams and discussing best practices for developing successful teams was conducted in planning the format and content of the weekend seminar. According to Ketelhut⁷, “successful teams...start off with a clear and articulated purpose. Each team works to define a clear and elevating goal, which is shared and understood by all team members. The team also needs to establish specific, challenging, and concrete performance expectations to establish the structure of the team. Beyond team member responsibilities, the other two most important aspects of the structure of the team are establishing ground rules and determining the teams’ decision-making processes...After a team has established its purpose and operating structure, it must devote time to building the team relationship. This involves developing group strength, energy, and spirit so that team members trust and genuinely enjoy working with each other. After the team members are working well together, time should be spent on the technical and interpersonal skills necessary to accomplish the team’s goals.” These and other important team-building elements form the primary emphasis of the weekend seminar.

Justification for seminar format

Many programs undertake similar challenges, but over a more extended period of time. The material covered in this one semester course is often presented over at least two semesters and, in many cases, over a series of three or four courses. The intensive nature of this one-semester course necessitates a very quick start for successful completion of all deliverables.

Extensive research and the experience of the faculty all pointed to the need for a concentrated period of instruction, which would also afford an opportunity for increasing student commitment to the course, to build a foundation for successful team development, and to provide a quick, intensive start to the coursework/deliverables. This concentrated period is needed within the first two weeks of the course to ensure the best opportunity for success.

Many skills that often take weeks or months to develop need to be taught and implemented immediately. These skills include brainstorming creative ideas for a completely new product, getting to know the rest of the class members well enough to build an informed opinion of who would make a good, complementary team member for the project, building sound team practices and processes, and developing skills for managing the process and project successfully.

While these requirements may be viewed as substantial for a traditional, major-specific course, the cross-disciplinary nature of this course further complicates the situation. Students come to the class with very dissimilar academic backgrounds; the business and engineering disciplines are very different, and students have different academic strengths, social interaction patterns, and study habits.

The decision to incorporate an off-campus seminar was made based upon the research previously described, as well as the experience of the faculty who had realized excellent results using this format with other students. The weekend seminar provides for immersion in the subject matter, and an extended period of interaction among the faculty and class members in an environment that is new and different for all students. While other programs have incorporated short periods of concentrated faculty-student interaction or seminars into their curriculum, ours is unique in its scope and format.

Seminar components

Primary components of the weekend seminar are:

- **Unique setting:** Students are taken off campus to a well-known conference center for two days. The dining, accommodations, dress requirements, rigorous schedule, and expectations are consistent with a typical professional business conference. Students are expected to adhere to the highest levels of professionalism.
- **Professional development and etiquette skills:** Students are instructed in professional self-presentation, dining etiquette, and group presentation skills. This helps to set the tone of the course, and of the weekend. Instruction in these topics ensures that students know the basics of behaving professionally, and emphasizes the expectation of professional conduct throughout the course and beyond. It also reinforces the unique nature of this course, which simulates a “real-life” business situation, wherein students are assigned

deliverables and learn through investigation and discovery. Faculty act as facilitators, and students are expected to use the expertise and vast resources available to them through the University to solve problems.

- Team building activities: These activities are designed to allow students to get to know one another in a fun but slightly competitive environment. Enough team activities are employed so that each student is on a team with every other student before having to state a preference for team members. After each activity, a debriefing occurs to encourage students to analyze what happened during the activity, what practices led to success, and what led to failure or disappointing results. Students discuss how each team functioned and what could have been improved in the team performance, learning some of the critical elements of successful teamwork.
- Success stories: Local, successful entrepreneurs are invited to be guest speakers over the course of the weekend. These speakers are chosen for their diversity, interesting experiences, and engaging presentation styles. We have found that these sessions stimulate more creative ideas and excitement in the students, building or reinforcing commitment to the course. This is also one of the elements that keeps the students interested in the weekend's events despite the fact that they get very tired, since the two days are full of activities.
- Quick start: The weekend seminar allows quick dissemination of core topic information, allowing the instruction in critical topics for a successful start to be adequately covered very early on. In a typical class situation where the students meet for 50 minutes three times a week, it would be extremely difficult to "front-load" the course lectures in this way and still build teams successfully.
- Team selection: At the end of the first round of team activities, students are asked to state preferences for their team membership. Using optimization software, groups are drafted, then the faculty makes appropriate adjustments based upon their previous experience with the students. Once the teams are announced, another round of team-building instruction and activities begins.
- Team guidelines: Basic principles of process management are discussed with the students, and they are asked to draft process guidelines for their teams. Conflict resolution processes are also suggested. The resulting document, which goes through several revisions during the seminar as well as throughout the semester, should specifically state the process that the team members agree to follow in order to gain a successful result from the course. Expectations and consequences for not meeting group expectations are also clearly outlined. All team members must agree to, and sign, the guideline document. The faculty works with the student teams to revise and refine the document.
- Idea/concept generation: Once established, student teams begin to use many (100 – 200+) ideas that have been generated in the brainstorming sessions to narrow the list of projects they want to consider developing during the course.
- Market research: During the weekend seminar, students are given introductory instruction on market research, including the market environment, and segmenting markets to determine a target market. Product research, such as exploring similar products or substitutes and existing patents, also begins.

Cost

Along with the innumerable benefits and advantages of the weekend seminar come its costs, both in time and money. Certainly, there are sustainability concerns given the substantial funding needed for a program of this scope. We have funded our program through the operating budgets of the two schools involved and, initially, with a large grant from the GE Foundation. Corporate sponsorship, successful alumni, community and professional organizations, and venture capital groups also present an opportunity for partial or complete financial support. Students are required to pay \$45 each to help defray the cost of the hotel accommodations, as well.

Financial needs aside, the weekend seminar is time-intensive for both faculty and students. Students initially may balk at giving up a weekend and the associated study or party time. Faculty may also be concerned about devoting a full weekend to one course, given typical work and family demands.

Nonetheless, the faculty, students, and administration of our schools view the costs as relatively insignificant when compared with the tremendous benefits realized. These benefits are best exemplified by the comments of students who have been through the program.

Student Reactions and Results

While we continually modify and improve the weekend seminar, we have received very positive student feedback each time it is offered. Students make many comments such as, *I learned how to interact with individuals of different [academic] backgrounds...I learned how to accept more responsibility...it was a good real world experience.*

Additional representative comments include:

- *I learned how to do a ton of work efficiently and effectively, and to work on cross-functional teams.*
- *I learned how to utilize some skills learned in previous semesters...knowing how to work in a team and problem solving...I feel that I have gained a lot of leadership skills and [knowledge of] how to resolve problems between group members.*
- *The class really opened my eyes to the world of competitive industry that I was about to enter. The main thing I learned in the class was how to work on a diverse team of people from multiple disciplines.*
- *I learned how to work with people who live very different lifestyles from myself. I learned to work with people who have very different priorities and concerns from myself. Despite all of our differences, we were able to work together to produce a viable product. As I entered industry, I realized that this did not end with the class, it became day to day life.*
- *I have further grown to appreciate the class after starting a co-op at GE Transportation Systems... I also became aware of the day-to-day need for the dialogue between the marketers and the engineering department. The large lesson that one takes out of the Small Product Realization class is that one has to be able to negotiate and compromise in order for the project to be completed. This was a valuable lesson, which I utilized at GE.*
- *It has been a great experience to learn the business aspects from a 'real world' situation.*

- *Learning how to work in multi-disciplinary groups was probably the most important thing learned in this class, also, learning the hard work that goes into developing a product and attempting to bring that product to market.*

Students consistently report that they have secured a job or excelled in their jobs due to the skills, knowledge, and experience gained from this seminar and course. Most frequently, we get comments such as these:

- *This is a unique opportunity that has been appreciated by recruiters and interviewers.*
- *This course is all my interviewers wanted to talk about. It is the reason I got this great job.*

Conclusion

This work has focused on how to develop positive teaming in a product development and entrepreneurship course using an off-campus weekend seminar. Further, it discusses the benefits of using the off-campus seminar format to enhance the development of additional skills necessary for professional success in a business environment. The faculty team teaching the product development and entrepreneurship course has implemented a process of quality assessment and improvement to continually enhance the value of the weekend seminar and the overall course for the students of Penn State Erie, The Behrend College. Since its inception in January 2003, various modifications have been made as a result of student suggestions and faculty analysis and evaluation of content. While it is an expensive addition to the course offering, the enduring positive results far outweigh the associated costs. Reaction to the seminar from students, colleagues, College administrators, and community business professionals has been extremely positive, and the results as measured by job placement and the successful employment of our graduates are consistent with this very favorable reaction.

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