DO ENTREPRENEURIALLY-INCLINED STUDENTS LEARN MORE FROM SIMULATIONS?

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ABSTRACT

This paper explores the relationship between students' entrepreneurial attributes and learning experiences from the use of a business simulation. Its findings are tentative because no other study has been published concerning this topic. The question is important because entrepreneurship educators have expressed a preference for experiential learning and recognize the relative shortcoming of lecture-based entrepreneurship courses. In addition, entrepreneurship courses include students with varying degrees of interest in practicing entrepreneurship, and this study suggests the importance of considering difference instructional methods for the same class. The results indicate that entrepreneurial inclinations cause students to learn more from a business simulation than students with a weaker inclination towards entrepreneurship.

EXECUTIVE SUMMARY

Every educator prepares a course outline based on the assumption that students who enroll in the course are both interested and motivated to learn the concepts, principles, as well as willing to acquire the skills necessary to be proficient in the subject matter of the course. Accordingly, educators prepare lesson plans and course assignments with the expectation that all motivated students will be able to achieve the learning objectives of the course. This is a valid conclusion for most marketing, management, and finance courses that are designed to teach concepts, principals, and skills in their particular areas of interest.

Conversely, this study suggests that entrepreneurship courses are different, because entrepreneurship courses are generally designed for the entrepreneurially-inclined student whereas students in the course can include highly motivated student but with little or no entrepreneurial inclinations.

This study assumes that all students are motivated to learn but some students will have a stronger inclination to become an entrepreneur. Using the students entrepreneurially inclination as basis to measure the students' learning experience, this study found that the students' learning experience was explained by their entrepreneurial inclinations, i.e., students who are highly inclined towards entrepreneurial behavior, benefited more from the learning experience. This finding suggests that educators should either use different teaching methods within the same course or design different courses for students who are less inclined to be entrepreneurs.

BACKGROUND

This paper is a follow-up to a paper that was presented at USASBE's 2005 National Conference: "Business Plan or Business Simulation for Entrepreneurship Education." (Fregetto, 2005) The

2005 paper examined the effectiveness of a business simulation for teaching entrepreneurship. This paper reports a study to examine the relationship between the entrepreneurial inclinations of students enrolled in an entrepreneurship course with their learning experience from a business simulation.

INTRODUCTION

The 2005 paper reported that the business simulation provided a good learning experience and helped students develop some required business skills and gain an understanding of the value of team work. However, an important question remained unanswered: The degree to which students, who are entrepreneurially inclined, benefit from a business simulation. This is an important question for entrepreneurship courses if the course is open for general enrollment as an elective, because the course will generally have a significant number of students who do not aspire to be an entrepreneur. Instead, these students may only need the credits as electives in order to graduate or simply have a general interest in knowing about entrepreneurship without having any genuine aspiration to become an entrepreneur. One practical application of this study will be to identify whether different teaching methods are needed depending on the students' entrepreneurial inclinations. Unlike traditional marketing and management courses where professors seldom concern themselves with several instructional methods to cater to different types of students in the same class, the author believes that entrepreneurship professors should have this concern. This study validates a reason for the concern.

MEASUREMENT SCALES

Two measurement scales are needed in order to answer the research question. One scale is needed to measure the learning experience of the business simulation. This scale was developed, tested, and used for the 2005 paper. A second scale is needed in order to identify the entrepreneurially-inclined student. The second scale is found in a 1988 American Journal of Small Business article written by Donald L. Sexton and Nancy Bowman-Upton. Sexton and Bowman-Upton used the scale to measure the learning experience from a student point of view to determine the teaching effectiveness of entrepreneurship courses intended to promote entrepreneurial behavior. Although no measurement scale is perfect, the scale reported by Sexton and Bowman-Upton in their 1988 article in AJSB is a good start. Even though they stated several limitations to their study, they did conclude that their entrepreneurship course provided "a unique, positive, and enhanced learning experience."

Of greatest importance to this study is Sexton and Bowman-Upton's profile of the entrepreneurial students:

> They (entrepreneurial students) tend to be more autonomous than others, possessing a high degree of self-reliance and self-determination. They may also be more rebellious and unmanageable, . . . tend to welcome change and new experiences, and they can be both flexible and unpredictable. They may often behave inconsistently when faced with routine situations.

Sexton and Bowman-Upton then concluded the following:

In summary, entrepreneurial students can be depicted as independent individuals who dislike restraint, restriction, and the routine. They are capable of original thought, especially when under conditions of ambiguity and uncertainty. Many of them need to develop better communication skills and to become more aware of who other perceive their behavior.

The following eleven questions were used from Sexton and Bowman-Upton's article to measure different attributes of the entrepreneurially-inclined student:

(1) This course provided a new and different experience.
(2) I prefer courses that are more routine.
(3) The course taught me to deal with ambiguity in the real world.
(4) This course provided the opportunity to "do things my way" without conforming to class structure.
(5) I prefer unstructured courses.
(6) I prefer a course in which students work as members of a team.
(7) I prefer not having to persuade others to align with my ideas.
(8) This course provided an opportunity to learn by doing.
(9) This course enhanced my level of self-assurance or security.
(10) As a result of taking this course, I feel I have a better understanding of the problems associated with the real world.

Business Simulation: *Threshold Competitor*

Threshold Competitor (Anderson, 2003) , the business simulation used for this study, provides experiential learning by requiring teams to select a strategy, implement the strategy, experience the results of their decisions, and compete directly with the companies established and run by their classmates. The simulation begins as an early start-up manufacturing firm in an emerging market. After the initial investment, the students must organize a management team to takeover the firm and make thirty decisions each quarter including pricing, marketing, marketing research, production, inventory, employment, employee training, and financial decisions. In addition to these decisions, the simulation has eight management dilemmas to challenge the team. The advantages of the simulation include the following:

(1) All decisions are interrelated as decisions are in a real business.
(2) The students experience the growth and maturity of an industry.
(3) The students learn the value of market research.
(4) The students are emotionally engaged from the start of the simulation and become more passionate about their firm during the semester.

RESEARCH APPROACH

The 2005 paper assessed the efficacy of a business simulation in an entrepreneurship course and found that the simulation did teach several essential financial and marketing skills as well as have an impact on team performance. In addition the 2005 paper confirmed a common challenge of most classes that require team or group projects: obtaining active participation by all team members. The lack of active participation by all team members found in the first study suggested a need to differentiate students within the same class. Consequently, the author sought other

studies that attempted to measure the attributes of entrepreneurial students, and the Sexton and Bowman-Upton article is the result of that search. Eleven questions from the their study was added to the questionnaire developed to measure the efficacy of the simulation. The expanded questionnaire was given to two undergraduate and two graduate school classes during the same academic year (2004-05), and it was given to the students during the final exam so all enrolled students completed the questionnaire. A total of 116 students completed the expanded questionnaire creating a total sample size of 227 students who completed the original questions regarding the simulation learning experiences. Descriptive and correlation analysis are the two principal methods used to analyze the data.

FINDINGS

Descriptive Analysis

The descriptive analysis reported in Table 1 shows that the mean value for 32 of the 38 questions is towards "somewhat agree", the mean value for 5 questions is towards "somewhat disagree," and the mean value for one question is "neither agree or disagree." The five-point Likert scale used for this survey had the following labels: 1 (strongly agree), 2 (somewhat agree), 3 (neither agree or disagree), 4 (somewhat disagree), and 5 (strongly disagree). The mean values support the class profile previously assumed, i.e., as an elective class offered to students from all business majors, the class would include students with a very broad range on interest in entrepreneurship. The last two columns in Table 1 report the range for each question and shows that the highest ratings are frequently near "strongly agree" while the lowest average are frequently near "somewhat disagree" rather than "strongly disagreeing." This range suggests that the data is skewed in the direction of agreeing. This skewing is better illustrated with line graphs. The line graphs in Graph 1 and Graph 2 show how the data is skewed to the "somewhat agree" point on the scale for two of the overall measures of simulation learning experiences. Both graphs provide visual evidence that a significant number of students stated that ***Threshold Competitor*** is a good learning experience and helped them become more proficient in using their business knowledge.

Graph 3 and Graph 4 are line graphs of two overall measures of the students' entrepreneurial attributes: "I prefer courses that are more routine," and "I prefer unstructured course." For the entrepreneurially-inclined students, this study hypothesizes that students would disagree somewhat or strongly to the first questions and would agree somewhat or strongly to the second question. These graphs are equally revealing as the first two graphs and illustrate that the class is not as generally entrepreneurially inclined as one might assume for students enrolled in an entrepreneurship course. Graph 3 shows that students generally preferred routine courses and Graph 4 shows that, on average, the students were generally indifferent regarding whether a class is unstructured. Both graphs support the belief that students in the courses under study are drawn from the general student population rather than from a select population of entrepreneurially-inclined students. This finding supports the core premise of this study, that is, entrepreneurship professors need to concern themselves with several instructional methods to cater to different types of students in the same entrepreneurship class. The following correlation analysis will provide an answer as to whether the learning experience for the same exercise, business simulation, varies based on the students' entrepreneurial attributes.

Correlation Analysis

The principal correlation analysis is the relationship between the twenty-three types of learning experiences provided by ***Threshold Competitor*** and the eleven different student attributes used to measure their entrepreneurial inclinations. However, it is important to understand that the learning experiences are all significantly correlated with the students' statement that "***Threshold Competitor*** was a good learning experience." Table 2 shows the correlation coefficients between the above statement that the simulation is a good learning experience and the remaining twenty-two learning experience statements. Twenty-one correlations are significant at the 0.01 level and the twenty-second correlation is significant at the 0.05 level. Table 2 shows the strength of association between the learning experiences measured in this study as well as shows that four measures have a strong to moderate impact on helping students become more proficient at using their business knowledge (0.810), teaching them the impact of the venture management team on the performance of the firm (0.677), exposing them to real-life a business decision-making situation (0.673), and helping the student become more proficient managing cost of a product (.616). An interesting finding supporting the value of the learning experience due to ***Threshold Competitor*** is the moderate correlation coefficent (0.726) between the simulation being a good learning experience and recommending that the simulation be used in future classes. Gaining students' recommendations is important feedback when selecting teaching methods.

Given the above findings suggest that ***Threshold Competitor*** provides a good experiential learning experience for students enrolled in an entrepreneurship class, the principal question of this paper can be answered: the degree to which students, who are entrepreneurially inclined, benefit from a business simulation. Student motivation to learn makes this question important. As every educator knows, low motivation results in a low level of learning. Likewise, low motivation to apply the knowledge or engage oneself in the course instructional methods will also result in a low level of learning. The answer to this question is shown in Table 3 – Correlation Matrix between simulation learning experiences and students' entrepreneurial attributes. Only correlation coefficients that are significant at the 0.05 and 0.01 levels are printed in the matrix in order to clearly show those attributes that will help answer the research question.

With few exceptions, all the correlation coefficients were very weak, 0.362 or lower. The weak association suggests a need for further study into the relationship between students' entrepreneurial aspirations and learning experiences provided by a business simulation. On the other hand, the large number of significant correlations for four student attributes and the low number of significant correlations for six other student attributes suggest that the student's entrepreneurial inclination does influence the degree to which the business simulation is a valuable learning experience for the student. Consistent with Sexton and Bowman-Upton's teaching method to provide a class that "posed problems requiring solutions under conditions of ambiguity and risk," one student attribute that had the most significant correlations (seventeen significant correlations) is "The course taught me to deal with ambiguity in the real world." The other three attributes are:

(1) "As a result of this course, I feel I have a better understanding of the problems associated with the real world." (Thirteen significant correlations)
(2) "This course enhanced my level of self-assurance or security." (Twelve significant correlations)

(3) "This course provided an opportunity to learn by doing." (Ten significant correlations)

All of the above four attributes are part of the entrepreneurial student profile as presented earlier in this article and provides partial support for the hypothesis that entrepreneurially inclined students do learn more from the business simulation which is intended to expose them to "simulated" real-life business decisions, experience the risk of failure, deal with ambiguity, and force them to make a decision, on their own, with a limited amount of information. Much like a real-world business situation, uncertainty, risk, bounded rationality in decision-making cannot be avoided. These findings suggest students who are inclined to engage in this type of business situation will learn more from the business simulation.

So What

Entrepreneurship courses are provided on the majority of college campuses in the U.S. and significant effort is being made to ensure that entrepreneurship courses are available to non-business majors. The success in the development of entrepreneurship education, to date, possesses a problem for today's educators. Before entrepreneurship became widely accepted, classes were small and filled with students that shared a common interest in entrepreneurship. Also, a college's expectations were generally low regarding entrepreneurship courses. Minimum enrollment was the primary concern of most colleges at that time. Today, high expectations are established by colleges and universities that offer entrepreneurship courses. In fact, it is more common to find programs and degrees at not only the undergraduate school level, but also graduate school and doctorial study. Compared with twenty years ago, there has been an explosion in entrepreneurship education fueled by a growing body of knowledge supported by research and financial investment from successful entrepreneurs and foundations. Today, college administrators, alumni, and supporters ask for the number of successful entrepreneurs the college graduates much like they ask how many graduates pass the CPA exam. Certainly, high expectations have been established for entrepreneurship programs.

CONCLUSION

This study found that students who are entrepreneurially inclined did learn more from the business simulation than students who were not. If entrepreneurship educations design their courses to appeal, educate, and motivate the entrepreneurial student as profiled by Sexton Bowman-Upton, those educators should assess the entrepreneurial inclinations of students and consider modifying some teaching methods to help the motivated but less entrepreneurially inclined student.

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(Tables and Graphs are available upon request from the author)