BUSINESS PLAN OR BUSINESS SIMULATION FOR ENTREPRENEURSHIP EDUCATION?

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ABSTRACT

This paper explores the effectiveness of the business simulation across three entrepreneurship classes at the University of Illinois at Chicago. Its findings are tentative because no other study has reported the efficacy of a business simulation for teaching entrepreneurship. The use of this experiential learning method in entrepreneurship education is important, because entrepreneurship educators prefer experiential learning for their students and recognize the relative shortcomings of a lecture-based entrepreneurship class. The results indicate that a business simulation is a positive learning experience for students.

INTRODUCTION

A business plan writing exercise is a common teaching method for an entrepreneurship course. In a class size of twenty or less, a business plan writing exercise can be an effective pedagogical exercise. However, the value of the exercise diminishes as the enrollment increases. Fewer students are able to pursue their own venture idea, and there is less time to critique a student's individual business plan. Due to these shortcomings, a business simulation was chosen as the term project under the assumption that the simulation will provide students enrolled in larger classes a more effective term project than the business plan writing exercise. The business simulation used for this study is ***Threshold Competitor*** by Anderson, Beveridge, Scott, and Hofmeister (2003).

The Business Plan

The U.S. Small Business Administration provides the generally accepted rationale for entrepreneurs to write a business plan:

> "A business plan precisely defines your business, identifies your goals, and serves as your firm's resume. The basic components include a current and pro forma balance sheet, an income statement, and a cash flow analysis. It helps you allocate resources properly, handle unforeseen complications, and make good business decisions. Because it provides specific and organized information about your company and how you will repay borrowed money, a good business plan is a

crucial part of any loan application. Additionally, it informs sales personnel, suppliers, and others about your operations and goals." (www.sba.gov)

In spite of these benefits, the business plan exercise has several shortcomings:

(1) Students never experience the market's reaction to their decisions.
(2) The business plan is essentially a static document providing no real insights beyond an understanding of start-up issues and costs within a competitive environment.
(3) Very little emphasis is placed on the intuitive aspects of opportunity recognition.

David Gumpert in his book, ***Burn Your Business Plan***!, presents a more succinct explanation of the shortcoming of a business plan: "In our society, we love "magic" solutions to our problems … business plans have become a seemingly magical solution for entrepreneurs trying to figure out an easy way to obtain money from investors – you write a plan, show it to investors, and they write you a check." (Gumpert, 2002, p29.)

Why Leave The Business Plan Behind?

Originally, the business plan writing exercise worked well because students could select their own venture idea and the class size was small enough to allow sufficient class and instructor time to critically examine each business plan. During these critiques, the student's vision, market insights, and personal goals can be discussed. Students could work alone or in self-selected teams based on their interest in the venture idea. The result was five to ten business plans per class that is a manageable number of plans to evaluate.

Without a doubt, entrepreneurship has arrived and average class size has significantly increased. The larger classes placed a real burden on the learning experience from the business plan writing exercise. There is not sufficient class time or instructor time to allow 50 or more students to write their own business plan. Teams of four or more became necessary but caused a decrease in the student's personal interest in the idea. As average class size grew to over 50 students, students could no longer select their partners based on their shared vision of the venture opportunity, and disinterested students approached it with little enthusiasm losing the original purpose of the business plan writing exercise.

The challenge is to find a class exercise that would get more students more engaged in exploring issues they will need to resolve during start-up decisions under considerable uncertainty and to meet the challenges of managing an early start-up business in an emerging industry. The answer was to re-structure the course by eliminating the business plan writing exercise and replacing it with two projects: Opportunity analysis worksheets to allow each student to explore their individual venture ideas and a business simulation.

What is wrong with the business plan?

(1) In his book, ***Burn Your Business Plan***, David Gumpert presents compelling argument: ". . . why the conventional written business plan has become incompatible with important trends in the business and economic environment." (Gumpert, 2002, p9). In order to support his argument, Gumpert quotes venture capitalist: "I don't read business plans . . .

I look at the entrepreneur." (Gumpert, 2002, p12) and professional investors calling business plans the equivalent of "intellectual push-ups. Nice exercise, but not necessarily relevant to anything in the real world." (Gumpert, 2002, p14) In addition to investors, three professors studying the value of business plans concluded: "There was no strong relationship between performance and the use of a formal business plan" (Gumpert, 2002, p42). Gumpert believes that "The business plan as it is conceived and used by many entrepreneurs is passé. It has been corrupted to the point that it is over-emphasized by entrepreneurs, and under-utilized by investors (Gumpert, 2002, p13).

Business Simulation: *Threshold Competitor*

"Kolb defines learning as the process whereby knowledge is created by the transformation of experience. Business simulations are one form of experiential learning, which often is a very effective way of learning… People learn from their experience." (Haapasalo and Hyvonen, 2001) ***Threshold Competitor*** 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.

The value of simulations as a learning method is strongly supported by others. Johne (2003) believes that the simulation's strongest selling point is its ability to have students learn through experience. To support his point, Johne states: "Studies have shown that people who train on a simulation program retain about 75% of the material. In comparison, lectures yield a retention rate of only about 5%, audio-visual Presentations 20% and discussion groups 50%."

Measuring the Effectiveness of Simulations

If simulations should be an integral pedagogy in entrepreneurship courses, then the question remains of how the students' learning experience can be demonstrated. Any attempt to answer this question is filled with challenges, because it is difficult to quantify the learning benefits of a business simulation. Henderson and Lawton (2002. p108) identified two key questions: "Two key questions surrounding the use of simulations have been troubled users since the very earliest days of gaming are: (1) What do participants learn from engaging in a simulation experience? (2) Is a simulation better than alternative pedagogies for accomplishing certain learning objectives?"

How can the benefits of the simulation be demonstrated in light of the two problems was also noted by Schumann, Anderson, Scott and Lawton (2001): (1) "There is a void in the literature that reports the effect of simulation exercises on results either from the student's or from the employer's perspectives." (p219) and (2) "The principal obstacle to assessing these higher levels of learning is the lack of suitable assessment instruments." (p217) After noting these two problems, Schumann (et al) present the following recommendation: "Since business simulations are designed to be a more realistic environment in which to learn, one might therefore hypothesize that the use of simulations will result in improved behaviors." (p218)

Sauaia and Aidar (1998) struggled with similar problems but they relied on Roger (1972) to help them understand the full meeting of experiential learning. Roger offered the following explanation of experiential learning:

a) Involves the whole person both affectively and cognitively;
b) Comes from within the learner. Even when the first stimulus comes from outside, the sense of discovery, achievement and understanding come from within;
c) Penetrates the learner and bring about changes in his personality;
d) Can be evaluated by the learner, who will know whether it is meeting his needs and clearing up his doubts;
e) Is meaningful and is part of the development of the whole of the learner.

Two models have been suggested for use in measuring the efficacy of simulations. Both models will be used to interpret the survey results. The first model is Kirkpartick's Framework and the second is a cognitive and affective learning criteria.

Kirkpatrick's Framework Schumann, et al (2001), recommended Kirkpatrick's Framework (1998) as a guide for assessing the efficacy of simulations in a college setting. The framework identifies four levels of learning:

Level 1 – Reaction is how the participants in the learning experience feel about the experience. . . . In the context of evaluating a business simulation, reaction measures the simulation participants' satisfaction with the simulation experience. Level 2 – Learning is the degree to which participants in the course's change attitudes, improve knowledge, or increase skill as a result of the simulation. Learning can be said to have taken place when attitudes change, knowledge is increased, or skill is improved as a result of the experience (Kirkpatrick, 1998). Assessing learning involves measuring changes – a change in attitudes, or an increase in knowledge, or an increase in skills. Level 3 – Behavior is the degree to which learners have changed their behavior outside of the learning environment because of their participation in the learning activities. (Kirkpatrick, 1998). ". . . behavior refers to whether the learners are actually using what they learned. . . ." (Schumann, et al, 2001) When evaluating business simulations, behavior could be defined as the degree to which learners are exhibiting the attitudes, knowledge, and skills taught in one class to subsequent classes and non-academic settings. (Schumann, et al, 2001). Level 4 - Results refer to the degree to which the output of the participant's workgroup or organization has improved because of learning simulation. (Schumann, et al, 2001)

Cognitive and Affective Learning is proposed by Sauaia and Aidar, (1998). They used cognitive and affective learning as a basis for evaluating the value of simulations used in Brazil and believed that the student or professional preparing to become a manager is subject to two kinds of demand:

a) To acquire knowledge pertaining to the science of administration and to continually widen his knowledge base: cognitive learning;
b) To develop technical and behavioral skills in the application of knowledge, to practice the art of administration, to affectively and emotionally interact with people at work and share a satisfying atmosphere: affective learning.

They concluded that, traditional education, based on accumulating memorized information regarding the management science is no longer suitable. Academic institutions may fail unless they concentrate on the cognitive and affective development of the student; the two areas proposed by Rogers (1972). Sauaia and Aidar went on to identify the central problems of evaluating simulations in Brazil:

1. What are the main variables to be found in business games?
2. What are the critical dimensions summarized by the variables studied?
3. What is the relative importance given by the participants to the elements of satisfaction and learning in business games?

DATA COLLECTION

A questionnaire was developed in order to fill the void in literature. The students' experiential learning experience was examined with two different instruments: (1) a questionnaire that directly asked them to evaluate their learning experience with the simulation. Twenty-three questions were asked using a five-point Likert scale and six questions were asked regarding the student's individual performance as well as the performance of their team, and (2) a peer evaluation that asked them to rate their team members performance in relation to eleven different team activities of which the simulation work represented four of the eleven team activities. In this way we can examine the student's self-reported learning experience and determine the value of the simulation within the context of all the other required team assignments.

Analysis - Kirkpatrick's Framework

Tables[1] 1, 2, 3 and 5 show the questions that were used to measure each level of learning in the Kirkpatrick Framework. A five-point Likert scale was used to measure the students' opinion with the following values: 1=strongly agree, 2= somewhat agree, 3= neither agree or disagree, 4=disagree and 5=strongly disagree.

Overall, the students "somewhat agreed" with all questions regarding the first three levels of learning with an average score of 2.60 (Table 1), 2.60 (Table 2), and 2.71 (Table 3) for levels 1, 2, and 3 respectively. A higher average is certainly desirable. However, these averages are very good when two other measures are considered: (1) only 40.2% of the students agreed that they mastered the simulation by the end of the semester (Table 3) and (2) only 47.6% of the students reported that all team members shared the simulation work equally (Table 5). Consequently, an

[1] Due to space limitations, tables are not included. Please contact the author for a copy of the tables.

above average rating is good when mastery and participation is below average at best and implies that less skilled and less active students still did learn some skills.

A review of the averages for the first three levels identify the top reasons to explain the efficacy of the simulation. For the reaction level, the students felt that the simulation was a good experience (59.8%), very challenging (61.7%) and that the dilemmas were both interesting (58.1%) as well as challenging (54.2%). On the learning level, students believed the simulation helped them become more proficient at inventory management (67.9%) and managing the price/quality value relationship (66.7%). At the behavior level, the students found that the dilemmas caused their team members to discuss the issues (57.9%) and using the solo version help the student (58.9%).

In order to explore the data further, the percent agreeing and disagreeing with each statement is compared and reported in Table 4. By examining overall percentages, we find half the class agreed that they learned at all levels. Table 4 compares the three levels and shows that Level 2 has the highest ratio of agree to disagree with a ratio of 3.9:1

Kirkpatrick's fourth level of learning, the degree to which the students worked together as a team, is measured by asking about their level of participation. Table 5 reports these results and shows the relatively modest level of participation, 47.6%, as noted above. Interpretation of this data is limited because this is a cross-sectional survey. However, a few additional insights about this learning level can be gained from the data reported in Table 5:

(1) Students gave a C+ grade for their team's ability to work together.
(2) One or two students really worked on the simulation for a third of the teams.
(3) Over 10% of the students reported that they did less than their fair share of work on the simulation.

Overall, this measure of learning clearly shows that all students were not actively engaged in the learning experience of the simulation, but it also shows that a significant percent of the students were fully engaged in the learning experience of the simulation and in some cases over two-thirds of the students reported learning while team participation was below average.

Analysis - Cognitive and Affective Learning

In the spirit of exploratory studies and considering the limitations of the data set, two levels of analyses are performed. First, a correlation analysis is performed to determine the variables that are highly correlated with each of the variables selected to measure each type of learning. Second, regression analysis is performed to determine the ability of the highest correlated variables to explain the change in those variables selected to measure each type of learning. Tables 6 through 9 report the correlations and Table 10 reports the results of the regression analysis.

Interestingly, the top same ten variables that correlate with each of the four measures are the same but in different order. The regression analysis suggests other factors that may contribute to the students' learning experience than is found using Kirkpatrick's Framework. Overall, each

regression explained a considerable amount of variation in the students' learning experience ranging from 33.9% to 63.9%. Four variables are significant in explaining at least one of the dependent measures. Using the Cognitive and Affective Model, students learned the impact of the venture team on the performance of their firm; helped them become more proficient at managing cost of goods sold; exposed them to real-life business decision-making situation; and helped them become more proficient at financial management. The first two variables explained both cognitive and affective learning while the last two explained only affective learning

Analysis - Peer Evaluation

What is the simulation's relative importance to the team's overall performance? This question can be partially be answered by the students' peer evaluation. At the end of every class, each student is required to rate the performance of each team members on eleven different team activities using a ten-point scale. Four of the ten criteria describe work on the simulation while six criteria relation to other team projects and work. Ten represents that the student took a lead role in the particular activity while 1 indicated that the student did not contribute to the particular team activity. On average, students' participation rating ranged from a low of 79.3% to a high of 85.9% (Table 11). Overall, this finding indicates that all teams performed at an above average level and reflects the previously reported rating using the Kirkpatrick Framework findings.

Of the eleven questions, a key question is whether a student would like to work with the same student again. This is a litmus test of a student's performance. The regression analysis (Table 12) explains 67.6% of the variance and shows that three variables explain the variance in a student's preference to work with the student again. The top two reasons are expected: The student's ability to facilitate an excellent working relationship among team members, and the student's regular attendance at meeting. Both factors are fundamental to any group work. However, the third and only other variable that explained a student's desire to work with the student again, at the 95% confidence level, is the student's contribution to the simulation's quarterly decisions. This finding provides indicates the value of the simulation to create a group work ethic.

Conclusion

Entrepreneurship education is finally arriving as a recognized academic discipline, and successful entrepreneurs are recognized as the "hero's" of economic growth. However, the question remains: How do we educate entrepreneurs? We know experience is the greatest teacher for entrepreneurs even though expensive and failure can be devastating for the entrepreneur and his or her family. During the early 80s, entrepreneurship classes were small and educators could effectively use a business plan writing exercise to engage the student into critically examining their venture idea. As enrollment grew significantly during the 90s, the exercise lost its effectiveness to help students evaluate their individual venture idea. Today's challenge is to educate entrepreneurs within the environment of large classes, and this study analyzes the ability of a business simulation to teach students about entrepreneurship through experiential learning.

The value of the business plan writing exercise in teaching entrepreneurship is being challenged by the increasing class size. This paper considered a business simulation as an alternate team project for teaching students entrepreneurial skills. Overall this study suggests that the simulation did teach several essential financial and marketing skills as well as the impact of good team performance.

In addition, this study confirms a common challenge in most classes that require team or group projects: obtaining active participation by all team members. It is not known whether the team participation found in this study is normal, above normal, or below normal. Further studies are certainly needed to asses the level of team participation as well as compare the learning experience of students doing a business plan writing exercise versus a business simulation. In either case, the simulation is worthy of further study and consideration in the teaching of entrepreneurship.

REFERENCES

Anderson, Philip H., David A. Beveridge, Timothy W. Scott, and David L. Hofmeister (2003). *Threshold Competitor: A Management Simulation*, Prentice Hall, New Jersey, Version 3.0.

Anderson, Philip H. and Leigh Lawton (2002) "Is Simulation Performance Related to Application: An Exploratory Study," *Developments in Business Simulation and Experiential Learning*, Volume 29.

Gumpert, David E. (2002). *Burn Your Business Plan!* Lauson Publishing Co., Needham, MA.

Haapasalo, Harri, Johanna Hyvonen (2001). "Simulating Business and Operations Management – A Learning Environment for the Electronics Industry. *International Journal of Production Economics*, Volume 72, Issue 3, Oct. 13.

Johne, Marjo (2003). "Virtual Environments." *CMA Management*, 76, no. 10 (Feb).

Kirkpatrick, D. L. (1998). *Evaluating Training Programs: The Four Levels* (2nd Ed.). San Francisco, Berrett-Koehler.

Matanovich, Timothy J., George E. Cressman (1996). "Hyper-learning in a Hyper World." *Marketing Management*, v5n2 (Summer).

Rogers (1972). This paper is quoted in Sauaia and Aidar (1998). Bibliography was requested but not provided at this time.

Sauaia, Antonio Carlos Aidar (1998) "Business Games in Brazil – Learning or Satisfaction," *Developments in Business Simulation and Experiential Learning*, Volume 25.

Schumann, Paul L., Philip H. Anderson, Timothy W. Scott, and Leigh Lawton (2001). "A Framework for Evaluating Simulations as Educational Tools," *Developments in Business Simulation and Experiential Learning*, Volume 28.

Wolfe, Joseph (1976). "The Effects and Effectiveness of Simulations in Business Policy Teaching Applications." *Academy of Management Review*. April.

www.sba.gov/starting_business/planning/basic.html