COMPUTER-BASED MARKETING SIMULATION GAMES AS AN ADJUNCTIVE LEARNING TOOL: THE STUDENTS' PERSPECTIVE

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ABSTRACT

A student survey of both graduate and undergraduate marketing management classes revealed general satisfaction with computer-based marketing simulation games. Undergraduates valued more highly the "learning by doing" aspects of the simulation. Graduate students in contrast were more reluctant to give up lecture time for the game, which demanded both in-class and out-of-class group decision making.

INTRODUCTION

A commonly offered comment by students about their business education at the undergraduate and MBA levels is that they get saturated with case analyses and lecture material, with little or no opportunity to test the information. Responding to this complaint, the marketing faculty at Pacific Lutheran University decided to introduce computer-based marketing simulation games in both the undergraduate capstone and MBA marketing management courses. The objectives were to provide a more varied learning experience for the students and to reinforce a focus on the strategic aspects of marketing management decisions.

An evaluation was made among both student groups to determine their reactions to the marketing simulation experience; that is, what benefits commonly claimed for simulations did students most agree with? Further, did the simulation learning experiences result in significant differences in attitudes between the undergraduate and graduate groups?

USE OF SIMULATION GAMES IN BUSINESS EDUCATION AND MARKETING

A simulation is a problem-solving learning activity that attempts to imitate, or "simulate," a real-life situation (Cash 1983). Real life events, relationships or situations are modeled to create an abstraction of those factors considered to be important in what is being studied and to represent it and its function in the manner of the real world. Simulations demand that students become more active participants in their learning process than when they take lecture notes from verbal, written or audio-visual presentations. Further, in contrast to the case study method, simulations offer a rich but manageable representation of what is being studied; case studies often overrepresent the complexity of decision situations (Kotler, Schultz 1970). What simulations offer, then, is an adjunctive learning approach to lectures and case studies in business education.

The growing emphasis on business strategy formulation and strategic options encourages the use of simulations. In marketing, especially, with its focus on understanding the forces external to the firm behind consumer demand and competitive success, simulations offer students a chance to make decisions in a reasonably complex situation. The students have a chance to develop a marketing mix which attempts to stay in touch with the dynamic forces within the game's competitive marketplace environment.

Numerous benefits both for the student-participants and the instructor have been claimed for simulations. Among these are:

For the Student-Participants:

- Skill in discovery and clarification of problems.
- Practice in decision making and goal setting.
- Challenge in dealing with ambiguity and complexity.
- Encouragement for identifying the key strategic variables from a large number of variables.
- Development of a systematic and quantified approach to strategy formulation.
- Advancement of skills in risk-taking.
- Growth of interpersonal skills acting as a team member.
- Gain of insight into one's own decision-making style and behavior.
- Opportunity to recognize strategic mistakes and make adjustments as are judged to be needed.
- Application of conceptual learning constructs.

For the Instructor:

- Variety in the classroom teaching experience.
- A facilitating role, asking questions to encourage student insight instead of providing answers.
- Active involvement and motivation for the student group in a relaxed learning climate.
- Ease of rapid feedback to students about their decisions and objective "bottom line" rewards (or punishments).
- Continuity and structure for a course with episodic case analyses (Cash 1983, Dekkers and Donatti 1981, McKenny 1967, Olivas and Newstrom 1981, Waddell 1982).

Some of the above benefits are reciprocal. For example, the variety in the instructor's teaching experience may provide a valuable variety in the student's learning experience. These benefits, however, are not all claimed to be the exclusive domain of a simulation approach.

Simulations should be recognized for their weaknesses as well. Learners may need considerable preparation for their experience, which cuts

into traditional class time; game administration, student review of results, decision discussion and instructor consultancy to teams may also demand time (Kotler and Schultz 1970). The instructor must usually decide where the simulation will fit and what its learning objectives should be so as to integrate comfortably with other course content. This can be a "costly" process both in terms of the instructor's time and of the instructional material that must be displaced to make room.

Yet another limitation is in the apparent lack of advantage for simulations in cognitive development and learning retention, as documented in a recent study reviewing empirical research studies investigating simulation for instructional purposes (Dekkers and Donatti 1981). This same study, however, did confirm that simulations are more effective than lectures in the development of positive attitudes by students.

THE STUDY

Two classes were chosen as groups within which to evaluate student agreement with statements about the simulation game experience. Both positive and negative statements were employed in a researcher-developed instrument. Table 1 identifies the two study groups.

The first group(n=24) consisted of full-time, day undergraduates taking their capstone marketing course (BA 470, Marketing Management). The students were asked to make twelve period-decisions (quarters) about marketing mix variables over nine weeks. Some 25-30% of class time was dedicated to the simulation, which counted as 30% of the students' semester grades.

TABLE I
COMPARISONS OF THE TWO STUDY GROUPS

Marketing Management Simulation Class

	Undergrad. Capstone	MBA Course
Class size	30	24
N for survey	24	20
Simulation game	Marketing Simulation (Brobst and Bush 1983)	Markstrat (Larreche and Gatignon 1977)
Number of Simulation periods	12 (quarters)	8 (years)
Decision frequency	6 weekly, then 6 twice weekly (9 decision weeks in 14-week Semester)	Weekly (8 decision weeks in 14-week Semester)
Team size	3	3
% Class Time for simulation	25-30%	25-30%
% Semester Grade for Simulation	30% (3 written reports=25% Performance=5%)	25% (2 written reports=20% Performance =5%)
Performance Criteria (weights)	Earnings/Share=40% Production Scheduling Accuracy=30% Relative Market =30%	Cumulative Net Marketing Contribution=100%
Other Learning Materials	Casebook with Integrated Text Material	Marketing Strategy Textbook; Separate Marketing Casebook

Team game performance, evaluated on several factors, was de-emphasized compared with the written reports focussing on team planning and strategy and a summary of annual performance. The simulation was used with a casebook, which had brief integrated text sections on marketing strategy.

The second group (n=20) was of MBA students attending an accredited evening program. Most were employed full-time in addition to their studies. They made eight (annual) period decisions over eight weeks. Approximately 25-30% of class time was taken up by the simulation, which counted as one-quarter of their semester grade.

Again, written reports (two) were weighted considerably more than game performance, which was defined by the criterion of cumulative net marketing contribution. Accompanying the simulation were both a marketing strategy textbook and a separate casebook.

About three-quarters of the way through their respective games (Period 10 for the undergraduates; Period 6 for the graduates), the individuals of each group were given a written survey to evaluate the simulation experience. Twenty-seven statements about the simulation were offered, some phrased to be positive and others negative. Respondents were asked to mark their level of agreement on a 5-point Likert Scale. In addition, two open-ended questions asked students to identify both positive and negative aspects of the simulation that were not previously identified. Demographic questions asked for the student's team-performance rank in the game at the time, the number of marketing courses taken previously, years of work experience and expected course grade.

STUDY RESULTS

Several significant inter-group mean differences were discovered and are reported in Table 2. MBA students were discovered to regard the aspects of team meetings and group decision making in a considerably less favorable light than the undergraduate students. Given that most of the MBA's had markedly more difficult logistical challenges in order to arrange out-of-class meetings, and probably experienced decision making in groups on their jobs, this finding indicates that the simulation experience had less payoff for them because of group member interaction. In fact, the MBAs agreed much more with the sentiment that the simulation would have been more meaningful if each student had acted alone as a "company".

MBA's were also more inclined to think that the simulation harmed the learning experience by reducing lecture time and to think of the game as being more appropriate as a wholly out-of-class exercise. They were more likely to agree that the simulation took too much time for what they got out of it.

The undergraduate group, in contrast, placed a higher value on the group decision-making aspects of the simulation. They valued more highly than the graduate group the aspects of "learning by doing," competing, understanding expense trade-offs and getting a bottom-line result based upon their decisions. These game attributes are probably more valued because, as full-time day students who have not had much working experience, relatively few of them gain these satisfactions in outside employment. Nearly two-thirds of the MBA's had six or more years of work experience, compared to only 4% of the undergraduates.

TABLE 2
SIGNIFICANT GROUP MEAN DIFFERENCES

Undergraduate Class Score (1-5; n=24)	Graduate Class Score (1-5; n=20)	Significance of mean Difference
Would be more meaningful if I alone could be a company and make decisions without other people. (Disagree)		
4.208	3.100	<.01
Harms the learning experience because it reduces time the instructor is able to lecture to us. (Disagree)		
4.500	3.550	<.01
Involves too much wasted time because of the team meetings required to make decisions. (Disagree)		
4.250	2.275	<.01
Takes too much time for what I get out of it. (Disagree)		
3.833	2.900	<.01
Is fun because of its competitive aspects		
4.542	4.000	<.05
Helps me to learn by doing (even if it is not "real")		
4.583	3.950	<.05
Is enjoyable because of the group decision-making activity of team		
4.125	3.300	<.05
Is rewarding because we get results via a "bottom line" based upon our decisions		
4.208	3.650	<.05
Takes up too much class time and should be assigned as a wholly out-of-class exercise. (Disagree)		
4.500	3.950	<.10
Helps me to understand expense tradeoffs among the marketing mix variables to keep within a budget.		
4.292	3.900	<.10

The undergraduates were more inclined to disagree that the simulation took up too much time in class for the value received; in other words, they more readily accepted a reduction in lectures for the simulation experience. Most of these students were seniors having had numerous lecture courses in their studies. Perhaps the simulation experience was a change of pace they welcomed.

A review of the question mean scores for each of the groups by rank-order identified several areas of agreement. Both MBA's and undergraduates thought the simulation was fun because of the competitive aspects of the game and helped them to appreciate that a firm's strategy needs to be changed when it is found to be less effective than desired. Similarly, both groups thought that their game seemed unfair to the companies (i.e., student teams) getting off on the wrong foot and did not allow the student to reveal knowledge about marketing concepts.

CONCLUSION

Undergraduate students, overall, evaluated their marketing simulation experience as more favorable than did MBA students. While both groups enjoyed the marketing game as a fun, competitive learning exercise, the MBA's reacted significantly more negatively to the group discussion process demanded by their game. Relatively short on work experience, undergraduates seemed to value a chance to "learn by doing" as a change of pace in their studies. As an adjunctive learning approach to lectures and case analyses, the computer-based marketing simulation games were found, from the students' perspective, to fulfill many of their commonly claimed benefits.

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