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INTRODUCTION

Although the teaching objectives of corporate policy courses are many, there is consensus of opinion among experts that the major objectives are: (a) to teach students how to apply business concepts, and (b) to integrate material from the various functional areas of business. The various approaches used by universities to teach corporate policy can be classified into four categories: (a) lecture and discussion, (b) case studies, (c) case studies and a simulation, and (d) simulation.

To date, two major research studies have been conducted to compare student learning in corporate simulation classes using different teaching methods. Both studies measured learning primarily through testing rather than the use of students' perceptions of the relative effectiveness of each method. The first study was conducted by Anthony P. Raia [1]. This study tested student learning in understanding general course material and skills in applying forecasting techniques and breakeven analysis. It compared a group where cases alone were used, a group where cases and a simple simulation were used, and a group using cases and a more complicated simulation. It was found that (a) the groups using cases and simulation outperformed the case group, and (b) that complexity of simulation did not improve performance.

The second study was performed by Joseph Wolfe and Gary R. Guth [2] and found that learning for concept and factual knowledge was superior for case and simulation as compared to case alone.

This study was designed to complement the findings of the previous studies by investigating student perceptions relating to simulation and the corporate policy course.

METHODOLOGY

In the spring quarter of 1976 a study was initiated to examine the perceptions of students in the University of Denver's corporate simulation course. Students were asked to state their perceptions of simulation as a teaching method as well as their perceptions of their preparedness for the simulation. The evaluations occurred at the beginning and at the end of the corporate policy simulation course.

In order to determine perceptions of simulation as a teaching method, students were asked to compare simulation to "lecture- discussion" and "case" formats in teaching students how to

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apply business concepts and teaching students the interrelationships between decisions made in the various departments of an enterprise. While it is recognized that corporate policy may be taught using lecture-discussions, cases, cases-simulation, and simulation, the course is only taught using simulation at the University of Denver. Then, by necessity, comparisons were made between simulation for teaching corporate policy and other methods (lecture-discussion and cases) in general. Finally it should be noted that, at the time of the study, simulation was not used in any other business courses at the University of Denver.

Students were also asked to state their feelings of the need for refresher lectures in core course areas. This was done to determine student perceptions regarding preparedness for the simulation. The rationale for using core course areas as a base is that all core courses are prerequisites to the corporate policy simulation course and that the simulation is designed to integrate relevant theory from the core in decision-making situations.

The research study was conducted over a period of three academic quarters and included seven sections of the course under the direction of two faculty members. Students were asked to complete the same questionnaire at the beginning and at the end of the quarter. Two hundred and fifteen students completed the questionnaire at the beginning of the quarter and 199 at the end of the quarter.

The corporate simulation class at the University of Denver is required for all senior and first year graduate students. The text used is The Business Policy Game by Richard V. Cotter [3]. The course is offered for two credit hours on a pass-fail basis. Students meet regularly in class for four to five weeks (8 decisions) before completing a full day of decision-making (8 decisions). Final corporate reports, evaluations and a de-briefing are completed two weeks prior to the term's end enabling students to concentrate on the corporate policy course prior to other end of term efforts.

FINDINGS

Table 1 shows student responses to the statement "Compared to a lecture and discussion course, I believe that a simulation is more effective in teaching students how to apply business concepts."

TABLE 1

LECTURE AND DISCUSSION COURSE VERSUS SIMULATION TO TEACH
HOW TO APPLY BUSINESS CONCEPTS

	<u>Cumulative Start of Course</u>	<u>Frequency (Percent) End of Course</u>
Strongly Agree	25.1	30.2
Agree	75.3	79.9
No Opinion	95.3	92.5
Disagree	100.0	97.5
Strongly Disagree	100.0	100.0

Table 2 shows student responses to the statement "Compared to a lecture and discussion course, I believe that a simulation is more effective in teaching students the interrelationships between decisions made in the various departments of an enterprise."

TABLE 2

LECTURE AND DISCUSSION COURSE VERSUS SIMULATION
TO TEACH INTERRELATIONSHIPS OF DECISIONS

	<u>Cumulative Start of Course</u>	<u>Frequency (Percent) End of Course</u>
Strongly Agree	21.9	29.1
Agree	75.3	81.4
No Opinion	95.8	93.0
Disagree	100.0	97.5
Strongly Disagree	100.0	100.0

Table 3 shows the responses of students, who in the past had taken at least one case course (75%), to the statement "Compared to a 'case' course, I believe that a simulation is more effective in teaching students how to apply business concepts."

TABLE 3

CASE COURSE VERSUS SIMULATION TO TEACH
HOW TO APPLY BUSINESS CONCEPTS

	<u>Cumulative Start of Course</u>	<u>Frequency (Percent) End of Course</u>
Strongly Agree	9.7	20.8
Agree	44.8	68.6
No Opinion	86.4	87.5
Disagree	100.0	97.6
Strongly Disagree	100.0	100.0

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Table 4 shows the responses of students, who in the past had taken at least one case course, to the statement "Compared to a 'case' course, I believe that a simulation is more effective in teaching students the interrelationships between decisions made in the various departments of an enterprise."

TABLE 4

CASE COURSE VERSUS SIMULATION TO TEACH INTERRELATIONSHIPS OF DECISIONS

	<u>Cumulative Start of Course</u>	<u>Frequency (Percent) End of Course</u>
Strongly Agree	7.8	19.5
Agree	61.7	76.7
No Opinion	92.2	93.1
Disagree	100.0	96.9
Strongly Disagree	100.0	100.0

Table 5 shows the answers given by students to the statement, "I believe that I need refresher lectures in some areas of business (accounting, finance, marketing, etc.) to do well in this course." This question was in the questionnaire completed by students at the beginning of the course.

TABLE 5

NEED FOR REFRESHER LECTURES IN SOME AREAS OF BUSINESS --BEGINNING OF COURSE QUESTIONNAIRE--

	number Responded	Relative Frequency (Percent)	Adjusted Frequency (Percent)	Cumulative Adjusted Frequency (Percent)
Strongly Agree	23	10.7	10.7	10.7
Agree	65	31.2	30.2	40.9
No Opinion	59	27.4	27.4	68.4
Disagree	54	25.1	25.1	93.5
Strongly Disagree	124	6.5	6.5	100.0
Total	215			

Tables 6 through 10 show student answers to the statement, "I believe that I needed refresher lectures in the following areas before making decisions to do well in this course: understanding financial statements, forecasting techniques, sales force management, product pricing, business law, other." This question was included in the questionnaire completed by students at the end of the course.

TABLE 6

NEED FOR REFRESHER LECTURES ON UNDERSTANDING
FINANCIAL STATEMENTS
--END OF COURSE QUESTIONNAIRE--

	number Responded	Relative Frequency (Percent)	Adjusted Frequency (Percent)	Cumulative Adjusted Frequency (Percent)
Strongly Agree	17	8.5	8.6	8.6
Agree	51	25.6	25.8	34.3
No Opinion	30	15.1	15.2	49.5
Disagree	71	35.7	35.9	85.4
Strongly Disagree	29	14.6	14.6	100.0
Total	198			

TABLE 7

NEED FOR REFRESHER LECTURES ON FORECASTING TECHNIQUES
--END OF COURSE QUESTIONNAIRE—

	number Responded	Relative Frequency (Percent)	Adjusted Frequency (Percent)	Cumulative Adjusted Frequency (Percent)
Strongly Agree	40	20.1	20.1	20.1
Agree	98	45.2	45.2	65.3
No Opinion	26	13.1	13.1	78.4
Disagree	31	15.6	15.6	94.0
Strongly Disagree	12	6.0	6.0	100.0
Total	199			

TABLE 8

NEED FOR REFRESHER LECTURES ON SALES FORCE MANAGEMENT
--BEGINNING OF COURSE QUESTIONNAIRE—

	number Responded	Relative Frequency (Percent)	Adjusted Frequency (Percent)	Cumulative Adjusted Frequency (Percent)
Strongly Agree	12	6.0	6.0	6.0
Agree	56	28.1	28.1	34.2
No Opinion	50	25.1	25.1	59.3
Disagree	66	33.2	33.2	92.5
Strongly Disagree	15	7.5	7.5	100.0
Total	199			

TABLE 9

NEED FOR REFRESHER LECTURES ON PRODUCT PRICING
--BEGINNING OF COURSE QUESTIONNAIRE--

	number Responded	Relative Frequency (Percent)	Adjusted Frequency (Percent)	Cumulative Adjusted Frequency (Percent)
Strongly Agree	14	7.0	7.0	7.0
Agree	70	35.2	35.2	42.2
No Opinion	33	16.6	16.6	58.8
Disagree	67	33.7	33.7	92.5
Strongly Disagree	15	7.5	7.5	100.0
Total	199			

Table 10 shows the breakdown, by major, of students who answered the questionnaires.

TABLE 10

CLASSIFICATION OF RESPONDENTS BY MAJOR

Classification	Beginning of Course Questionnaire (Percent)	End of Course Questionnaire (Percent)
Accounting*	13.1	14.0
Economics*	3.5	2.8
Finance*	13.6	11.2
General Business*	5.0	3.3
Hotel & Restaurant Mgt.	13.0	15.0
Management	16.6	17.3
Marketing	10.6	8.9
Real Estate	8.5	7.9
Statistics	.5	.0
MBA	13.6	16.8
MSBA	.5	1.9
Grad-other	1.5	.9

* Undergraduate

Table 12 shows the cross-tabulation of “student grade point average” versus “cumulative percentage of students who ‘strongly agreed’ and ‘agreed’ on the need for refresher lectures in specific areas of business” (end of course questionnaire).

TABLE 12

STUDENT GPA VERSUS NEED FOR REFRESHER COURSES ON:

Student GPA	Understanding Financial Statements (%)	Forecasting Techniques (%)	Sales Force Mgt. (%)	Product Pricing (%)	Business Law (%)
Below 2.00	100.0	100.0	50.0	50.0	50.0
2.00-2.50	46.1	66.7	43.6	48.7	20.5
2.51-3.00	44.8	67.2	41.7	50.7	10.6
3.01-3.50	15.8	65.5	22.4	31.0	12.0
Above 3.50	27.3	57.6	27.3	36.4	4.0
Differences are real at the (see across) level of confidence (chi-square test)	97.2	48.0	91.1	60.5	86.6

Cross-tabulations of “student major” versus “need for refresher lectures in specific functional area” shows that students perceive their understanding of their own academic major area to be adequate for the corporate simulation. Therefore, perceived need for refresher lectures was lowest when major area matched the topic in question. For example, accounting and finance majors indicated the least need for refresher lectures on financial statements (end of course questionnaire).

CONCLUSIONS AND RECOMMENDATIONS

The results show that the largest percentage of the students who participated in this study believed that as compared to “lecture and discussion” or a “case course” in general, simulation was the better approach to teach them (a) how to apply business concepts, and (b) the interrelationships between decisions made in the various departments of an enterprise. In addition, the results show that a larger percentage of the students felt that simulation was the better approach at the end of the course than at the beginning. The above may be attributed to the fact that most of the students had not been exposed to a rigorous simulation prior to taking this course, especially if all prior course work was at the University of Denver.

It is recognized that favorable perceptions of simulation may be due to any or all of the following:

- 1) uniqueness of simulation to the corporate policy course at the University of Denver
- 2) pass-fail grade (all other business courses are graded A-F).

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- 3) completion of the course well in advance of the end of the term.

The results could well change as more courses adopt simulations to supplement other material, a phenomenon which is just now beginning.

The results of this study also show that a large percentage of the students who participated in the study felt that they needed refresher lectures on understanding financial statements, forecasting techniques, sales force management, and product pricing in order to do well in the corporate simulation class offered at the University of Denver. The only exception was when the topic was the same as the student's major. If we accept the premise that "doing well" in a course implies that the learning objectives of the course are achieved, then, offering refresher lectures prior to the actual simulation is necessary.

It is suggested that persons who teach a specific simulation course at a specific university do the following:

1. Once Only
 - a. Establish minimum knowledge needed by students in order to "do well" in the simulation.
 - b. Test students to find out their level of knowledge.
2. In subsequent quarters/semesters, offer refresher lectures to bring the students' knowledge to the desired level prior to the start of the simulation. Professors may select to make attendance optional for students whose major is the same as the topic of the refresher lecture.

REFERENCES

1. Raia, Anthony P. "A Study of the Educational Value of Management Games," Journal of Business, Vol. 39, No. 3 (1966), pp. 339-352.
2. Wolfe, Joseph and Gary R. Guth, "The Case Approach Versus Gaming in the Teaching of Business Policy: An Experimental Evaluation," Journal of Business, Vol. 48, No. 3 (1975), pp. 349-364.
3. Cotter, Richard V., The Business Policy Game, (Englewood Cliffs: Prentice-Hall, 1973).