

# Simulations, Games and Experiential Learning Techniques:, Volume 1, 1974

## THE LECTURE VS. THE GAME

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Learning is obviously enhanced when the student can relate new concepts and words to his present inventory of knowledge and experience. The lecture presents many new concepts and words and normally attempts to relate them to previous discussions. Experience tells us, however, that despite our attempts to provide a well-rounded coverage of the course material in the traditional lecture or lecture discussion class setting, much of the information we present is never received by the student, or if it is received, the information is stored in temporary memory rather than in permanent memory. We are all familiar with the purging process that takes place in temporary memory following the examination. Thus our challenge as educators is twofold: (1) to increase the amount of information placed in student memory and (2) to increase the proportion of this information placed in permanent memory relative to temporary memory. My prescription for meeting this challenge is to get the student actively engaged in the learning process.

I have been searching for ways to increase student activism in the learning process for several years. The ideal situation would appear to be to set up each student with a business of his own to run. The student would incorporate the principles learned in the classroom into the business setting. This guided, real life experience would force the student to discover relationships and techniques first hand which are alluded to in the classroom. Unfortunately, we do not enjoy the luxury of unlimited funding at RIT and thus cannot subsidize student run business. However, I am here to report upon what I believe to be a viable alternative which employs a computerized game as a substitute for the actual business enterprise. Of course, the use of the game is not new. However, I believe the way in which it is used is new, and rather exciting.

The winter quarter of 1974 provided an excellent opportunity to experiment with the use of a game in the basic marketing course. I was scheduled to teach two sections of Marketing Principles which, of course, provided an experimental and a control group. It should be noted that games per se are not new to the introductory marketing course at RIT. I have utilized a game whenever I have taught the course over the past two years. However, the way in which the game was incorporated into the experimental class was radically different from its previous use.

### TEST UNITS

The two classes were scheduled to accommodate 40 students. Unfortunately as with many plans, enrollment did not occur as scheduled. The control group ended up with 27 students and the experimental group contained 46 students. As the choice of classes was left to the student during registration, I was unable to follow the textbook procedure of randomly assigning the subjects to the two groups. The best I could do was to examine certain characteristics of the classes after they were formed in an effort to determine whether there was actually any initial differences between them. It should be noted that the students were not aware of the difference in classes when they registered for the course.

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Nine bits of demographic data were collected from each student for the purpose of testing the equivalency of the two classes. The data consisted of age, transfer status, military status, major, earned credit hours, current course load, employment status, number of previous marketing courses, and cumulative grade point average. The class distribution of each of these variables was compared for the two classes. For each variable the null hypothesis stated that there was no difference between the two classes, with the critical significance level being .05. The results of the tests are shown in Table 1 in the Appendix. Thus, there were no significant differences between the classes for any of the variables with the exception of employment status where a significantly larger number of experimental group students held full-time jobs.

### **THE EXPERIMENT**

Both the control and the experimental students were required to purchase a text and a readings book for the course. Both classes received a copy of the reading schedule; however, the control group was instructed to read the material prior to coming to class while the experimental group was told that the schedule would serve only as a guide to covering the material they would be held responsible for. Students from both classes were provided a list of concepts they needed to know in order to satisfy the requirements of the course. Both classes were subject to a midterm and a final exam with the examinations being identical for each class. And of course, both classes were taught by the same instructor. At that point, similarities ended.

#### **Control Group**

The control group followed the standard format I have used over the past several years. The initial session is an orientation period setting out the requirements for the course. Subsequent sessions consist of lecture-discussion activity. A session or two is spent introducing the marketing game and forming operating teams. All subsequent activity concerning the game is accomplished outside of class. At the end of the quarter, each team is required to submit a written report of their game activities and to present the report orally to the class.

#### **Experimental Group**

The initial session of the experimental group also began with an orientation period setting out the requirements for the course. The students were informed that there would be no formal lectures in the course with the exception of the time required to introduce the game. The class was organized into eight teams. Each team was instructed to view itself as the automobile division of the Galaxy Motor Corporation, a large multidivision corporation. Each team was required to develop a set of division objectives and strategies which were consistent with the corporation's objectives as provided by the instructor. Each team was

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then charged with operating the division in a manner which was consistent with its stated objectives. The vehicle used to simulate actual market conditions was Louis Boone's Marketing Strategy. The game requires players to select products, prices, auto dealers, and promotion expenditures for the division as well as to forecast product sales in a changing market.

As stated above, the students in the experimental group were given a copy of the essential concepts list. This list was designed to guide them in their study and to give some direction in relating concepts to the game. The experimental group was also given a list of additional marketing texts which they could use to clarify concepts which they did not fully understand after reading the text.

Classroom time during the quarter was spent working on the game or briefing corporate headquarters. Each team was required to meet with the corporate marketing vice president, represented by the instructor, in his office once a week. The briefing lasted approximately 15 minutes with the first five minutes devoted to the team explaining their accomplishments over the past class week, two game quarters of play. The teams were encouraged to provide current graphs of the important variables and relationships which would help them explain and understand their division's operations. The remaining time in the briefing was spent asking the team embarrassing questions relating the application of the essential concepts to the division's operations. Unanswered questions were unfinished business at the next meeting with the team. The briefing sessions provided close personal contact with the students.

A typical class meeting opened with pertinent announcements, if any, and a call for questions. Game decisions were then collected or dispersed depending upon the day. I then went to my office where I met with two teams in succession. The remaining students were free to work with their teams at a location of their choice. After meeting with the teams, I would return to the classroom to answer any questions which arose during the class period.

### **FINDINGS**

As stated above, the control and the experimental groups were given identical examinations for the midterm and final. The answer sheets for the two classes were intermixed to prevent unconscious bias in grading from influencing the outcome. The distributions of the scores on the exams were compared for significant differences. The results are shown in Table 2 in the Appendix. The experimental group scored higher on both exams, the difference being significant at .05 for the midterm and .01 for the final. Table 2 also includes the final weighted average scores for the two groups which again are significantly different at the .01 level in favor of the experimental group. There may be some bias in this measure, however, as it includes the score each student received on the game and also on class participation. A record of class participation for each student was kept for the experimental section based upon the student's performance in each of the briefing sessions. Class participation was subjectively obtained via the impression the student made on the instructor for the control group.

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In summary, it appears that the game-centered course was more effective than the lecture-centered course in committing information to student memory. To determine whether the information was stored in temporary or permanent memory would require a subsequent examination of the two groups at a later date. I hope to replicate this experiment and if possible conduct such an examination the next time I am scheduled to teach two sections of the principles' course.

I found the experimental group much more fun to teach. I was able to get to know each student by name and, to some extent, by personality. I find this nearly impossible to do in a class of 46 with the traditional approach. The briefing sessions soon revealed the students who were working and the students who were loafing. It was rewarding to see some of the students shift from the latter category to the former as they discovered that they couldn't make it in the briefing sessions without working.

### APPENDIX

TABLE I

COMPARISON OF CONTROL AND EXPERIMENTAL GROUP  
Demographics

	<u>Age</u>		
	Control		Experimental
$\bar{X}$	21.5		21.6
S	1.8		3.1
		<u>Transfer Status</u>	
	Control		Experimental
Yes	14 (52%)		21 (46%)
No	13 (48%)		25 (54%)
		<u>Military Status</u>	
	Control		Experimental
Veteran	3 (11%)		6 (13%)
Nonveteran	24 (89%)		40 (87%)

$t = -.1614$

$X^2 = .2620$

$X^2 = .0588$

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TABLE I continued

<u>Major</u>			
	Control	Experimental	
Acct.	6 (22%)	21 (46%)	$X^2=6.4476$
Bus. Adm.	9 (33%)	14 (30%)	
Food & Ret.	5 (19%)	2 (4%)	
Non Col. of Bus.	7 (26%)	9 (20%)	
<u>Credit Hours</u>			
	Control	Experimental	
$\bar{X}$	108.5	95.1	$t=-.9588$
S	55.4	58.8	
<u>Course Hour</u>			
	Control	Experimental	
$\bar{X}$	15.9	16.5	$t=-1.2507$
S	2.6	1.7	
<u>Employment Status</u>			
	Control	Experimental	
Full time	2 (7%)	14 (30%)	$X^2=5.2715^*$
Not full	25 (93%)	32 (70%)	
<u>Previous Marketing Courses</u>			
	Control	Experimental	
$\bar{X}$	.6	.5	$t=.5458$
S	1.2	1.1	
<u>Cumulative Grade Average</u>			
	Control	Experimental	
$\bar{X}$	2.804	3.020	$t=-1.8243$
S	.5	.5	

\*Significant at .01 level

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TABLE II  
COMPARISON OF CONTROL AND EXPERIMENTAL GROUP  
Grades

		<u>Midterm</u>		
		Control	Experimental	
$\bar{X}$	43.0		52.3	t=-2.3629*
S	14.3		17.3	
		<u>Final Exam</u>		
		Control	Experimental	
$\bar{X}$	43.9		54.7	t=-3.004**
S	11.7		16.4	
		<u>Military Status</u>		
		Control	Experimental	
$\bar{X}$	51.1		65.0	t=-4.1304**
S	16.3		12.2	

\*significant at .05 level  
\*\*Significant at .01 level