

Developments in Business Simulation & Experiential Exercises, Volume 12, 1985

USING THE GENERAL MANAGEMENT GAME IN THE BUSINESS POLICY COURSE

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ABSTRACT

This paper discusses approaches to the use of the general management game, developed during several semesters of experience with Tempomatic IV, which will insure that the game makes a useful contribution to the objectives of the Business Policy Course. Three levels at which Tempomatic IV may be played are suggested. Each succeeding level of play is more complex than the preceding level, requiring more student and instructor involvement, providing opportunities for the application of a broader mix of skills and knowledge by the students, and making a larger contribution to course objectives. Data from a survey of Tempomatic IV users, covering the types of courses in which the game is used, how the game is administered, and supplementary activities and role-playing pursued, are also presented.

INTRODUCTION

Despite conflicting evidence regarding their pedagogical value, computerized simulation games continue to be an important part of business curricula. [1] One area of the business curriculum in which the games are frequently used is the capstone business policy course. The usual overall objective of this course is to provide students with an opportunity to apply, in an integrated fashion, the skills and knowledge which they have acquired in their earlier course work. Too often, however, the simulation game is just an "add-on" in such a course. Little effort is made to integrate the game into the course, and after an initial burst of enthusiasm, students play the game mechanically as something to be "gotten through." If a simulation game is to make a useful contribution to the objectives of the business policy course, the instructor must exploit the characteristics of the game to create situations in which the wide range of skills and knowledge represented in a typical business policy class can be used. The purpose of this paper is to describe some ways in which this can be achieved, based on several semesters experience with Tempomatic IV, a general management simulation game, supplemented by material drawn from the simulation game literature. [2] Tempomatic IV is similar to other general management games, and the following discussion is therefore relevant to most other games of this type. It is assumed that the reader is familiar with the format and procedures of general management simulation games. [3]

RESULTS OF MAIL SURVEY

To provide background data, a mail survey of Tempomatic IV users was conducted to determine how they administer and apply the game in their classes. One hundred twenty-eight questionnaires were sent out, and 56 responses were received, for a response rate of 44%. As shown in Table 1, by far the most frequent application of the game at both the undergraduate and graduate levels is in the business policy course. It is interesting to note that only four of the respondents reported using the game in a simulation game course.

TABLE 1
COURSES IN WHICH GAME IS USED

course	undergraduate	graduate	no.	I
business policy	35	8	43	76.8
general management	5	0	5	9.0
simulation game	4	0	4	7.1
other	3	1	4	7.1

Table 2 shows the percentage of class time devoted to the game and to other teaching approaches reported by the respondents. Fifty percent of the respondents reported devoting from 11% to 30% of class time to the game, with about 17% reporting 10% or less and the remaining 40% of the respondents reporting from 31% to 100% of class time.

TABLE 2
PERCENT OF CLASS TIME DEVOTED TO
GAME AND OTHER TEACHING APPROACHES

I of time	I of respondents reporting indicated I of time					
	game	lecture	cases	discussion	presentation	other
0-10%	17.3%	32.7%	9.8%	54.6%	44.5%	87.5%
11-20	26.9	28.6	22.0	33.3	47.2	12.5
21-30	23.1	12.3	17.0	12.1	8.3	
31-40	9.6	16.3	24.4			
41-50	7.7	6.1	12.1			
51-60	5.8	2.0	9.8			
61-70	3.8		4.9			
71-80	3.8	2.0				
81-90						
91-100	2.0					
N =	52	49	41	33	36	8

Table 3 indicates the weights the game and other course activities were assigned in the final course grade. About 62% of the respondents assigned from 20% to 30% of the final grade to game performance, with about 15% assigning from 10% to 15%, and almost 23% assigning from 35% to 90%, of the final course grade to performance in the game.

TABLE 3
PERCENT OF COURSE GRADE CONTRIBUTED
BY GAME AND OTHER ACTIVITIES

I of grade	I of respondents reporting indicated I of grade						
	game	case analysis	oral presentation	exams	paper	class participation	other
5%	0.0%	0.0%	6.5%	0.0%	5.6%	5.9%	11.1%
10	7.6	20.5	41.9	14.6	38.8	44.2	44.5
15	7.6	11.4	6.4		22.2	14.7	22.2
20	13.2	22.7	29.0	19.5	11.1	14.7	
25	30.1	18.2	9.7	7.3	11.1	5.9	
30	18.9	13.6	6.5	12.2		5.9	11.1
35	1.9	4.5		4.9		2.9	
40	9.4	6.8		17.0	5.6	2.9	
45				9.8			
50	9.4	2.3		9.8	5.6		11.1
60				4.9			
70							2.9
90	1.9						
N =	53	44	31	41	18	34	9

Table 4 shows the team sizes and the method of selecting team members reported by the respondents. All except 3 of the respondents (N56) reported that the students were organized into teams to play the game. Slightly more than 79% of the respondents in-

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TABLE 4
CLASS ORGANIZATION TO PLAY GAME

team size	% of respondents (N=53)	method of selection	% of respondents (N=54)
2	5.7%	student choice only	37.0%
3	30.2	student & instructor	31.5
4	32.1	instructor only	31.5
5	16.9		
6	9.4		
7	1.9		
12	3.8		

indicated that teams were from 3 to 7 members of size, with the remainder reporting 2, 6, 7, or 12 students on the teams. Thirty-seven percent of the respondents reported that team members were selected by the students only, 31% by the students and the instructor, and another 31% by the instructor alone. Finally, 69% of the respondents (N=54) indicated that they try to distribute students by major more or less equally among the teams. With respect to the facilities available for data entry by the teams, 63% of the respondents (N=52) reported that data were entered on a terminal via a data entry program, and 37% that data were entered on punched cards.

Concerning the amount of help they extended to the teams, 50% of the respondents (N=56) reported that they provided no assistance to the teams beyond answering specific questions about information in the student manual or about game procedure, while 29% worked closely with any teams which are having difficulty making decisions. Only 13% of the respondents reported that they provided absolutely no assistance to the teams, and another 9% that they worked closely with all teams during the decision-making process.

Users were asked to indicate on a list of possible additional or supplementary activities those which were pursued as part of playing Tempomatic IV in their courses. The activities and the percent of respondents (N=56) checking each one are shown in Table 5. Activities in addition to those shown reported by the respondents include reports to the board of directors and labor negotiations. The number of supplementary activities pursued per respondent ranged from one to 8, with the average number between 4 and 5.

TABLE 5
GAME SUPPLEMENTARY ACTIVITIES

supplementary activities	% respondents
students prepare decision support documents, such as cash flow analysis, financial ratio analysis, inventory analysis, breakeven calculations, and so on	64.3%
students prepare a strategic plan for playing the game	75.0
simulated crisis situations - for example, a worker strike, plant fire, new government safety regulations, etc. - are introduced into the game by the instructor	62.5
the Business Week Index is used to tie the game to the real world	78.6
students study the group dynamics and decision-making process in their teams	34.0
various economic scenarios are created by using instructors' economic indices rather than the BWI	21.4
critique at end of the game	85.7

Respondents were also asked to indicate supplementary role-playing activities by the instructor and students in their classes, and by faculty, students, and practitioners from outside their classes. The responses are summarized in Tables 6 and 7. As indicated in Table 6, about 82% of the

TABLE 7
ROLE PLAYING ACTIVITIES
OUTSIDE FACULTY, STUDENTS, AND PRACTITIONERS

roles	% respondents reporting roles played by outside				
	students	faculty	practitioners	combination	none
board of directors	3.8%	12.5%	7.1%	8.9%	71.4%
labor negotiators	7.1	14.3	5.4	5.4	67.9
government official	1.7	1.7	1.7	1.7	92.9

respondents (N=56) reported that they, as course instructors, engaged in role-playing in the game, while only about 23% indicated that the students in the courses played roles in the game. Role-playing by outside participants reported by respondents (N=56) is shown in Table 7. About 47% of the respondents indicated that outside participants played one or more roles in their games as members of a board of directors, as labor negotiators, or as government officials.

TABLE 6
ROLE PLAYING ACTIVITIES
INSTRUCTORS AND STUDENTS IN CLASS

roles	% respondents reporting roles played by	
	instructor	students
roles played	82.1%	23.2%
banker	73.2	0.0
labor negotiator	53.6	10.7
plant contractor	57.1	0.0
plant purchaser	51.8	0.0
kit supplier	25.0	0.0
other roles	12.5	7.1
no roles played	17.9	76.8

The data in Tables 5-7 suggest that while many respondents apparently introduce some additional activities in their games, most do not appear to be taking advantage of the many supplementary and role-playing activities which are possible as part of playing Tempomatic IV, and which would provide rich learning experiences for their students.

CUSTOMIZING TEMPOMATIC IV: LEVEL 1

The wide range of game variables under the control of the instructor in Tempomatic IV makes it possible to "customize" the game to achieve many different course objectives. It is convenient to distinguish three levels at which the game may be played, each requiring more student and instructor involvement, more time in and out of class, and making a larger contribution to the course objectives.

At the first level, the game is played using the variable values provided by the game program. The instructor selects the industry market potentials for each quarter, and provides values for certain variables not included in the game program (for example, the cost of a unit of production capacity, but does not systematically change variable values to create decision situations which will challenge the teams. However, there are many opportunities at this level for the students to use their skills and knowledge in "real" decision-making situations - example, cash flow analysis, financial ratio analysis, market forecasting and strategy, production planning, inventory analysis and control, pricing policy, and breakeven calculations. Class time can be devoted to discussions of how team members should apply their collective skills and knowledge to making the quarterly decisions in the various functional areas.

Tempomatic IV allows the instructor to enter an "economic index" to the game program each quarter,

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and another possibility at this first level is to link the game to actual economic conditions through the use of the index published weekly by Business Week magazine. The BWI entered in the first quarter of play is the base value, and subsequent quarterly BWI values above or below this base value reflect actual economic conditions by adding to or subtracting from the industry market potential each quarter. This provides an opportunity *for* the teams to do economic forecasting and to relate their decision-making to broad economic conditions.

CUSTOMIZING TEMPOMATIC IV: LEVEL 2

The second level includes the activities of the first level, but in addition, the instructor simulates unusual decision-making situations for the teams by creating "scenarios" and "critical incidents" through the manipulation of game variables. [4] A scenario is a broad, long-run situation which lasts more than one quarter and affects all or most of the functional areas, while a critical incident is a narrow, short-run situation lasting only one quarter and affecting primarily one functional area. Some scenarios and incidents can only be created by rather tedious adjustments to individual variables for each team, while others can be generated by changes in the game variables. Scenario changes and critical incidents are not sprung as surprises on the teams. In the preliminary lectures on the game, the class is given a general overview of the instructor's strategy for administering the game, covering in general terms the use of scenarios and incidents, with examples of the possibilities. Then during the course of the game, teams are provided with specific information about scenario changes and critical incidents which approximate the information which would normally be available to them as managers in the real world.

An overall economic scenario for the game is created by using values provided by the instructor rather than the BWI for the economic index. During the first five quarters of play, to simulate an expanding economy, the economic index is gradually increased above the base value. Costs are held stable and market demand is high and (by adjustment of the "effect weights" of the sales effort variables) very responsive to advertising and other components of sales efforts, but not overly responsive to price changes. In quarters six and seven, to simulate an economic slowdown and the beginning of inflationary pressures, the economic index is held constant while increases in selected costs are introduced. Market demand remains strong, however. Finally, quarters eight through twelve simulate an economic downturn and increasing inflation. Each quarter the economic index is lowered and selected costs significantly increased. The "effect weights" of the appropriate sales effort variables are adjusted to simulate a situation in which the remaining demand, while strong, is more responsive to price and product quality considerations and less so to advertising and selling effort.

During the favorable economic and market conditions at the beginning of the game, teams usually do very well. This is important from the standpoint of class morale, because students are easily discouraged by poor results during the first few quarters of play. At the same time, teams which do not pay careful attention to the economic information provided by the instructor tend to become complacent about the game because of the relative ease with which good results can be obtained, and to

expand their productive capacity and sales force, and assume

heavy financial obligations, without giving careful consideration to future economic developments. In the turn-around quarters, the effective teams, sensitive to probable future economic and market conditions, will carry out selective retrenchment, while the less effective teams will tend to continue the expansionary policies of the earlier quarters. The economic downturn, inflation, and difficult market situation of the final five quarters is a difficult time for all teams. Those teams which have made careful plans and decisions, and have followed the economic and market information provided by the instructor, usually do well, while the teams which have not taken a long-range view but have played the game from quarter to quarter have usually made so many bad decisions that they are unable to recover during the final phase of the game.

Throughout the game, teams are also confronted by critical incidents created by the instructor. For example, teams are advised at the beginning of the game that the labor contract with the union must be renewed at the end of each simulated year. In the third quarter of the year, they are informed of the probability of a strike by the production workers. If the probability is reported to them as being high, then a one-week strike during the last quarter of the year is simulated by an appropriate downward adjustment of team productivity for the quarter. Other possibilities include: a strike at the supplier's plant, simulated by an appropriate reduction in the number of part kits from which the appliance is made which are delivered to the teams; a strike of truck drivers who haul the finished product between sales areas, simulated by reducing the inter-area transfers for each team; a fire in an assembly plant which reduces production by (say) 50%, simulated by the sale of 50% of the plant capacity of each team, the proceeds from the sale representing the fire insurance payment; and the imposition of new product safety regulations by the government, simulated by charging each team for two product improvements. Many other ideas for creating meaningful incidents will emerge from imaginative reflection on the possibilities presented by the many game variables under the control of the instructor.

CUSTOMIZING TEMPOMATIC: LEVEL 3

At the third level of play, the activities of the first and second levels are complemented by those which emphasize organizational behavior, negotiation skills, and the broad synthesis of functional skills and knowledge. Only a few of the many possibilities can be explored here.

Each team can serve as a laboratory for the micro-level study of organizational behavior. Teams are asked to develop their own formal organization structure on a functional basis, with one team member responsible for production decisions, another for sales decisions, a third for financial decisions, and so on, with the entire team acting as a top management to tie everything together. Each team maintains a log in which they record how they went about establishing their formal organization, resolved conflicts, maintained the participation of members - in general, how they identified and solved the behavioral problems of maintaining the team as a going concern. The logs are reviewed and evaluated periodically by the instructor.

As noted earlier, general management games offer many opportunities for role playing. If the teams adopt a formal organization structure, then each team member would play the role, say, of a functional vice pres-

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ident vis-à-vis other team members. But the role playing situation can be given additional dimensions of complexity by establishing external roles with which team members must interact - for example, banker, plant constructor, labor negotiator, kit manufacturer, and so on. The instructor can assume any or all of these roles, switching from one to the other as the occasion requires. The data on role-playing provided by respondents to the survey discussed earlier suggests that many Tempomatic IV users follow this alternative. There are other possibilities, however, which will probably provide richer role-playing experiences for the students.

First, within the class, the members of each team, in addition to their management roles on the team, would also be assigned to play external roles, such as banker or labor negotiator, vis-à-vis another team. A second approach is to arrange for students from outside classes to play the external roles -for example, students from a labor relations class assuming the role of labor negotiator. A third approach is to ask outside faculty members in the various functional areas to play the key roles -a money and banking instructor to play the role of banker, for example. Faculty members may also be asked to constitute a board of directors to which all teams must report and are accountable. [5]

A final approach to role playing is to use people from outside the institution who actually work in the key functional roles - union negotiator, banker, business people, government official, and so on. This is the most difficult approach to arrange, but certainly has the greatest potential for useful learning experiences for the students.

The preparation of a strategic plan for each team is another valuable level 3 activity. To establish a common basis for planning, the teams are provided with a mission statement, major company policies, and a description of the startup internal profile and external environment of the firm. The mission and major policies remain the same throughout the game, but the factors constituting the internal and external environments change as a result of variable adjustments by the instructor and decisions by the teams. At the beginning of the first year of play, the teams are asked to prepare a comprehensive strategic plan covering three years of play. The plan must include the typical categories of the strategic planning process: mission, internal profile, external environment, strategies, and review and evaluation. Detailed quantitative objectives for the first year are developed for plant capacity, output, sales and finance. At the beginning of year 2 and again at the beginning of year 3, each team prepares a strategic plan update for the forthcoming year, including new annual objectives and strategies. The review and evaluation section includes data on the percentage achievement of annual objectives for the past year, and detailed commentary on why these objectives were not fully met, on the new objectives for the coming year, and on changes in long-range objectives and grand strategy, if any. As a supplement to the strategic plan, teams may be required to prepare documentation for selected major decisions -for example, the layout of a proposed new plant; a formal proposal for a bond sale or stock issue; a simulated market research report; and a proposed employee benefit plan.

- [1] See, for example: Neuhauser, John J., "Business Games Have Failed," Academy of Management Review, Vol. 1, October, 1976, pp. 124-129; Hackleman, Edwin C. and Wendel, Richard F., "The Business Simulation--An Effective Learning Instrument," Journal of Experiential Learning and Simulation, Vol. 1, June, 1979, pp. 203-209; Greenblat, Cathy Stein, "Teaching With Simulation Games: A Review of Claims and Evidence," Principles and Practices of Gaming-Simulation, Cathy Stein Greenblat and Richard D. Duke. Beverly Hills: Sage Publications. 1981, pp. 139-153; Bredemeier, Mary E. and Greenblat, Cathy Stein, "The Educational Effectiveness of Simulation Games: A Synthesis of Findings," Principles and Practices of Gaming-Simulation, Cathy Stein Greenblat and Richard D. Duke. Beverly Hills: Sage Publications. 1981, pp. 155-169.
- [2] Scott, Charles R. and Strickland, Alonzo J., Tempomatic IV A Management Simulation, Boston: Houghton- Mifflin Co., 1984.
- [3] Duke, Richard D. and Greenblat, Cathy Stein, "Running Games: A Guide for Game Operators," Principles and Practices of Gaming-Simulation, Cathy Stein Greenblat and Richard D. Duke. Beverly Hills: Sage Publications, 1981, pp. 125-137.
- [4] Wagener, H. A., "Expand the Role of Your Simulation With Creative Scenarios," 1981 ABSEL Proceedings, pp. 159-161. I developed the idea of "scenarios" and "critical incidents" before I came across Wagener's paper.
- [5] Decker, Ronald L., "Get Your Faculty Involved," 1981 ABSEL Proceedings, pp. 151-152.