

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

THE LINKING OF A COLLECTIVE BARGAINING SIMULATION AND A BUSINESS SIMULATION GAME -- A CASE STUDY

Hinda Greysen Pollard, Bryant College

ABSTRACT

Using the Imaginit Game as a foundation, two courses, Collective Bargaining and Integrated Management, were linked. It was felt that linking the two courses would provide students with a more realistic approach to both collective bargaining and the business simulation. Additionally, it was expected that students would achieve a higher level of competence, insight, and motivation as a result of the linkage. Data collected following the linkage showed that a high percentage of the students felt that these goals had been achieved.

INTRODUCTION

At Bryant College Dr. Theodore F. Gautschi conducts a class using a Business Simulation Game (BSG), and the author conducts a class using a Collective Bargaining Simulation (CBS). The purpose of this case study is to describe and critique the process and results of linking the two courses.

First, the basic design is discussed; then each of the simulations (BSG and CBS) is described. This is followed by a description of the linking process, in terms of its background and rationale, its dynamics, and the process itself. The process for evaluating the impact of the linking, along with its results, is then presented. Finally, some concluding remarks are set forth.

BASIC DESIGN

The CBS involves a bargaining simulation where the students are divided into management and union teams for the purpose of developing sophisticated wage and fringe benefit packages ("package") against the backdrop of the current (1983) economy. The teams bargain for approximately two months (eight 1¼ hour sessions), using up-to-date library materials. A limitation for this simulation is its "open-ended" character. Neither the management team nor the union team has a full understanding or appreciation of the complexity of the firm's overall situation, nor do they have to live with the resulting "packages." The efficacy of the resulting packages is determined by a subjective grading process by the professor for the course.

The BSG is a computerized interactive game where the students are divided into firms which compete against each other in the automobile industry. The game requires decisions relating to marketing, production, R & D, finance and personnel. The first four decision categories are quantitative and involve significant analysis. The personnel decision is a statement of fringe benefits (in dollars), and its only impact is on the probability of strike. Consequently, the personnel function is handled in a rather mechanistic and perfunctory way by the firm's management without any real attention being given to the human component. The usual strategy is "to make the magnitude of the fringe benefit decision just large enough to keep the probability of strike low" and to concentrate management's attention on higher priority considerations.

In order to establish a more realistic learning environment which would overcome the limitations of both simulations, as described above, the two classes, after having been conducted independently for about six weeks, were linked as follows:

1. The CBS class provided a human resource support team to each of the BSG's Vice Presidents for Personnel.
2. The CBS class provided a union team to bargain with each firm.
3. Each firm in the BSG class agreed to work out a collective bargaining agreement with its union and implement the appropriate decisions within the framework of the BSG game.

With such an arrangement the BSG firms were forced to consider all aspects of the detailed "package" and its impact on the firm's operation and goal achievement. In turn, the CBS teams were held to stricter accountability for the impact of the "package" on the firm's operations. They had to consider the entire firm and its operations because the people they were supporting, or bargaining with, were measured by how well their firms' goals were achieved.

A questionnaire was designed and administered to students from both classes to determine how they perceived the impact of the linking on the learning environment that they had been experiencing in each class after the time the linkage took place. It is important to note that before the linkage was implemented, both classes, operating totally independently, completed significant tasks as they developed their own learning cultures. CBS had negotiated a complete contract package, and BSG had operated their firms for four quarters.

THE BUSINESS SIMULATION GAME (BSG)

The purpose of this section is to briefly review the importance of simulation games, describe the one used in MG453, Integrated Management, [1] and list those decisions that the Labor Contract Negotiation Package ("package") can address.

Importance

Management games and computer simulations have gained widespread use in the schools of business administration and management development programs. One reason for their popularity is that they stimulate the interest and motivation of the participants, which is essential for any learning to take place. In addition, the participants also have the opportunity to:

1. Develop an integrated view of the overall operation of an organization (which includes the functions of marketing, manufacturing, finance, and personnel) in a dynamic environment.
2. Observe the outcomes resulting from their decisions after a relatively short period of time.
3. Experiment with alternate decision-making approaches without incurring the real-world consequences.
4. Establish performance goals and related strategy.

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

- Practice the use of basic analytical tools.
- Work with the other firm members to make good decisions on meaningful problems.

IMAGINIT [1]

The business game we use is called IMAGINIT. It is a computerized, interactive game which is designed to be played by competing firms which all start from the same position. Each firm has the opportunity of making seven decisions for each of three products plus seven company-wide decisions. These decisions are made on a quarterly basis and the simulation covers a three-year span of time. All decisions are entered by each firm into their file via a computer terminal, and then all are processed at a specified time.

Each firm prepares and presents annual reports to the instructor. These reports are prepared as dynamic case studies. Each firm prepares and maintains a workbook which contains: (1) their corporate mission statement; (2) their environmental analysis; (3) the basic strategy and goals they plan to achieve at specified stages in the simulation. (This includes weights for the measurement factors which can be changed annually); (4) the formal organization of their company with job descriptions for each member of the team; (5) copies of their policies/strategies for marketing, manufacturing, finance, administration and personnel; (6) all decisions and their rationale; (7) the various worksheets which compare pro forma results and actual results; (8) computer printouts; (9) annual reports covering each four-quarter period.

Importance of Management

Since all firms start from Year 0, Quarter 4, with the same characteristics, the only difference between the firms in successive quarters is determined by the way they are managed.

The Decisions

Each firm has the option of entering two markets, a lower priced market with one or two automobile models and a higher priced market with one automobile model. Decisions for the following must be made for each model that is offered by the firm: price, materials input per unit (a measure of product quality), financing for salesmen, financing for advertising, R & D, materials to be ordered and the number of units to be produced. This is a total of seven decisions per product. Each firm must also make the following seven company-wide decisions: employee fringe benefits per hour~ dividends per share to be paid; operations research; short-term loans; bonds; shares of stock offered; factory capacity (purchase or sell). The above decisions are made by the management for each firm for each quarter of play. The decisions should be compatible with the firm's goals and generally developed using both analysis and intuition.

In addition to the above decisions, the firms' operations can be affected by certain factors that can be Included in the "package". These include:

- Grade assigned by instructor to the personnel policy prepared by each firm. A higher grade reduces the probability of strike and vice-versa.
- Wage rate can be changed for each firm. High wage rate increases production costs.

3. Productivity can be changed by the grade assigned by the instructor to the production policy. This will change the cost of production.

4. A strike can be given to any team by the instructor. A strike stops all production for a specified duration. Also, any or all teams can be prevented from having a strike.

5. Strike duration in months can be changed by the instructor, generally in one month increments.

6. Management can contract work out at $(1.5)^2$ (hourly rate). In an extreme situation, management could lock-out all workers by contracting out all of the work.

7. Number of shifts and number of employees are under management control. This can change production and inventory costs.

8. COLA tied to cost of living index can be accomplished by the instructor by multiplying wage rate by the cost of living index and entering it into the simulation. This will change production costs.

The above eight items, and the fringe benefit decision mentioned previously, constitute the variables which the 'package' can, and should address. Although the fringe benefits appear as a single dollar value, it should result from summing the costs of the various benefits included in the "package".

Before the two classes were linked, the BSG basically ignored these eight variables, except for (1) setting a fringe benefit rate high enough to assure that the probability of strike is sufficiently low, (2) setting shifts and number employed on the basis of production needs, and (3) the preparation of policy/strategies for personnel and production. These two policy/strategies were products of the firms' imagination and were not based upon any kind of bargaining situation.

Each firm's performance is based upon simulation points for its relative standing (first, second, third, fourth or fifth place) in each of four factors multiplied by weights assigned by the firm in response to their strategy. The four performance factors are average stock price for the year, ROE for the last 4 quarters, average market share for the year and total earnings over the entire game to date. Simulation points are assigned as follows: first place - 10 points; second place = 9 points; third place 8 points; fourth place = 7 points; fifth place 6 points. WEIGHTS total 12, and no more than 5 can be assigned to any performance factor. The grade equals the sum of the products of simulation points for each factor and its assigned weight. Thus, the highest grade would be $10 \times 12 = 120$, and the lowest grade would be $6 \times 12 = 72$. Most grades will fall in between 120 and 72.

Thus, it can be seen that the management of each firm is measured in a very objective manner, so they are very reluctant to make decisions which would increase costs; and they usually do not want to take a strike.

DESCRIPTION OF CBS

MG360, Collective Bargaining, closely examines collective bargaining, federal statutes regulating collective bargaining, and labor history in the United States. It is the professor's belief that the fullest understanding of the labor relations process can be attained only through active student participation in a collective bargaining simulation specifically designed for MG300.

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

It is the goal of this course to give the student as realistic a bargaining experience as possible within the constraints of a one-semester course.

The students read some general information on collective bargaining. Then the class is divided into labor and management teams. The teams are composed of from six to ten members, depending on the size of the class. In the Fall 1983 semester, an auto industry union and management team were involved in a collective bargaining simulation; also, a steel industry union and management team operated independently of the auto industry management and union team. The auto and steel industries were chosen because of the nature of the bargaining in those industries and because the Bryant College Library has excellent support materials relating to those industries.

The students themselves, with the professor's assistance, construct the cases after reading industry related background material. Both union and management teams sit down together and decide on the size and demographics of their company. They have to reach an agreement on a marketing forecast, P & L Statement, and wage classifications. The skills of the marketing, accounting, and management majors are utilized in "structuring" the company. In other words, the students themselves make the critical assumptions to assure that the case is set in an environment of current economic conditions.

Members of management and labor teams prepare for the negotiations through library research, and they plan bargaining strategies in the same manner as practitioners in the field. The library support materials that are an integral part of the simulation are the same as those used by companies and labor unions. During bargaining sessions toward the end of the simulation exercise, students are video-taped as they bargain and later critiqued by the class and the professor.

The CBS negotiations and the subsequent labor contract are based upon industry standards applied to a fictitious auto company that reflects the problems of the auto industry in 1983. Preoccupation with intense library research and development of bargaining strategies have often deterred students from (1) considering the overall organizational effect of the contract and (2) considering what was currently going on in the company outside the area of labor relations. The totality of the business consequences of the contract, in an institutional context, was not fully considered on a sophisticated level.

This entire CBS simulation exercise, which took place over a period of six weeks, was completed before the CBS class was linked with the BSG class to prepare a mutually acceptable "package" as described previously under the Basic Design section of this paper.

LINKING -- BACKGROUND RATIONALE

The purpose of this study is to determine if both the Collective Bargaining Simulation and the Business Simulation courses, after developing their own learning environments independently, would be strengthened by linking them together.

In "The Uses and Abuses of Bargaining Simulations,"[3] Gandz and Peach focus on shortcomings of bargaining simulations. The authors note that the simulation that they have developed overcomes certain common problems inherent in collective bargaining simulations. They suggest

some criteria that can be used in evaluating bargaining simulations. By linking CBS and BSG, our interest was to largely satisfy their criteria of comprehensiveness of the simulation, realism, control over the bargaining process, decision-making opportunities, organizational impact, availability of ambiguity, and research requirements (developing sources of information from outside the simulation). In addition, it was believed that the reality of the organizational impact of the bargaining would be brought home to members of both courses.

In "Simulating Organizational Reality: Some Lessons from the Course Experiences in Industrial Relations," [2] experiences with three simulations using business school students are discussed. The first, the shorter game, lacked detailed background information on the company and the industry. Students felt that there was little at stake and that this was simply an arguing exercise. In evaluating the second simulation, the authors suggest that a collective bargaining simulation be grafted onto this particular simulation that is designed to provide experiential learning in organizational behavior. In the third simulation used with MBA students, students felt that the exercise was realistic, probably because of the extensive background material provided. The authors recommend that simulations be designed that would cross disciplinary boundaries, thus providing more meaningful institutional background for collective bargaining simulations. In their experience, "integration across courses" places the simulation in a more realistic institutional context that makes the experience "come alive" for the students.

LINKING -- DYNAMICS

The linked simulation now required BSG students to consider the contract package in detail -- the cost and appropriateness of certain benefits, vacation and time-off policies, no-strike provisions, wage rates, employee lockout considerations, profit sharing, COLA adjustments, and productivity improvement. In turn, it now required CBS students to not only be aware of industry practice in these areas, but to consider and negotiate the financial impact of such factors on the individual firm.

The CBS students were judged on two factors:

- (1) for the union and management support teams, the quality of their negotiated contract packages --completeness, analysis, and their understanding of the organizational realities of the firms.
- and (2) for the union, the total remuneration for an individual factory worker. This was determined by multiplying the hours that the factory was open by the negotiated wage plus benefits and adding any other financial concessions. This measurement would encourage the union to negotiate as good a package as possible without having to call a strike or endure a lockout --either of which would reduce the "hours that the factory would be open."

The management support team was measured on the same basis as the BSG participants. The evaluations, as well as the amount of productivity improvement that would be attained, were determined by the two professors.

LINKING -- THE PROCESS

For six weeks BSG and CBS were conducted totally independently. During that time they completed significant tasks and established unique cultures. BSG concentrated

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

on establishing overall strategy, learning the game, and completing the first year of real operations. Concurrently, CBS concentrated on assembling a reasonable contract package using special library resources and conducting in-class negotiations. Without linking, the two classes would have continued doing more of the same -- with CBS establishing a contract package for another industry, and BSG would have operated two more years without contract negotiations. At the end of the independent period the CBS class was divided into ten teams of two or three students each. Five teams represented the unions and the other five teams were to provide support to the BSG firms' Vice Presidents for Personnel. At this point, about two-and-one-half weeks were allocated for negotiating the contract package while the BSG firms continued to operate as usual. On one side was the CBS union; on the other side was the CBS management support team, working under the general guidance of the BSG firm's Vice President for Personnel.

After the contract package was negotiated, its various provisions were incorporated into the BSG simulation. Most of the union/management teams agreed to no-strike clauses, changed wage rates, changed benefit rates, and made proposals for increasing productivity to offset the increased financial remuneration. As mentioned before, the amount of actual productivity increase was a judgement decision by the two professors. It was based upon the productivity proposals and was inserted into the simulations without telling any of the firms what their values were.

A CASE STUDY: DATA COLLECTION

& fundamental part of our case study was an assessment of the perception students would have of the linkage.

After the contract negotiations were completed, the students were asked to anonymously complete questionnaires to indicate their reactions to the linking of the two courses. The students were asked to rate a series of statements on a five-point scale in response to the overall question: "To what extent did the merger (linking) of both courses....?" There were eighteen statements as shown in Figure 1.

The data was processed using an SPSS program, which provided the values shown in Figure 1, plus cross-correlations between the answers, and analysis of variances.

RESULTS

An inspection of the means for all respondents (BSG and CBS) for each statement (see Figure 1) indicates that the participants believed that there were significant benefits from linking the two courses. In particular, they indicate increases in:

(1) quality and quantity of skills desired from the course (Questions 1 and 2)

(2) personal effectiveness to run the firm intelligently while accounting for human resource issues (Question 8)

- (3) the realism of the course (Question 8)
- (4) the general usefulness of the course (Question 14)
- (5) the awareness of the complexity of business decision making. (Question 11)

This last point is the most significant generalization from the study.

43.2% of the students rated this as, "somewhat did", and
45.5% of the students rated this as, "totally did".

This indicates that nearly 89% of all the respondents from both BSG and CBS feel that their awareness of the complexity of business decision making was significantly increased by linking the two courses.

Figure 1 provides further insight, in that it compares the means of the three participating groups -- BSG management (firm), CBS management support, and CBS union. Except for those statements relating directly to collective bargaining (Question 3 and Question 9) the responses from the different groups were reasonably uniform with CBS generally assessing the experience a little higher. This can be explained by the fact that except for the BSG firms' Vice Presidents for Personnel, the others were not as much involved in the negotiations, although they did have to approve the final package, and live with its consequences.

The statement regarding increasing the realism for both courses stands out (Question 6). All three groups rated this high -- BSG 4.3, CBS management support 4.4, and CBS union 4.3 (all on a 1--5 scale).

In summary, linking the BSG and CBS courses provided many positive benefits as perceived by the students from both classes -- especially in terms of increasing their awareness of the complexity of business decision-making and increasing the realism of both courses.

REFERENCES

- [1] Barton, R.F., THE IMAGINIT MANAGEMENT GAME, (Active Learning, Lubbock, TX.) 1978
- [2] Davies, R.J., J. Frost, R. Knight, and C. McPhillips, "Simulating Organizational Reality: Some Lessons from Course Experiences in Industrial Relations," Proceedings of the Thirty-Fifth Annual Meeting, (Industrial Relations Research Association, Madison, Wis.) 1983, pp. 337-342.
- [3] Gandz, J. and D. Peach, "The Uses and Abuses of Bargaining Simulations," Proceedings of the Thirty-Fifth Annual Meeting, (Industrial Relations Research Association, Madison, Wis.) 1983, pp. 329-336.

¹ Future research, using a causal design could be designed and implemented, although this was beyond the purview of the present case study. Since we did not want to control the spectrum of variables (which, in essence, was the focus of our study), an experimental design would have required that style of teaching, individual differences among students, interactional change, as well as a host of other variables, be controlled. While this procedure could be done in future studies using more complex statistical techniques (for example, analysis of covariance of multiple regression), ours was a preliminary investigation and was intended to be descriptive rather than inferential.

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

FIGURE 1
RESPONSE MEANS FOR EACH OF THE QUESTIONS

QUESTION:	ALL RESPONDENTS					MEAN VALUES		
	Relative Frequency %					Scale 1--5 MGT Support Firm Team Union		
To what extent did the linking of both courses:								
1. Increase the quality of skills you wanted to attain from this course?	1	2	3	4	5	3.6	3.9	3.8
2. Increase the quantity of skills you wanted to attain from this course?	6.8	9.1	11.4	65.9	6.8	3.3	3.6	3.9
3. Increase your general competence and ability in collective bargaining?	9.1	9.1	15.9	54.5	11.4	2.8	4.1	4.2
4. Increase your general competence and ability in managing your firm?	2.3	11.4	31.8	43.2	11.4	3.6	3.4	3.4
5. Make you more accountable for your decisions?	6.8	6.8	6.8	54.5	25.0	3.9	4.3	3.3
6. Make the course more realistic?	.0	2.3	6.8	47.7	43.2	4.3	4.4	4.3
7. Increase your personal effectiveness to bargain intelligently while accounting for other managerial decisions?	4.5	4.5	9.1	56.8	25.0	3.6	4.2	4.3
8. Increase your personal effectiveness to run your firm intelligently, while accounting for human resource issues?	2.3	6.8	4.5	61.4	25.0	4.0	3.9	4.1
9. Increase your insight into the collective bargaining process?	15.9	4.5	18.2	43.2	18.2	2.7	4.0	4.3
10. Increase your insight into the management of your firm?	4.5	11.4	13.6	50.0	20.5	3.5	3.5	4.2
11. Make you more aware of the complexity of business decision-making?	.0	4.5	6.8	43.2	45.5	4.1	4.0	4.7
12. Create an understanding of collective bargaining as an integral part of business?	.0	6.8	11.4	56.8	25.0	3.7	4.0	4.4
13. Create an understanding of the company's total situation when engaging in collective bargaining?	.0	6.8	15.9	47.7	29.5	3.6	4.3	4.4
14. Increased the general <u>usefulness</u> of this course?	4.5	2.3	13.6	61.4	18.2	3.5	4.2	4.1
15. Give you a more comprehensive approach to business management and collective bargaining?	.0	6.8	6.8	59.1	27.3	3.8	4.3	4.3
16. Enhance your enjoyment of the course?	4.5	18.2	27.3	38.6	11.4	3.0	3.5	3.7
17. Enhance your enthusiasm for the course?	4.5	15.9	18.2	45.5	15.9	3.3	3.4	4.0
18. Enhance your motivation in this course?	2.3	20.5	11.4	47.7	18.2	3.5	3.6	3.8

FIVE POINT SCALE

- 1 ... did not at all
- 2 ... somewhat did not
- 3 ... undecided
- 4 ... somewhat did
- 5 ... totally did

RESPONDENTS

BSG = 21
 CBS = 10 Management Support
 CBS = 12 Union
 Total 43