

Developments In Business Simulation & Experiential Exercises, Volume 19, 1992

EVALUATING A BUSINESS SIMULATION PROGRAM FOR JOINT VENTURE NEGOTIATION AND MANAGEMENT

Phil Kenkel, Daniel S. Tilley, and John R. Wingender,
Oklahoma State University

ABSTRACT

This study evaluates the success of utilizing a Joint Venture Simulation Game to model the common management problems encountered in the negotiation and management of an international joint venture. The business simulation game was designed to communicate abstract concepts such as partner rapport, transfer price conflicts, and marketing disagreements to executives of state-run agribusinesses in Indonesia. The study examines the actions of the Indonesian agribusiness executives utilizing the game relative to the learning objectives.

BACKGROUND

Experiential learning tools that integrate the case study approach with simulation games can be effective methods of reinforcing classroom concepts in a realistic environment. This approach provides a real-world-like situation in which concepts can be presented, and the participants' performance can be observed. The widespread growth and use of management games in the United States have been well-documented (Keys & Wolfe, 1990; Dale & Klasson, 1964; Graham & Gray 1969; Horn & Cleaves, 1980; Kibbee, Craft & Nanus, 1961; McRaith & Goeldner, 1962). There is also evidence that simulation games can be effectively used in executive training programs (Faria, 1987; Wolfe, 1985) although their acceptance is still limited (Ralphs & Stephan, 1986). The use of simulations in agricultural extension programs has been more limited, particularly in developing countries. This study describes the use of a simulation game in an executive training program for agribusiness managers in Indonesia.

Agribusiness development is a significant part of the economic development strategy for Indonesia. Indonesia's strength in agricultural production has been long recognized. Indonesia has been well known as an excellent source of numerous tropical commodities. The overall objectives of improving the agribusiness sector are to become a more competitive commodity supplier and to capture more of the value-added activities within Indonesia. Two types of transitions are occurring in Indonesian agribusiness. The first is the transition from a commodity orientation to a value-added product orientation. The second is a transition from a state-owned cooperative structure to an investor-owned firm orientation.

In June of 1991 an agribusiness development workshop was held for 78 directors of PTP enterprises (state-owned agribusinesses). The workshop was held in Jakarta, Indonesia, with tuition of \$1500. The participants represented companies with gross annual sales of \$4.8 million to \$130 million. Approximately two-thirds of the companies reported some down-stream products, but these

products represented less than 10 percent of total output. Expansion of down-stream processing capabilities is being encouraged by the Ministry of Agriculture. The marketing challenges and financial requirements of down-stream industry development present the companies with new and particularly difficult challenges. The difficulty in obtaining financial resources is exacerbated by the current interest rates, which have risen to over 25 percent. Because of the low level of marketing experience of the companies and managers, the PTP managers are increasingly considering international joint ventures. An international joint venture has the added benefit of circumventing the government bureaucracy, which some managers perceive as an obstacle to the timely implementation of value-added strategies. Unfortunately, few of the managers had any experience with the formulation or management of an international joint venture. An important component of the agribusiness strategy development workshop focused on international joint ventures and other forms of international corporate linkages.

OBJECTIVES

A joint venture tends to be a cumbersome form of organization and has a high rate of failure. The success of joint ventures in developing countries is particularly low. In Beamish's (1984) study of joint ventures in developing countries, only 36 percent of the joint ventures were reported to have satisfactory performance by both partners. Dymsha (1988) analyzed the key factors related to the high failure rate of joint ventures in developing countries. Among these factors were (1) perception of unequal benefits and costs, (2) differences between partners concerning marketing, (3) transfer-pricing conflicts, and (4) conflict over resource contributions. Our objective in developing the simulation game was to provide a realistic opportunity for the managers to experience and resolve the common joint venture conflicts. Our specific learning objectives were to demonstrate: (1) the relationship between partner rapport (equitable profit distribution) and the joint venture stability; (2) the effect of volume-based versus profit-based incentives on the team's subsequent decisions involving transfer prices, supply commitments and other decisions; and (3) the effect of the incentive structure on partner resource and marketing commitment.

Brief Description of the Joint Venture Simulation

The participants were divided into negotiating groups, which consisted of two teams per group, a U.S. team and an Asian Team. Usually, each team consisted of two participants. In most cases, the managers on the teams had not previously worked with each other. Each team was provided with

Developments In Business Simulation & Experiential Exercises, Volume 19, 1992

background information in the form of a written case study and an example joint venture agreement which had been suggested by their legal staffs (and was biased in their favor). The teams were then asked to negotiate a joint venture agreement. Each team then made a series of marketing and production decisions. The information was entered into a spreadsheet template and the net present value (NPV) of the joint venture for each team was calculated. The team members were then allowed to renegotiate the joint venture agreement and make new production and marketing decisions. The required renegotiations illustrated the potential for conflicts and disputes, which can arise when the results are perceived as being biased in one firm's favor.

The simulation game built in conflict in several other areas. The simulation contained three markets: a U.S. Market, a European Market, and an Asian Market. However, only the U.S. division and the Asian division had production capacity, so production for the European Market had to be supplied by the U.S. partner and/or the Asian partner. The allocation of the profits from the European division was negotiable, as were the transfer prices used by the Asian and European divisions. The Asian Market profits were also allocated between the two joint venture partners according to the negotiated contract. The U.S. partner was responsible for the marketing decisions for the European Market, while the Asian partner had unilateral control over the marketing variables in the Asian Market. A negotiated royalty premium and a mark-up on raw material were also potential sources of profits for the U.S. and Asian joint venture partners.

The contractual terms for distribution of profits from the Asian and European Markets were negotiated, as well as the royalty rate paid to the U.S. firm, the price of raw material supplied by the Asian firm, and quantity commitments and the transfer prices for product shipped to the European Market. The simulation program generated a standard set of financial statements for each of the joint venture partners. Excess production was assumed to be kept in inventory for one year, at which time it became obsolete and worthless. Demand in excess of available production and inventory was assumed loss. Costs of production contained both a fixed and a variable component. The Asian partner was assumed to have a production cost advantage vis-a-vis the U.S. partner. Advertising and other marketing costs were included as expenses, and the division profits were allocated among the two joint venture partners as per the contract. The cumulative NPV was calculated for each of the joint venture partners based on the cash flows and the allocation of the original investment costs between the two partners.

Summary of the Structure of the Contracts

A summary of some of the major contractual terms and marketing variables is provided in Table I. Before beginning negotiations, each team was provided with a sample contract which would tend to result in a positive NPV for their side and a negative NPV for the opposite side. As the table indicates, a wide variation of contract structures

was negotiated as the participants were forced to concede some items on the contract. The fact that the groups of negotiating teams which had all been identically coached by their financial analyst (represented by the sample contracts) would arrive at such a mix of final contracts was in itself instructional. In addition, by polling the participants on the advantages and disadvantages the various contract structures, prior to announcing the simulation results, the pros and cons of various negotiation strategies became more important.

The majority of the teams changed at least one item in the contract when they renegotiated after a single round of play. The transfer prices, royalty, raw material premium levels, and profit distributions were the most frequently changed items. Surprisingly, the volume commitments to the European Markets were changed much less frequently than were transfer prices. Of the teams, which changed contract terms, one team simultaneously changed five contract items, three teams simultaneously changed four items on the contract, two teams changed three items, one team changed two items, and two teams changed one item.

TABLE 1
SUMMARY OF CONTRACT AND MARKETING VARIABLES

Item	Minimum	Maximum	Average
U.S. Investment Percentage	25%	75%	50%
U.S. Percentage of Asian Market Profits	20%	80%	45%
U.S. Percentage of European Market Profits	25%	90%	60%
Royalty	\$1	\$5	\$2.4
Transfer Price*	\$10	\$20	\$16.5
Customer Assistance Specialist Supplied by U.S. Side*	10	50	24
Premium on Raw Material	-\$.25	\$2	\$.65
Advertising Asia*	0	\$1250	\$642.85
Advertising Europe*	0	\$1250	\$642.5
Advertising U.S.*	0	\$1250	\$723.10
NPV U.S. Team	-\$93,808	\$47,562	\$522.17
NPV Asian Team	-\$65,158	\$25,304	\$1,810

*Choices were limited to specific discrete choices

Learning Objective #1

The first objective of the simulation game was to illustrate the importance of insuring partner rapport in the joint venture. This concept is somewhat foreign to most business managers who are used to negotiating for the highest possible profit. Specifically, we hoped to illustrate that teams which negotiated one-sided contracts were more likely to have disputes in the subsequent

Developments In Business Simulation & Experiential Exercises, Volume 19, 1992

negotiations. The time period allotted for renegotiating the contract and reanalyzing the marketing decisions was purposely limited. This structure emphasized the opportunity cost of time spent resolving contract disputes, by giving the players less time to adjust the marketing variables.

In order to summarize the success of the exercise in relation to the first learning objective the initial contracts were sorted into two categories on the basis of the difference in NPV between the Asian outcome and the U.S. outcome. The contract changes made by the two groups (the low difference in NPV teams and the high difference in NPV teams) are provided in Table 2. Both groups made approximately the same total number of changes in the limited time given to renegotiate the contract and make marketing changes. However, the teams which negotiated an initial contract which was fair to both sides spent the majority of their time adjusting their marketing decisions. Meanwhile, their counterparts with one-sided contracts made twice as many changes to the contract and significantly fewer adjustments to the marketing variables.

TABLE 2
INCIDENCE OF CONTRACT CHANGES BY
RELATIVE LEVEL OF PROFITS

	Low Difference Teams	High Difference Teams	Total
Total Changes	50	55	105
Contract Changes	13	26	39
Marketing Changes	37	29	66

The initial contracts were also sorted on the basis of whether one side, both sides, or neither side experienced a negative NPV. This procedure examined the effect of the dollar value (NPV) of the initial decisions on the subsequent actions. These results are summarized in Table 3. The teams on which both partners experienced negative NPV (unfavorable results) had the lowest frequency of changes to the contract terms and marketing variables. Since the interest and motivation level of these teams appeared to be as high as that of the other participants, it appeared that the teams made fewer changes because of their difficulties in negotiating (lack of partner rapport). In the situations where one side had a positive NPV, the players made slightly more overall changes in the renegotiations and were much more likely to change the contractual terms. Apparently, the team members saw negotiating a part of their partner's NPV as their first avenue of improvement and tended to focus on marketing changes when it was clear that neither side was making a profit. This tendency to concentrate on "how the pie was cut" rather than on the "total size of the pie" went a long way in reinforcing the points made in the lecture concerning mutual satisfaction. The group of teams on which both sides experienced a positive NPV had the highest frequency of changes and, not surprisingly, concentrated their interest on fine-tuning the marketing variables instead of changing

contractual terms. The NPV results of the teams in the second round also reinforced the first learning objective of the importance of partner satisfaction. In the first round, six of the U.S. teams obtained a higher NPV, with the Asian side obtaining a superior result in the remaining eight cases. In the second round, eight of the teams (more than half) that

Table 3
Incidence of Contract Change by
Magnitude of Profits

	Contract Changes	Marketing Changes	Total Changes
Neither Side with Negative NPV	19	34	53
One Side with Negative NPV	13	15	28
Both Sides with Negative NPV	7	17	24

had a positive NPV in the initial round experienced a reversal in NPV ranking with respect to their partner. This aspect of the simulation game results thus provided a good illustration of the need for cooperation. In many instances, the teams which negotiated aggressively in the first round ended up with a negative NPV in the second round as they were forced to make contract adjustments with their dissatisfied partners.

Learning Objective #2

The second objective of the simulation game was to illustrate how the incentive structure affected the subsequent decisions of the teams. In particular, we were interested in demonstrating the impact of one partner having a volume-based incentive structure while the other partner had the incentive to maximize profits. While the relationships between joint venture structure and the incentives of the partners were stressed during the lecture, the concepts were often too abstract to have an impact on the participants who had never before been involved in a corporate linkage project. The potential for the incentive-performance linkage to manifest itself was built into several aspects of the simulation game. The U.S. side had insufficient production volume to supply both domestic markets and the European division. They therefore had to negotiate with the Asian side for a supply commitment and to negotiate a wholesale or transfer price. The distribution of the profits from the Asian and European Markets obviously provided profit-based incentives, while the transfer prices, raw material premium, and royalty level provided volume-based incentives. In order to observe the effect of profit distribution on transfer price and supply commitments, the contracts were sorted according to profit distribution percentage. The results on some key aspects of the contracts are provided in Table 4. As the distribution of Asian Market profits to the U.S. firm increased, the Asian firm participants negotiated a higher transfer price, higher premiums on raw material sales, and lower royalty rates paid for rights to the brand name. As the Asian's team share of the Asian Market decreased, they were less willing to cooperate in supplying the European Market, and demanded

Developments In Business Simulation & Experiential Exercises, Volume 19, 1992

a transfer price greater than the cost of production. They also demanded higher premiums on the raw material which they supplied their U.S. partners.

The marketing decisions made for the European division provided further illustration of the incentive effect of profit distribution agreements. The negotiated transfer prices for both sides were illustrative of the incentive effect. As the U.S. 's team share of the European Market profits increased, the transfer price for the Asian production increased. In other words, as the Asian team's explicit share of the European market profits decreased, the team participants tended to negotiate a higher transfer price shifting profits back to their side. On the other hand, the U.S. team members tended to select a transfer price closer to the cost of production as their share of the European Market profits increased.

Table 4
Effect of Profit Distribution on Negotiated
Transfer Price and other Negotiated Items

	Lower % of Asian Market Profit to U.S. Side	Higher % of Asian Profits to U.S. Side
Percentage of Asian Market Profits to U.S. Side	31%	59%
Transfer Price of Joint Venture	\$16.6	\$17.4
Raw Material Premium	\$.61	\$.64
Shoe Royalty/Pair	\$2.5	\$2.2
Percentage of European Profits to U.S. Side	58%	61%
Customer Assistance Specialist Provided by U.S. Firm	22	25
	Lower % of European Market Profits to U.S. Side	Higher % of European Profits to U.S. Side
% of European Profits-U.S.	45%	75%
% of Asian Profits- U.S.	44%	45%
Transfer Price-Asian Production	\$18	\$16
Transfer Price-U.S. Production	\$16	\$15
Advertising-Europe	\$643	\$643
# of Dealers-Europe	221	264
Customer Assistance Staff-Europe	16	29

Another dimension of the incentive problem was provided by the raw material premium and royalty premiums included in the contract negotiations. The raw material premium increased the profits to the Asian parent firm from shipping raw material to the U.S. manufacturing division. As opposed to obtaining returns through a share of profits, the raw material provided a relatively stable source of returns linked to the volume of the U.S. production. Similarly, the brand royalty negotiated by the U.S. parent firm provided an alternative source of returns linked to the marketing volume of the Asian joint venture.

A summary of some of the major negotiated terms ranked by royalty level is provided in Table 5. As the level of royalties received by the U.S. parent firm increased, the percentage of profits from the Asian Market going to the U.S. team also decreased, while the distribution of European profits was essentially unchanged. The contracts with high royalty fees also tended to have higher transfer prices for the Asian production, which also served to shift the share of profits to the Asian parent firm. The transfer price policies of the U.S. side showed the opposite trend, shifting closer to the cost of production as their profits in the form of royalties increased. Apparently, the U.S. teams that were more risk-averse negotiated for the comparable certain return based on the volume marketed in Asia (royalties), and were willing to trade off their share of the more risky profit returns.

Table 5
Effect of Royalty Level on Negotiated Contracts

	Lower Royalty Group	Higher Royalty Group
Royalty/pair	\$1.89	\$2.84
Percentage of Asian Market Profits to U.S. Side	50%	40%
Percentage of European Market Profits to U.S. Side	59%	60%
Transfer Price of Joint Venture	\$16	\$17
Transfer Price of U.S. Firm	\$16	\$15

A similar situation was demonstrated with respect to raw material premium. A summary of the major negotiated variables ranked by raw material premium is provided in Table 6. As the premium on raw material delivered by the Asian parent firm to the U.S. manufacturing division increased, the transfer price for U.S. production shipped to Europe increased which shifted the profits back to the U.S. firm. Meanwhile, the Asian teams tended to negotiate lower transfer prices as their returns from raw material sales increased. There appeared to be a subset of Asian teams that were content to negotiate for the relatively stable returns from the sale of raw material and negotiate away their share of marketing profits. Not surprisingly, the level of technical assistance provided by the U.S. parent to the joint venture in the way of customer assistance staff also fell as the raw material premium was increased. Apparently, the willingness of the U.S. side to assist their Asian partners was clearly affected by how much they were paying their partners for raw material.

Developments In Business Simulation & Experiential Exercises, Volume 19, 1992

Table 6
Effect of Raw Material Premium on
Negotiated Contracts

	Lower Premium Group	Higher Premium Group
Raw Material Premium	\$.03	\$1.21
Percentage of Asian Market Profits to U.S. Side	48%	42%
Percentage of European Market Profits to U.S. Side	59%	60%
Transfer Price of Joint Venture	\$16	\$17
Transfer Price of U.S. firm	\$15	\$16
Number of Customer Assis- tance Specialist Provided by U.S. Side	25	22

These differences in contract structures also provided a good opportunity to illustrate the risk-return tradeoffs in structuring a joint venture. Even with only a few rounds of the simulation game and a relatively simple market structure, the difference between profit distribution and volume-based returns could be illustrated. The managers who negotiated for volume-based returns (high royalties or raw material premiums) experienced little difference in returns between the first and second rounds, while their counterparts experienced higher fluctuations in NPV as they experimented with the marketing variables.

Learning Objective #3

A final learning objective was to demonstrate the effect of the incentive structure on maintaining partner commitment. The observed results were also consistent with this objective. As Table 4 indicates, as the distribution of the Asian Market profits to the U.S. firm decreased, the size of the technical assistance team which the U.S. team agreed to supply also decreased. Similarly, the U.S. team managers decided to supply a drastically larger technical assistance staff in Europe as their share of the European profits increased. Additionally, as the share of the European division profits going to the U.S. parent firm increased, the expenditures on advertising and dealers in Europe also increased. Since these marketing variables were selected by the U.S. parent firm's managers but were paid for out of the European Market revenues, this effect demonstrated that the commitment and interest by the U.S. firm in the European division were clearly functions of the profit distribution. Asian teams that bargained aggressively for a large share of the European profits in some cases found themselves obtaining their negotiated share of the losses when the poor marketing decisions made by their U.S. partners resulted in poor performance in that market.

VALUE OF THE SIMULATION AS A TEACHING TOOL

The Joint Venture Simulation Came was extremely useful in illustrating the common conflicts encountered between

partners in international joint ventures. Conflicts in setting transfer prices were prevalent throughout the game. The simulation therefore provided an opportunity to discuss how these conflicts arose and what strategies the team members used to reach a compromise. The Joint Venture Simulation Came was also effective in demonstrating the importance of maintaining partner rapport. By tabulating cumulative NPV, the importance of insuring that the joint venture was profitable for both partners was illustrated. Oftentimes a team which negotiated an initial contract favorable to their side was forced to make major concessions in later rounds of the simulation to appease their dissatisfied partner. In general, the teams which achieved the highest cumulative NPV were those that had negotiated a contract mutually perceived as being fair and concentrated their efforts on coordinating production with demand in the various markets.

The simulation game also contributed in other ways to the overall success of the workshop. It served to stimulate discussion, not only during the sessions but also during the coffee and lunch breaks. It provided a means for the managers from the various firms to interact with each other. In many cases, this interaction led to other discussions involving common management problems and activities. The best indication of the success of adapting business simulation to the joint venture setting was the consistent comment on the workshop evaluation form "provide more time for Simulation Came".

CONCLUSIONS

Concepts such as joint venture partner rapport, transfer price conflicts, and disagreements over marketing strategies are difficult to communicate to an audience, which consists of managers of state-run firms with little down-stream marketing experience. Translation difficulties and other communications problems are most likely to occur in these types of abstract concepts. The use of the Joint Venture Simulation program allowed us to illustrate these concepts and provided a basis for discussion. The managers were quite comfortable in interpreting the output consisting of financial statements. This experience suggested to us that simulation can be effective in non-traditional subject areas.

REFERENCES

- Beamish, P.W. (1984) Joint venture performance in developing countries. Unpublished doctoral dissertation, University of Western Ontario, London, Ontario, Canada.
- Dale, A.G., & Klasson, C. R. (1964) Business gaming: A survey of American collegiate schools of business. Bureau of Business Research, University of Texas
- Dymsza, WA (1984) Joint ventures in developing countries: trends and perspectives. Singapore Proceedings of the International Business Conference
- Faria, A.J. (1987) A survey of the use of business games in academia and business. Simulation & Games, 18, 207-224.

Developments In Business Simulation & Experiential Exercises, Volume 19, 1992

- Graham, R.C., & Gray C.F. (1969) Business games handbook. New York: American Management Association.
- Horn, R.E., & Cleaves, A. (1980). The guide to simulation games for education and training. Newbury Park, California: Sage.
- Keys, J.L., & Wolfe J. (1990). The role of management games and simulations in education and research Journal of Management, 16, 307-336.
- Kibbee, J.M., Craft, C.J., & Nanus, B. (1961) Management games New York: Reinhold.
- McRaith, JR., & Goeldner, C.R. (1962) A survey of marketing games. Journal of Marketing, 26, 69-72
- Ralphs, L., & Stephan, E. (October 1986) HRD in the fortune 500 Training and Development Journal, 40, 69-76
- Wolfe, J. (1985) The teaching effectiveness of games in collegiate business courses. Simulation & Games, 26, 251-288