

consumer sectors. This module also determines the initial market size lost to non banking institutions. This magnitude is subsequently adjusted by player interest rate decisions. Initial market sizes were validated against real world values (Department of Commerce and Consumer Affairs 1986; FDIC 1987; Dun and Bradstreet Financial Profiles Department 1986).

The district detail module is a data base of demographic, economic and consumer behavior for the forty one census districts in Hawaii. Variables included are population, age, ethnicity, educational level, and income. The module projects variable values for the twenty year period of play. The initial number of branches and automatic teller machines (ATM's) for each district and bank are also included. This module also generates market research reports which can be requested by the student.

The decision module accepts the sixty five decision made by each bank team each year. These decisions cover nine marketing decision areas. These are basic marketing strategies; selection of target markets; product offerings and customer service levels; distribution decisions such as branch and ATM construction; promotion, which includes theme and media determination; pricing strategies such as interest rates charged and paid; marketing management decisions including salary levels and training budgets; market research purchases; and political action committee budgets (Berry 1971; Tyler 1974). The decisions made by the students are analyzed for consistency and to determine if sufficient resources have been allocated to the marketing function. Penalties are imposed for oversights. Creative ideas that do not fit within the model's structure are evaluated and rewards assessed in the form of increased effectiveness of decisions made. Market share is allocated by sector to each bank using the Kotler methodology cited earlier. Long term decision impacts are also collected in a subroutine for use in subsequent rounds.

The output module translates market share and other data, such as interest rates, into yearly performance data. These data are used to modify the previous year's balance sheet (statement of condition) and income statement. Using this method momentum and inertia can be modeled. A current statement of condition and income statement are developed and become major performance indicators for the students. Comparative market share data, profit analysis, as well as an industry comparisons, are also provided.

Model results were compared to actual bank performance using cautious, conservative decisions. Model results were consistent with actual performance. Results were also compared to national averages of performance with consistent results (Dun and Bradstreet Economic Analysis Department 1988). By anecdote, one student team determined, in an interview with the president of the bank they represented, that they had predicted the bank's next, and then, confidential expansion plan.

STUDENT PERFORMANCE AND REACTION

The first semester was used as a test. Twenty-five students were subdivided into eight teams. Fourteen rounds were played, results assessed and changes made to the model. The model was then used in the four subsequent semesters. The results are shown in table one.

TABLE 1
STUDENT PERFORMANCE RESULTS

Bank	Semester Performance Rankings					Actual Performance		
	1 Sem.	2 Sem.	3 Sem.	4 Sem.	AVG.	Size Rank	Assets (Mil)*	ROAA* Rank
Bank of Hawaii	3	2	4	1	1**	1	5606	1
First Hawaiian	5	4	3	4	4	2	3696	2
Central Pacific	8	7	7	7	8	3	660	3
First Interstate	2	3	2	3	1**	4	638	4
City Bank	7	5	8	2	6	5	393	6
Liberty Bank	4	8	6	6	7	6	249	8
Hawaii National	3	1	5	8	5	7	221	7
Bank of Honolulu	1	6	1	5	3	8	89	8

* 1987 Assets and Return on Average Assets from Yoneyama 1988a.

** Tie

Student performance was evaluated on percentage increase in loan market share, percentage increase in deposit market share, percentage increase in total assets, capital surplus generation as a fraction of

total starting assets and net income generation as a fraction of total starting assets. Teams were rank ordered on each criteria, and the rank orders summed to determine an overall ranking.

Team having members from the financial sector had an advantage. Accounting, senior management and customer service management experience were also highly valued by the students. Teams with contacts at the senior level of banks also fared better. Hard research into the Hawaii banking industry also paid dividends according to the students. One of the most successful teams developed a Lotus based simulation model of the model and used it to predict competitive behavior and economic trends.

Teams that did poorly did not appreciate the complexity of the task and resorted to simple strategies. Inconsistency, wide swings in resource allocations, high risk loan portfolios, aggressive expansion schemes and gamesmanship also plagued these poor performing teams. In three of the four rounds, all of the banks were profitable. In semester four, however, six out of the eight banks lost money and the industry market share became heavily concentrated in the one largest bank. In this round the teams began to compete on price. The interest rate spread became narrower each year. At year eight there was an economic downturn and only one bank, the largest, had the financial reserves to withstand it. This result can be attributed to an improper evaluation by students as to the relative importance of the marketing mix components in this industry.

Students were asked to provide written critiques of the simulation experience after each semester. The predominant themes of the positive comments were that the simulation was very interesting, taught them about the complexities of marketing decisions in the banking industry, and provided insights into the relationships between the economic environment and marketing strategy. Other favorable learning outcomes were an appreciation of the importance of customer service in a service industry and the factors leading to its enhancement, and a better understanding of why banks are currently altering their traditional marketing strategies. Students also indicated they enjoyed the competition and had strong incentives to do well. They believed the secrets of success were competitiveness, an entrepreneurial approach, knowledge of the industry, diligence and prudence.

The primary theme of the critical comments was that the students did not have sufficient control. This critique had five facets. The students wanted more information on significant forces, environmental and competitive. They believed they should have all environmental information, commenting that in the real world, information on these type would have been available. Second, they wanted more information on the cause and effect relationships modeled in the simulation. Third, students did not like having a prudent, well researched and carefully conceived strategy thwarted by a competitor. The frustration level was high when this happened and teams were at a loss on what action to take in the next round. Fourth, students objected to the fidelity and time adjustments. Adjustments were made to the managerial effectiveness of the bank's marketing department if the team's did not allocate sufficient resources to the marketing function and there was a time delay in some decisions. Fifth, the students did not like being under time pressure to review the last round's results and develop a new set of decisions in less than a week. They believed this led to incomplete analysis. In sum, the students accepted the complexity of the industry but did not accept the simulated inability to control events with absolute fidelity.

SUMMARY

Student feedback indicated that the simulation helped develop an understanding of the complexity of marketing strategies, mix and management decisions. As such, it successfully accomplished one of the principal objectives for marketing simulations, namely, to provide an environment where students can realistically apply formal models and theory learned elsewhere (Lewbel 1988). Conversely, the high frustration levels created by the uncertainty and lack of control was not well accepted. This side effect may have interfered with the learning processes of the simulation. Modifications are being made as a result of these lessons.

REFERENCES

Alpert, Mark and Mark Lynch (1989), Bank Stock Review, The Hawaii Banks, New York: Bear Stearns & Co. Inc.

total starting assets and net income generation as a fraction of total starting assets. Teams were rank ordered on each criteria, and the rank orders summed to determine an overall ranking.

Team having members from the financial sector had an advantage. Accounting, senior management and customer service management experience were also highly valued by the students. Teams with contacts at the senior level of banks also fared better. Hard research into the Hawaii banking industry also paid dividends according to the students. One of the most successful teams developed a Lotus based simulation model of the model and used it to predict competitive behavior and economic trends.

Teams that did poorly did not appreciate the complexity of the task and resorted to simple strategies. Inconsistency, wide swings in resource allocations, high risk loan portfolios, aggressive expansion schemes and gamesmanship also plagued these poor performing teams. In three of the four rounds, all of the banks were profitable. In semester four, however, six out of the eight banks lost money and the industry market share became heavily concentrated in the one largest bank. In this round the teams began to compete on price. The interest rate spread became narrower each year. At year eight there was an economic downturn and only one bank, the largest, had the financial reserves to withstand it. This result can be attributed to an improper evaluation by students as to the relative importance of the marketing mix components in this industry.

Students were asked to provide written critiques of the simulation experience after each semester. The predominant themes of the positive comments were that the simulation was very interesting, taught them about the complexities of marketing decisions in the banking industry, and provided insights into the relationships between the economic environment and marketing strategy. Other favorable learning outcomes were an appreciation of the importance of customer service in a service industry and the factors leading to its enhancement, and a better understanding of why banks are currently altering their traditional marketing strategies. Students also indicated they enjoyed the competition and had strong incentives to do well. They believed the secrets of success were competitiveness, an entrepreneurial approach, knowledge of the industry, diligence and prudence.

The primary theme of the critical comments was that the students did not have sufficient control. This critique had five facets. The students wanted more information on significant forces, environmental and competitive. They believed they should have all environmental information, commenting that in the real world, information on these type would have been available. Second, they wanted more information on the cause and effect relationships modeled in the simulation. Third, students did not like having a prudent, well researched and carefully conceived strategy thwarted by a competitor. The frustration level was high when this happened and teams were at a loss on what action to take in the next round. Fourth, students objected to the fidelity and time adjustments. Adjustments were made to the managerial effectiveness of the bank's marketing department if the team's did not allocate sufficient resources to the marketing function and there was a time delay in some decisions. Fifth, the students did not like being under time pressure to review the last round's results and develop a new set of decisions in less than a week. They believed this led to incomplete analysis. In sum, the students accepted the complexity of the industry but did not accept the simulated inability to control events with absolute fidelity.

SUMMARY

Student feedback indicated that the simulation helped develop an understanding of the complexity of marketing strategies, mix and management decisions. As such, it successfully accomplished one of the principal objectives for marketing simulations, namely, to provide an environment where students can realistically apply formal models and theory learned elsewhere (Lewbel 1988). Conversely, the high frustration levels created by the uncertainty and lack of control was not well accepted. This side effect may have interfered with the learning processes of the simulation. Modifications are being made as a result of these lessons.

REFERENCES

Alpert, Mark and Mark Lynch (1989), Bank Stock Review, The Hawaii Banks, New York: Bear Stearns & Co. Inc.

Berry, Leonard L. (1969), "Marketing: The Time is Now," Savings and Loan News, (April), 61.

Cadotte, Ernest R. (1987), "The Market Place: An Advanced Marketing Strategy Game," Academic Computing, (September), 27-57.

Department of Commerce and Consumer Affairs, State of Hawaii (1986), Comparative Statement of Condition of State-Chartered Banks, Honolulu: State of Hawaii.

Department of Business and Economic Development,(1987), State of Hawaii Data Book, Honolulu: State of Hawaii.

Dun and Bradstreet Economic Analysis Department (1986), Corporations, Cost of Doing Business, New York: Dun and Bradstreet.

Dun and Bradstreet Financial Profiles Department (1986), Industry Overview, Banking/Finance, New York: Dun and Bradstreet.

Federal Deposit Insurance Corporation (1987), Data Book, Operating Banks and Branches, June 30, 1986, Washington, D.C.: Federal Deposit Insurance Corporation.

Harms, Craig G. and Stanley W. Huff (1988), The Swift Shoe Company, Fourth Edition, Homewood, Illinois: Richard D. Irwin, Inc.

Hinkle, Charles L. and Russell C. Koza (1975), Marketing Dynamics, Decision and Control, New York: McGraw Hill.

Kotler, Philip (1984),Marketing Management, Analysis, Planning and Control, Fifth Edition, Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Lewbel, Arthur (1988), "Writing and Evaluating Educational Simulations Software," Academic Computing, (March), 28-51.

Mason, Charlotte H. and William D. Perreault, Jr. (1987), The Marketing Game!, Homewood, Illinois: Richard D. Irwin, Inc.

Naylor, Thomas H. (1971), Computer Simulation Experiments with Models of Economic Systems, New York: John Wiley & Sons.

Rizzi, Joseph V. (1988), "Acquisition Analysis for Banks," The Bankers Magazine, (January-February), 36-40.

Tyler, Wat, (1974), "Organizing the Critical Tasks in Bank Marketing," in Marketing for the Bank Executive, Leonard L. Berry and L. A. Capaldini, eds., New York: Petrocelli Books.

Yoneyama, Tom (1988a), "Banking's Banner Year," Hawaii Business, (April), 22-44.

(1988b), "Super Savers," Hawaii Business, (September), 35-43.

Berry, Leonard L. (1969), "Marketing: The Time is Now," Savings and Loan News, (April), 61.

Cadotte, Ernest R. (1987), "The Market Place: An Advanced Marketing Strategy Game," Academic Computing, (September), 27-57.

Department of Commerce and Consumer Affairs, State of Hawaii (1986), Comparative Statement of Condition of State-Chartered Banks, Honolulu: State of Hawaii.

Department of Business and Economic Development,(1987), State of Hawaii Data Book, Honolulu: State of Hawaii.

Dun and Bradstreet Economic Analysis Department (1986), Corporations, Cost of Doing Business, New York: Dun and Bradstreet.

Dun and Bradstreet Financial Profiles Department (1986), Industry Overview, Banking/Finance, New York: Dun and Bradstreet.

Federal Deposit Insurance Corporation (1987), Data Book, Operating Banks and Branches, June 30, 1986, Washington, D.C.: Federal Deposit Insurance Corporation.

Harms, Craig G. and Stanley W. Huff (1988), The Swift Shoe Company, Fourth Edition, Homewood, Illinois: Richard D. Irwin, Inc.

Hinkle, Charles L. and Russell C. Koza (1975), Marketing Dynamics, Decision and Control, New York: McGraw Hill.

Kotler, Philip (1984),Marketing Management, Analysis, Planning and Control, Fifth Edition, Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Lewbel, Arthur (1988), "Writing and Evaluating Educational Simulations Software," Academic Computing, (March), 28-51.

Mason, Charlotte H. and William D. Perreault, Jr. (1987), The Marketing Game!, Homewood, Illinois: Richard D. Irwin, Inc.

Naylor, Thomas H. (1971), Computer Simulation Experiments with Models of Economic Systems, New York: John Wiley & Sons.

Rizzi, Joseph V. (1988), "Acquisition Analysis for Banks," The Bankers Magazine, (January-February), 36-40.

Tyler, Wat, (1974), "Organizing the Critical Tasks in Bank Marketing," in Marketing for the Bank Executive, Leonard L. Berry and L. A. Capaldini, eds., New York: Petrocelli Books.

Yoneyama, Tom (1988a), "Banking's Banner Year," Hawaii Business, (April), 22-44.

(1988b), "Super Savers," Hawaii Business, (September), 35-43.