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ANALYZING SIMULATIONS WITH COMPUTER-BASED PROGRAMS AND APPLYING THE EXPERIENCE TO A REAL-WORLD BUSINESS

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ABSTRACT

This paper describes and evaluates changes in the capstone course in finance. In response to AASCB recommendations, the course was redesigned to give students both a simulated and real-world experience in financial analysis. Students were first organized into teams for a total enterprise simulation, *Fingame,* and required to evaluate decisions using *fIsCAL,* a financial software program. Following the simulation, students participated in a Small Business Development Center (SBDC) program in which they served as consultants to SBDC real-world clients. The two course components were linked by *fisCAL,* which was also used to analyze SBDC clients financial statements. Evaluations by students, SBDC personnel and clients indicated the learning experience and the outcomes of the course were much better than expected.

INTRODUCTION

A combination of decreasing resources and changing AASCB requirements motivated the Department of Finance to review, reassess, and restructure curriculum. Part of the restructuring focused on the capstone course offered to business majors. Consistent with AACSB guidelines, the course was changed so that it would not only review and expand upon theoretical concepts, provide applications of theory, emphasize team work and oral and written skills, but also provide students with opportunities to work with business firms.

Restructuring the course was made easier as a result of three independent events: simulations were being used in the department; the department introduced a comprehensive financial analysis software package, *fisCAL,* in the introductory finance course; and the Small Business Development Center (SBDC) was established in the College of Business and Public Administration.

The reconfigured course incorporated these developments. Currently it consists of two components: a six-week total enterprise simulation, *Fingame* and a ten-week financial analysis of a real-world business. The simulation is structured so that output is analyzed using *fisCAL,* and reports are written based on the *fisCAL* output. The real-world business cases are supplied by the SBDC which serves as an intermediary in this process, providing financial statements, meeting with students midway through the project to evaluate progress, and setting up the formal client presentations at the end of the course. The two course components are linked by *fisCAL,* which is also used to analyze SBDC clients financial statements.

This paper presents characteristics of the *Fingame* simulation and the financial analysis package, *fisCAL;* it reviews the course structure and includes evaluations of participating groups.

CHARACTERISTICS OF THE COMPUTER PROGRAMS

Fingame

Fingame is a total enterprise simulation in which students make decisions about production, pricing, financing, capital budgeting, capital structure, inventory, advertising, and investing. The game is designed to emphasize financial decision-making. Decisions are made in an economic environment specified by the instructor, which means expected growth, interest rate behavior, and inflation are important variables for the students to address. The objective of the game is to maximize stock price.

FisCAL

The software package *fisCAL* published by Halcyon was selected for the introductory course in Principles of Finance because it is user-friendly, features a simple data input process, has numerous options for analysis, includes industry standard peer group comparisons, and provides readable output. It is also useful in business courses other than finance. For the capstone course, the reporting features of the program were important. Financial statement analysis, ratio analysis, cash market valuation, trend analysis, operating ratios, cash flows, growth models, and proforma projections were the most important reports for students to review. Peer group comparisons were also particularly relevant for clients.

ADMINISTRATIVE OVERVIEW

Structure of the Course

As noted, approximately one-third of the course is based on the total enterprise simulation, *Fingame;* the remainder of the time is spent on the SBDC real-world case. The course concludes with two oral presentations, one at a local bank boardroom with the clients and SBDC officials in attendance, and the other in the classroom with students in attendance.

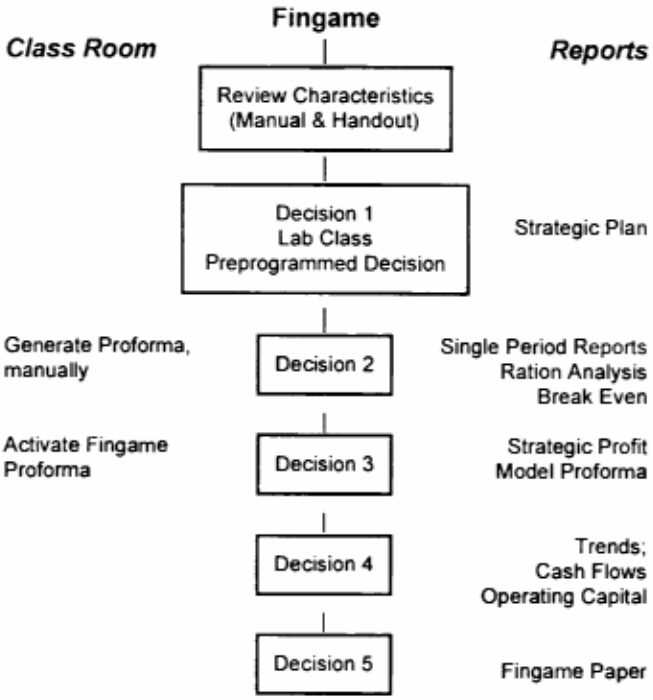
Structure of Simulation Classes

The simulation component of the course is very structured. Although some simulations can be played with minimum instruction and structure, (Cadotte, 1 993), it appears *Fingame* does not fit the category. This observation is based on three semesters of use. During the first semester, students were required to learn the fundamentals of the simulation on their own and to write a final paper; for the second semester, they were required to write reports after each decision; and for the third semester, students wrote reports based on the software package *fisCAL.* It was evident that as the simulation component became more structured, the quality of performance improved, and student unease, which was noticeable in the first semester in an unstructured environment diminished significantly (Rieber and Parmley, 1992). There-after, as reporting guidelines and methods of financial analysis were more defined, it became apparent that students were not only more comfortable and more astute about their decisions in a structured environment, but also they were more creative (Cannon, 1987; Cannon and Alex, 1990). The more quickly students grasped the fundamentals of the simulation, the more time they had to spend analyzing output, assessing interaction of the variables, and identifying the impact of their decisions on the firm. The use of *fIsCAL* in the third class raised the level of analysis to a more sophisticated level. Students were able to assemble quantities of output and evaluate it quickly and thoroughly. Stock price, net income, capital structure, firm valuation, and capital budgeting were all significantly improved. These observations, although limited to experiences in three classes, would confirm the findings of Comer and Nicholls, 1994 that the degree of fine-tuning of the reporting structure is important. It was also evident that a systematic approach to learning minimized confusion that can result with a comprehensive simulation.

Table 1 presents an overview of the simulation component of the course. Initial classes were spent reviewing the characteristics of the *Fingame* simulation and the financial program, *fIsCAL.* Subsequent classes were spent making decisions and evaluating them through a series of written reports.

Decision 1, a pre-programmed decision, introduced students to the mechanics of the simulation, the data entry process, decision format, and the simulation. After the first decision, students were asked to write up a strategic plan for the firm.

TABLE 1
CLASS STRUCTURE USING FINGAME SIMULATION



At this time they also entered financial statement data into *fisCAL.* Prior to decision two, class time was allocated to generating proforma statements manually so that students would have a clearer understanding of the impact of their decisions on the income statement, balance sheet, and cash budget. After simulating the second decision and inputting financial statements into *fIsCAL,* students ran several financial reports: single period reports, ratio analysis, and breakeven analysis. Prior to making their third decision, students generated proforma statements using the simulation capability of *Fingame.* For their third paper they were required to evaluate the strengths and weaknesses of proformas and to use the fisCAL strategic profit model to evaluate growth potential and inventory management. With decision 4, analysis expanded to include an assessment of financial trends and cash flows. *Fingame* report writing concluded

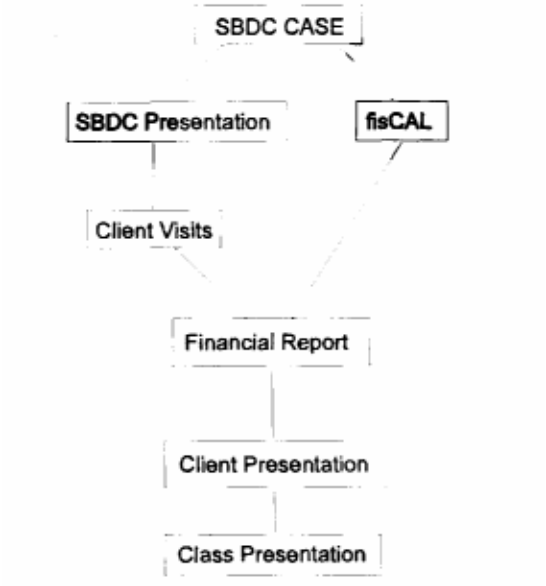
with decision 5 when students submitted a comprehensive review of the financial performance of the firm over 5 quarters. As a supplement to the *Fingame* manual, students were provided with two handouts: a review of the characteristics of the simulation and an explanation of how proforma statements are generated. For all report writing, including the strategic plan, all of the reports based on output from *fIsCAL,* and the final summary report, outlines were provided.

Structure of Real-World Cases

Because of the confidentiality factor in dealing with SBDC client firms, formal class meetings became less important once students began working with clients; instead, team meetings became the norm. Class structure for the real-world business component of the course is illustrated in Table 2.

The role of SBDC personnel, though minimal, was important. SBDC personnel met with the class to review

TABLE 2
CLASS STRUCTURE
WITH REAL-WORLD BUSINESS CASE



requirements and expectations, and to review and distribute a code of ethics. Immediately following the class presentation, they met with each team to present the financial statements of their firm and to provide background on the firms performance and current problems. Students had two other team meetings with SBDC personnel: mid-way through the project they met to review progress, present summary findings, and receive any additional information; and finally, they presented their report to their client with SBDC personnel in attendance.

Interaction with the client was very important and one of the students' first tasks was to set up an interview. Thereafter, how frequently they visited with clients depended directly on the quality of the financial information and the area of client concern. For example, one client was considering an expansion project, which involved the acquisition of land and the construction of facilities. For this task students became involved in real estate pricing and construction costs in addition to numerous other relevant financial factors. To estimate costs of construction and cash flows for the project involved several 'what if" scenarios and required several visits. Because each case was different, the number of client visits, the kinds of financial questions and problems addressed, and the appearance of the final report were also different.

Interaction with faculty was extensive. I accompanied students on the initial client visits, met with each team once a week for an hour, and set up an additional one-half hour appointment in the event more time was needed. My office also served as a communication center for incoming telephone calls and faxes. Because each team had a unique set of questions and problems and problems arose in unpredictable ways, an open door policy was essential. I also edited numerous drafts of reports and attended SBDC midterm briefings and the final oral presentations to clients.

Final Presentations

The course concluded with classroom presentations. The purpose of the second presentation was to bring the teams together in a classroom setting and to provide them with an opportunity to discuss their cases, share experiences, and exchange ideas.

EVALUATIONS

Evaluations are based on both oral and written student responses to the course. These evaluations are supplemented by comments and letters from SBDC personnel and client firms.

Student Evaluations

Students thoroughly enjoyed the course and evaluated it highly. Their enthusiasm and eagerness were

reflected in outstanding team efforts and growing confidence. While they were initially excited at the prospect of working with a real-world firm, they were also very nervous; however, the trial run prepared them well for their clients. More importantly, they were ready to move from the relatively structured environment of a classroom simulation to a relatively unstructured one of real-world consulting. While the thought of such autonomy made them uneasy at the beginning of the course, by the end of the simulation their knowledge, writing, and team dynamics were such that they enjoyed the relative independence.

External Evaluations

Members of the SBDC and clients were all impressed with the quality of the students' work. Both written and oral reports were well received. Clients, who were almost all skeptical initially, were unanimous in their praise of the students' performances. All rated the interaction with students a learning experience, which far exceeded their expectations, and all were interested in pursuing departmental internships.

Instructor Evaluation

Both *Fingame* and *fisCAL* are useful "stand alone" software packages from which students can learn. Together their synergistic effects raised the level of student performance and understanding of financial analysis significantly. Student sophistication in analyzing *Fingame* with *fIsCAL* was in turn reflected in their successful consulting experiences.

SUMMARY

Changes in the capstone course in finance have created a positive learning environment. Students found the combination of simulated and real-world business cases a useful way to reinforce and expand knowledge of finance, and at the same time help prepare them for the work place. Despite the heavy demand of the course, they are excited, eager, and enthusiastic about the course, and all agree that it contributed significantly to their understanding of finance and to their self-confidence. Clients overcame initial reservations to gain respect for and confidence in the ability of the students to provide sound financial analyses, and the SBDC is enthusiastic about maintaining and, if possible, extending interaction with the department.

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