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Implementation of a Serial-Case Pedagogy in the Introductory Managerial Accounting Course

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ABSTRACT: The accounting profession and the business community have called for academics to place more emphasis on presenting accounting to students in an economic-decision context. In response to that call, California State University, Chico (CSU, Chico) applied for and received in 1992 a Fund for the Improvement of Post-Secondary Education (FIPSE) grant to reengineer its introductory accounting curriculum. This paper describes a serial case, created as part of the grant, that introduces a user, decision-making approach into the second semester course that emphasizes managerial accounting. Specifically, the paper defines what is meant by a serial case, then provides an overview of the case, the California Car Company (CCC), a hypothetical manufacturer of electric-powered vehicles. The paper then depicts the types of decisions addressed and accounting information employed by CCC. Issues related to the implementation of the serial case are also discussed. The paper concludes with a discussion of assessment data that document student reactions to the case. Experience with the serial case suggests that it may be a powerful tool for introducing students to business-decision problems and related accounting information.

INTRODUCTION

The accounting profession and the business community have called for academics to place more emphasis on presenting accounting in an economic-decision context (AAA 1986; *Perspectives* 1989; AECC 1992; Siegel and Kulesza 1995). A user-decision orientation is particularly important in the introductory accounting sequence for four reasons. First, most of the students (more than 80 percent at many schools) enrolled in introductory accounting courses do not plan to major in accounting. Since most students will encounter accounting information in the workplace as user "decision makers," it is consistent with their future needs to introduce them to accounting from a user perspective. The importance of a decision orientation for nonaccounting majors is supported by the results of a study by Cherry and Mintz (1996). They found, based on a questionnaire to nonaccounting business faculty, that about 63 percent of

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the respondents felt that a "use of information for decision making" approach to introductory accounting is best for majors in their area. The other approaches cited and the percent responding were: (a) "procedures, including bookkeeping and transaction analysis" (16 percent); and (b) "preparation of statements and reporting information" (21 percent).

Second, research suggests that the first courses in accounting are important determinants in students' decisions whether to major in accounting (Adams et al. 1994; AAA 1995). Nevertheless, traditional introductory accounting courses are frequently criticized for their "preparer" orientation. Because of its narrow, rule-based orientation, this traditional, introductory approach may actually attract the wrong kind of student into accounting—individuals who enjoy finding answers to well-defined problems instead of those who can tolerate ambiguity and can develop defensible solutions to somewhat intractable problems.

Third, introductory accounting, because it is often the first business course taken by business majors at many schools, serves the important secondary role of providing an introduction to business. It can be argued that a user decision-oriented approach that focuses on basic business decisions better meets this secondary role than does the traditional procedural approach.

Fourth, introductory accounting instructors frequently receive complaints, particularly from finance and intermediate accounting instructors, about students' inability to retain accounting knowledge gained at the introductory level. Education research supports the notion that most students learn and retain information better when it is presented in an active, discovery-learning mode, such as through the use of cases (Cottell and Millis 1993). Therefore, it is anticipated that students will better learn and retain accounting information if it is presented in decision contexts that have meaning and relevance to them.

The purpose of this paper is to describe the implementation of a *serial* case in the second semester of introductory accounting. Specifically, the paper first defines what is meant by a serial case; then provides an overview of a serial case developed by the authors, the California Car Company (CCC); describes the types of decisions addressed by CCC; discusses implementation issues; and summarizes assessment data collected from students and faculty regarding the use of the CCC case.[1]

THE SERIAL-CASE APPROACH

A serial case involves a sequence of decisions related to a single company. The case unfolds sequentially over an academic term. Students are first given sufficient background information about a company to address an initial set of decision problems (e.g., cost information to assess product profitability). After addressing those problems, students are given a second assignment with additional information about the same

[1] In 1992, CSU, Chico received financial support from the Fund for the Improvement of Post-Secondary Education (FIPSE), the U.S. Department of Education to reengineer its elementary accounting curriculum. The serial case discussed in this paper was created as part of that grant. In 1995, CSU, Chico received a second FIPSE grant to disseminate its reengineered elementary accounting curriculum to seven "adapting" universities.

company, building both on the prior background and on the initial decisions the students made. The foundation is then set for a second set of decision problems. This sequence, new information leading to new decisions, proceeds in a serial fashion through several iterations during the semester. Each iteration adds complexities to the same company and its environment. Typically, the case is designed so that each iteration also leads to gradual improvement in the company's ability to compete in a global economy so that students can see a positive impact made by their decisions.

The basic rationale for using serial cases lies in the notion that students will more fully understand and appreciate the systems, processes, and integrated nature of business if they work extensively with one company that is analyzed from many perspectives. From an accounting standpoint, this continuity also allows students to relate the impact of one accounting concept or decision to those made earlier in the course.

One advantage of a serial case is that it provides a richer context by using only one company, which means that more emphasis can be placed on the environmental setting. In this way context can be gradually enriched as the serial case builds during the semester. A second advantage is that serial cases are more efficient because students need to become familiar with just one, rich, in-depth context. Two disadvantages of serial cases are that students are introduced to only one industry, and instructors do not have much latitude in changing the sequence in which topics are covered.

Serial cases have been used in accounting and business education for some time. In fact, they have been a rather standard feature in many accounting information systems texts.[2] Also, serial cases have appeared in "integrated" Master of Business Administration (M.B.A.) programs, the most publicized of which is the University of Tennessee's first-year M.B.A. curriculum. Byrne (1993, 343) reports that "[t]he entire first year of work is based on a complex serial case [Volunteer Vegetables] written by the core faculty."

However, only two descriptions of serial cases are found in the introductory accounting literature. Carlson et al. (1992) present a four-part case for introductory financial accounting entitled "The Sheepherders," the purpose of which is to help students think through financial accounting choices in the context of a mythical barter society. Hubbard et al. (1984) describe a comprehensive managerial accounting project in which students prepare accounting information for a unique, fictitious company. Each student performs normal managerial accounting procedures (e.g., budgeting, process costing, and variance analysis) while maintaining an integrated set of accounting records for a manufacturing firm. Thus, the student is forced to address the integrated aspects of these procedures. Although Hubbard et al. (1984, 118) suggest that with more structure "the project could be made suitable for even the most elementary managerial accounting course," they apparently used the case in a more advanced course for accounting majors. Hubbard et al. (1984, 112) report that the students found the project to be quite time-consuming, but that most

[2] For an example, see the Datacruncher case in Wilkinson (1993).

students "responded favorably on the value of 'putting it all together.'"

At the intermediate accounting level, faculty at the McIntire School of Commerce, University of Virginia, funded in part by the AECC, have created a business activity model (BAM), which essentially reflects the serial-case approach (Catanach et al. 1998). The faculty decided to use "a *single* case that addressed a *series* of accounting issues" (emphasis added), because "such an approach would reduce the need for students to continually relearn company-specific details, allowing them instead to focus on identifying and resolving accounting issues" (Catanach et al. 1998, 5–6). They point out that their model is similar to the business-events systems approach employed by Brigham Young University (see Albrecht et al. 1994).

The next section describes in detail how an introductory managerial accounting course was developed and implemented around the structure of a serial case.

REVISED MANAGERIAL COURSE

Funded by a grant from the Fund for Improvement of Post-Secondary Education (FIPSE), the faculty at CSU, Chico completely revised the second-semester introductory course, which emphasizes managerial accounting, to apply a user decision-making orientation to internal accounting information.[3] The new course has been divided into five modules (see Table 1), consisting of an introductory module, designed to smooth the transition for transfer students, and four additional modules that focus on the five major decision problems identified in Table 2. Besides familiarizing students with the uses and limitations of internal managerial accounting information, the new course is designed to improve students' oral and written communication skills, interpersonal (team) skills, computer skills, and global business awareness. The case has been used in conjunction with conventional managerial accounting texts in some semesters, and has been supported solely by instructor handouts at other times.

As Table 1 indicates, the case consists of 30 assignments (essentially one per class session), of which nine involve group activities and 21 involve individual homework assignments. The nine group assignments, which take about 12 percent of the class time during the semester, build on work done on an individual basis and focus on interpretation and integration rather than computation. Groups are formed by the instructor at the beginning of the semester based on data collected from students regarding grade point average, major, computer skills, and demographic information. The intent is to form heterogeneous groups of four or five students that reflect a range of differences in the above variables as well as in gender, race, and ethnicity. All group assignments are done in class, although some individual preparation for group assignments is done outside of class. About 44 percent of the course grade is based on the serial case. About 25 percent of the serial case points, or about 11

[3] The first course in accounting at CSU, Chico has also been completely revised to reflect a user orientation as part of the same FIPSE grant (see: DeBerg et al. 1998). In 1997, the reengineered second course received the joint American Accounting Association/Institute of Management Accountants *James Bulloch Award for Innovations in Management Accounting Education.*

TABLE 1
Course Modules and Related Individual Homework and Group Assignments

Assignment	Title	Approximate Hours to Complete
Introductory Module—Review of First Semester and Transition for Transfer Students		
• Review Exercises		
Module 1: Traditional Product Costing and Pricing		
• Case 1-1	CCC: Background	1.00
• Case 1-2	CCC: Production Line Simulation	.50
• Group 1-2	Assembling Cars in a Traditional Plant Layout	1.00
• Case 1-3	Production Problems at CCC	1.00
• Case 1-4	Development of Product Cost Estimates for 2000	2.00
• Case 1-5	Pricing and Profitability Decisions	1.50
• Group 1-5	Saudi Golf Cart Order	.40
• Case 1-6	Job-Order Costing at CCC	1.50
• Case 1-7	Variance Controversy at CCC	1.00
• Group 1-7	Overdone Overhead	.50
Module 2: Cost Management Systems		
• Case 2-1	Activity-Based Costing at CCC	2.00
• Group 2-1	A Cost by Any Other Name	.40
• Case 2-2	Implementing a Quality Program at CCC	1.00
• Case 2-3	Cost of Quality at CCC	1.00
• Case 2-4	Implementing JIT at CCC	.75
• Group 2-4	JIT Simulation	.75
• Case 2-5	JIT Costing at CCC	1.50
• Group 2-5	A Cost is a Cost is a Cost?	.50
Module 3: Planning and Performance Evaluation		
• Case 3-1	CCC: Plans for 2001	2.50
• Case 3-2	CCC: Plans for 2001 (Continued)	1.50
• Group 3-2	The Best Laid Plans	.40
• Case 3-3	Ethical Decision at CCC	.75
• Case 3-4	Capital Budgeting at CCC	1.50
• Case 3-5	Manufacturing Performance at CCC	1.00
• Group 3-5	Setting Standards for 2002	.75
Module 4: Analysis of Financial Statements in a Global Economy		
• Case 4-1	Opening a Foreign Subsidiary at CCC	1.50
• Case 4-2	The Foreign Subsidiary One Year Later	1.00
• Case 4-3	Analysis of Ford's Annual Report	1.50
• Case 4-4	Comparison of Financial Performance	1.00
• Group 4-4	Financial Horsepower	.50
	Total[a]	32.20

[a] The total time for in-class group activitites is approximately 5.20 hours.

TABLE 2
California Car Company Serial Case
Recurring Decision Contexts and Supportive Accounting Information

Decision Context	Accounting Information
1) Setting prices (normal and special order) and assessing profitability	Absorption cost per unit, incremental cost per unit, activity-based cost per unit
2) Managing operations	Traditional, ABC, Just-In-Time, and Total Quality Management costs and various nonfinancial measures (e.g., cycle time, number of defects, etc.)
3) Evaluating operating performance	Flexible budget variances, nonfinancial measures, other management control information
4) Developing plans	Budgeting, including nonfinancial measures
5) Reporting and analyzing financial performance	Accounting income (job-order cost), return on equity, debt-equity, margins, comparisons to Ford Motor Corp

percent of the total course points, is devoted to the group activities.

The 30 assignments listed in Table 1 constitute the serial case entitled the California Car Company (CCC), a hypothetical manufacturer of electric-powered vehicles. The case was created by a team of six faculty members at CSU, Chico. An auto manufacturer was selected as the focus of the case because: (1) most students have some familiarity with automobiles; (2) the environmental orientation of the electric vehicle industry is of interest to students; and (3) electric vehicles have real-world relevancy now that many government agencies and auto manufacturers are encouraging the sale of electric vehicles.

The complete package of student handouts for the CCC serial case is 130 pages in length.[4] An overview of the four modules (see Table 1) is presented in the paragraphs that follow.

Module 1: Traditional Product Costing and Pricing

The objectives of Module 1 are to familiarize students with: (1) a simple, departmentalized, "make-to-stock" production environment utilized by CCC, in which equipment setups are an important activity; (2) a traditional cost accounting system maintained by CCC; and (3) uses and limitations of traditional cost data in production execution, enterprise planning, pricing, and performance evaluation.

Students begin Module 1 by studying detailed information about CCC's business, strategy, production

[4] A copy of the complete case, plus solutions and teaching notes, can be obtained upon request from South-Western College Publishing.

activities, and various manager responsibilities. They then complete a series of individual and group exercises that involve the following concepts:

- **Production Execution**—Students participate in a production simulation as their first group exercise. This assignment illustrates basic production operations involving make-to-stock production and related record-keeping activities.[5] The simulation provides students with a visual "hands-on" representation of factory assembly and support operations, as well as a connection of accounting to operations.
- **Sales and Production Planning**—Students complete a planning exercise that illustrates basic sales and production-planning concepts, including the development of planned overhead rates.
- **Pricing**—Students make a pricing decision for the electric cars, drawing upon CCC data and auto industry cost and price data provided in the case. These data reveal that CCC's manufacturing overhead costs per vehicle are much higher than the industry average. At this point students engage in their second group assignment, which asks them to determine if a special order should be accepted.
- **Performance Evaluation**—Students analyze one month's activities, comparing actual costs to costs planned in an earlier exercise, utilizing a flexible budget to interpret results. In a third group assignment, students are asked to evaluate the control of manufacturing overhead using all the overhead costs developed to date—applied, budgeted, flexible budget, and actual.

At the conclusion of Module 1, students have identified a fundamental problem at CCC: overhead costs are too high and out of control. This key finding sets the stage for the next iteration of the serial case—Module 2.

Module 2: Cost Management Systems

The objectives of Module 2 are to familiarize students with: (1) activity-based costing (ABC) as a more strategic approach for understanding and controlling manufacturing overhead costs; (2) total quality management (TQM) as an alternative management control system to the traditional cost-centered control system described in Module 1; and (3) just-in-time (JIT) as an alternative approach to organizing CCC's production environment.

In this module students begin by addressing the question of how CCC can better manage its manufacturing overhead. Students are introduced to ABC and are provided with sufficient data to allow them to develop several "defensible ABC solutions" for the assignment of overhead costs to car models. At the end of the ABC section, the fourth group assignment asks students to explain why ABC and traditional costs differ and to decide if the compact model should be discontinued.

Next, students are introduced to TQM concepts and to related accounting implications of TQM. TQM is described from an accounting perspective, that is, as an alternative

[5] The simulation utilizes toy blocks in the production of cars, which is similar in approach to the simulation developed by Burns and Mills (1997).

management control system to the traditional cost-centered control system described in Module 1. Emphasis is placed on the important role of process variability and its impact on the achievement of quality output. Students learn about process improvement methodologies, such as statistical quality control, and how production teams can use these techniques to improve quality. Process output measures, such as customer-reported defect rates and supplier reliability, are contrasted with traditional manufacturing output measures such as costs, variances, and volumes. Finally, the costs of poor quality are computed and traced back to their root causes. Students thus see that TQM can help CCC address its quality problems. They are also led to understand the importance of different, nonfinancial performance measures that are introduced in a TQM application.

In the final portion of Module 2, students are introduced to JIT concepts and are shown how those concepts may be applied to CCC. In particular, the serial case stipulates that CCC decides to rearrange its plant into two separate, independent work cells: one dedicated to sedan production and the other to compact production. Students then perform, in their fifth group exercise, a second hands-on car manufacturing simulation, which helps them to see the dramatic improvement in certain measures that can be brought about by JIT, such as reduced cycle time and decreased levels of work-in-process inventories. CCC's move to ABC, TQM, and JIT sets the stage for the next iteration of the serial case. The module concludes with the sixth group assignment, which asks students to explain why manufacturing costs have changed as the case has unfolded, and to determine whether CCC is now cost competitive with the industry.

Module 3: Planning and Performance Evaluation

The objectives of Module 3 are to: (1) demonstrate how CCC's planned activities for 2001 may be translated into a set of budgeted financial statements; (2) introduce students to capital budgets and their linkage to financial budgets; (3) illustrate the role of static and flexible budgets in evaluating performance; and (4) explore the dynamic process typically involved in a company's setting of new standards for an upcoming period.

Module 3 begins by having students prepare budgeted financial statements for 2001, using computer spreadsheets they develop (budgeted balance sheet, income statement, and cash flow statements). The purpose of this high-level budgeting exercise is twofold: (1) to revisit CCC's overall financial performance after the company has implemented ABC, TQM, and JIT; and (2) to review financial statement fundamentals and statement articulation.[6] Group Assignment 7 asks students to elaborate on the production, marketing, finance, and management actions CCC will need to take to make the budget a reality.

The budgeted financial statements indicate a significant increase in demand for electric cars; hence, it becomes clear to students as they review the company's plan that CCC

[6] Other instructors within the College of Business at CSU, Chico, particularly finance and intermediate accounting instructors, continually stress the importance of a solid understanding of financial statements for students completing the introductory sequence.

should consider significant expansion of production capacity. Students evaluate three expansion options: (1) purchase state-of-the-art machinery for $108 million; (2) purchase equipment similar to CCC's current machinery for $72 million; or (3) do not expand. Analysis shows that both equipment purchase options have a return on investment higher than CCC's minimum, but the $72 million option produces a much higher return based on the financial information given. As students consider the nonfinancial aspects of the purchase, however, such as increased flexibility and improved quality, they discover that the $108 million option is actually the most attractive.[7]

After completing the budgeting exercise, students are provided with static budget and actual results for the first nine months of 2001 and are asked to evaluate the company's performance. The budgeted and actual results include both detailed cost and noncost information and a summary of "special operating events" that occurred during the period under review. In preparing a written report that evaluates performance, each student is assigned a role, either management or worker. The serial case is sufficiently rich to allow defensible arguments for either good or poor performance from both management and worker perspectives. Students eventually come together for Group Assignment 8 to explain their individual analyses and to arrive at a consensus evaluation for the group's assigned perspective (i.e., management or worker). Module 3 closes with students being asked to set CCC's standards for the year 2002 (both cost and noncost performance standards). To simulate the behavioral dynamics of a "real-life" standard-setting process, students are placed in a "structured controversy" framework (Johnson et al. 1991), a learning environment constructed so that students are required to defend a position face-to-face with other students who are assigned a conflicting position on the same issue.

By the end of Module 3, students are able to see how the operational improvements that CCC introduced in Module 2 (ABC, TQM, and JIT) end up being reflected in improved financial and nonfinancial performance. Students also gain an understanding of both the importance and the subjectivity of performance measurement. The next iteration of the serial case moves CCC activities from a domestic to a global arena.

Module 4: Analysis of Financial Statements in a Global Economy

The objectives of Module 4 are to familiarize students with: (1) financial implications of operating in a global economy; and (2) annual report information (both financial and nonfinancial) of a real company (Ford Motor Corporation) that operates globally.

Module 4 begins with an extension of the serial case that involves CCC planning to open a foreign sales subsidiary in Mexico. Students begin this module by considering whether the subsidiary's level of projected profitability is acceptable and whether the risk CCC faces due to exchange rate changes is manageable. Eventually, CCC decides to open the subsidiary and students must then determine first-year net income in Mexican pesos, convert that income to U.S. dollars, and analyze why actual income is less than projected. This section concludes with students translating

[7] See Monahan et al. (1990) for a description of one approach to incorporate nonfinancial data into capital budgeting decisions.

the subsidiary's ending balance sheet into U.S. dollars and consolidating it with the CCC U.S. balance sheet.

The final part of the serial case asks students to compare CCC's financial performance with that of Ford Motor Corporation. Students must analyze Ford's annual report and address questions about its global operations, initiatives in TQM and JIT, auditors' report, and financial statements. CCC's performance is assessed relative to Ford's results and, based on this comparison, students (in Group Assignment 9) estimate a price for CCC's stock. The purpose of the assignment is to evaluate whether students can read and interpret financial statements and use financial ratios intelligently. Therefore, students are instructed to consider only the financial statements and financial ratios when estimating a stock price for CCC.

Other Implementation Considerations

About 80 percent of the course is built around the CCC serial case. The initial three weeks of the class involve an introductory module that is dedicated to a review of financial statements, financial ratios, and cost-volume-profit analysis. About 44 percent of the course points are directly related to the serial case through individual homework assignments and group assignments. The remaining points consist of tests and quizzes, which emphasize concepts covered in the serial case. Since numerous exam questions relate directly to case assignments, many test points also are attributable to the CCC case. About 30 percent of class time is devoted to discussing the case assignments prepared by the students. An additional 12 percent of classroom time is given to CCC case group assignments. The remaining class time is used to present traditional management accounting topics (e.g., cost-volume-profit, product costing, and budgeting).

Since the serial case builds on sections covered previously, students need to use information presented and/or developed earlier to address current issues. When the serial case was first introduced, students reported that finding past information was frustrating and that this "carry-forward" problem worsened as the case unfolded. As a result, the serial case was modified so that information presented earlier is reintroduced at relevant subsequent points in the case. This also keeps all students working with the same information set as the case progresses.

The CCC serial case is used as the primary learning resource, and a text (or instructor handouts) is used as a supplement to the case, which results in two problems.[8] First, many students initially tend to spend too little time on the serial case exercises and too much time reading and highlighting the text. Most students quickly realize, however, that time is best spent in working on the sections of the serial case. Second, using the text as a supplement means that students must jump from section to section of the text rather than proceed in a linear manner. Some students seem to need time to become comfortable with this approach.

STUDENT AND FACULTY REACTION TO CCC

As part of both the original FIPSE grant and the "adapting university"

[8] A table showing which sections of several popular managerial accounting texts match the material in each of the CCC cases is located at the following web site: www.csuchico.edu/acms/introacct.

implementation grant, faculty at CSU, Chico and "adapting" universities (viz., Castleton State College, Fort Lewis College, Nassau Community College, Saint Mary's University of San Antonio, Sonoma State University, and Weber State University) collected a variety of assessment data on both the first and second introductory courses. Those assessments, which involved the use of multiple methods and multiple measures, included the following:

- Student exit questionnaires and interviews (CSU, Chico and "adapting" universities)
- Student focus groups (CSU, Chico only)
- Faculty questionnaires (CSU, Chico and "adapting" universities)

The following paragraphs briefly summarize results for the second introductory course (Managerial Accounting) in which the CCC serial case is used.

Student Exit Questionnaires and Interviews

A formative questionnaire survey was administered to students at CSU, Chico at the end of seven different semesters, and at Saint Mary's University of San Antonio (SMU) at the end of four different semesters.[9] Those exit questionnaires contained the following question dealing with the CCC case:

> This course introduced several instructional techniques that are described below. Please indicate for each item whether you had very negative, negative, neutral, positive, or very positive feelings regarding the importance of the item in learning the course materials.
> - Use of the serial case, "California Car Company," which involved a related set of decision problems faced by the company.

Results for CSU, Chico (results for SMU are discussed further below) are summarized in Table 3 (very negative=1, negative=2, neutral=3, positive=4, very positive=5). Table 3 shows the average result on this question for the six periods assessed at CSU, Chico is 3.94. This was the fourth-highest score of the 14 pedagogical questions asked the students. The three questions receiving higher scores, shown in Table 3, are: "Complete written assignments before coming to class"; "Use of computer for homework"; and "Work in small groups on assignments." For comparison, Table 3 also presents the scores on six other items surveyed at CSU, Chico in Fall 1996.

From the Fall 1993 through Spring 1995 semesters, 23 students at CSU, Chico were randomly selected to participate in exit interviews conducted by senior accounting students not associated with the course. Students were asked whether they had positive, neutral, or negative feelings about the importance of the CCC serial case in learning the course material. Fifteen responded that it was positive, six neutral, and two negative. Explanations for why the case was viewed positively included "Information stayed with me, made it easier to work with new information"; "I had to learn the first stage before the next, it helped me keep focused"; "Built on knowledge, helped me learn the whole process"; and "Concrete understanding and interesting." The negative comments focused on two

[9] To ensure objectivity, exit questionnaire data at CSU, Chico were tabulated by faculty from outside the Department of Accounting.

TABLE 3
Student Exit-Survey Results

Question[a]	Semester	CSU, Chico Number of Students	CSU, Chico Mean[b]	SMU Number of Students	SMU Mean[b]
CCC serial case	Fall 1993	104	4.05	NA	NA
CCC serial case	Spring 1994	215	4.03	NA	NA
CCC serial case	Fall 1994	81	3.75	NA	NA
CCC serial case	Spring 1995	126	3.83	NA	NA
CCC serial case	Spring 1996	138	3.91	61	4.08
CCC serial case	Fall 1996	129	4.12	28	4.32
CCC serial case	Spring 1997	177	3.90	71	4.17
CCC serial case	Fall 1997	NA	NA	26	4.46
		970	3.94	186	4.26

Average CSU, Chico Results from Other Instructional Questions

Use of traditional textbook (n = 970)	2.22
Use of discovery learning (n = 970)	2.74
Use of videos (n = 970)	3.22
Work in small groups on assignments (n = 970)	3.95
Complete written assignments before class (n = 970)	4.26
Use of computers for homework (n = 970)	4.23

[a]The question asked was: Extent to which each item helped you learn the material.
[b]The scale used was:
1 = Very negative
2 = Negative
3 = Neutral
4 = Positive
5 = Very positive
NA = Not available (survey was not administered in these semesters)

issues: (1) discussing the same company got old after a while, and (2) going back to locate information from previous cases was an inefficient use of time.

Student Focus Groups

The new elementary accounting curriculum makes extensive use of group activities, and many of the CCC serial-case assignments involve group activities. In most cases, students participate in only one or two groups during an entire semester. At the end of each of the first three semesters after the CCC case had been introduced, CSU, Chico selected one group from one of the sections involved in each course and requested that these students meet in focus group sessions led by two instructors from *outside* the Accounting Department.

In audiotaped sessions, the focus group leaders used the content of the exit questionnaire (see above) as a guide for questioning the student

group about their experience in the course. The focus group facilitator used a "card-sorting" technique in which the students were asked to sort cards into three piles identifying positive, neutral, or negative feelings about the importance of the item described on the card in learning the course materials. To ensure objectivity, focus group data were tabulated by a faculty member from outside the accounting department, who was also a focus group leader. Results of the focus group sessions for three semesters are summarized in Table 4. Taken together, the data in Table 3 and Table 4 reveal that, on balance, student reaction to the CCC serial case at CSU, Chico is generally positive.

Faculty Questionnaires

Faculty at CSU, Chico and "adapting" universities were surveyed regarding the effectiveness of the CCC serial case as a teaching/learning tool. Nine faculty members at CSU, Chico have used the CCC case. Those instructors were asked to rank-order 15 pedagogical tools used in the managerial accounting course, based on their perception of the importance of each tool in enhancing student learning. The CCC case was ranked the third most effective tool by the CSU, Chico faculty. Individual homework assignments and the production simulations received the highest and next-highest rankings, respectively. It should be noted, however, that the majority of the homework assignments come from the serial case and that the production simulations are also part of the serial case. Hence, the serial case and its components received the highest rankings. Other tools and their rankings include the traditional textbook (14), videos (13), group assignments (7), use of unstructured problems (4/5 tie), and individual and group quizzes (4/5 tie).

TABLE 4
CCC Serial Assessment Data from Focus Groups
CSU, Chico

Overall Appraisals:

Fall 1993	—	Slightly Positive
Spring 1994	—	Positive
Fall 1994	—	Positive

Positive Comments:

- Helped to stick with one company so that learning could be devoted to the new concepts rather than case material dealing with a new company.
- Helped to tie everything together and make concepts easier to understand.
- The group liked the idea of always coming back to the same example.
- The serial case is a good inducement to do the homework because it would be used in a subsequent assignment.
- The group felt they learned more because they did not have to learn a new case scenario as well as new accounting concepts in each assignment.
- The case gave them confidence that they were really learning something because they could see that, as the case unfolded, they could solve problems they would not have been able to solve earlier in the course.

Negative Comments:

- The case got old after a while; it was boring after the first few times dealing with it.
- The case was not essential for learning; it didn't offer any benefits over other learning vehicles.
- If you didn't understand or do an earlier assignment involving the case, then it was harder to do later assignments.

In 1997, ten faculty from the "adapting" schools completed an anonymous questionnaire that included the question: "In your experience, has the serial CCC case been an effective learning tool for the students?" Respondents answered using a five-point scale, with 1 being a strong no and 5 being a strong yes. The average score on the question was 4.4, with six of the ten selecting a score of 5. On the question that asked the instructors to indicate the most positive aspects of the case, some representative answers were "teaching in context of industry," "real life," and "viewing the changes and impact from traditional to JIT." Negative comments included "too complex in the way it was laid out," and "students find it tough to locate [information] needed in earlier cases."

Experience of an Adapting University

The intent of the second FIPSE grant received by CSU, Chico was to disseminate the reengineered curriculum to other "adapting" universities. SMU became one of the adapting partners in Fall 1995. Since the CCC serial case applies to the second semester of Introductory Accounting, their experience did not begin until Spring 1996.

The two SMU faculty assigned to teach the second course received training from CSU, Chico faculty and participated in the CCC manufacturing simulation at a conference conducted in January 1996. The SMU faculty received texts, instructor manuals, and simulation materials in time to properly prepare for their Spring semester. Both faculty members had taught the first semester of Chico's reengineered Introduction to Accounting course and were familiar and somewhat experienced with the "user-decision" orientation of the new curriculum. The SMU course format followed Chico's with very little variation. Some scheduling and assignment problems arose due to fewer class days at SMU, but instructors were able to cover all material and assignments.

SMU faculty evaluated student reaction using the same exit questionnaire employed at CSU, Chico. SMU did not conduct focus groups because of small class size and lack of faculty experience with this technique, nor did they collect faculty survey information.

As shown in Table 3, student responses to exit questionnaire items on the CCC case at SMU were positive and similar to those at CSU, Chico, with an average score of 4.26. Five students were asked to explain the reasons for their responses. One negative comment appears to be the result of the "carry-forward" problem mentioned above. Two of the students with positive responses, however, seemed to realize how each case assignment brought forward relevant information from prior assignments. In summary, data in Table 3 indicate that student reactions to the serial case are not only positive, but also consistent, over time at two universities with different cultural environments.[10]

SUMMARY

Faculty experience with the CCC serial case indicates that it can be a powerful pedagogical tool for dealing with business-decision problems and related accounting information. The

[10] The student body at SMU is approximately 62 percent Hispanic. The cultural makeup of CSU, Chico is about 15 percent Hispanic, 10 percent Oriental, and 65 percent Caucasian.

CCC serial case provides a rich context that more closely approximates real-world settings. Each iteration of the serial case provides an opportunity to learn and improve through time. As well, each iteration provides an opportunity to explore relationships among different business activities that take place over time. Students and faculty generally react positively to the serial case, which has become the centerpiece of the new managerial accounting course at CSU, Chico and SMU.

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