

Volume 12, Number 2

ISSN 1078-4950

JOURNAL OF THE INTERNATIONAL ACADEMY FOR CASE STUDIES

An official Journal of the

International Academy for Case Studies, Inc. and the Allied Academies, Inc.

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Editorial and Academy Information
are published on the Allied Academies' web page
www.alliedacademies.org

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Whitney Press, Inc.

*Printed by Whitney Press, Inc.
PO Box 1064, Cullowhee, NC 28723
www.whitneypress.com*

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The *Journal of the International Academy for Case Studies* is published by the Allied Academies, PO Box 2689, 145 Travis Road, Cullowhee, NC 28723, (828) 293-9151, FAX (828) 293-9407. Those interested in subscribing to the *Journal*, advertising in the *Journal*, submitting manuscripts to the *Journal*, or otherwise communicating with the *Journal*, should contact the Executive Director at info@alliedacademies.org.

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LETTER FROM THE EDITOR

Welcome to the *Journal of the International Academy for Case Studies, Special Instructors' Edition*. The International Academy for Case Studies is an affiliate of the Allied Academies, Inc., a non profit association of scholars whose purpose is to encourage and support the advancement and exchange of knowledge, understanding and teaching throughout the world. The purpose of the IACS is to encourage the development and use of cases and the case method of teaching throughout higher education. The *JACS* is a principal vehicle for achieving the objectives of both organizations. The editorial mission of this journal is to publish cases in a wide variety of disciplines which are of educational, pedagogic, and practical value to educators.

The Instructors' Notes contained in this volume have been double blind refereed with their corresponding cases. Each case for which there is an Instructors' Note contained herein has been previously published in an issue of the *Journal of the International Academy for Case Studies*. Each case was required to have a complete teaching note before consideration. The acceptance rate for manuscripts in this issue, 25%, conforms to our editorial policies. This publication also conforms to the AACSB requirements to publish case notes which are considered by that body to be of more academic value than the case itself.

If any reader is interested in obtaining a case, an instructor's note, permission to publish, or any other information about a case, the reader should correspond directly with the author(s) of the case.

The Academy intends to foster a supportive, mentoring effort on the part of the referees which will result in encouraging and supporting writers. We welcome different viewpoints because in differences we find learning; in differences we develop understanding; in differences we gain knowledge and in differences we develop the discipline into a more comprehensive, less esoteric, and dynamic metier.

The Editorial Policy, background and history of the organization, and calls for conferences are published on our web site. In addition, we keep the web site updated with the latest activities of the organization. Please visit our site and know that we welcome hearing from you at any time.

Inge Nickerson, Barry University
Charles Rarick, Barry University

CASE NOTES

SURVEY RESEARCH: QUESTION WORDING AND DESIGN

Charlotte A. Allen., Stephen F. Austin State University

CASE DESCRIPTION

The primary subject matter of this case concerns survey research. Secondary issues include questionnaire design, research objectives, bias, and ethical considerations in marketing research. This case has a difficulty level of three (appropriate for junior level) to four (appropriate for senior level). This case is designed to be taught in one class hour and is expected to require no outside preparation by students.

CASE SYNOPSIS

Do you need a case on marketing research, but do not need anything to do with statistics? Do you want an interactive case that will generate a lot of discussion? Survey Research: Question Wording and Design is the case for you. It is designed to be used in a marketing research section of a Principles of Marketing class or in a Marketing Research class itself. This case follows the career of Ann Horton, the new Director of Marketing Research at a large metropolitan hospital. Ms. Horton is presented with a finished customer satisfaction survey by William Whedon, who is in charge of Public Relations. He has to have her approval to administer the survey and is impatient to find out the results of the survey to include in a new marketing brochure for the hospital. Should Ms. Horton approve the survey or not? This case deals with bias in survey research that can occur when questionnaires are designed. How does one find the bias in how surveys are worded or presented? This case will allow students to critique the proposed survey and try to spot any biases that may occur in the survey or how the survey is administered. There is also an interesting ethical question of what should Ms. Horton's actions be in this situation.

INSTRUCTORS' NOTES

Overview

Ann Horton was recently hired as Director of Marketing Research for a large, metropolitan hospital. The hospital is under new management and is interested in re-positioning itself in the market as having the best medical care in the area (there are four other hospitals in the area that are

in direct competition with Ms. Horton's hospital). She is excited about the new job since this is her first opportunity to be in charge of a research unit- she has worked in survey research and focus groups, mostly in the medical and services areas. Therefore, this new job is certainly a large leap for her career wise. As a new hire, she has been meeting with all of the other directors and the employees in her research unit. During her first week, she is introduced to William Whedon, the Director of Public Relations for the hospital. He welcomes her to the hospital and makes an appointment to come back and talk to her later in the week about some research he needs to have done.

Fast-forward to a week later and Ms. Horton has met with Mr. Whedon. She is looking over the survey he presented her at the beginning of the meeting (See Table 1 for actual survey). It is a customer satisfaction survey to be handed out in the hospital to patients. Everyone receiving care at the hospital would receive a paper copy of the survey. The survey time period would run one full week and Mr. Whedon is anxious to administer the survey and collect data: "We could then use the results in our new marketing brochure- it would be good pr for us". Mr. Whedon spent quite a bit of time discussing the printing deadline for the brochure and before he left he told Ms. Horton that Mr. Paris, her predecessor, had "unofficially approved" the existing survey. Mr. Paris had left the organization to go to work in another city, but had left detailed notes and examples of previous research done at the hospital. Most of the previous research was conducted with in-depth interviews and focus groups. The results of focus groups and interviews were generally positive with specific criticisms that were addressed by changes in rules or instructions to staff. However, the sample sizes used in previous research were too small and not representative enough to generalize to the whole consumer base. This survey would not only be the first organization-wide survey of their customers, but it would be used as a benchmark for future studies. Ms. Horton must approve any marketing research that is done at the hospital and, with this authority and responsibility in mind, begins to analyze the survey.

Assignment for Students

Put yourself in Ms. Horton's position. Answer the following questions concerning the case:
(1) Is the survey a good survey? (2) Are there any ethical considerations in the survey design?, and
(3) Should Ms. Horton use the existing survey?

| Table 1: Hospital Survey | | | | |
|---|-----------------------|---------------------------|----------------------|-----------------------|
| <u>Please fill in unit name:</u> | | | | |
| <u>Please rate your satisfaction with:</u> | | | | |
| | <u>Very Satisfied</u> | <u>Somewhat Satisfied</u> | <u>Not Satisfied</u> | <u>Not Applicable</u> |
| <u>Overall quality of care</u> | | | | |
| <u>Your nurses</u> | | | | |
| <u>Your doctors</u> | | | | |
| <u>Admission process</u> | | | | |
| <u>Cleanliness of room</u> | | | | |
| <u>Food delivered to room</u> | | | | |
| <u>Interaction with staff</u> | | | | |
| <u>Billing/Financial services</u> | | | | |
| <u>What did you like most about your stay?</u> | | | | |
| <u>What could we have done to improve your stay?</u> | | | | |
| <u>Are there any staff members you would like to recognize for outstanding care or service?</u> | | | | |
| <u>Thank you for filling out survey. Please return it to the person who gave it to you.</u> | | | | |

RECOMMENDATIONS FOR TEACHING APPROACHES

This case is designed so that it can be read and worked on in one class period; however, if the instructor wishes to the case could be handed out ahead of time for students to read and work on their answers to the questions before class time as well. This case could be used for group work or for students to do on an individual basis.

1. Is the survey a good survey?

The survey purports to measure customer satisfaction or how satisfied patients were with their treatment in the hospital. The survey seems to cover the overall list of areas that there could be problems with concerning satisfaction; however, there are areas of the survey which have some bias.

2. Are there any ethical considerations in the survey design?

First, the scale used in the survey (very satisfied, somewhat satisfied, not satisfied, not applicable) is biased toward a positive response. An example of a balanced scale would be: very satisfied, somewhat satisfied, somewhat dissatisfied, very dissatisfied, and not applicable. The scale could also include a neutral option as well. The positive bias is further seen with four lines given to respondents to write what they liked about the stay and only two lines given to respondents to write about what they disliked. The last question (Are there any staff members you would like to recognize for outstanding care or service?) is a yes or no question, but lines were given as if an explanation or names were expected to be written in the blank area. There are a few questions on the survey that some respondents may also have problems answering. First, some respondents may not know what “unit” they are in and may not have any opinion of billing and financial services at the time they leave the hospital. A true measure of customer satisfaction for billing and financial services could not be collected until after the patient receives the bill along with insurance information concerning payment. While it may seem logical to a marketing researcher to place a checkmark or other mark in the answer blank that corresponds with their opinion, there are no instructions to that effect with the survey. Also, respondents may feel pressured to write the name of the person who handed them the survey in the field for the last question (Are there any staff members you would like to recognize for outstanding care or service?) since the staff member would see what their opinions were of the hospital. The respondent may also feel pressured to have more positive comments since the survey is not completely anonymous. Lastly, most people who are leaving the hospital from receiving treatment are not in the best frame of mind nor are they probably feeling very well; the last thing they may want to do is fill out a survey. Not to mention the fact that if the patient has had eye surgery or a cast put on their writing hand, they may not be capable of filling out the survey. Finally, the word “car” in the last question should be replaced with the word “care” - a mistake that spell checking alone would not catch.

3. Should ms. Horton use the survey?

Mr. Whedon seems to be a great deal of hurry to find out the results of the survey to use in the brochure. After analyzing the survey, it is obvious why- the results will be positive based on how the survey is written. How should Ms. Horton deal with this? First, she needs to remember that the survey must be approved by her before it is used. Obviously she can make recommendations as to what needs to be changed in the survey. There are possible political issues that Ms. Horton may need to deal with as well. It may be common knowledge that Mr. Paris had “unofficially” approved the survey and many may wonder as

to why she did not immediately approve it herself. There are many interesting subjects that can be addressed in regard to the ethical considerations for this case and students should be encouraged to discuss what their beliefs are and why they believe in such a manner.

If Ms. Horton does use the existing survey as is, she is doing so with the knowledge that the results will be skewed toward a positive view of the hospital and will not be accurate or reliable. This is in direct violation of the ethical guidelines for the marketing research profession. Also, if others in the hospital know that she had made this kind of ethical compromise now, they may expect the same treatment in the future. Since Mr. Paris may have “unofficially approved” the survey, it is possible that this kind of behavior is already part of the organization culture. Since most of previous research done by her predecessor (Mr. Paris) was through focus groups and interviews, there is very little information available to Ms. Horton that she could use to compare the existing survey to previous surveys.

If Ms. Horton does not use the existing survey as is and alters the survey to meet basic research guidelines, she may come into conflict with Mr. Whedon (and any others who needed the survey results to be positive). Hospitals and hospital administrations are under a great deal of pressure to give the impression that they are continually improving customer service. This hospital is trying to improve its image and is looking for any and all alternatives to help it make its case for excellent customer service. It is not known at this time whether a re-designed survey would give positive or negative results for the hospital; however, it would be an accurate view of what the patients (customers) think of the hospital. Word-of-mouth is very important in medical situations and, if there is already negative word-of-mouth in the community about the hospital, positive results written up in a brochure will not sway anyone’s opinion to be more optimistic about the service at the hospital. Furthermore, it is just basically unprofessional and quite sloppy to have misspellings on a survey.

THE UTAH SUMMER GAMES MARKETING RESEARCH PROJECT

Wayne A. Roberts, Jr., Southern Utah University
Emmett Steed, Southern Utah University

CASE DESCRIPTION

The primary subject matter of this case concerns the development, implementation, and analysis of a real market research project. Secondary issues examined include the link between research objectives and questionnaire development, sampling and non-sampling error, and practical problems and issues that affect marketing research projects. The case has a difficulty level of four. The case is designed to be taught in one to two class hours, and is expected to require 2 to 3 hours of outside preparation by students.

CASE SYNOPSIS

In 2004 the new director of the Utah Summer Games, an athletic event modeled after the Olympics that draws almost 7500 athletes, is concerned about the lack of any data other than anecdotes and annual registrations. No one was sure how satisfied athletes and their families are with the athletic events, the opening and closing ceremonies, and the products, services and environment of Cedar City. They also do not know how people learn about the events. The case depicts the planning, implementation, and some results of a marketing research project developed to measure satisfaction levels regarding the community and the opening ceremonies, and to assess what other activities participants do in conjunction with the games. Manageable in scope, the case illustrates marketing research steps, has some shortcomings for students to identify, and has enough results to permit them to reach some tentative conclusions. The case is simple enough to be used in a marketing principles course. Its value is probably greatest in a marketing research course, where it can also be used as an illustrative project in the beginning, and referred to throughout the course as sampling and non-sampling error, questionnaire development, and data analysis topics arise. It could also be used as a model for semester-long student projects.

INSTRUCTORS' NOTES

RECOMMENDATIONS FOR TEACHING APPROACHES

This case can be used to illustrate the steps involved in a typical marketing research project. The basic steps as presented in any marketing principles or marketing research text should be evident in this case. As such, it can be used in a basic marketing principles class, or in the introductory portion of a marketing research course. Further, the decisions made at each step of the process can be discussed and critiqued.

A nice feature of this case is that simple frequency distributions are sufficient to meet the research objectives as presented in the case. Students with a little more training in statistics can use data to generate confidence interval estimates and to test hypotheses regarding the equality of means. In a marketing research class the instructor can refer to the case during the latter part of the class to illustrate data analysis techniques.

DISCUSSION QUESTIONS AND ANSWERS

1. What other specific research objectives could have been pursued? Why do you think they weren't chosen?

The intent of this question is to get students to generate research questions that could have been chosen. There are really a very large number of possibilities, but some specific ones mentioned in the case are as follows:

- a. Given that the whole reason for sponsoring the games was to increase enrollment at Southern Utah University (SUU), an obvious objective would be to assess the impact of the Utah Summer Games (USG) on SUU enrollment. The tough part is to figure out a way to measure this. Clearly, administering a questionnaire to USG participants or to SUU students would not be enough. If students bring this up discussing possible ways of measuring the impact can be treated, but designing such research goes beyond the scope of this particular case. A reason for not pursuing such a study is that USG officials are not responsible for SUU enrollments.
- b. Determine how, where, and when participants learn about the Utah Summer Games. To what extent are word of mouth, publicity, advertising, and the Web reaching participants? Since the enrollments were strong, it was felt that pursuing this research objective would not be as useful as evaluating opening ceremonies.
- c. Measure the extent that athletes around the state know about the USGs. Are potential participants being missed in the communications programs? This would

require a different type of study. Rather than surveying USG participants, it would have required finding and surveying athletes around Utah.

- d. What is the economic impact of the USGs on the local economy? It would be possible to sample participants about their expenditures, the number of days spent in Cedar City, etc. This would have been a project in and of itself, and would not have helped the USGs directly. Note that the questionnaire (and objective 4) skirts this issue. It might also be possible to estimate the impact in other ways, such as by reviewing sales tax receipts, surveying local businesses about their perceptions regarding USG participant expenditures, or by measuring the change of expenditure levels through records of businesses.
- e. How satisfied are sponsors with the USGs? There is no indication that those associated with the USG know much about the sponsors' expectations, how satisfied they are, whether the price of sponsorship is too high or low, etc. They are provided a packet which has photos and other information that documents the exposure they get, but that is it. This study would be totally different than what was pursued, and could be done after the summer games. A variation on this would be to measure awareness of USG participants of USG sponsors. Measuring satisfaction with the USG opening ceremonies would help the director with regard to the most expensive single event in the summer games, and the other chosen objectives were believed to be achievable and useful.

2. The researchers did not do any real exploratory, or qualitative, research prior to designing their research or their questionnaire. What might they have missed by NOT conducting in-depth interviews and focus groups? What are the dangers of skipping this step?

The biggest danger of not doing any qualitative research is that the research might focus on issues that miss the mark from the standpoint of respondents. In essence, they may ask the wrong questions. For example, the questionnaire asked about the specific acts and events at the opening ceremonies. It might be that other issues are more important, such as the timing of the ceremonies. The opening ceremonies run until about 11:00 p.m., and the soccer fields are filled with participants early the next morning. This might be a major concern. Safety of young athletes might be another issue. If there are issues with the games themselves, such as the refereeing, the facilities, or the locations, no one will know.

- 3. The chosen method for collecting data was to drop off and pick up the questionnaires at competitive events following opening ceremonies. What other methods could have been used, and what are the pros and cons of each method? Was the sampling method appropriate for achieving the objectives of the study?**

This question can be used to generate discussion of various alternative ways of sampling. Starting with the last question first, a big shortcoming with the method employed is that the director of the USG could not learn how satisfied all types of opening ceremony attendees were with the ceremonies. By surveying observers at the competitive events, those who did not have an interest in the competitive events would be largely unrepresented. Parents, who largely were the respondents, may have liked certain aspects because their kids were involved, e.g., the parade of athletes, or because they believed the events would be enjoyed by their children. Note that this is an issue with many of the possible methods discussed below.

Other methods that could have been employed, and a brief listing of their pros and cons, are as follows:

| Method | Pros | Cons |
|---|---|--|
| Mail survey | <p>Respondents could take time to respond</p> <p>Questionnaire could be longer and address more issues</p> <p>Sample selection could be more controlled and broader</p> <p>Attendees with no USG interest could be contacted by using information collected through drawing forms filled out at the opening ceremonies.</p> | <p>Time</p> <p>Nonresponse</p> <p>Cost</p> <p>Teams registered, not individuals, in many cases, and athlete lists may not be complete enough</p> |
| Email | <p>Same as above</p> <p>Cost minimal</p> | <p>Availability of active, relevant email addresses an issue</p> <p>Not all people have active email addresses</p> <p>Team registration problem (discussed above)</p> <p>Time</p> <p>Nonresponse (?)</p> |
| Telephone | <p>Response rate</p> <p>Questionnaire length</p> | <p>Timing issue (when would you conduct the telephone interview?)</p> <p>Cost, at least compared to drop-off and pick-up</p> |
| Drop-off at opening ceremonies with a return envelope | <p>Attendees with no interest in the USG could be sampled</p> <p>Questionnaire could be longer and address more issues</p> | <p>Nonresponse – could not send reminders</p> <p>USG participants that did not attend would be unrepresented.</p> <p>Response rate might be low, particularly among people from outside the area.</p> |

Other possibilities, with their pros and cons, may be generated by students. Since most marketing principles textbooks and marketing research textbooks have tables similar to the table above, these can be linked directly to this question.

4. Critique the questionnaire. The researchers did not do a pretest. What are the risks of skipping this crucial step, and how might it have helped in this particular case?

The questionnaire has some strong points and some shortcomings. This activity provides students a chance to see if the questionnaire will work with all respondents, and get the information needed in order to meet the study's objectives. The questionnaire can be evaluated by answering the following questions:

1. Will respondents...
 UNDERSTAND the question,
 be ABLE to answer, and
 be WILLING to answer?
2. Will the research team UNDERSTAND the response?
3. What questions relate to what study objectives, and do all questions have a purpose?
4. Are there any problems with formatting, instructions, or layout?

Using the proposed framework, an obvious problem concerns question 4, which asks respondents to indicate how much the minor in their care enjoyed the various activities. While they may not know (a source of error that must be lived with), another issue is that many adults had more than one minor in their care. How should they respond? Another obvious problem, which was discovered after 176 questionnaires had been collected, is that the "go to" instructions in question 4 inadvertently asked respondents to skip over question 5. The error was corrected before the rest of the questionnaires were distributed.

The layout is, to a certain extent, consistent with Dillman's Total Design Method (Dillman, 1978; Salant and Dillman, 1994), and can be used to show how to use his method, if desired. The questionnaire is precoded, although not in the best fashion, and this can be discussed, as well. Part of the layout, particularly at the end, is potentially confusing to respondents and could result in errors.

Many of the problems and potential problems with the questionnaire could have been corrected with an adequate pretest.

5. What additional analyses of the data would you recommend?

At the very least it would be desirable to have a frequency distribution of responses to all the questions.

It might be informative to do a cross tabulation analysis of satisfaction with the opening ceremony events against the response to question 3 (regarding the attendance by a minor under their care), to see if satisfaction with the ceremonies is independent of the

attendance by a minor under the respondent's care. It may be that those that had no athletes in the parade of athletes may not have found it very interesting, and this may also apply to the Utah Jazz Bear or other events.

Another possible question to be explored is whether responses to question 5 (regarding raising or lowering opening ceremony prices and quality) depends upon whether they attended with a young athlete (question 3). This could be done using a chi-square test.

Still another question is whether satisfaction with lodging options and prices are dependent on lodging arrangements. Those staying home, or with friends or relatives, likely feel different about Cedar City lodging options than those who had to camp or rent a motel room.

Other possible analyses could be suggested by students, of course. A key point that can be raised concerns the usefulness of the questions asked: If responses to a question on the survey instrument is not linked to a research objective, and therefore will not be analyzed, then why ask the question?

6. Evaluate the cross-tabulations and the associated chi-square tests. What do the significance level numbers mean?

This question is intended to provide students an opportunity to interpret the results of a chi-square test. The null hypothesis in the first cross tabulation, depicted in table 20, is that satisfaction with activities between events is independent of lodging arrangements. The concern is that people who do not stay with relatives or friends or home while attending the USGs may have less to do to occupy their time between events. The significance level of .255 indicates that if the null hypothesis is true then the probability of obtaining a chi-square of 2.732 or greater, given the sample sizes, is equal to 25.5%. Therefore we cannot reject the null hypothesis. In other words, we cannot reject the null hypothesis that satisfaction with activities between events is independent of lodging arrangements. One way of interpreting this is that knowing the lodging choice of a participant would not influence the probability they are dissatisfied or satisfied with activities between events.

The null hypothesis associated with the second cross tabulation, depicted in table 21, is that overall satisfaction with the USGs is independent of lodging arrangements. In this instance the significance level is .099, which is interpreted as follows: If the null hypothesis is true, then the probability of obtaining a chi-square value of 4.627 or greater, given the sample sizes, is 9.9%. Using an alpha level of 10% we would reject the null hypothesis. Using an alpha level less than 9.9 would result in our accepting, or failing to reject, the null hypothesis. If we reject the null hypothesis we need to determine why it was rejected. It appears that those who stayed at home or with friends or relatives tended to be more dissatisfied. If the numbers were greater it would be possible to explore this in more detail.

However, even in this 3X2 table there are cells with expected values less than 5, and this is a problem when interpreting chi-square values.

7. Construct the 95% confidence interval for the overall satisfaction level with the Utah Summer Games. Interpret this number. Is there any non-sampling source of error with which you would be concerned?

Table 23 provides the data necessary for constructing confidence intervals and conducting hypothesis tests, and can be used to the extent desired. Here the instructor can ask students whether the measurement scales used are ratio, interval, ordinal or nominal, and discuss the importance of this in conjunction with hypothesis testing and confidence interval testing.

The correct answer to this question is as follows:

$$4.31 \pm 1.96(.054) = 4.31 \pm .106, \text{ or } 4.20 \text{ to } 4.42$$

Interpreting this confidence interval, there is a 95% chance that the true mean is between 4.20 and 4.42. Note that this assumes that the sample is a simple random sample from the USG, which it isn't, or, alternatively, that the feelings of those who were sampled are the same as those who were not represented. Hence there IS non-sampling error. Among the many athletes that are not represented are baseball players, arm wrestlers, and distance runners. Even the satisfaction levels of soccer players at the conclusion of the tournament are not represented.

Another possible exercise is to have students conduct confidence intervals or hypothesis tests using proportions using the data in tables 2 through 19. For example, students may be asked to construct the 95% confidence interval of the true proportion of USG participants that are dissatisfied with lodging options in Cedar City, using the data from table 13. The mechanical answer is as follows:

$$.196 \pm 1.96(.03) = .196 \pm .056, \text{ or } 13.7\% \text{ to } 25.2\%$$

Again, the assumptions behind this confidence interval can be discussed, as can the problems of non-sampling error.

8. What conclusions can be reached, and what recommendations would you make?

To reinforce the link between research objectives and research, it is probably a good idea to discuss the results with regard to each research objective:

Objective 1: Determine how satisfied attendees are with various aspects of the opening ceremonies.

Conclusions: It is clear that the fireworks display was a hit with both adults and young athletes, at least if parent/guardian perceptions are accurate. This is evident from the frequency distributions and the sample means. The least successful act was the Black Hawk Band, but it is hard to argue that it was less than well received. One question raised by the USG director and marketing director concerned what type of music would be best received. This is something that could be tackled in a subsequent study.

Note again that the people who were sampled did not likely include many who did not have an athlete attending the opening ceremonies, and therefore it is not possible to assess how attendees, in general, feel about the various acts.

Objective 2: Determine if attendees would like to have opening ceremony prices and quality maintained, raised, or lowered.

Conclusions: Based on table 12 it is clear that the opening ceremonies should not have prices and quality reduced. Only 8.8% wanted prices decreased, while 31.1% wanted prices and quality increased. Maintaining the price and quality level was the preferred option for 60.1% of the respondents. Here is another opportunity to discuss non-sampling error. Selection bias could cause problems here. It is possible that if prices and quality were decreased more general community members might attend. At this point the planners don't know. However, to the extent that the opening ceremonies should be designed to meet the needs and wants of participants and their families, this may not be an issue.

Objective 3: Determine satisfaction levels of USG participants with their Cedar City experience.

Conclusions: Based on the frequency distribution tables it appears that lodging options and prices are where there may be a problem. Note that 19.6% of those that responded to this question were dissatisfied with lodging options, and 20.2% were dissatisfied with lodging prices. With regard to dissatisfaction with lodging options it is not clear what has led to respondent dissatisfaction. It could be the difficulty of obtaining a reservation, with the quality of the facilities, or something else. This might be a fruitful area for someone to pursue.

Following lodging, the next area of potential concern, based on frequency distributions, concerns satisfaction levels with activities between events. Dissatisfaction was registered by 11.1% of the respondents, and only 7.6% were very satisfied. It is worth

pointing out that when sample means are compared, the sample mean for activities between events is the lowest in table 23. A question that can be raised in regard to this is, Are the differences in means statistically significant?

Results to the question regarding overall satisfaction with the summer games suggest that the games are successful: More than 92% are satisfied or very satisfied, and only 3.7% are dissatisfied or very dissatisfied. It is worth mentioning that as with the responses to all the questions asked, we do not really have a standard for comparison. Note that the sample mean to the overall question is not overly high when compared to other means in table 23. The fact that fewer people are very satisfied as compared to satisfied, and that more respondents are very dissatisfied than simply dissatisfied implies that there may be some areas for improvement. Tackling this issue would seem to require some in-depth and focus group interviews.

Objective 4: Determine what other activities visitors participated in while at the USGs.

Conclusions: Table 22 reveals that not many people tour the SUU campus, although this may be a function of the ambiguity of question 6. Many respondents may have not indicated they toured the campus because they did not have an officially guided tour: “walking around the campus” may not have been interpreted by many respondents as a tour. The big activities were shopping and visiting with friends and relatives in the local area.

With regard to recommendations these will likely vary considerably. However, the results do suggest the opportunity to gain useful knowledge through follow-up research.

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THE ORANGE PEEL SOCIAL AID AND PLEASURE CLUB

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CASE DESCRIPTION

This case primarily targets students enrolled in management science/quantitative business methods courses. Its intent is two-fold: 1) provide students the opportunity to decide how a real-world entertainment club should assign its bartenders to work stations at its wet bar in order to realize the bar's revenue potential and 2) require students to construct a business context in which to make such a decision.

The bar has six work stations and the expected revenue each of the club's eight bartenders generates varies from work station to work station. Doubling up bartenders at selected work stations does occur. The complexity of this case's assignment requirements and restrictions go beyond what the "assignment" algorithms found in most student software packages can accommodate. Linear programming is not so limited and thus, is this case's methodology of choice.

This case is valuable to students for several reasons. Constructing the business context in which they are to make their decisions, students add a transcendent layer of analysis to their task that can give them valuable first-hand practice at defining problems and developing an appreciation for the relevance of the methods they can employ solving such problems. Furthermore, this case's assignment restrictions and requirements reflect the club's operational reality and are therefore, quite realistic, practical, and worth knowing how to program. Programming many of these assignment restrictions and requirements will also challenge students well beyond what they customarily encounter in most linear programming problems. It will also require them to use their intuition in at least one assignment situation the club faces that should lead them to conclude that the application of a decision-support methodology such as linear programming is not particularly necessary. Finally, students can transfer lessons learned from this case to real-world business settings they will eventually face.

The authors designed this case for use by MBA and upper class undergraduate students to be taught in 2 class hours, with 3-4 hours of student preparation time. The instructor can modify this case for more complexity per suggestions found in the "Instructor's Note."

CASE SYNOPSIS

The Orange Peel Social Aid and Pleasure Club is located in downtown Asheville, NC and is the premiere music venue in Western North Carolina. It books music groups from all over the United States and the world and has the reputation of having the best beer selection in town. Patrons travel to the Orange Peel from all over the southeast region of the United States to enjoy their favorite musicians live. The club opened in fall 2002 and has become the most popular night spot in Asheville since that time. The Orange Peel's goal is to provide its customers the best convivial social atmosphere and "pop" music in a 100 mile radius of Asheville.

The club's wet bar is an important revenue center. Opportunities occur for the bar to generate the most revenue on nights when the club has sold-out shows. The club manager has eight bartenders (six of whom are part-time) she can assign to six work stations for such occasions. The revenue performances of each bartender vary from one work station to the next and vary among bartenders for a given work station. Therefore, making assignments that will realize the bar's revenue potential is somewhat complex and therefore, will require some thought by the club manager.

INSTRUCTORS' NOTE

Recommendations for Teaching Approaches

This case requires students to identify, address and organize a range of operations management issues the club manager would most likely put into her report that she intends to submit to the club's owners. Based on her assessment, a logical and useful way to organize these issues might be first to provide the club's owners her critique of the bar's operations (Part 1). Then, she could make remedial recommendations for improving the bar's performance (Part 2). Finally, she would need to present to the club's owners rigorously "worked out" examples that implement these recommendations (Part 3). The authors suggest organizing the content of her report in this way to provide students a conceptual framework to guide and assist them in solving this case.

This case is primarily about applications of quantitative methods to a particular kind of management problem (Part 3). This case, however, is more than an elaborated management science problem. Identifying and devising recommendations to resolve the management issues associated with the Parts 1 and 2 should establish a business context for students in which applying quantitative methods to solve a particular management problem is logically appropriate. The instructor should, therefore, challenge the students' imaginations to establish this context. One might expect to find the following list of "points" and their associated commentaries in the club manager's report. Nevertheless, the framework of this teaching note is rather open and the instructor has substantial latitude deciding how students shall deal with this case, to what depth and complexity they are to

go, and in what format they are to put their solutions. It also includes suggested focus questions and commentary that may prove helpful to the instructor.

Part 1—Critique of the Club’s Bar Operations

1. Given the data the club manager has developed assigning bartenders to different work stations, what should she conclude?

Following her exercise assigning bartenders to different work stations, the club manager finds that bartender work station assignments do matter when it comes to putting the club in a position to realize the bar’s revenue potential.

2. Given that bar assignments are important, why is the bar’s revenue often less than anticipated?

The club manager discovers to her dismay that the bartenders have been participating in an informal work station assignment rotation system of their own devising in lieu of management directly designating such assignments. The two bar managers, Andrew and Lori, for the most part trade off working at WS1 and WS2 and the remaining bartenders rotate through the six work stations each in turn doubling up with Andrew and Lori at WS1 and WS2.

3. Is this a problem for the club? If yes, why?

The club’s management has failed to adequately plan, monitor, and control the bartenders’ work station assignments. Consequently, the bartenders have exercised a great deal of discretion in devising their own system for making these assignments. Several factors taken together could explain why such a system came into being. First of all, the bartenders work together in close quarters, having to accommodate and get along with each other. To the extent this is true they could well come to see that looking out for each other’s interests is looking out for one’s own as well. So they have probably developed a sense of being a “team” that is fine but without supervision it can lead to a perverse end. Second, they no doubt know that some work stations generate more revenue than others and along with that *more* tips. Thus, rotating the six part-time bartenders thru the six work stations provides each of them the opportunity to work some stations at which the higher volume of beverage sales should provide each of them more tips than at other work stations regardless of their relative job skills. While this may be a nice accommodation for the bartenders it does not bode well for the club.

- 4. How might this practice explain a number of the performance issues the new club manager has observed?**

First, the rotation system may only periodically yield an optimal set of bartender work station assignments. Second, the rotation system insures that a female bartender will be at WS5 from time to time who, on her own, is generally unable to change out empty beer kegs on tap for full heavy ones and must recruit additional help from other work stations thus, disrupting bar operations.

Part 2—Remedial Recommendations

- 5. Given the critique Part 1 provides, the club manager should make what sort of recommendations?**

The club manager can argue that since bartender work station assignments do matter and management has failed to plan, monitor, and control this important part of the bar's operations, club management needs to take charge of making those assignments to put the club in position to realize the bar's revenue potential. This will abolish the informal rotation system the bartenders devised for themselves. She could explain that she is content for the moment to see if she can improve the effectiveness of the bar's management through making informed work station assignments without resorting to any physical modifications in the bar itself.

- 6. Why might she be able to get away saying this?**

First, making informed work station assignments is cheaper and less disruptive than resorting to physical modifications. It is therefore, prudent to determine if making such assignments leads to satisfactory results before embarking on something more drastic. Second, the case provides little specific information on bar redesign, beverage inventory space and placement, and specific bartender travel. So students are limited to determining the set of optimal work station assignments alone as the basis for improving the bar's operation.

- 7. Are there provisions the club manager might wish to consider as she takes control of the bar's work station assignments?**

First, Andrew and Lori are the bar managers and the club's most experienced bartenders. Therefore, the club manager would probably want to assign them exclusively to WS1 and WS2. These work stations are where the greatest flow of customer traffic occurs requiring

the most experienced bartenders and it is from these two vantage points that those in charge of coordinating the bar's operations can most likely best see what they need to do if they are to effectively manage it. However, the club manager would probably not want the two bar managers to be free to choose which of the two work stations (WS1 and WS2) each works nor to work the same work station together.

Second, it stands to reason that when only a female bartender is at WS5, one of the male bartenders at another work station usually must assist her in changing out empty kegs on tap for full ones because the full kegs are heavy, weighing up to 80 lbs. Doing this, most likely, impairs bar service at two work stations for a time and could be what disrupts the bar's operation, partially stalling its activity.

8. How could she solve this dilemma?

The club manager would probably think it wise to assign Sterling, Chad or Mike (at least one of the three) permanently to WS5 in the hope of improving the bar's operations.

(NOTE: If the club manager compiled Table One with Sterling, Chad, or Mike already at WS5 permanently, then there exists within the table a set of work station assignments that will yield an estimate of the bar's revenue potential. Presumably, however, the club manager compiled Table One before having yet assigned Sterling, Chad, or Mike to WS5 permanently. There would exist then a set of work station assignments within the table that should yield a lower estimate of the bar's revenue potential. This suggests that if the club manager should use that set of assignments as the basis for her assignment decisions, the bar's performance will regularly exceed that estimate. Thus, it would be prudent for the club manager to validate her policy with respect to WS5 after she implements it by re-compiling the table with new data and re-computing assignments.)

Third, doubling up at work stations occurs. Based on diminishing marginal returns to scale, it has been an established part of the bar's operations policy that there can be no more than two bartenders assigned to any one work station and cash register. The club manager would probably see no reason to change that policy.

Fourth, Sterling, Gavra, Chad, Mike, Jessica, and Leslie are part time.

9. What recommendations would one expect the club manager to make to the club's owners about how she would employ them?

The club manager will probably recommend that she staff the bar with all her bartenders with sold-out shows and staff the bar only with the club's most efficient bartenders as needed for less-than sold-out shows.

Fifth, the club manager needs to devise an efficient and rigorous method for determining the appropriate set of work station assignments for a given show night that she can present to the club's owners. This means that she should have such a method in place for dealing with both sold-out and less than sold-out shows. She should be able to apply this method frequently with convenience and ease since it would be useful to the club if she periodically, or as she deems necessary, recompiles Table One and updates her decisions about work station assignments. This would of course oblige her to continually experiment with sets of assignments and not let the one her method initially identifies be "set in stone" and do all the thinking for her. This also means that the set of assignments she initially settles on she could use as a benchmark by which she can evaluate later decisions.

Part 3—Implementation

Students need to effectively answer several questions that arise if they are to determine what the club manager should present to the club's owners as her method for implementing some of the recommendations she has made regarding work station assignments.

10. Should she try to realize the revenue potential of each employee or try to realize the revenue potential of the group?

The answer to this question is a somewhat elementary one. However, concepts and principles can "slip through the cracks" for us all, so to speak. So it is well to insure that every student clearly understands what the club manager must do. An inspection of Table One readily discloses that the revenue potential of each employee cannot be realized given the club manager's assignment policy. Otherwise three of the eight bartenders would be at WS1 and the remaining five would be at WS2 which is clearly at odds with assigning no more than two bartenders to a work station at one time. Consequently, the club manager should seek to realize the group's potential revenue taken as a whole. This means that the club manager may assign a bartender to a work station and cash register where the realization of his or her expected revenue is less than at another work station. However, the gain achieved for the entire group of bartenders as a result of their collective assignments can more than offset such a difference. So the club manager may make some suboptimal decisions for some of her bartenders individually while making the optimal assignment

decision for the group. This is an important decision-making principle which some students sometimes forget.

11. What is the point of the case scrupulously referring to realizing the revenue potential of the bar and not maximizing its revenue?

It is important to note that the work station revenues reported in Table One each bartender generates are technically, expected values. They are estimates and merely suggest in a rough way, how well each bartender performs relative to the others. In a world that is uncertain and in so many ways quite non-linear, the bar's revenue potential amounts to something that one does not know in the same way one does not know a population regression function. Nevertheless, by using the revenue figures reported in Table One, the club manager can attempt to position the club to realize its bar revenue potential whatever it might be even if based only on the comparative performances of its bartenders.

12. What quantitative method should the club manager select to solve the assignment problems confronting her?

Most management science student-grade software packages will contain solution methods that appear quite capable of calculating a solution for this problem. One such solution method that may come to mind is the "assignment" algorithm. This algorithm efficiently optimizes the assignment of personnel to various work stations where one and only one assignee is given one and only one assignment. Can one appropriately apply such an algorithm in order to support the club manager's assignment decision? Searching for the answer to such a question should prompt discussion from students that leads them to practical and critical insights both on the use of various quantitative methods and implementing the club manager's recommendations.

Consider the following two applications of the assignment algorithm. Both are the sort of possible applications one would expect to see although the second is the more imaginative of the two. Given that there are more assignees (eight) than assignments (six), the assignment model of the problem is unbalanced. Its solution therefore, must leave two bartenders unassigned. Andrew and Lori (the two bar managers) can be restricted to WS1 and WS2 by not entering into the model their revenues at the other work stations. Running the problem yields the following results: $Z = 7,689$ (USD) with the following assignments, Leslie (WS1), Andrew (WS2), Sterling (WS3), Chad (WS4), Mike (WS5), Gavra (WS6). Lori (a bar manager who is supposed to be at WS1 or WS2 and Jessica are without an assignment.

The possibility of doubling up assignees at a work station and assigning all of them is possible if one doubles the work stations. Let WS1 become WS1a and WS1b and the same for the other work stations. Thus, if one assignee is at WS1a and another is at WS1b, WS1, in effect, has two assignees. However, the students may anticipate that the least productive work stations will have no assignees. Running the problem yields the following results: $Z = 10,982$ (USD) with the following assignments, Leslie and Sterling (WS1), Andrew and Lori (WS2), Mike and Chad (WS3), Jessica and Gavra (WS4), and WS5 and WS6 are without assignees.

The results of these two applications of the assignment algorithm should give rise to a question of two from the students. *How appropriate is the assignment algorithm when it comes to modeling the club manager's assignment policy and how well-conceived is that policy? Should the club double up its bartenders on four work stations and leave WS5 and WS6 empty?* The first application should appear to students to be not the least bit satisfactory. The club manager would have to leave one bar manager (Lori) along with Jessica unassigned and the potential revenue that she and Jessica could have generated unrealized. Furthermore, she would assign only one bar manager to WS1 or WS2 (Andrew at WS2). Clearly the algorithm fails to capture this aspect of the club's established assignment policy. Finally, although she would assign Mike to WS5 which is consistent with the club's new assignment policy, there is no compelling reason why that should be the case save that he generates enough revenue at that work station to put him there. Had the expected revenue for either Lori or Jessica at that work station been greater than Mike's but not as great as Sterling's or Chad's, the club manager would assign Lori or Jessica to that work station. She would "bench" Mike and clearly the algorithm would have failed to capture this aspect of the club manager's assignment policy.

Students should conclude that this first (unbalanced) application of the assignment algorithm cannot model the club manager's assignment policy adequately nor can it realize the bar's revenue potential given that policy.

The second model is more imaginative than the first and should illicit questions from the students. These questions should also provide the basis for critiquing the club manager's assignment policy as well as drawing conclusions about the adequacy of further attempts to effectively implement that policy with assignment algorithm models. The results this assignment algorithm model generates, indicates that both bar managers are assigned to WS2 and no one is assigned to WS5 or to WS6. These results clearly do not conform to the club manager's assignment policy. So in that regard, this application of the algorithm is inadequate. Also, it does not appear that further reformulation and elaboration of the

assignment algorithm will yield a model that is capable of generating results consistent with the club manager's assignment policy.

The results this second model generates do however, raise an interesting question that the instructor may want students to not ignore or overlook. Given the fact that the club manager must assign Andrew and Lori *only* to WS1 and/or WS2, the work station assignments this application identifies is no doubt optimal since the eight bartender assignments double up on four of the work stations leaving the remaining two work stations without assignees. *If Andrew's and Lori's assignments were less restricted would it be possible for the bar to generate more revenue by assigning them to other work stations?* Any restrictions one puts in place as part of an assignment policy risk being sub-optimizing. The club manager should, therefore, have compelling reasons supporting staffing requirements or restrictions she recommends or otherwise. It may be necessary to have Andrew and Lori at WS1 and WS2 or vice versa but the justification for doing so should be convincing—something along the line suggested earlier in this note.

The club manager intended to have Sterling, Chad, or Mike change out the empty beer kegs on tap for full ones when working WS5 in order for the bar to operate more efficiently. Their absence from this work station with the second (more imaginative) assignment model could degrade the efficiency of the bar's operations. Thus, it is possible that the revenue doubling up all eight bartenders at the first four work stations realizes might be disappointing without at least Sterling, Mike, or Chad at WS5. Whatever may be the case, it should be apparent to the students that even imaginatively designing models that employ the assignment algorithm cannot adequately capture the complexities of staffing the club's bar.

13. How should the club manager go about modeling the selected method?

The club manager's staffing assignment restrictions and requirements add sophistication and complexity beyond what textbook assignment algorithms can capture. However, this added sophistication and complexity more realistically depicts the assignment issues real world decision makers must sometimes face. Linear programming is not as limited as the assignment algorithm is in this regard. Therefore, the algorithm available in most student-grade software best suited to handle such complexities is linear programming.

The linear program that will provide an optimal solution for this assignment problem has 40 decision variables and 24 constraints. The constraint system consists of three sub-systems. The first subsystem consists of eight bartender constraints that insure that each bartender is

assigned to one and only one work station and cash register. The second subsystem consists of twelve work station/cash register constraints that make sure that each work station and cash register has at least one bartender assigned, but no more than two. The third subsystem consists of six inclusionary/exclusionary constraints. Two of these (inclusionary) constraints make sure that Sterling, Chad or Mike is at the work station at CR5. The remaining four (exclusionary) constraints insure that Andrew and Lori are at WS1 and WS2 but not to the same work station. This constraint subsystem makes this particular problem more interesting than the typical assignment problems textbooks provide. Constraining the assignments of selected assignees (bartenders and bar managers) as this case stipulates is a feature one does not find in typical case/textbook problems. Finally, this constraint subsystem reflects the kinds of accommodations a manager must often make in the real world of work. Thus, challenging students to correctly program such constraints should be productive.

The decision variables are as follows:

A1=Andrew on WS1, A2=Andrew on WS2, LO1=Lori on WS1, LO2=Lori on WS2, S1= Sterling on WS1, S2= Sterling on WS2, S3= Sterling on WS3, S4= Sterling on WS4, S5= Sterling on WS5, S6= Sterling on WS6, G1=Gavra on WS1, G2=Gavra on WS2, G3=Gavra on WS3, G4=Gavra on WS4, G5=Gavra on WS5, G6=Gavra on WS6, C1=Chad on WS1, C2=Chad on WS2, C3=Chad on WS3, C4=Chad on WS4, C5=Chad on WS5, C6=Chad on WS6, M1=Mike on WS1, M2=Mike on WS2, M3=Mike on WS3, M4=Mike on WS4, M5=Mike on WS5, M6=Mike on WS6, J1=Jessica on WS1, J2=Jessica on WS2, J3=Jessica on WS3, J4=Jessica on WS4, J5=Jessica on WS5, J6=Jessica on WS6, LE1=Leslie on WS1, LE2=Leslie on WS2, LE3=Leslie on WS3, LE4=Leslie on WS4, LE5=Leslie on WS5, LE6=Leslie on WS6

The *objective function* is:

$$\begin{aligned} Z_{\max} = & 1527(A1) + 1589(A2) + 1350(LO1) + 1387(LO2) + 1685(S1) + 1654(S2) + 1592(S3) + \\ & 1473(S4) + 1365(S5) + 542(S6) + 1106(G1) + 1068(G2) + 1058(G3) + 965(G4) + 952(G5) + \\ & 628(G6) + 1298(C1) + 1368(C2) + 1365(C3) + 1254(C4) + 1123(C5) + 485(C6) + 1459(M1) + \\ & 1387(M2) + 1369(M3) + 1152(M4) + 1158(M5) + 486(M6) + 1268(J1) + 1158(J2) + 1087(J3) + \\ & 1154(J4) + 1041(J5) + 368(J6) + 1468(LE1) + 1475(LE2) + 1368(LE3) + 1198(LE4) + \\ & 1024(LE5) + 472(LE6) \end{aligned}$$

The following **bartender** constraints make sure that each bartender is at one and only one cash register (two of these constraints, Andrew and Lori on CR1 and CR2, respectively are with the exclusionary constraints to facilitate one's grasp of the programming logic):

$$\begin{aligned} S1 + S2 + S3 + S4 + S5 + S6 &= 1 \\ G1 + G2 + G3 + G4 + G5 + G6 &= 1 \\ C1 + C2 + C3 + C4 + C5 + C6 &= 1 \\ M1 + M2 + M3 + M4 + M5 + M6 &= 1 \\ J1 + J2 + J3 + J4 + J5 + J6 &= 1 \\ LE1 + LE2 + LE3 + LE4 + LE5 + LE6 &= 1 \end{aligned}$$

The following **work station** constraints make sure that each work station has at least one bartender assigned to it but no more than 2:

$$\begin{aligned} A1 + LO1 + S1 + G1 + C1 + M1 + J1 + LE1 &\leq 2 \\ A2 + LO2 + S2 + G2 + C2 + M2 + J2 + LE2 &\leq 2 \\ S3 + G3 + C3 + M3 + J3 + LE3 &\leq 2 \\ S4 + G4 + C4 + M4 + J4 + LE4 &\leq 2 \\ S5 + G5 + C5 + M5 + J5 + LE5 &\leq 2 \\ S6 + G6 + C6 + M6 + J6 + LE6 &\leq 2 \\ A1 + LO1 + S1 + G1 + C1 + M1 + J1 + LE1 &\geq 1 \\ A2 + LO2 + S2 + G2 + C2 + M2 + J2 + LE2 &\geq 1 \\ S3 + G3 + C3 + M3 + J3 + LE3 &\geq 1 \\ S4 + G4 + C4 + M4 + J4 + LE4 &\geq 1 \\ S5 + G5 + C5 + M5 + J5 + LE5 &\geq 1 \\ S6 + G6 + C6 + M6 + J6 + LE6 &\geq 1 \end{aligned}$$

The following **inclusion/exclusion** constraints make sure that at least Sterling, Chad or Mike is at WS5 to the exclusion of any two other employees at that work station:

$$\begin{aligned} S5 + C5 + M5 &\leq 2 \\ S5 + C5 + M5 &\geq 1 \end{aligned}$$

Lastly, the following **inclusion/exclusion** constraints make sure that Andrew and Lori are only at WS1 and WS2 but not to the same work station:

$$\begin{aligned} A1 + A2 &= 1 \\ LO1 + LO2 &= 1 \\ A1 + LO1 &= 1 \\ A2 + LO2 &= 1 \end{aligned}$$

Running the problem in QM for Windows 2.1 yields the following assignments:

Andrew on WS2
Lori on WS1
Sterling on WS1
Gavra on WS6
Chad on WS3
Mike on WS5
Jessica on WS4
Leslie on WS2

Based on the expected revenues from Table One, these assignments position the club to realize sales of 10,404 (USD).

The instructor should make sure that students also review the sensitivity analysis that is a part of the program's output, specifically the coefficients in the objective function. These coefficients are of course, *expected values*. Thus, there are probability distributions associated with these coefficients despite the fact that linear programming assumes a world of certainty. Sensitivity analysis can weaken that assumption which is desirable. The club manager anticipates that the revenue her bartenders generate will vary from the revenue figures upon which she relies to make her assignments. However, as long as they vary individually within a range the sensitivity analysis reports, the assignments she makes will remain optimal even though the bar's revenue will vary from what she would otherwise expect. The sensitivity analysis of the objective function's coefficients follows where the values to the left are the lower bound values, the center values are the coefficients in the objective function, and the values to the right are the upper bound values:

| | |
|-------------------|----------------------------|
| Andrew on WS2 : | $1564 \leq 1589 \leq M$ |
| Lori on WS1 : | $1325 \leq 1350 \leq 1527$ |
| Sterling on WS1 : | $1666 \leq 1685 \leq 1692$ |
| Gavra on WS6 : | $296 \leq 628 \leq 1269$ |
| Chad on WS3 : | $1350 \leq 1365 \leq 1368$ |
| Mike on WS5 : | $1142 \leq 1158 \leq M$ |
| Jessica on WS4 : | $1064 \leq 1154 \leq 1157$ |
| Leslie on WS2 : | $1468 \leq 1475 \leq M$ |

While the distributional properties of the bartender's respective revenues are not readily available, the students should be able make a number of reasonable conjectures. The probability of having to reassign bartenders in order to optimize bar revenue because of Gavra's revenue at WS6 falling outside the range reported is most likely very low since the

range is quite wide, relatively speaking. The probability of having to reassign bartenders in order to optimize bar revenue because Andrew's, Mike's, and Leslie's revenues at WS2, WS5, and WS2, respectively exceed what is expected is zero (0) since there is no upper bound on their respective ranges. For Lori at WS1, her revenue would have to exceed expectation by more than 13% before some change in the basic solution would apparently be in order. However, if the revenue she generates exceeds her upper bound, decision variable A1 which happens to have been in the basis with a value of zero¹ leaves the basis and is replaced by the artificial variable with a zero (0) value that is associated with constraint A1_A2 and now, the upper bound for Lori's revenue at WS1 has no limit. Thus, no change in the assignments is necessary. When Sterling's earning at WS1 (S1) exceed the upper bound, decision variables LE1 (with a value of zero) and the slack for the constraint WS1_2 leave the basis. LE3 (also with a value of zero) and the slack for constraint WS2_2 enter the basis with no change to the assignments. The upper bound for S1 now has no limit. Exceeding the upper bounds on both Chad and Jessica yields the same kinds of changes in the basis with no changes in the assignments. So the assignments made are particularly robust even if revenue appreciably exceeds expectations for any one bartender.

Should revenue for any one bartender fall appreciably short of expectations, however, reassignments will be necessary. Should either Andrew's or Lori's revenue fall below their lower bounds, 1564 (USD) or 1325 (USD), respectively, they should switch work stations. Should Sterling's revenue at WS1 fall below 1666 (USD), he should switch places with Mike who is at WS5. Should Chad's revenue at WS3 falls below 1350 (USD), no change in assignment occurs with changes in the basis being similar to the changes that occurred when the earnings of Lori, Sterling, Chad, and Jessica exceed their upper bounds. Should Jessica's revenue at WS4 falls below 1064 (USD) (a 90 (USD) short-fall in expectations), she should switch to WS1, Sterling should switch to WS3, and Chad should switch to WS4—"musical work stations" with bartenders, so to speak. Leslie's revenue at WS2 must actually fall below 1437 (USD) to result in any assignment changes (her lower bound is 1468 (USD)). Should that happen, Leslie and Sterling switch work stations. Thus, the initial set assignments is not so robust should revenue fall below expectations for any one bartender. Nevertheless, switching Andrew and Lori is not particularly drastic since they must be at WS1 and WS2 anyway and both Jessica's and Leslie's revenues must fall below expectations by roughly 100 (USD) before reassignments would be optimizing. Thus, a sensitivity analysis of the expected revenues for the assignments made, specifically the *lower* bounds for those expected revenues in this case, serve to alert the club manager and students that the set of work station assignments the program initially identifies may not always be optimal.

14. How might the club manager go about making bar assignments for less-than sold-out shows?

It is certainly a matter of concern to position the club to realize its bar revenue potential for a sold-out show. Closely related to this issue is the issue as to what the club manager should do if she already has reason to expect a less-than sold-out show. *Should she decide to staff the bar with fewer bartenders and possibly fewer work stations, what kind of assumptions must she make if she is to make well-informed and efficacious decisions?* Without additional information except for a reason to believe that the total revenue for the evening will be less, the club manager may assume that each bartender's expected revenue performance at every work station (reported in Table One) would be the same if with fewer bartenders the patrons congregate at fewer work stations. Furthermore, the club manager certainly should have some idea on such occasions as to what the "crowd size" should be based on summing the number of reservations once multiplied by their respective party size and the history on walk-ins. Assume for example, a show that is expected to draw 550 patrons. Assume further, that each patron will have a bar tab of 11 (USD).² With these assumptions, how should the club's manager proceed to make the optimal staffing decision?

Students might tempt themselves to try and modify the original linear programming model to capture the reality of a less-than sold-out show. The original model was necessary because the club manager had to combine her resources (the bartenders) in such a way as to put the club in a position to realize its potential bar revenue which means maximizing the estimate whatever that might be. Modifying this model for a lesser amount of anticipated revenue is, for the most part, not necessary. Other than the fact that at least one of the bar managers should be working the night of a less-than sold-out show and WS5 should be staffed with either Sterling, Chad, or Mike, the club manager merely needs to insure that she has enough work stations staffed to more than cover the anticipated bar revenue for that night (6050 (USD)— 550×11). She could, for example, using the figures from Table One, put Lori at WS1 (1350 (USD)), Mike at WS2 (1459 (USD)), Leslie at WS3 (1368 (USD)), Jessica at WS4 (1154 (USD)), and Sterling at WS5 (1365 (USD)) for 6050 (USD). Another configuration might be Leslie at WS1 (1468 (USD)), Andrew at WS2 (1589 (USD)), Gavra at WS3 (1058 (USD)), Chad at WS4 (1254 (USD)), and Mike at WS5 (1158 (USD)) for 6427 (USD). Thus, the club manager has some flexibility in how she staffs the bar on such occasions and discretion as to whom she distributes work—something programming would not capture or for which be necessary.

15. How might the club's compensation of its bartenders figure into these decisions?

The compensation the bartenders receive from the club for their work may or may not complicate the assignment problem the club manager must solve. The solution procedures advanced above for both sold-out and less-than sold-out shows assume that compensation is some percentage of the revenue each bartender generates whether this is approximated by an hourly rate or a commission. Thus, compensation is not a factor for the club manager in deciding these assignments. However, if the revenue generated does not mechanically drive compensation (e.g., Andrew and Lori might be paid more because they are bar managers even though someone like Sterling appears to outperform them), one must factor compensation into the calculations informing the assignment decisions. With respect to sold-out shows, all the club manager needs to do is subtract the wage bill for the night (and other prorated personnel costs as well) for each bartender from the revenues one expects each to generate at each work station. These differences then replace the revenue figures in the objective function as the club's margins for the evening and the program is ready to be run. The club manager would then make her assignments on the basis of the expected profits each bartender generates at each work station.

A less-than sold-out show in which the revenue it generates does not mechanically driving compensation, presents a different and bit more complex issue. Certainly, the club manager must insure that the anticipated bar revenue is more than covered by the bartenders she has selected and the work stations she has selected to staff. Each set of bartender and work station assignments will however, yield different profits. Allow a wage bill for Andrew and Lori of 150 (USD)/night each. Sterling, Mike, Leslie receive 100 (USD)/night each, Chad and Jessica 85 (USD)/night each, and Gavra receives 75 (USD)/night. The club manager could again select and assign bartenders so as to be sure to cover anticipated bar revenue for that evening's show and further, she could compute the expected profit. This would not however, necessarily position the club to realize the bar's profit potential. Some sets of assignments would understandably do better than others. Such a situation suggests that a modification of the programming might be in order to determine the optimal set of work station assignments. Thus, assume a less-than sold-out show of 550 patrons, work stations have only one bartender, WS6 is closed, Sterling, Chad, or Mike are at WS5, and Andrew or Lori are at WS1 or WS2 but not at both stations meaning if Andrew works Lori does not and vice versa.

Modifying the program, replace the four *exclusion* constraints for Andrew and Lori with respect to WS1 and WS2 with one constraint in which their respective variables for both work stations sum to one (1). The *inclusion* constraints that assign at least Sterling, Chad,

or Mike to WS5 remain unchanged. The programming for the *bartender* constraints for the “sold-out” problem had each bartender adding up to “1” (one). Obviously a bartender could not be at more than one work station simultaneously and all eight of them are subject to assignment. However, in the present case, change those equalities from “= 1” to “ ≤ 1 ” since one of the decisions to be made is precisely which bartender or bartenders the club manager will leave unassigned. Drop the *work station* constraints pertaining to having at least one bartender assigned to a work station since one or more work stations may have no assignees. Furthermore, one can easily shut down the satellite bar (WS6) with less-than sold-out shows below a certain number of patrons by changing the RHS of its remaining constraint from ≤ 2 to $= 0$. Change the RHSs of the rest of the work station constraints from ≤ 2 to ≤ 1 . Add, however, another constraint to the constraint system limiting the bar revenue to ≤ 6050 (USD). This added “*capping*” constraint insures the selection of an optimal subset of the available bartenders for assignment to some or all of the bar’s work stations and captures the reality of the club manager’s expectations for a less-than sold-out show. Such a constraint is not at all inappropriate. The budgeting of resources should always be based on the calculation of what is minimally sufficient to achieve the expectation for which they are being put to use. Finally, reduce the coefficients in the objective function to their profit margins.

One should run this problem as an integer linear program. Capping bar revenue with a constraint and maximizing an objective function virtually insures the exact satisfaction of the constraint while guaranteeing that less than one bartender (e.g., 4.333, 4 and $\frac{1}{3}$ bartenders) could easily be part of the solution. Integer programming insures that this will not be the case. The number of bartender assignments made will all be integers although the value of the “capping constraint” will more than likely be less than what exactly satisfies it. The program follows.

The objective function is:

$$\begin{aligned} Z_{\max} = & 1377(A1) + 1439(A2) + 1200(LO1) + 1237(LO2) + 1585(S1) + 1554(S2) + 1492(S3) + \\ & 1373(S4) + 1265(S5) + 442(S6) + 1031(G1) + 993(G2) + 983(G3) + 890(G4) + 877(G5) + \\ & 553(G6) + 1213(C1) + 1283(C2) + 1280(C3) + 1169(C4) + 1038(C5) + 400(C6) + 1359(M1) + \\ & 1287(M2) + 1269(M3) + 1052(M4) + 1038(M5) + 386(M6) + 1183(J1) + 1073(J2) + 1002(J3) + \\ & 1069(J4) + 956(J5) + 283(J6) + 1368(LE1) + 1375(LE2) + 1268(LE3) + 1098(LE4) + \\ & 924(LE5) + 372(LE6) \end{aligned}$$

The following *bartender* constraints make sure that the club manager assigns each bartender to one and only one cash register but also allows for the fact that she may not assign a bartender to any work station:

$$\begin{aligned} S1 + S2 + S3 + S4 + S5 + S6 &\leq 1 \\ G1 + G2 + G3 + G4 + G5 + G6 &\leq 1 \\ C1 + C2 + C3 + C4 + C5 + C6 &\leq 1 \\ M1 + M2 + M3 + M4 + M5 + M6 &\leq 1 \\ J1 + J2 + J3 + J4 + J5 + J6 &\leq 1 \\ LE1 + LE2 + LE3 + LE4 + LE5 + LE6 &\leq 1 \end{aligned}$$

The following *work stations* constraints make sure that the club manager assigns each work station at least one bartender to it or not but no more than 1:

$$\begin{aligned} A1 + LO1 + S1 + G1 + C1 + M1 + J1 + LE1 &\leq 1 \\ A2 + LO2 + S2 + G2 + C2 + M2 + J2 + LE2 &\leq 1 \\ S3 + G3 + C3 + M3 + J3 + LE3 &\leq 1 \\ S4 + G4 + C4 + M4 + J4 + LE4 &\leq 1 \\ S5 + G5 + C5 + M5 + J5 + LE5 &\leq 1 \\ S6 + G6 + C6 + M6 + J6 + LE6 &= 0 \end{aligned}$$

The following *inclusion/exclusion* constraints make sure that the club manager assigns at least Sterling, Chad or Mike to WS5 and Andrew or Lori to WS1 or WS2:

$$\begin{aligned} S5 + C5 + M5 &= 1 \\ A1 + A2 + LO1 + LO2 &= 1 \end{aligned}$$

Finally, add the “*capping*” constraint to the system.

$$\begin{aligned} 1527(A1)+1589(A2)+1350(LO1)+1387(LO2)+1685(S1)+1654(S2)+1592(S3)+ \\ 1473(S4)+1365(S5)+542(S6)+1106(G1)+1068(G2)+1058(G3)+965(G4)+952(G5)+ \\ 628(G6)+1298(C1)+1368(C2)+1365(C3)+1254(C4)+1123(C5)+485(C6)+1459(M1)+ \\ 1387(M2)+1369(M3)+1152(M4)+1158(M5)+486(M6)+1268(J1)+1158(J2)+1087(J3)+ \\ 1154(J4)+1041(J5)+368(J6)+1468(LE1)+1475(LE2)+1368(LE3)+1198(LE4)+ \\ 1024(LE5)+472(LE6) \leq 6050 \end{aligned}$$

The assignments of this problem’s solution are:

Lori on WS2
Gavra on WS3
Chad on WS 5
Jessica on WS1
Leslie on WS4

These assignments are capable of realizing anticipated revenue of 6,034 (USD) and a profit of 5,539 (USD). While revenue is below 6050 (USD), it is by only 16 (USD), the bar tab of close to one person. Thus, this set of work station assignments is probably good enough since the result indicates that the club has positioned itself close to realizing its anticipated revenue. If the club manager was to make assignments such as suggested in the last paragraph of section 5 of Part 3 of this teaching note, she would have more than adequately positioned the club to realize the revenue anticipated. *Given that she did, what would be the “bottom” line consequence of so over-positioning?* Assuming the revenue realized is 6050 (USD) as anticipated, the cost with Lori in charge would have been 535 (USD) and with Andrew, 510 (USD) compared to 495 (USD) for the computer solved configuration. The greater of the two increased costs against the computer solution entails less than a 1% reduction in profit ($40 \div (6050 - 495)$). One can try other configurations but for the most part the results will be similar. The club manager can of course always try to avoid over-positioning the bar business but even if she fails, the cost penalty is not great. Thus, it would seem that the club manager merely needs to insure that she has enough work stations staffed to more than cover the anticipated bar revenue even when she takes the respective wage bills of the bartenders into account. She can of course always run the expected revenue figure associated with the set of work station assignments she has selected and see by how much the computer solution with a different set improves on her expected profit. The club manager may choose to go with *her* selection in the interest of maintaining balance in scheduling bartender assignments at the bar within a time horizon sufficiently distant to be reliable should the difference be acceptable.

The program for a less-than sold-out show discussed above, has only five work stations open and permits no doubling of assignments at work stations. This means that it has revenue limits. This limit is reached at 641 patrons when no configuration of bartenders and their assigned work stations can position the club to realize more revenue regardless as to how much one increases the RHS of the “capping” constraint. Either WS6 needs to be opened or doubling up on work stations needs to take place (with the additional consideration of assigning both bar managers) when the anticipated number of patrons for a show exceeds 641. The club manager can easily determine what staffing change to make by merely insuring that it is sufficient to cover the expected bar revenue. If she needs to verify the optimality of the selection she contemplates she can do so with the less-than sold-out

program by modifying it with selected work station constraints from the sold-out program that she had previously dropped. No doubt she will determine that doubling up on a work station is more productive than opening WS6 at all and raises a question about an assignment policy that assumes WS6 has any utility whatsoever.

16. How might the club manager's termination of the informal work station assignment rotation system the bartenders practiced impact her effort to come up with a combination of assignments to optimize the bar's performance?

Studies of organizational performance several decades ago assumed significant correlations between organizational structure and outcomes. Thus, if one could manage to structure an organization in just the "right" sort of way according to rigorously preconceived "sound" theoretical guidelines, one would then maximize the organization's performance. No doubt, this is to some extent true. One could certainly do just the opposite and design an organization to languish or fail. Any redesign of it that could be significantly associated with improved organizational performance would then seem to support that assumption. Reliance on such an assumption as a primary answer to remedially addressing an organization's ills persists to the present. Certainly, this assumption is somewhat in play with the club manager's intention to identify various sets of work station assignments for different situations that would optimize the bar's performance. More recent studies are quick to point out, however, that participants in an organization can debilitate it regardless of how apparently efficacious and well informed is its design. Thus, what would seem to be the appropriate managerial thing to do in terminating the informal work station assignment rotation system the bartenders had practiced could lead to a loss of morale, sense of being a cohesive team that looks out (cares) for its members, increased rate of bartender turnover and attendant recruiting/training costs, etc. Such consequences of terminating the rotation system could "derail" revenue and profit generation and disappoint expectations. (Positive responses to the termination of this system could also occur but focus will be on the negative since that is not what the club manager or the club wants.)

What does the possibility of such factors coming into play imply with respect to the club manager's effort to model her decision-making in the way she has done? Those hostile to the use of such modeling methods could simply raise these issues in the attempt to make a case that as support systems to decision making, these methodologies are irrelevant. If factors such as, loss of morale, turnover, teamwork disruption, etc. can derail the pursuit of the possibilities these methodologies reveal, then what good are they? Why then employ them? Such questions are legitimate. However, to dismiss such methodologies because some factors might contaminate the results that issue from their employment evidences a

superficial and unsophisticated understanding of the value of these methodologies and what they can accomplish.

First, reality is far too rich for any model to completely comprehend it in its totality. Even for a segment of reality this is so. Therefore, models of reality are but abstractions. And being abstractions, they are, as G. E. P. Box has said, all “wrong” because being incomplete they cannot avoid distorting what they represent. The issue then is not that they are wrong but rather, are they “too wrong” to be useful. The previously discussed sensitivity analyses of the club manager’s models serves the purpose of attempting to establish just how useful her models could be. Even though there is no reason to believe that what will occur will even closely reflect the model to which it is paired in terms of objective function values, it could still confirm the optimality of the work station assignments the solution determined.

Second, even if quantitative modeling fails to produce the results anticipated due to “derailing” factors like those identified above, such modeling has informative value. The solutions quantitative modeling provides are like benchmarks against which the club manager can evaluate the adequacy of her grasp of the problem she is addressing. So what if something derails the club manager’s effort? Such modeling then proves valuable because it alerts the decision makers that aberrations have occurred that were not before present. Modeling can then serve a diagnostic function analogous to the use of control charts in statistical quality control. Rather than trying to incorporate various “derailing” factors into the model for the sake of improved accuracy which could be very difficult let alone ill-advised, the model merely points the decision maker to where “fixes” are needed. It becomes then incumbent upon the decision maker or someone competent to do so to develop an explainable cause for the aberration so that some remedial action can be taken to eliminate it.

Software

Howard Weiss’ management science software package, POM/QM for Windows v. 2.2, (ISBN 0131450662) computed the solutions for these problems. The package is user friendly and can be purchased from Prentice-Hall for \$16 + s/h. WinQSB, v. 2.0 by Chang ((ISBN 0471406724) is another fine package that is near commercial grade that students can order from Wiley for just shy of \$60. One could also use Excel employing Solver (Tools>Add-ins>Solver—this is usually necessary to access Solver). Once a student has invoked Solver, he or she can program problems by referencing the cells on the spreadsheet where they have entered the appropriate cell formulas and constants. The simple example that follows should suffice.

$$Z_{\max} = 30X_1 + 45X_2$$

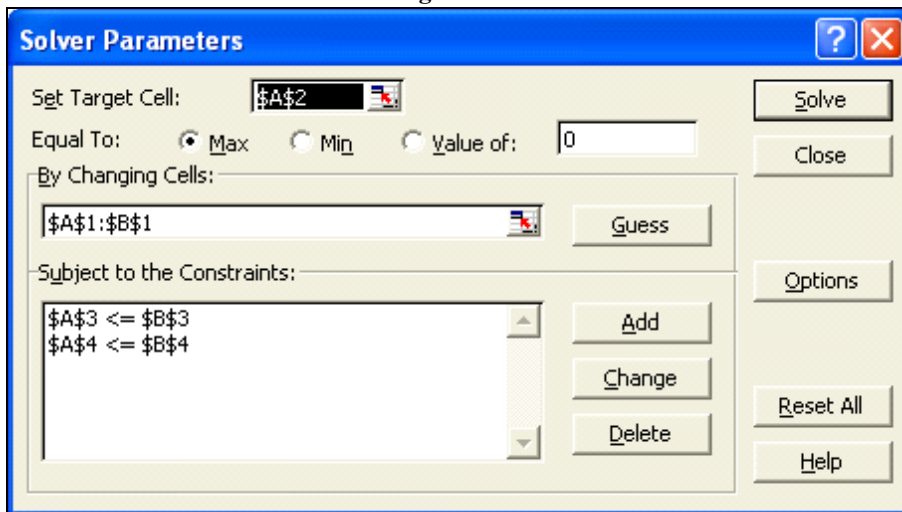
$$\text{s.t.} \quad 2X_1 + 2X_2 \leq 240$$

$$X_1 + 2X_2 \leq 160$$

Maximize the target cell which is: $30X_1 + 45X_2$. The changing cells are simply the two cells the target cell references for variables X_1 and X_2 . The constraints are simply two cells, $2X_1 + 2X_2$ and $X_1 + 2X_2$ which the two changing cells reference for variables X_1 and X_2 . The RHS values are constants that are part of the constraint system. See Table Two and Figure Two below.

| Table Two | | |
|-----------|--------------|-----|
| | A | B |
| 1 | 80 | 40 |
| 2 | =30*A1+45*B1 | |
| 3 | =2*A1+2*B1 | 240 |
| 4 | =1*A1+2*B1 | 160 |

Figure Two



If it is necessary to make the variables integers as opposed to continuous, additional constraints are needed for each of the changing cells values specifying them as integers (e.g., $\$A\$1=\text{int}$, $\$B\$1=\text{int}$).

SUMMARY

The case description notes that the instructor can, upon completion of the case, modify it with discussion questions to the class that explore its application to more complex and other realistic settings. The authors suggest two such scenarios the instructor can present. The first scenario (Section 5 of Part 3) involves a less-than sold-out show where bartender compensation is not a factor. The second scenario (Section 6 of Part 3) involves shows that sell out and do not sell out where bartender compensation is a factor. The programming of this scenario for the “sold-out” program is not complex. However, the programming for the less-than sold-out show is and the utility of this model is that it permits the club manager to insure that the assignments she makes cover the expected

ENDNOTES

- 1 In any simplex solution, especially for more complex problems, it is not uncommon to find decision variables and artificial values with values of zero in the basis along with slacks and surpluses which of course, is not unusual, especially when the problem is over-identified as is this problem.
- 2 10,404 (USD)/950 patrons taken from the linear programming solution could be used in lieu of historical data, not the least of which would be bar receipts and number of patrons. Historical data, if available, would probably be more useful and a better indicator of expected bar revenue inasmuch as the relationship between bar revenue and number of patrons as well as type of show could be considered and may have some other functional form than linear.

INTERNATIONAL PRODUCTS LTD*

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CASE DESCRIPTION

The primary subject matter of this case concerns marketing.. It has a difficulty level of five (appropriate for senior level). The case is designed to be taught in one class hour and is expected to require two hours of outside preparation by the students.

CASE SYNOPSIS

This case deals with a Thailand producer and marketer of clothing products that is locked in a struggle to produce quality products efficiently and sell them in sufficient quantity, both domestically and abroad. One individual, the president of the company, is responsible for developing corporate strategy. He is aided in this process by the advice of a consultant whom he has retained. The firm has been in business for a considerable time period and has enjoyed some degree of success. However, management is currently involved in decisions regarding whether or not to employ a company (rather than a private) brand, how to control the channel of distribution, how to generate products which meet consumer desires, and possible additions to the product line. These decisions are complicated by somewhat unstable economic, social, supplier, competitive, and legal/political environments which confront the clothing industry in both Thailand and in other countries where the products are sold.

* The name of the company and the name of its president have been disguised.

INSTRUCTORS' NOTES

RECOMMENDATIONS FOR TEACHING

Students are advised to carefully review and analyze the case by

- A. Conducting a situation analysis, covering the firm's environment and current status.
- B. Identifying company goals.
- C. Assessing the firm's competitive position.
- D. Identifying the major problems facing the company.

- E. Generating alternative solutions to the problems which are discovered.
- F. Selecting preferred alternative solutions to the problems.
- F. Developing a rationale for the preferred solutions.

In undertaking the processes outlined above, it is recommended that students scrutinize the learning objectives set forth below. These objectives point to significant problem areas and to potential means of enhancing the well-being of the firm.

This case is most appropriate for a marketing management (sometimes called marketing strategy, marketing seminar, or problems in marketing) course at the senior, or MBA level. Also, some instructors of international marketing courses might find that the case is useful.

LEARNING OBJECTIVES

After analyzing this case, the student should be able to demonstrate an ability to:

1. Identify the major problem(s) confronting the firm.
2. Develop a process for evaluating the potential effectiveness of a company (versus a private) brand.
3. Recommend a branding strategy for the company.
4. Evaluate the probable success of a major change in the channels of distribution.
5. Recommend a channels of distribution strategy for the firm.
6. Assess the quality and quantity of consumer demand for the firm's products.
7. Recommend a strategy for stimulating demand for the company offerings.
8. Assess the market potential and company fit of additions to the company product line.
9. Recommend a strategy for developing an optimum product line for the firm.

ANALYSIS

This company is faced with a number of significant problems. This being the case, one major teaching goal is to have the students demonstrate their ability to prioritize the problems and to decide which ones deserve the greatest amount of managerial attention. In the opinion of the authors, the greatest obstacle to company success is the current practice of selling an unbranded product in export markets. Until the firm is able to use its own brand it will have difficulty in managing the overall marketing effort. Currently, distributors are in control of the channel of distribution and the marketing of company nightgowns. The company cannot create a comprehensive and coordinated marketing program in this environment. In turn, this makes sales forecasting difficult, forcing the company to produce only when it receives orders from the distributors—hardly an efficient means

of production. Further, selling unbranded products to distributors places the company at a distance from consumers, making it difficult for management to develop an understanding of consumer behavior. This distance from consumer behavior is also disadvantageous because management is not in tune with other products that the company could produce and which consumers may desire.

Other teaching goals are for students to demonstrate an ability to make decisions on whether or not to brand, how to exert power over the channel, how to gain information on consumer behavior, how to develop a workable product mix, and how to improve product quality. These variables are reflected in the current company problems set forth in the case. The problems and possible solutions to these problems are set forth below:

- 1. The company does not use its own brand name for exports, at the consumer level. Distributors are the major customers of the company, so in the absence of a company brand, they exercise considerable control over prices, terms of sale, and other marketing variables.**

It is suggested that the company develop its own brand for export sales. Until it does this, it will be difficult to develop a coordinated marketing program and assume some degree of control over the channel of distribution. Bringing in a company brand will facilitate handling of many of the other problems mentioned in the case. Currently the firm is essentially involved solely in production, with only moderate levels of marketing activity. Products are manufactured to the distributors' specifications and are produced only when orders are received from distributors. The company already employs the "Bed time story" brand name in Thailand, and this could be useful for export sales, provided that no legal barriers exist.

Development of a brand will allow the firm to acquire brand equity. It may be able to expand its market share, achieve economies of scale and productivity benefits from continuous production, generate brand loyalty, and charge higher prices. The potential benefits are considerable. There will be costs and risks associated with such a decision, of course. The firm will be faced with the necessity of producing a sustainable marketing program. However, it appears that Mr. Pongsan has the experience and skill needed for this challenge.

- 2. The company has very limited control over its channel of distribution. It produces nightgowns only when distributors send in an order, making production less efficient than if it engaged in continuous production.**

If the company generates its own brand this should be less of a problem. It will be in control of the marketing program and will be in a position to generate demand in a fashion that is compatible with its production and product design activities. If this is done correctly, it

should be able to engage in continuous, rather than job lot production and achieve production efficiencies as a result. However, the firm will have to design an effective sales forecasting program. It might start with a relatively simple method, such as trend extension or sales force composite methods, and develop more sophisticated methods as it gains experience in this activity.

Mr. Pongsan must decide how to structure the channel of distribution. Currently, export sales are all moved through distributors. It is unlikely that this pattern will be radically changed in the near future. However, some retail customers want distribution directly from the manufacturer. If International Products Ltd. adopts this structure, it will be necessary to develop and train a sales force. Further, it may be necessary to make changes in the physical distribution system. A study should be undertaken to determine the costs and benefits of direct distribution versus distribution through the distributors. Without this information, it will be difficult for management to construct the optimal channel.

3. The firm lacks information on target consumer behavior and major trends in the target market.

If the firm produces its own brand and its own marketing mix, rather than relying upon the distributors for this activity, company employees will be in direct contact with the market. They will communicate with retailers and be in a position to learn about consumer needs and trends in these needs. The sales force can be instrumental in this effort. Sales representatives should be instructed that it is part of their job to study the market and the directions that it is taking, as well as the competitive situation, and to report the findings to management, so that marketing efforts can be guided toward consumer needs and preferences. The firm may choose to engage in marketing research and intelligence efforts, or to study the results of published research, in order to gain insights on the directions of the market place. A useful practice would be to attend several of the industry trade shows in European countries such as England and to observe the fashion trends that are emerging. Further, trade publications in these countries can be useful indicators of trends.

4. Major customers are interested only in purchasing nightgowns, although the company is capable of producing other textile products.

The company may want to consider offering products other than nightgowns. But a change in this direction should take place only after careful study. The firm should carefully analyze its mission and goals and determine what products might be compatible with these. Further, it should analyze consumer demand for various candidate textile products and the degree of

competition which might be expected for each. It would be useful to go through the traditional product development process—developing ideas, screening, concept testing, business analysis, brand development, testing, and implementation, which has proven to be useful to many companies.

Management should be aware of the opportunities available through producing innovations. However, they should be cautious and should not inadvertently move into new launches which may not be successful. Currently the company is profitable and its current position should be changed only after careful evaluation.

5. The manufacturing process wastes more than 1.5 percent (the standard level of the industry) of the raw material inventory

This is not necessarily a major problem, since wastage rates of this magnitude are not uncommon in the textile industry. However, it may be possible to reduce wastage through more thorough selection and training of members of the production work force. Another possibility is to convince raw material suppliers to provide higher quality products. Mr. Pongsan is concerned about this issue. When the company has its own export brand and has been successful in expanding the market, this may provide the firm with leverage which it can impose upon raw material suppliers—convincing them that it is in their own self-interest to enhance product quality and their own sales as a result.

6. Manufacturing efficiency is less than that of producers in Europe and the United States, due to lesser technological development in Thailand.

As a means of keeping pace with competition in the industry, it will be necessary for International Products Ltd. to maintain and enhance its technological capabilities with the passage of time. This is needed in order to attain manufacturing efficiencies and to produce high quality products. International Products Ltd. is well-advised to take steps which lead to a steady program of improvements in the manufacturing process. To some degree, this may require the replacement of existing machinery. However, before this is undertaken, Mr. Pongsan should explore other means of improving production, such as implementing superior methods of production planning, scheduling, and control and conducting additional employee training. At least in the short run, these may allow the company to increase its productivity, create less wastage, and improve product quality. However, it will be necessary to invest in new technology from time to time and the firm should establish reserves which can be used for this purpose, as the need arises. While the company is probably not sufficiently large to engage in research and development in the technology field, it can gain

insights from trade shows, marketers of machinery, and industry trade journals which can provide guidelines for improvement.

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ABOCA S.S. PERFECTING A 700 YEAR TRADITION OF BOTANICAL REMEDIES

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CASE DESCRIPTION

This case was developed for an MBA marketing strategy course and as an international marketing elective, ideally suited for non-US MBA programs. As an MBA marketing strategy course it encompasses analysis and decision making from broad strategies concerning growth management, industry structure attractiveness and competitive advantage. Due to the market data in this case these broad strategic decisions can be augmented with marketing decisions for branding, product positioning, product line policies, channel selection, price policies and marketing communication policies. The international aspect of US market entry from an Italy based company and the corresponding logistical, economic, regulatory and cultural contrasts allow students to practice international marketing concepts. This case can be taught in one class session with three to four hours of student preparation.

CASE SYNOPSIS

Aboca is a family owned herbal supplement manufacturer located in Tuscany Italy. It has experienced remarkable success in Italy with exceptional growth (25% CAGR) and has achieved market dominance in herbal supplements in its Italy market. It now faces a classic growth dilemma as it approaches saturation in its core supplement business. The case presents the array of product-market growth challenges to the firm with the associated risk and potential returns. Within this matrix of opportunities the firm's successor to the president (founder's son) must evaluate a potential US market launch. US industry data, consumer buyer behavior, competitor positions, channel options and regulatory constraints are presented for analysis and students are expected to assume the successor's role in choosing an entry strategy with a detailed action plan.

*The case discussion is most effective if students have read marketing concepts for growth strategies (e.g. David Aaker, *Strategic Market Management*, 5e., Wiley, chapter 12) and have mastered concepts of product positioning and marketing mix decisions. The discussion is best organized by beginning with growth strategy decisions and then progressing to the US market launch decision. At a minimum the US launch decisions should include a product positioning statement and policy decisions for branding, breadth of product line, communication and pricing. There is sufficient data for students to specify operational decisions for brand names, product stock*

keeping units, advertising copy, sales promotion tactics and price points. However it is recommended to postpone such specific marketing mix decisions to a second class session.

INSTRUCTORS' NOTES

Teaching Objectives for Aboca case:

1. Identify customer quality as a route to competitive advantage.
2. Learn the challenges of sustaining exceptional growth and the growth directions available to firms.
3. Practice the analysis of financial risk and return in making strategic growth decisions.
4. Learn how to assess new market entry strategies.
5. Practice developing a specific marketing plan to enter new markets.
6. Identify the management and cultural challenges of entering the US market from a foreign country.

The following questions are intended to stimulate discussion to meet these objectives.

DISCUSSION OBJECTIVES

1. What is the customer value that Aboca delivers to its Italian buyers?

Aboca provides exceptional value to both end consumers and pharmacists in Italy. To health supplement consumers it offers the certainty of consistent, safe, all-natural herbal supplements that have proven effective for generations of Italians. Customers feel confident that they will receive the same standard dosage of supplement regardless of purchase location or time of purchase. It also offers convenience through its broad product line and package size availability in numerous pharmacies throughout Italy. Consumers are also reassured by its consistent product communication through its prominent print media communication.

To pharmacists it offers a self-serve complementary product line to their core prescription drug business. Pharmacists gain trust and loyalty by advising customers on the usage of Aboca's herbal supplements. Due to the variety of uses and frequent repurchasing, herbal supplements serve to increase pharmacy shopping beyond the infrequent pharmaceutical purchases.

2. How does ABOCA develop this customer value?

Aboca has integrated all of its value activities to secure its status as the premier herbal supplement manufacturer to Italy's pharmacists and consumers. From inception, it chose to control all value added activities by owning each process from seed development to product marketing. In this way it can guarantee its products are "all-natural" and standardized for consistent effectiveness over time and across geographic boundaries. Its disciplined focus on herbal supplements aids its economic scale in product research, development and process manufacturing. Thus it can invest in researching therapeutic applications and quickly develop state of the art formulations. Also its botanical focus provides efficiency in developing unique manufacturing processes. Furthermore as it maintains its "herbal" focus and gains sales volumes each interrelated value activity gains scale advantage.

Aboca leverages this product and process competence with an internally trained direct sales force that is skilled in communicating product and market benefits to independent pharmacists. Aboca's decision to limit its channel to pharmacists adds to sales force efficiencies and engenders loyalty from the pharmacy trade. To augment this service, Aboca offers free continuing education programs to pharmacists.

To help instructors map this value chain it is recommended to graph Michael Porter's Value Activities Chart (Michael Porter, Competitive Advantage, The Free Press, 1985, p. 47) exhibit #1. Students should be asked to disaggregate each activity and explain how the complete value chain is interrelated to achieve competitive advantage in its Italy market.

3. What are the challenges to Aboca's continued success?

This question should lead the students to understand why Aboca must continue its exceptional growth to maintain its superior performance. The paradox for Aboca is its focus on herbal remedies sold through pharmacies in Italy is both a strength and potential vulnerability. Though it is unlikely that supplement competitors could unseat Aboca's dominant position in pharmacies students will note that emerging mass market channels, a global phenomenon, may supplant pharmacies as the preferred retailer for Italian consumers. Students will cite the US experience, where mass market retailers are now dominating health supplement sales. The channel needs in this market, primarily low prices and mass advertising, are contrary to Aboca's marketing strengths.

Competitors with broader product lines and less integrated value activities are making inroads in the Italy supplement market by offering a combination of botanical and nutraceutical supplement formulations at low prices.

As the European Union erodes country boundaries, Aboca's scale advantage in Italy could disappear and more globally structured competitors could gain share in Aboca's core product category.

4. What are the growth options available to Aboca and what direction do you recommend?

Students should diagram the classic growth options as shown in exhibit #2. Aboca could pursue all five options for growth. Students should argue for growth priorities base on three considerations: 1.) Optimum "leverage", i.e. the expected increase in sales divided by the required marketing investment. 2.) The growth opportunities that will most likely meet 25%-30% growth rate projections. 3.) The growth strategies that will increase Aboca's key sources of competitive advantage.

Clearly Aboca will need to pursue multiple routes. Its dominant market share and channel saturation implies existing market penetration will not be adequate. In fact, it would argue for increasing profit margins in existing markets to subsidize other opportunities. The two most attractive options, given the aforementioned criteria, would be international market expansion and cosmetic product line development.

5. What options could Aboca choose to enter the US supplement market? What option would you recommend?

The students should review case exhibits 6 thru 9, and the US supplement market text to assess channel options. By reviewing the four channels used for supplement sales and understanding the US herbal customers, competitors and Aboca's capabilities students should be able to articulate a feasible market entry strategy.

The channel opportunities could be ranked in the following order based on speed of market entry, financial risk, and Aboca's capabilities.

1. *Enter professional channel and build brand credibility through clinical and academic relationships.*

Description: Develop a relationship with the most sophisticated users of health supplements, complementary and alternative health care practitioners who sell supplements to clients through their own dispensaries. Secure the trust and loyalty of these practitioners by supporting academic and clinical research in the leading US complimentary health care Universities.

Advantages: Low risk in terms of initial investment. Builds on Aboca's strengths, especially with university and research relations in Italy. Builds a market presence based on relationships and clinical excellence. Opportunity to connect Aboca brand as herbal medicinal treatment for a multitude of therapeutic needs. This is the fastest growing channel and most likely to add new innovative products.

Disadvantages: Slow, does not establish a revenue base early. May require financial investment to participate in research. Requires success in relationship building in a different cultural environment. Its unknown if end-users (practitioners' patients) replenish health supplement purchases at clinic dispensaries.

2. *Enter as a "full category herbal health and beauty" supplier to select natural food stores.*

Description: Target select "natural products" retailers in regional markets. The ideal trade partner will currently merchandise products in the nutraceutical/health/beauty sector but has not committed to direct competitors in the herbal category. These will be independent (not chains) retailers with store(s) located in key geographic regions. Regional expansion will occur after adequate market penetration.

Advantage: More rapid revenue stream and allows "economies of scope" by geographic constraint. Consumers will have convenient access to products. Aboca could transfer its skill in merchandising and category management from Italy. Its extensive product line can provide a single source to retailers for all herbal health and beauty needs and gives retailers a distinct line unavailable to mass retailers. Aboca can aid retailers' customer service by providing education to retail staff and benefit by in-store selling effort. This limited distribution decision and staff training will present barrier to entry to subsequent competitors.

Disadvantage: Requires higher capital investment in company infrastructure (distribution center, sales force, etc.) and advertising/sales promotions (minimum of trade advertising, collateral and in-store display). Uncertain if retail staff are

effective in influencing consumer choice or if store owners perceive high quality herbal health and beauty supplements as important and would be willing to commit to full Aboca product line.

- 3 *Enter mass market with single products to meet high growth health condition segments.*

Description: Enter the market by offering Aboca brand products to treat growing nutrition or health concerns such as safe energy supplements or weight loss supplements (see case exhibit #6) sold through mass market retailers, such as Walmart or Krogers.

Advantage: Rapid penetration into entire US market and rapid revenue growth. Aboca has products to meet the growing need for natural, safe energy and weight loss (e.g. naturamix and phytoslim from case exhibit #1). A successful single product launch could establish brand awareness for subsequent product introductions. Initial entry limited to one or two products to meet specific health condition.

Disadvantage: Requires substantial capital investment in advertising and distribution logistics. Mass market supplement consumers are price sensitive and less knowledgeable of quality standards than specialty store consumers. A single product placed on shelf in a fragmented category, such as supplements, is unlikely to attract consumer interest or aid brand awareness. Aboca will be at a significant negotiation disadvantage with mass retailers and does not have skill or experience in servicing this trade channel.

4. *Through partnership, establish a multi-level presence.*

Description: Establish a partnership with an existing multi-level marketer with a range of offerings but lacks a significant herbal health and beauty product line.

Advantage: Could establish a multi-level presence for Aboca with global reach and significant revenue base. Aboca's quality standards and technical nature of health supplements are ideally communicated through personal communication. No significant investment needed in marketing infrastructure other than sales force management.

Disadvantage: Unlikely multi-level partner will agree to “Aboca” branded products but insist on its own branded label. Aboca’s inability to control product claims from independent sellers could violate FDA regulations and damage Aboca’s brand reputation globally. “Gatekeepers” in health care profession (MD, Naturopath, etc) may object to unsupervised distribution of medicinal herbs.

6. What marketing plan would you propose to Aboca to enter the US market?

At this point in the case discussion students should appreciate Aboca’s unique value activities that give it competitive advantage in Italy. Its ability to harvest, manufacture, develop and market herbal supplements to deliver effective, consistent and safe health remedies through a strong partnership with independent pharmacists has generated superior financial returns. The challenge to students is how to leverage this capability in the US given the customer needs and competitor strengths within the health supplement market.

The marketing plan to launch Aboca in the US must be consistent in target market selection and marketing mix policies to optimally use Aboca’s strengths and resources. Students should be asked to make the following decisions:

- **Product Positioning Statement:**
The positioning statement should articulate the target audience, the frame of reference (product category for competition), the key benefit or point of difference, and the supporting facts to make this benefit claim.

From the market entry options mentioned in #5, one possible position statement could be:

To alternative health consumers who desire natural remedies for health maintenance, Aboca products are the herbal medicines that are 100% natural with proven effectiveness, consistency and safety. Aboca ensures its commitment by controlling its products from seed development to consumer delivery and by partnering with health practitioners to provide the highest knowledge of herbal remedies to consumers through its support of leading research of herbal medicines.

This position assumes a niche strategy in which Aboca hopes to become the preferred supplier of herbal supplements to alternative health care providers. With this position the marketing mix policies should be internally consistent as follows:

- **Distribution Policy:**
Aboca could choose a selective distribution through health practitioner dispensaries. As such channel members must be recognized as health professionals and have a scientific understanding of the therapeutic benefits of herbs and the manufacturing processes that insure quality. Buyers will have incentives to stock the full line of Aboca's therapeutic herbs (shown in exh. 2 of the case).
- **Product Line Policy:**
Aboca's product line could mimic its Italy success and initially offer its most popular herbal formulations from exh. 2. As practitioners gain loyalty to Aboca's brand it can expand its product line to add items from its Italy lines. To achieve herbal supplier preference it must become a provider of all herbal remedies in all delivery forms (tablets, capsules, tinctures, teas).
- **Communication Policy:**
To succeed in persuading sophisticated practitioners to adopt Aboca's brands it must invest in a knowledgeable sales force with technical knowledge of health supplements. Aboca must provide scientific justification of its benefits and support its products with end-user information. Sales force incentives should direct effort to product adoption, full-line ordering and favorable brand impressions. Aboca should have significant presence at all professional association meetings and provide financial and scientific support to alternative health research associations. The brand name "Aboca" will achieve dominant brand status with subsidiary brands associated with therapeutic treatments.

Since products will be recommended to end-users by practitioners, point-of-sale merchandising will not be a priority during launch. As such brand names are not as important in inducing impulse purchase as in retail channels. However the family brand name Aboca and the English versions of its Italy line (exh. 2) leave much room for improvement and students can be encouraged to offer new alternatives. (e.g. the brand name Finocarbo might be changed to "Digest-Aid".)

For product launch media advertising should be limited to targeted practitioner journals. If time permits, students can be challenged to craft advertising copy and visual layouts. This is an effective exercise since copy must adhere to FDA regulations (see "marketing communication decisions" in case).

- **Pricing Policy:**

The price comparison shown on exh.10 shows that Aboca's prices in Italy adjusted for currency conversion, tariff and shipping are most competitive in the professional channel. For initial product launch package sizes should provide convenience and adequate trial. With brand adoption Aboca should offer larger volume packages with discounts to reduce cost of daily usage.

The price policy to practitioners should encourage full line purchase with appropriate price incentives. Initial trial should supplement samples with trial size package discounts and follow with larger package size discounts (to add convenience with economic value).

Exhibit #1 Firm Value Activities Chart.

| EXAMPLE OF DIFFERENTIATION IN ABOCA VALUE CHAIN | | | | | |
|---|--|---|--|---|---------|
| FIRM INFRASTRUC. | Family owned enterprise with minimal financial and regulatory reporting requirements. Structure allows rapid and flexible decisions. | | | | MARGIN |
| HUMAN RSC. MANAGE.. | Employees are motivated by "family" culture and are trained in botanical science and remedies. | | | | |
| TECHNOLOGY DEVELOPMENT | All natural freeze-drying, no chemical or preservatives, skill in herbal remedies | | Superior knowledge of independent pharmacy retailing | | |
| PROCUREMENT | Scale in herbal procurement and process equipment. | | Scale in print media Procurement. | | |
| | Harvest timed to mfg. Farms allow alternative supply. | Linkage with farms for QA and production timing | Domestic/international trade allow flexible storage and shipping | High quality print advertising Direct sales force with strong herb and brand knowledge. Good territory coverage. | |
| | INBOUND LOGISTICS | OPERATIONS | OUTBOUND LOGISTICS | MARKETING & SALES | SERVICE |

Exhibit #2

| GROWTH STRATEGIES | | | |
|--|--|--|---|
| | Present Products New Products | | |
| Present Markets | <table border="1" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> I. Growth in existing product Markets: *Increase market share *Increase product usage </td> <td style="width: 50%; vertical-align: top;"> II. Product Development: *Develop herbal cosmetic products *Incorporate nutraceuticals into product line </td> </tr> </table> | I. Growth in existing product Markets: *Increase market share *Increase product usage | II. Product Development: *Develop herbal cosmetic products *Incorporate nutraceuticals into product line |
| I. Growth in existing product Markets: *Increase market share *Increase product usage | II. Product Development: *Develop herbal cosmetic products *Incorporate nutraceuticals into product line | | |
| New Markets | <table border="1" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> III. Market Development: *Expand to other countries *Expand to mass market channels </td> <td style="width: 50%; vertical-align: top;"> IV. Diversification with new products and new markets: *Nutraceuticals and cosmetics to international markets </td> </tr> </table> | III. Market Development: *Expand to other countries *Expand to mass market channels | IV. Diversification with new products and new markets: *Nutraceuticals and cosmetics to international markets |
| III. Market Development: *Expand to other countries *Expand to mass market channels | IV. Diversification with new products and new markets: *Nutraceuticals and cosmetics to international markets | | |
| Vertical Integration | Develop specialty natural health stores for Italy | | |

Exhibit #3

GROWTH TRENDS:

U.S Nutrition Industry by Product, 1996-2005 growth

| Products | 1995 Growth | 1996 Growth | 1997 Growth | 1998 Growth | 1999 Growth | 2000 Growth | 2001 Growth Forecast | 2002-5 Growth Forecast |
|---------------------------|--------------|--------------|--------------|--------------|-------------|-------------|----------------------|------------------------|
| Vitamins | 9.8% | 11.1% | 12.9% | 7.5% | 3.0% | 1.2% | 0.8% | 1-3% |
| Herbs/ Botanicals | 22.3% | 21.1% | 17.7% | 12.5% | 2.8% | 1.2% | 1.5% | 1-2% |
| Sports Nutrition | 10.2% | 9.3% | 12.3% | 12.6% | 8.2% | 9.7% | 8.8% | 7-10% |
| Minerals | 15.9% | 11.3% | 14.6% | 11.8% | 13.2% | 4.7% | 3.0% | 3-5% |
| Meal Supplements | 6.3% | 6.0% | 4.4% | 6.6% | 7.3% | 8.4% | 11.6% | 8-10% |
| Specialty/ Other | 31.6% | 24.0% | 22.6% | 22.8% | 23.6% | 12.1% | 9.8% | 9-11% |
| Supplements Total | 13.8% | 13.4% | 13.8% | 10.7% | 6.5% | 4.2% | 4.2% | 3-5% |
| Natural/ Organic | | | | | | | | |
| Food | 15.1% | 13.5% | 9.2% | 11.6% | 10.1% | 9.6% | 9.3% | 8-12% |
| Functional Foods | 6.0% | 5.7% | 5.5% | 8.0% | 8.7% | 7.3% | 7.2% | 6-8% |
| Natural Personal Care | 7.9% | 8.2% | 9.3% | 7.9% | 9.1% | 6.4% | 7.9% | 6-8% |
| Nutrition Industry | 10.5% | 10.1% | 9.4% | 9.7% | 8.3% | 6.7% | 6.7% | 5-7% |

| Universe of US Supplement Manufacturers, 2000 | | | |
|--|-----------------------|-----------------|------------------------|
| | Total # of | | |
| Supplement Mfg/Mkth Cos. | Cos. | Revenues | % of Market |
| Greater than \$100M | 15 | 3800 | 42% |
| \$20-100 million | 55 | 2082 | 23% |
| Less than \$20 million | 944 | 3064 | 34% |
| Total | 1,014 | 8,946 | 100% |

RODNEY STRONG WINERY: THE GREAT CORK DEBATE

Tom Atkin, Sonoma State University
Duane Dove, Sonoma State University

CASE DESCRIPTION

The primary subject matter of this case concerned an intriguing product development dilemma encountered at Rodney Strong Vineyards, whether to use natural corks or metal screw caps on their wines. Secondary issues examined include Total Cost Analysis, Cost of Quality, House of Quality, and the voice of the customer. The case has a difficulty level of three and is very appropriate for advanced undergraduate and MBA level classes. The case is designed to be taught in one hour of class time with one hour of outside preparation by students.

CASE SYNOPSIS

John Leyden, the Vice President of Packaging and Distribution at Rodney Strong Vineyards, wrestled with the issue of cork taint - a widespread quality problem that ruins a significant percentage of wine. Cork taint causes moldy, musty aromas that affect perhaps up to 10% of wine produced worldwide. Contamination can lead to customer alienation and ultimately lost sales. Cork taint is a defect that can be eliminated by using alternative closures, such as screw caps or plastic corks, instead of natural cork. From a quality viewpoint, the best solution is a screw cap, which offers the advantages of a durable, long-lasting seal, which can be resealed after the bottle has been opened. However, this solution has been rejected in the marketplace because cork is perceived as a high quality closure while screw caps are associated with cheap jug wines.

Product development decisions require marketing, production, quality control, and purchasing to work together to find a solution. Suppliers should also be included to provide technical information and suggest solutions. The issue boils down to a choice between the technical superiority of one closure or consumer preference for a popular but inferior closure. John Leyden gathered critical information from suppliers and colleagues to help him make the decision. Possible courses of action included changing suppliers, increasing quality control efforts, using an alternate closure, or doing nothing. As the case closed, John was faced with the dilemma of whether to select a high-performance closure, which customers may not accept, or the inferior customer-preferred natural cork.

Students are asked to complete a Total Cost Analysis model. They are also asked to analyze the consumer acceptance aspects of the decision. A complete House of Quality example is fully developed to assess Cost of Quality issues.

INSTRUCTOR'S NOTE

TEACHING OBJECTIVES

This case illustrates the use of three important operations tools. (1) Total Cost Analysis is an approach to understanding all costs associated with a product decision. It considers costs of product failure, additional equipment, quality assurance, and disposal. (2) Cost of Quality is a system developed to state all the costs associated with defective products in dollars and cents. (3) The House of Quality relates customer defined product traits to the technical product specifications needed to support the customer requirements in a systematic and graphic manner. The case promotes discussion of several facets of a product development decision, including cost, consumer acceptance, and technical performance. It demonstrates that input is required from several departments in the firm as well as customers and suppliers in order to reach an appropriate decision. The case enables the instructor to teach about levels of product attributes and methods of including the voice of the customer in design decisions. Students are given practice using these tools to assess the trade-offs involved in developing a successful product.

INTENDED COURSES AND LEVELS

The case is suited for an advanced undergraduate or MBA level class. It is targeted for a Production Operations or Supply Chain Management course. It would be very suitable when product development or product quality issues are considered. The authors have found the wine focus to be popular with students and to generate extensive discussion.

QUESTIONS AND TEACHING SUGGESTIONS

John Leyden presents the goal of the Rodney Strong Vineyards in the last paragraph of the case: "To deliver the wine to the consumer as the winemaker intended." Students should read the textbook chapter on Quality Management or Product Development prior to discussing the case, and prepare responses to the following:

- 1. Identify all aspects of Rodney Strong Vineyard's product bundle. What are the different levels of product? How does the cork fit into this framework?**

Students should be able to identify the obvious product, wine. A bit more discussion will be required to specify the essential benefit or service that the consumer experiences. Students may have a lot of fun with this one - are they looking for more than just alcohol content?

In production operation circles distinctions are made between the core product and the actual product. The notion of core product addresses the question: What is the buyer really buying? One must understand the total customer experience and key benefits. Consumers are generally seeking an enjoyable sensual experience when they buy a bottle of wine. There are also psychological benefits such as impressing one's friends (Kotler and Armstrong, 2001).

The product planner must next build an actual product around the core product. This includes quality levels, features, design, a brand name, and packaging. The actual product is the unit that sits on the shelf. The function of the cork is to seal the bottle and protect the wine. The pop of the cork provides a very important sensual benefit and contributes to the ceremony of opening the wine. The closure also gives customers a signal as to the quality of the wine and provides snob appeal.

Lastly the product planner must build an augmented product by offering additional consumer services and benefits. The augmented product might include membership in a wine club or newsletters with recipes. These support services are very important in the wine industry because consumers often have very little information about the contents of the bottle. They tend to rely on the information and recommendation provided by the winery, the retailer or the wine steward.

2. Identify the customer requirements for the product. What features define quality in the wine business?

This is where the voice of the customer becomes apparent. Characteristics of the wine itself include alcohol content, flavor, aroma, complexity, and appearance. Price is certainly a factor. The actual product includes the wine, bottle, label, and closure. Things like the ritual of opening the bottle, swirling the wine in the glass, and the story behind the wine are part of the product bundle.

Students should begin to establish desired product characteristics by making a list of customer requirements. The importance of each characteristic should be ranked. Then a mock comparison can be made between Rodney Strong Vineyard's product and the products offered by competitors. A sample list is provided in Exhibit 3 for the instructors' reference. These requirements will provide the foundation of the House of Quality if instructor chooses to perform that exercise.

3. What are the tradeoffs involved in the closure decision?

The basic tradeoff in the cork issue is the risk of tainted wine versus consumer resistance to the use of screw caps and synthetic closures. Synthetic closures and screw caps provide a higher level of protection from taint but they are associated in the mind of the consumer with poor quality, no doubt the result of these types of closures having been used on the cheapest brands of wine for decades. They do not provide the same romance and sensory appeal that natural cork does. Screw caps and synthetic closures are less expensive than natural cork.

The House of Quality is a model that can be used to translate a variety of customer requirements into design characteristics so that additional potential trade-offs can be examined. For example, several winemaking techniques that contribute to higher quality have a large impact on the price of the wine. Aging the wine in Oak barrels improves flavor but adds to the cost. The expense of pruning vines, clearing leaves, killing weeds, and harvesting grapes by hand all lead to higher quality and higher cost. The use of natural cork leads to inconsistency in the taste and aroma of the wine. A template for a House of Quality appears as Exhibit 4. Each textbook presents this topic differently so instructor may have to adapt the template to the specific text.

4. What are the quality-related costs caused by cork taint in wine?

Cost of Quality is a system developed to assess all the costs associated with defective products. Exhibit 5 shows an itemized list of total quality costs of cork-related defects presented in the Cork Sensory Quality Control Manual developed by Butzke and Suprenant (1997).

As Exhibit 5 suggests, the costs of poor quality can be very high. First, there is the cost of inspecting incoming corks. Extra inventory of corks has to be maintained in order to have coverage in case lots are rejected. Once a tainted bottle reaches the consumer, it really becomes expensive. A refund has to be given to the customer and this credit has to be tracked back up the distribution system from retailer to distributor to winery.

The most difficult cost to assess is the damage to customer loyalty. Some customers will be happy with a replacement bottle but others may just think that the chosen brand simply tastes bad. In the worst-case scenario, the winery will lose a customer. Wineries spend a large portion of their budget on marketing in order to create a customer. Each time a customer is lost, that money has to be spent again to create a new one.

5. What are the advantages and disadvantages of each type of closure?

A complete list of advantages and disadvantages of each type of closure appears in the Appendix as Exhibit 6.

6. Which product development and/or quality management techniques can be used to assess this situation?

John Leyden can attempt to reduce the occurrence of cork taint by working with the supplier. The QC procedures in the case are methods to push suppliers to reduce TCA contamination in corks. Strict specifications were developed to insure acceptable levels of TCA and establish criteria for rejecting bad lots of cork. Supplier Certification can be used to assure that the supplier uses specific quality techniques during manufacturing. Specifications can also address harvesting, storage and cleansing practices, as well as shipping procedures, and quality control practices, such as Statistical Process Control. Pressure can be applied to suppliers because wineries have sufficient choices among suppliers. In addition, Rodney Strong Vineyards can band together with other wineries in order to demand action as a group. House of Quality, Cost of Quality, and Total Cost Analysis can be used to analyze the trade offs involved in the closure decision.

7. Can the consumer resistance be reduced?

No one has really asked the customer what he thinks after being given complete information on the performance of the closures. The students will recognize an interesting paradox - the closure that best protects the wine is perceived to be the least effective. A large consumer education campaign to change this perception could have a significant impact on changing consumer perceptions, especially among those marginal wine consumers, where growth in wine sales is expected to come from in the future.

8. Describe a situation where a technically superior product has had difficulty gaining consumer acceptance.

In video technology the Beta format and the VHS format battled mightily for dominance in the video cassette recorder industry. Beta was known for technologically superior features such as freeze frame and slow motion. More movies were available in the VHS format, however. As the product matured in the marketplace, the lack of content in the Beta format proved to be critical and the Beta format fell out of favor and was abandoned.

Similarly, Apple computers are generally considered to be superior to PCs by engineers because of more advanced technological features. Personal computers based on

Windows operating systems have come to dominate the market, however, because of increased software availability and compatibility with other products.

TEACHING PLAN

Several approaches may be used for teaching this case. One approach would require the students to assess the situation through a typical case method approach, first describing the problem, then identifying alternative solutions, and finally selecting an optimal alternative. Another written assignment would require the students to complete a House of Quality analysis. Customer requirements (Exhibit 3) are the stepping off point for constructing a House of Quality (Exhibit 4) and a discussion of how the voice of the customer affects product design. Other excellent discussions can be based on the Cost of Quality analysis (Exhibit 5) and a Total Cost Analysis (Exhibit 7). A brief summary of the effectiveness of each of these techniques and the conclusion reached would be sufficient. See the written assignment section below.

Another approach is to use the traditional whole-class discussion model by getting the students to first describe the winery's situation, evaluate solutions using the above techniques and, finally, make a recommendation. A general discussion of the customer's role and marketing outcomes could be embedded in the discussion. In addition, a board plan teaching approach will provide instructors a simple and quick means of highlighting the key points that are likely to emerge from the case (please see the board plan section). A short consumer survey could even be distributed.

Other teaching techniques that can be instructive include:

- 1) Prior to reading the case having students complete a consumer survey assessing their perceptions of various wine closures.
- 2) Organizing a role-playing exercise involving various members of the winery team including the Winemaker, and representatives from Production, Marketing, Supply Chain, and Quality Assurance Departments.
- 3) Breaking students into groups of 4 - 5 and asking them to provide a complete list of customer requirements for a bottle of wine at a price point of \$12. The attached Customer Requirements List (Exhibit 3) helps to enumerate these requirements. The characteristics can then be translated into design characteristics using the House of Quality technique. Students can then discuss the tradeoffs necessary.
- 4) Requiring group preparation and presentation of the case to the class, either orally or in written form.

Within each teaching approach, it will be necessary to distinguish every student or group's comprehension of the case study. Average grades should be given to students who show the ability to apply relevant course literature and marketing theories to the case. Exceptional students will move beyond the primary issues to foresee qualitative cost issues and consumer reaction factors. They should also realize that there is no "one size fits all solution."

WRITING ASSIGNMENT

The following writing assignment may be given to students in conjunction with the distribution of the case:

You have been asked to formulate a commodity purchase plan for wine closures that will resolve the problem of cork tainted wine. To guide your preparation, answer the following questions:

- 1) Whose input within the company should be sought?
- 2) What does the quantitative cost information reveal?
- 3) What does the qualitative cost information reveal?
- 4) What are the major consumer concerns?
- 5) How do you recommend solving this problem?
- 6) What type of closure do you recommend?

Several strategies are acceptable as long as they are defended adequately. The winery can stick with natural cork or change over to any of the substitutes. More astute students will realize that the winery is not restricted to any one type. For instance, Rodney Strong Vineyards could use plastic corks or screw caps on their white wines and use natural cork on the longer aged red wines. The market can be segmented with a particular closure tailored to each segment.

DISCUSSION ASSIGNMENTS

1) What is Total Cost Analysis?

Total Cost Analysis - Total Cost Analysis is an approach to understanding all costs associated with a purchase. It includes factors in addition to price such as failure costs, administrative costs, inspection costs, and disposal costs. This type of analysis stems from a supply chain management perspective that examines costs incurred by the buying organization associated with an item throughout the supply chain. Both quantitative cost

factors and qualitative issues are included because the lowest price does not always yield the lowest cost. A Total Cost Analysis of the closure decision is shown as Exhibit 7.

Interest in Total Cost Analysis has increased due to recent trends such as the drive toward higher quality and increased corporate focus on total quality management. A primary motivation for using Total Cost Analysis is to assure that our corporate customers are receiving the value that they desire. It is also an effective technique to analyze the impact of a change or compare the efforts of competing suppliers.

A value based Total Cost Analysis model combines cost data with other performance data that is often difficult to convert to a dollar value. In fact, a major barrier to the use of Total Cost Analysis is the lack of availability of such information, especially in smaller companies, and the difficulty of quantifying some costs. Traditional accounting systems often do not track the type of information used in Total Cost Analysis, such as percentage of defects.

2) Performing a Total Cost Analysis

This discussion can take place after the students have read the textbook material on Total Cost Analysis. Information from the case can be used to fill in a table similar to Exhibit 7.

Quantitative Costs. Figures from the case can be used to provide a comparison of the cost of each type of closure. Astute students will realize that the unit cost of the closures does not really tell us the whole story. Natural cork is the most expensive method of closing bottles based solely on unit price, but the analysis has to go beyond that. The costs of quality inspections, transportation, different bottles, and additional manufacturing equipment have to be addressed. Then the qualitative issues in the decision have to be addressed. A brief discussion of qualitative issues follows.

Qualitative Costs. Qualitative costs reflect costs that managers cannot easily state in numerical terms such as goodwill or the satisfaction of using environmentally responsible practices. Qualitative costs are important, however, because they often become the decisive factor in choices between alternatives with similar dollar costs. Total Cost Analysis can help to clarify the tradeoffs involved in such a decision.

In this case, the decisive factor in the decision on closures revolves around consumer behavior. Will the consumer accept an alternative closure? Or will the winery lose more customers due to cork taint? Many customers appreciate the tradition of the whole wine opening ceremony: the sound of the cork as it is pulled from the bottle and its presentation to the customer. There is a general perception that consumers think of screw caps and synthetics as cheap or as something that is associated with jug wines.

Astute students will notice that all consumers do not hold the above perception. What about the next generation of wine drinkers? This group of consumers was raised on a variety of unique drinks that were topped with twist off caps and screw tops. They may not be as closely attached to the ritual of uncorking the wine.

As far as the functionality of the cork, however, recent studies suggest that alternative closures may be the most suitable for use in products with a short shelf life. They will perform well over a one or two year time span but less well over a longer term. Most of the action is short term, however, because 90% of wine is consumed within a year of being released and within 24 hours of being purchased.

The additional cost of manufacturing equipment is another barrier to the use of screw caps and other alternative closures. Especially for smaller wineries, this will be a big hurdle until such equipment is available from the mobile bottling operations or custom crush facilities. A recent survey of wine professionals showed this to be an important barrier to change. In addition, bottles with the appropriate neck finishes have limited availability and may have to be bought in larger quantities than usual.

Environmental considerations can also come into play. Cork is a renewable resource. The cork forest provides ecological value to the fragile ecosystems of its natural habitat. The trees flourish without the intervention of herbicides, fertilizer, or irrigation. On the other hand, synthetic corks and screw caps are recyclable.

Quality is a critical source of competitive advantage for wineries competing internationally and the closure preserves the quality of the wine that goes into the bottle. Quality has become more important as California wineries fend off competitors from Australia, New Zealand, and Chile. Many producers in these countries have switched over to alternative closures in response to testing results and customer demand. Screw caps are now widely used in Britain in response to requests from the grocery stores in that country.

These issues are tied to corporate goals in achieving high quality. Dr. Joseph Juran developed the concept of Cost of Quality (Exhibit 5). He was able to show managers that poor quality was actually more expensive than making things right the first time. Products made with high defect levels are costly to the company in terms of product that has to be thrown out, loss of future sales, shipping goods back, inspection of incoming goods, and materials consumed in destructive testing. Exhibit 5 summarizes these issues in relation to corks.

3) Develop the House of Quality?

This discussion can take place after the students have read the textbook material on House of Quality that typically appears in the chapter on quality or product design. As an example, the design of a bottle of wine demonstrates the step-by-step-development of a

House of Quality. The class discussion leads to the completion of a matrix as shown in Exhibit 4.

House of Quality - House of Quality (or Quality Function Deployment) is a formal method that translates the voice of the customer into technical design requirements. It serves to assure that everyone working on a design project knows the design objectives and is aware of the interrelationships of the various parts of the design. Specific product decisions can be made on this basis. It is essentially a matrix that converts customer requirements into product design characteristics and then establishes measurable targets for those characteristics.

The first step is to listen to the customers to determine their needs and the specific attributes that they desire in the product. (Note - It is best to specify a \$15.00 glass bottle of sweet red wine in order to limit the discussion). Everyone has a different opinion on what constitutes a good bottle of wine. Asking the students their preferences develops the customer requirements section (see Exhibit 3 for sample preferences). Some basic flavor attributes include sweet, dry, complex, tannic, and smooth. Packaging attributes such as natural cork and screw cap closures can be included. Other criteria might include alcohol content and organic production methods.

These attributes are then recorded in the customer requirements section (see Exhibit 4) and rated on a scale of 1 to 10 according to the importance of each attribute to the customer (with 10 being the most important). In our example, a convenient package is very important to the customer but a recyclable package is not.

Second, a competitive assessment is conducted, comparing our product to that offered by competitors. On a scale of 1 to 5 (with 5 being the highest), customers evaluate our wine against the competitors on the previously established attributes. A high priced wine and a low priced wine can be used for comparison. For example, let's assume that our wine (X) is much less sweet than wines A and B. Our wine is closed with a cork, which makes it somewhat less convenient than the others, and it is priced higher than the competition. These ratings are shown in the competitive assessment section of Exhibit 4 and direct the students toward attributes that need to be changed.

The customer requirements are then translated into measurable design characteristics. These design factors are entered across the top of the matrix. The elements that customers desire have to be translated into distinct processes, components, or characteristics that can be specified and measured. The relationship between the customer requirement and the design characteristic may be positive or negative, so a plus (+) sign or minus (-) sign is entered in the body of the matrix. For instance, in order to produce a sweet wine, the winery may have to allow grapes to ripen longer and pay more for them - so pluses (+) are entered into the body of the matrix. The use of a cork has a negative impact on package convenience so a minus (-) is entered at that intersection. Selling price is determined by the cost of the

grapes, length of aging, and type of closure (cork vs. screw cap) so the appropriate signs must be entered.

There are often tradeoffs that have to be considered between the design characteristics because they are interrelated. The roof of the house reflects these tradeoffs. Sugar is converted to alcohol during fermentation so it is not possible to produce a wine that is both sweet and high in alcohol content. The winery must choose one or the other so a minus (-) is entered at that intersection in the roof. If the grapes are allowed to ripen longer, the cost will go up so a plus (+) is entered to reflect that those two design factors have a positive relationship.

The last section of the house, the basement, adds quantitative measures to the design characteristics so that there is a measurable objective to attain. Establishing a target of 3% residual sugar content specifies the sweetness of the wine. Convenience is achieved by specifying a screw cap to close the bottle. If grapes are bought at \$500 per ton, a low price can be maintained. An asterisk in the basement shows that a particular attribute as to be changed in order meet the customer's desires.

A completed House of Quality is shown as Exhibit 4.

BOARD PLAN FOR CLASS

1. Describe the problem
2. List potential solutions
3. Evaluate the alternatives
 - List customer requirements
 - List advantages and disadvantages
 - Develop House of Quality
 - Develop Total Cost Analysis
 - Discuss marketing implications
4. Recommend a solution

RESEARCH METHODOLOGY

This case was developed from field research by interviewing wine industry professionals, winemakers, closure suppliers, and wine aficionados. Secondary resources were used to gather market data and additional opinions. The author also visited the cork forest and visited several cork production facilities in Portugal. Extensive personal interviews were held with John Leyden of Rodney Strong Vineyards, Jose Oliveira of M.A. Silva (cork manufacturer), and Richard Poyol of Pechiney (screw cap manufacturer).

EPILOGUE

Rodney Strong Vineyards decided to stay with natural cork closures on all of its products. The consumer acceptance of natural cork as the closure of choice on super premium wines was the deciding factor, especially with the reduced level of taint resulting from the rigorous Quality Control efforts in house and at M.A. Silva. The second major factor was the cost of installing additional equipment to apply screw caps.

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| Exhibit 3: Customer Requirements | |
|---|----------------|
| Flavor and Aroma | Fruity |
| | Dry |
| | Sweet |
| | Smooth |
| | Bitter |
| Appearance | Clear |
| | Colorless |
| | Deep Red |
| Packaging | Attractive |
| | Easy to Open |
| | Able to Reseal |
| | Recycle |
| Price | Low |
| | High |
| Alcohol Content | Low |
| | High |

Exhibit 4: QFD Worksheet
House of Quality

| Design Factors | Importanc | Grape | Ripeness + | Age in Oak | Cold Stabilize | Cor - | Screw Cap | Low Price | Foil Label | Sugar | Hand | High % Alcohol | No Chemicals | Competitive Assessment | | | | | | |
|-----------------------|---------------|-------|------------|------------|----------------|-------|-----------|-----------|------------|-------|------|----------------|--------------|------------------------|---|---|---|---|---|---|
| | | | | | | | | | | | | | | 1 | 2 | 3 | 4 | 5 | | |
| Customer Requirements | | | | | | | | | | | | | | | | | | | | |
| Flavo | Sweet | 9 | + | + | | | | | | | | | | | X | | | | A | B |
| | Tannic | 2 | | | | | | | | | | | | | | | | | | |
| | Complex | 3 | | | + | | | | | | | | | | | | | | | |
| | Smooth | 6 | | | + | | | | | | | | | | | | | | | |
| | Acidic | 2 | | - | | | | | | | | | | | | | | | | |
| Packag | Convenient | 8 | | | | - | + | | | | | | | | X | A | | | | B |
| | Attractive | 5 | | | | | | | | | | | | | | | | | | |
| | Recyclable | 2 | | | | | | | | - | | | | | | | | | | |
| | Informative | 3 | | | | | | | | | | | | | | | | | | |
| Othe | Price \$15.00 | 10 | + | | + | | + | - | | | | + | + | X | | A | | | | B |
| | Alcohol % | 5 | | | | | | | | | - | | | | | | | | | |
| | Organic | 3 | | | | | | | | | | | + | | | | | | | |
| | Red | | | | | | | | | | | | | | | | | | | |
| Measurement Units | | \$ | brix | yrs | y/n | y/n | y/n | \$ | y/n | % | y/n | % | % | | | | | | | |
| Target | | 50 | 26 | 2 | y | n | y | 2 | n | 3 | n | 13 | 0 | | | | | | | |
| Design Changes | | * | | | | * | | | | * | | | | | | | | | | |

| Exhibit 5: Cost of Quality | |
|-----------------------------------|--|
| Internal Failure Costs | Scrap - net loss of labor and wine resulting from defects that cannot be fixed |
| | Rework - cost of correcting defects |
| | Retest - cost of inspection and retesting |
| | Downtime - losses due to a stoppage of production |
| | Disposition - cost associated with the effort to determine whether non-conforming products are useable |
| External Failure Costs | Complaint adjustment - cost of investigation and adjustment |
| | Returned cases of wine - cost of goods and shipping |
| | Loss of future wine sales - cost of a negative association to the product by customers |
| | Allowances - includes losses in income due to wine price downgrading for sale as seconds |
| Appraisal Costs | Incoming cork inspection and testing - cost of labor and equipment |
| | Materials consumed - costs of corks and wine (or both) in destructive testing |
| | Evaluation of stocks - testing bottled wines |
| Prevention Costs | Quality Control planning - costs associated with the development of a Quality Control program |
| | New products review - cost of testing of new bottle closures |
| | Training - cost of labor involved in winery staff training |
| | Improvement projects - cost of improving product quality |

| Exhibit 6: Advantages and Disadvantages of Closures | |
|--|---------------------------|
| Natural Cork | |
| Advantages | Disadvantages |
| Respects the ritual of opening the bottle | Susceptible to cork taint |
| Renewable resource | Higher cost |
| Adequate protection of wine | Crumbles |
| Known performance over long aging processes | |
| Technical Cork | |
| Advantages | Disadvantages |
| Inexpensive | Susceptible to cork taint |
| Renewable resource | |
| Synthetic Closure | |
| Advantages | Disadvantages |
| Inexpensive | Hard to extract |
| Bright colors available | Can leave a plastic taste |
| Reduces occurrence of taint | |

| Exhibit 6: Advantages and Disadvantages of Closures | |
|--|------------------------------|
| Screw-cap | |
| Advantages | Disadvantages |
| Superior protection of the wine | Looks cheap |
| Eliminates cork taint | Negative consumer perception |
| Medium price | |

| Exhibit 7: Total Cost Analysis Model - Completed | | | | | |
|---|--------------|--------------|----------------|----------------|------------|
| Suppliers: | Supplier A | Supplier B | Supplier C | Supplier D | Supplier E |
| | Natural Cork | Natural Cork | Technical Cork | Synthetic Cork | Screw Cap |
| Price per 1000 | 260.00 | 300.00 | 90.00 | 100.00 | 120.00 |
| Other Costs (per 1000) | | | | | |
| Transportation/Receiving | 1.16 | 1.16 | 1.16 | 1.16 | 1.16 |
| Inspection/QA | 8.68 | 8.68 | 8.68 | .25 | .25 |
| Accounts Payable | .03 | .03 | .03 | .03 | .03 |
| Capital Equipment Investment | | | | | 18.33 |
| Total per 1000 (Price + Other Costs) | 269.87 | 309.87 | 99.87 | 101.44 | 139.77 |

JEA LABORATORY

Arnold Schneider, Georgia Institute of Technology

CASE DESCRIPTION

The primary subject matter of this case concerns cost/managerial accounting – more specifically, activity-based costing. Secondary issues examined include analyses of marketing and operations. The case has a difficulty level appropriate for junior level courses. The case is designed to be taught in one class hour and is expected to require three hours of outside preparation by students.

CASE SYNOPSIS

This case involves designing an activity-based costing system for a service-oriented organization – a testing laboratory. Because of this service setting, the case complements activity-based costing material in cost/managerial accounting textbooks, virtually all of which focus heavily on manufacturing settings. The objective of the case is to enable students to understand the issues and procedures for designing a two-stage activity-based costing system as well as how to use the resulting cost information. The case also entails an analysis of marketing and operations based on this costing system.

INSTRUCTORS' NOTES

Recommendations for Teaching Approaches

This case involves designing and analyzing an activity-based costing system for a laboratory. The objective of the case is to enable students to understand the issues and procedures for designing a two-stage activity-based costing system. Students are also asked to analyze marketing and operations issues based on this costing system.

Students should have an elementary knowledge of activity-based costing as a background for this case. The case is a blend of computations and analysis. Question 2 requires some analysis, but is largely computational. Students should be encouraged (or required) to use spreadsheet software for this question. Instructors should make sure to allow sufficient time (15 minutes) for discussion of questions 3 and 4, which deal with analyses based on the activity-based costing system implemented.

The case begins by describing the formation of the company called JEA Laboratory, as well as its management and strategy. Next, the case discusses the implementation of a new service (i.e., test) and then the duties performed by various personnel. The case concludes with a questioning tone about the profitability of the new service and suggests that the costing method used may not be proper.

Students are provided with costs in a typical account format (e.g., salaries, utilities, etc.) and with cost driver information. They need to select the appropriate cost drivers and use them to first assign costs to three different activities. Also, they will need to figure out that some costs are directly assigned to the activities. Then, the students will assign one of the activity's costs to two testing activities. Finally, the costs of the activities, as well as materials costs, are assigned to the two types of tests performed by the company. Based on this cost-assignment exercise, students should be able to offer suggestions on how the costing can be improved. Furthermore, based on the results of their cost assignments, students should be able to offer suggestions relating to marketing and operations issues.

DISCUSSION QUESTIONS

1. Discuss the validity of the \$2.13 labor and overhead cost assignment shown in Table 5.

This cost assignment, which is based on the total number of items tested, presumes that each of the two types of items require the same time, effort, and resources. This is clearly not true, as evidenced by large differences in activities such as setup and marketing.

2. Determine the total cost for each test using the activity-based costing approach suggested by the consultant. What modifications might you recommend to this approach?

Before assigning costs to the two types of tests, we use two preliminary stages to assign costs to activities.

| FIRST PRELIMINARY STAGE: | | | | | |
|--------------------------|-------------------|------------|--------------------------|----------------------|-----------|
| Resources | Driver Used | Total Cost | Operations & Maintenance | Accounting & Finance | Marketing |
| Salaries-Operations | direct assignment | \$696,500 | \$696,500 | | |
| Salaries-Maintenance | direct assignment | \$59,600 | \$59,600 | | |
| Salaries-Acctg. & Fin. | direct assignment | \$141,000 | | \$141,000 | |
| Salaries-Marketing | direct assignment | \$115,000 | | | \$115,000 |
| Depreciation-Building | square feet | \$66,000 | \$63,682 | \$795 | \$1,522 |

| FIRST PRELIMINARY STAGE: | | | | | |
|---------------------------------|-------------------|--------------------|--------------------------|----------------------|------------------|
| Resources | Driver Used | Total Cost | Operations & Maintenance | Accounting & Finance | Marketing |
| Depreciation-Operations | direct assignment | \$31,000 | \$31,000 | | |
| Utilities | usage percentages | \$19,900 | \$16,318 | \$1,393 | \$2,189 |
| Travel | direct assignment | \$18,700 | | | \$18,700 |
| TOTAL | | \$1,147,700 | \$867,100 | \$143,188 | \$137,411 |

Before assigning the Operations and Maintenance costs to the two activities within this cost pool, we need to compute the hours related to these activities, as follows:

| | | |
|-------------------------|-------|-----------------|
| Total available hours | 8,000 | |
| Testing-Setup hrs. | 579 | (15/60 x 2,315) |
| Testing-Processing hrs. | 7,421 | (8,000 - 579) |

Now, these hours are used as the cost driver to assign costs to the two activities, as follows:

| SECOND PRELIMINARY STAGE: | | | | |
|----------------------------------|----------------------|------------|----------------------|-----------------|
| Activity | Driver Used | Total Cost | Testing - Processing | Testing - Setup |
| Operations & Maintenance | testing & setup hrs. | \$867,100 | \$804,371 | \$62,729 |

Next, we assign all costs, including materials, to the two tests:

| PRIMARY STAGE: | | | | |
|----------------------------|---------------------|------------|---------------------|------------------|
| Activity | Driver Used | Total Cost | Integrated Circuits | Transformers |
| Accounting & Finance | no. of jobs | \$143,188 | \$26,358 | \$116,830 |
| Marketing | percent of effort | \$137,411 | \$34,353 | \$103,059 |
| Testing-Processing | no. of items tested | \$804,371 | \$499,008 | \$305,363 |
| Testing-Setup | no. of setups | \$62,729 | \$11,516 | \$51,213 |
| Materials-Integ. Circuits | direct assignment | \$83,750 | \$83,750 | |
| Materials-Transformers | direct assignment | \$92,250 | | \$92,250 |
| TOTAL | | | \$654,985 | \$668,715 |
| TOTAL COST PER TEST | | | \$1.96 | \$3.26 |

Possible modifications of the ABC analysis:

- ◆ Attempt to directly trace the salaries in Operations to the two types of tests. Some of the testers may do testing for integrated circuits only or transformers only; for those that perform both types of tests, time sheets can be kept.
- ◆ Track the hours consumed by each type of test so that for Testing-Processing we could replace the cost driver "no. of items tested" with "number of processing hours".

Alternatively, we can weight the number of items by prices, presuming that prices are correlated with processing times.

- ◆ Perhaps, also, setup hours can be tracked for each type of test so that it could be used to assign Testing-Setup costs instead of "number of setups", since the setup times may differ between the two types of tests.

3. **Should JEA Laboratory revise its marketing approach, as suggested by Amy Devorak? Why or why not?**

With the ABC analysis, the profit margins are now:

| | Integrated Circuits | Transformers |
|---------------------|---------------------|--------------|
| Revenue per Test | \$2.90 | \$3.70 |
| Total Cost per Test | \$1.96 | \$3.26 |
| Profit per Test | \$0.94 | \$0.44 |

The complexity and the effort associated with testing transformers is reflected in the ABC costing approach, yielding a much higher cost for transformers than for integrated circuits. The resulting profit margins are the reverse of those obtained from the simplistic analysis done by Amy Devorak (see Table 5). Hence, instead of devoting more resources to transformers, they should consider shifting resources from transformers to integrated circuits.

One implication is that more marketing should be done for integrated circuits than for transformers. This will necessitate a switch of current emphasis, which devotes only 25 percent of total marketing to integrated circuits, while 75 percent is devoted to transformers. JEA Laboratory should also analyze the costs associated with each of its two main transformer customer groups - component manufacturers and research institutions (e.g., universities). If the costs relating to these two groups differ markedly, then JEA Laboratory

should consider concentrating its transformer marketing efforts with the lower cost group. Another consideration should be the customers' job sizes. Marketing efforts should focus on those customers with larger numbers of items to test. Additionally, it may be prudent to undertake some marketing research to determine whether JEA Laboratory can raise the price of transformer testing without losing much volume.

4. How should JEA Laboratory revise its operations?

A benefit of activity-based costing is that it can be used to highlight areas for potential cost reduction. From Table 3, we see that although the lab tests far fewer transformers than integrated circuits, the number of jobs and setups are far greater for transformer testing. Setup costs, as well as costs of Accounting and Finance, which are driven by number of jobs, can be reduced by obtaining jobs having larger lot sizes and conducting tests in larger batch sizes. The lab might want to consider charging different prices for different lot sizes.

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CASE DESCRIPTION

This case primarily focuses on the rescue of a brand which has been around for nearly a century, and how strategic marketing can be effectively used to rebuild and reinvigorate a relatively old brand and product. Secondary issues include brand positioning and brand equity issues, channel conflict, and e-commerce. This case has a difficulty level of 2-3, and would be appropriate for sophomore – to – junior level students. The case is designed to be taught in 2-3 class hours and is expected to require 3-5 hours of outside preparation by students. It might be helpful for students to further examine other “nostalgic” brands for the purposes of comparison.

CASE SYNOPSIS

This case centers around an entrepreneur (Bob Jacquart) who unexpectedly finds out that a product his family has worn for generations (the “Stormy Kromer” cap) has fallen upon hard times and is nearly being discontinued. After making some inquiries, Bob purchases the rights to produce the product / brand, and begins to realize the power held by the brand itself. Sales for the Stormy Kromer hat increase dramatically over a short period of time, and Bob is challenged to find ways to successfully grow the brand equity associated with the Stormy Kromer name through suitable additions to the product line, expansion and diversification of the channel strategy (including e-commerce: go to StormyKromer.com) and possible international expansion.

INSTRUCTORS’ NOTES

Recommendations for Teaching Approaches

This case is designed for use in several different courses including Marketing Strategy, Consumer Behavior, and finally E-commerce and Marketing. Students should be drawn to the company’s Website immediately upon reading the case (www.stormykromer.com), and probably have never heard of the hat nor the company, especially if from a warmer climate. The company in question here is a small one, and therefore students should be able to imagine what it would be like to purchase an old brand and bring it back to life.

The case can be assigned as either an individual or group assignment; the questions provided at the end of the formal case allow for some flexibility in assigning some or all of these questions / issues to students. It might also be helpful to have students prepare for the case by thinking about the role of “stories” or “nostalgia” as they relate to brands and brand equity. Perhaps have students prepare a list of 3-4 other products where “stories” or “nostalgia” are an important part of the product.

Teaching Objectives

There are a number of teaching objectives linked to this case, including the following:

1. To expose students to the challenges and opportunities of rescuing a brand.
2. To provide students with the opportunity to understand the intricacies of blending traditional and Web-based distribution strategies.
3. To challenge student to think about the components of branding, including “nostalgia”-based branding, and how to extend brand equity.
4. To give students the opportunity to explore foreign market entry options.

POSSIBLE CASE TEACHING QUESTIONS

1. **Should the Stormy Kromer brand name be extended to related products or lines, such as clothing (i.e., coats, jeans)? If so, how would these products be priced? Promoted? Distributed? A brimless version of the Stormy Kromer had recently been introduced, with some success, but who was buying this version of the Stormy Kromer and why?**

A discussion of this question can be centered on asking students to evaluate three requirements for successfully broadening the product mix: 1.) How consistent is or are the related products or lines, (including pricing, promotional and distribution aspects) with the Stormy Kromer hat? 2.) Does Jacquart Fabrics have the necessary resources to adequately introduce and sustain the new products or lines? And, 3.) Is there a viable market niche for the new offerings?

The brimless version of the Stormy Kromer can be a good basis for discussion. Most students will agree that the modified Stormy could be considered “consistent” with the original hat. However, the brimless version tends to appeal to a whole different market niche than the “hunt and fish” crowd. Initial sales indicate the hat is selling to women and to

younger individuals who could be classified as being more active outdoor oriented (snowboarders, Nordic and Alpine skiers, winter hikers and campers, etc.).

If the hat is appealing to a different segment, a different or modified promotional and distribution strategy is needed to be successful. The introduction of the brimless version as well as the Lil' Kromer (see question 6) could be discussed in the context of being a market development strategy versus developing related products such as a premium made and priced wool coat targeted to the "hunt and fish" segment. Based on Jacquart's limited resources (stated in the case), either strategic direction taken will require a substantial commitment of financial and human resources.

- 2. How should the brand name and brand image of the Stormy Kromer be managed over the next 5 years? The brand seems to be off to a "good start", but Bob continually worries about the future of the brand. How would, or should, the promotional strategy for the Stormy Kromer brand change or evolve over time? Who buys the Stormy Kromer cap, and why? How, or might the customer, or target market for the Stormy Kromer change over time? How should the brand be positioned in the future?**

An initial thread of discussion might include the concept of brand equity, and what are some examples of products that could be related to the Stormy Kromer brand. For example, Bob has considered adding an entire line of outdoor-related clothing under the Stormy Kromer brand, and is currently testing this idea by launching shirts (\$30-50 price range) and outdoor coats (\$350-500 price range). One key question here, though, relates to the ability of the brand name to carry a broader range of products; has enough time and investment been made such that the brand name has the "legs" to carry a broader array of products.

As an example, class discussion might relate to other outdoors-related brands, such as Cabela's, Gander Mountain, Bass Pro Shop, Coleman, Columbia, Woolrich, Filson, Pendleton, and Carhartt, and how these brands have grown and evolved over time. For example, students can profile the evolution of the Columbia brand vs. the Coleman brand over the past 10-20 years, focusing on product, distribution, pricing and promotional strategies; what lessons might Stormy Kromer take from the experience of some of these successful (and not so successful) brands?

- 3. Should the Stormy Kromer brand be launched in the international market? Bob has wondered about potential markets, such as Canada, and parts of Northern Europe and Scandinavia (i.e., Finland, Sweden, and Norway). What would it take to achieve a successful launch in one or more foreign markets? What business model should be used?**

Given that the Stormy Kromer brand is culturally-bounded and Bob's company is relatively small, it would seem to be difficult to extend the brand too far outside of the U.S. In developing this case, a group of students in Finland, for example, conducted some research in Scandinavia in order to assess the hat market; their findings indicated that most people in Finland, Sweden and Norway did not understand nor appreciate the "history" behind the Stormy Kromer, and preferred winter hats that were either more functional (using more modern materials such as Gore-Tex) or more stylish in a contemporary sense (vs. an "old fashioned" looking hat such as the Stormy Kromer). Perhaps the Canadian market would be a good "test" for Bob's international market ambitions, given its proximity to the U.S. and cultural similarities (somewhat so); simple exporting would seem to be the most appropriate business model. Country – of – origin effects might also be an interesting discussion thread for students to consider also; where, how and why are these effects significant, and how does country-of-origin relate to the Stormy Kromer product?

- 4. What about competition? Bob worried about foreign competitors marketing cheaper versions of the Stormy Kromer cap in the U.S.; would these competitors enhance their marketing efforts once word leaked out about the success of the Stormy Kromer? Would other competitors, such as Columbia, Carhartt, Filson, Woolrich, and Pendleton launch similar products?**

Some level of direct competition already exists, primarily from other North American (Canadian) and Asian producers; however these firms have not developed any significant level of brand equity associated with their versions of the winter Kromer cap. Will the promotional investments made in creating and perpetuating the Stormy Kromer legend (and brand) be enough to convince consumers to pay a premium for the "real" version of the winter Kromer cap? To date, the evidence seems to suggest "yes". Is the market for the "Stormy Kromer" large enough to attract significant competitors such as Columbia, Carhartt, Filson, etc.? At this point in time, probably not, given that some of these competitors are over 100x the size (in terms of sales) of Stormy Kromer; for example, if unit sales (to resellers) of Stormy Kromer are 200,000 per year, at \$15 per unit this only equates to \$ 3 million annually in sales, which is a relatively small amount. It would seem that Stormy Kromer's sales would have to climb substantially before competitors would see significant market potential.

- 5. How (if at all) should the distribution strategy for Stormy Kromer be changed? Should the company hire more of their own sales representatives? Should more of an emphasis be placed on the Web-based sales (see www.stormykromer.com)? Should company-owned "Stormy Kromer" retail stores be opened in selected locations in the**

Midwest, West and Northeastern U.S.? Should more of a merchandising presence be established with “big name” retailers? Might any channel conflict result from changes in distribution?

An appropriate way to begin discussion is to ask students to list some of the pros and cons of the current distribution strategy which uses a dual channel of distribution: an independent agent/retailer channel and a non-traditional direct channel (www.stormykromer.com). A discussion on what is the appropriate level of distribution intensity might also be addressed. Initially the hat was selectively distributed through independent specialty retail stores. Is the placement of the hat in a “big name” store like Cabela’s compatible with the brand strategy? Could Walmart or some other mass market general box retailer be next?

There are several ways the discussion could go on whether the company should hire more of their own sales representatives. Based on the company’s relatively inexperience in sales, limited resources and the geographical breadth of the hat’s distribution, the distribution strategy that the Jacquart team has chosen, independent sales representatives in assigned geographic territories makes sense. However, a brief analysis of existing retail outlets (dealer locator at www.stormykromer.com) versus the potential market will show that retail outlet penetration is low outside of the Midwest, particularly in the Northeast and Pacific Northwest. This analysis can be performed a number of ways. The easiest is to have students do a retail outlet per capita analysis by colder climate “hunt and fish” state. The authors have had students who have done a retail outlet per deer hunting and/or fishing licenses by state.

Channel conflict cannot be ignored when addressing whether additional emphasis should be placed on Web-based sales, opening company-owned retail stores or seeking more of a merchandising presence with “big name” retailers. At present, channel conflict doesn’t appear to be an issue with Stormy’s network of retail outlets despite the fact that 28 percent of 2004 sales were through the company’s Website. You might ask students to offer an explanation for the lack of conflict. Possible reasons include the hat’s low penetration of retail outlets in certain areas of the United States, lack of an international presence, consistent pricing and discounting (only allowed at certain times of the year) with retail outlets plus direct buyers pay shipping and handling fees. Since the hat is often a sought product, retailers also benefit from prospective buyers using the www.stormykromer.com Website’s dealer locator feature.

From the firm’s perspective, Web-based sales are preferable since they eliminate the independent sales rep’s commission and the retailer’s markup, dramatically increasing Jacquart’s unit contribution. You might ask students to compute how much more the unit contribution is for a Web-based sale (a minimum of $\$ 29.99 - \$ 15.00 = \$ 14.99$ plus the rep’s

commission, assuming shipping and handling fees cover the marginal costs for Jacquart to receive the order and drop ship to customer.)

Based on the narrow breadth of the product line and seasonality of sales, opening “company-owned” retail stores is probably not a good idea at this time. Perhaps a strategy of establishing a merchandising presence with a “big name” retailer like Cabela’s, Gander Mountain or even a regional department store like Marshall Fields with a boutique or “store within a store” concept is a possibility. Students might bring up the idea of selling the hats at kiosks located in regional shopping malls during the peak selling season. (Jacquart experimented with a kiosk in Duluth, MN the last quarter of 2004 and experience problems with finding good sales associates as well as having adequate controls in place to prevent inventory shrinkage.)

6. **Jacquart’s first attempt to expand the product line was the introduction of the “Lil’ Kromer.” It was recalled for some safety concerns, which have since been corrected and the hat was recently re-introduced to the product line. How should the children’s market be approached? How lucrative would the children’s market be to Stormy Kromer?**

At least two logical approaches to the children’s market are plausible. The most obvious is to do what the company is currently doing, marketing the Lil’ Kromer along side the adult version of the hat. The children’s version of the hat is often purchased through existing retail outlets or on-line by a “hunt and fish” customer as a gift for a child or grandchild. This approach has the advantage of piggybacking on the promotional and distribution strategies of the original Kromer.

An additional strategy would be to broaden the children’s target market segment beyond children or grandchildren of the “hunt and fish” crowd. Some students have raised the idea of packaging or bundling the “Lil Kromer” with a copy of the “Mr. Puffer Bill” book (currently out of print) and distributing the gift pack through high-end specialty toy and children’s apparel retailers and cataloguers. This would most likely require a different promotional and distribution strategy. It could lead to additional opportunities to expand the product line into children’s toys, literature and other media (i.e., Thomas the Tank, American Girl) which good be quite lucrative.

PIXELON: A STRATEGIC EXAMINATION OF CORPORATE GOVERNANCE AND ETHICS

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CASE DESCRIPTION

The primary subject matter of this case concerns corporate governance and ethics. Secondary issues include technical managerial, financial, and marketing knowledge, communication skills, critical thinking skills, and coping with uncertainty and unstructured problem-solving. The case has a difficulty level of four, appropriate for senior level. The case is designed to be taught in two class hours and is expected to require ten hours of outside preparation by students.

CASE SYNOPSIS

Organizations with an interest in improving business education continue to increase awareness of the broad range of skills that businesspeople must have to be successful. In addition to technical managerial, financial, and marketing knowledge, communication skills, critical thinking skills, and coping with uncertainty and unstructured problem-solving are often listed as critical skills that students should be developing.

Pixelon was a real online broadcasting and online content startup that initiated its existence with the most expensive launch party ever – iBash '99. In this series of four critical incidents, students are presented with a brief history of Pixelon and several significant decision points for the company's executives and board of directors.

One of the main objectives of this case is to provide an opportunity for students to practice their written and oral communication skills. The case is assigned as a writing assignment which is then followed up with class discussion about the case when the paper is turned in. Since the case builds in facts and detail, the case provides a relatively deep learning environment over time.

Another objective of the case is to allow students to demonstrate their technical business knowledge via discussion of management, finance, and marketing strategies. Since new facts are introduced in each of the four critical incidents, the students must deal with uncertainty in answering the case questions in the first three critical incidents, which fulfills the objective of giving students a chance to participate in problem-solving in an unstructured setting.

INSTRUCTORS' NOTES

Recommendations for Teaching Approaches

The first part of the case focuses on the general business objective. Management and marketing strategies, and a SWOT analysis are used to get a sense of the startup business and its environment. The opportunities and risks of an emerging industry are highlighted (Goodin, 1999a, 1999b). These analyses are also important in understanding the control environment of the company and the risk of fraud. Additional general business knowledge objectives of the first section include exposing students to the practical problems involved in an upper-management transition and providing students with a better understanding of external financial investment decisions prior to a firm's initial public offering. Researching venture capital strategies is a component of this first part of the case for most students.

The second critical incident in the case deals more directly with the issue of fraud and emphasizes the superiority of background checks in investigating the reputation of company officials (Goodin and Lee, 2000; Goodin, 2000a). Students are expected to demonstrate their knowledge of accounting in this section of the paper through a discussion of the components necessary for a fraud to occur. Additional general business objectives include gaining an understanding of the pressures involved with providing venture capital in an emerging industry and the understanding of upper management turnover as a potential negative signal of firm reputation. Students may need to research the difference between background checks and criminal record checks.

The third section describes the impending bankruptcy of the company and reveals the amount of misinformation that the company has promulgated about the technology it is purported to be providing (Associated Press, 2000; Goodin, 2000b; 2000c; 2000d; 2000f). The students are invited to speculate on why the managers and employees chose to take part in the fraud, again reviewing concepts of the components that lead to fraud. Understanding the differences between different types of bankruptcy is another general business objective of this critical incident, and may require some research by students who have not recently studied bankruptcy. Broad objectives also include reflection on the importance of critical thinking and accountability within a company.

Finally, the fourth part of the case describes in detail the ousting of the Chairman of the Board (Goodin, 2000e). This section allows the students to see the inner workings of the Board of Directors in a crisis situation and initiates research and discussion about the responsibilities of a Board of Directors in a private organization. It also emphasizes the necessity to follow the bylaws of the corporation even in extreme circumstances. Additional warning signs of the fraud, including extreme management styles, are also reviewed.

Case Administration

This series of critical incidents is intended to be completed by students in a strategy capstone as part of their course requirements. The method of introducing the critical incidents, suggestions for classroom use, techniques for adjusting the cases to achieve a variety of educational goals, and methods of student performance evaluation are described in the next sections.

Classroom Introduction to Cases

A short lecture on professional writing styles and potential research resources was the basis for a class discussion before the first part of the case was distributed. The course web site also had links to potentially useful business and general research sites.

SUGGESTIONS FOR CLASSROOM USE

The suggestions listed below result from classroom implementation of the cases and focus on the sections of the case that students tended to ask the most questions about or most often overlooked.

Part I

Students often completed a SWOT table using fragmentary sentences based on the requirements for a Powerpoint SWOT presentation in another class. Reminding the students that the written communication requirements of the case apply to all of the questions may be helpful. Students sometimes expressed confusion about the difference between strengths and weaknesses and opportunities and threats. A review of the components of SWOT and a reminder that the first two letters focus on the specific company and the last two letters focus on the outside environment may clarify the issue.

Part II

Students may be unclear about the difference between a comprehensive background check and a simple criminal record check. Students could be explicitly directed to complete research to differentiate the different types of checks.

Students often answer the components leading to fraud with the legal definition of fraud. It may be helpful to stress that the legal definition does not necessarily provide warning signs of where a fraud may be occurring, but knowing the factors that lead to fraud is helpful to auditors in determining where to concentrate their attention.

Part III

Students may make the case for either a Chapter 7 or Chapter 11 bankruptcy depending upon their interpretation of the facts. Having students defend their positions in the discussion of the case is very helpful in demonstrating the breadth of perspectives.

Part IV

Students sometimes are confused about the role of the board of directors in a private corporation, arguing that they answer only to management. Reminding students to review the responsibilities of the board of directors in general may be helpful.

Adjustments to Different Educational Objectives

Instructors may have different student expectations and objectives, and the following suggestions will aid instructors in adjusting these case parts to their individual class goals.

Part I

To increase case expectations: Business knowledge/written communication skills: Ask the students to write a memo describing how the change in leadership should be disclosed in Pixelon's Notes to the Financial Statements.

To decrease case expectations: Business knowledge/Research skills: Provide students with a description of the control environment component of internal control.

Research skills: Provide students with information about venture capital strategies.

Part II

To increase case expectations: Research/Analytical skills: Ask students to perform an analysis of how much a company would be willing to pay for a comprehensive background check.

To decrease case expectations: Research skills: Provide students directly with an analysis of the difference between background checks and criminal record checks.

Part III

To increase case expectations: Research skills/written communication skills: Ask students to search for other online broadcasting companies that overstated their technological capabilities and write a memo describing how their contingent liabilities were disclosed in the financial statements. To decrease case expectations: Research skills: Provide students with descriptions of Chapter 7 and Chapter 11 bankruptcies.

Part IV

To increase case expectations: Critical thinking skills: Ask the students to speculate about why accountants and auditors were relatively uninvolved with the events at Pixelon. To decrease case expectations: Research skills: Provide students with a detailed description of the responsibilities of the Board of Directors for both public and private companies. Research skills/Analytical skills: Provide students with a description of different management styles.

Answers for Pixelon Case Part I: Do Not Go Gently Into that Pixelon Night (December 1999)

1. What immediate management actions would you expect Carsia to take after becoming CEO of Pixelon? Why?

Carsia will probably call immediate strategic planning meetings with upper-level management and the board of directors. A movement away from providing content due to intense competition and towards online broadcasting where there was relatively less competition could be anticipated.

2. What were the advantages and disadvantages of the marketing strategies implemented around Pixelon's launch? What are the characteristics of marketing strategies for firms in emerging industries?

The advantages of the iBash strategy included generating tremendous buzz in the Internet and entertainment industries, and gaining name recognition within a wide group of potential investors. The disadvantages of the iBash strategy included cost, unintentionally highlighting technology needing improvement, and lack of communication with the primary investors.

Firms in emerging industries often focus on gaining market share early before more competitors enter the market. New industry firms commonly spend large amounts on

advertising to establish name recognition and the perception of being an early industry leader.

3. Prepare a SWOT analysis for Pixelon in December 1999.

Strengths include an experienced CEO, employees willing to work intensely in anticipation of an IPO, and the brand identity established by iBash. Weaknesses include technology that needs improvement, the ouster of the man who had provided the vision for the company, and content disputes with iBash participants. Opportunities include the wide open market for online broadcasting and threats include the intense competition among content providers.

4. How do venture capitalists judge the viability of technology being developed by a startup?

Most venture capitalists have a technical expert examine the quality and feasibility of the technology being developed by a startup. In addition, the technical expert tests the product to make sure that it works as promised.

5. How do potential investors assess management skill within a new company, especially in a new industry?

Potential investors look at the experience of the current managers and the early decisions made by the managers within the context of the startup. The growth rate of the new company is also a consideration.

6. If you were the head of Pixelon's venture capital firm, would you recommend another round of funding for the company in the near future? Why?

Yes, online broadcasting presents unlimited opportunities for Pixelon. The experience of Robert Carsia will guide Pixelon towards being a leader in the field, and name recognition within the industry and the public at large was established with iBash.

No, there is intense competition in the content side of the entertainment industry. In addition, the new firm has squandered most of its money on the iBash fiasco that only highlighted that the promised technology breakthroughs are not yet operational. Carsia has not stayed long at any of the Internet startups he has been involved with.

**ANSWERS for Pixelon Case Part II:
Secrets of the Golden-Tongued Salesman (April 2000)**

1. What procedures should investment banks use to investigate the backgrounds of prospective clients?

Investment banks generally run a criminal check on the officers of prospective clients. However, use of a false name will thwart the results of the criminal check. Instead, investment banks should pay a private investigator to complete a background check on these prospective clients. A comprehensive background check is more thorough than a criminal check in that the private investigator will speak directly to individuals who have had contact with the subject of the background check. In addition, the comprehensive background check includes verifying the identity of the subject through the use of official documents. After the Pixelon case was publicized, a private investigator was able to conclude that ‘Michael Fenne’ was not a real person after only a few minutes of online investigation. Auditors should keep the thoroughness of background checks in mind while investigating the reputation of potential clients (Whittington and Pany, 2001).

2. Why might Advanced Equities have omitted a background check of ‘Michael Fenne’?

Background checks are more expensive than criminal checks. In addition, background checks take weeks, while criminal checks may be completed in a much shorter period of time. Advanced Equities may have been concerned about another investment bank gaining Pixelon’s business if they did not act quickly. Finally, they may have felt that the background check was the responsibility of Pixelon’s Board of Directors. Rapid growth in an industry is often interpreted as increasing financial reporting risk.

3. What three components are necessary for a fraud to take place? Describe how each of these components was present in the case of David Stanley and Pixelon.

The three components necessary for a fraud to take place are 1) perceived pressure (need for cash, revenge, etc.), 2) perceived opportunity (weak internal controls), and 3) ability to rationalize (weak personal ethics). David Stanley was under intense perceived pressure as a result of being on the run from the law from his prior conviction and an obsession with becoming a multi-millionaire (Goodin, 2000e). He perceived the opportunity for fraud in the red-hot internet industry, where investment banks and venture capital firms were competing intensely for companies that had yet to produce a product or service. Finally,

Stanley's ability to rationalize was apparent in his past history of embezzlement of elderly people, his numerous false personas, and his run from the law.

4. Comment on the stability of Pixelon's upper management.

'Fenne' had been ousted only weeks after Pixelon's launch party. Robert Carsia had resigned from the CEO position after only one month on the job. Paul Ward became the interim CEO in both cases, and his approximately four month tenure had lasted longer than either the founder or the person explicitly hired to be the CEO. Pixelon is apparently unable to maintain stability in its CEO position, which often is a symptom of problems with upper management or the company in general and indicative of potentially greater financial reporting risk.

**Answers for Pixelon Case Part III:
The End of the Charade (May 2000)**

1. What legal liability issues result from Pixelon's past misleading press releases and white papers? How might this factor into an audit of Pixelon?

Civil or criminal fraud charges could be brought by Pixelon's investors based on the misleading press releases and white papers (Clarkson et al., 1989). In addition, Pixelon's bankruptcy situation is not likely to be improved by the revelations of fraud if the filers depended upon the misleading information. It will be necessary for the auditors to examine the disclosure of any contingent liabilities that may be related to these legal liability issues.

2. Why weren't Pixelon's employees more skeptical about the technology in use at the company? Why did they remain employees of Pixelon if they knew the proprietary technology didn't exist?

The employees seemed to be focused on the potential of becoming instant millionaires in the initial public offering and did not wish to 'rock the boat' for fear of throwing the IPO off-track as well as the potential for retaliation from the other employees. The employees apparently believed that investors would not discover the proprietary technology did not exist until after the IPO, when the employees who knew the truth would be long gone.

3. Would Pixelon management prefer a Chapter 7 bankruptcy or a Chapter 11 bankruptcy? Who has priority in a bankruptcy case, creditors seeking cash payments, or shareholders?

A Chapter 7 bankruptcy would liquidate Pixelon, while a Chapter 11 bankruptcy would allow Pixelon to reorganize the business (Clarkson et al., 1989). Pixelon management would prefer a Chapter 11 bankruptcy because the business could potentially continue after the reorganization. In a Chapter 7 bankruptcy the assets of the business would be sold for cash and Pixelon would cease to exist. Creditors seeking cash payments have priority over shareholders in a bankruptcy case. Pixelon agreed to file Chapter 11 bankruptcy in June, 2000. Bankruptcy planning would definitely impact the auditor's assessment of the business as a going concern (Whittington and Pany, 2001).

4. Did the investment bank undertake the appropriate steps in analyzing Pixelon's technology?

Advanced Equities hired technical people to evaluate the technology and one of the technical people actually made an investment in Pixelon. Perhaps Pixelon could have investigated the background of the technical people more carefully. Technical expertise was in short supply during this period of time, as this situation demonstrates.

Answers for Pixelon Case Part IV:

The Real Story of the Ousting of 'Michael Fenne' (November 12, 1999)

1. Discuss the responsibilities of the Board of Directors in a private company. Are these responsibilities any different if the company is public?

The responsibilities of the Board of Directors include attending BOD meetings, defining the mission and participating in strategic planning, representing the organization's point-of-view, selecting, appointing, compensating, and evaluating a chief executive, governing the organization through broad policies and objectives, acquiring sufficient resources for the organization's operations, and accounting for those resources and profits. For a public organization, accounting to the public for the firm's products and services and financial records would also be included (McNamara, 2002). Since Pixelon intended to go public within a short time, the responsibilities of the Board of Directors would be approaching those of a public company, including the formation of an Audit Committee to work with the external auditors.

2. How would you describe Fenne's management style?

Fenne had a tyrannical management style that emphasized motivation through fear. In addition, he seemed to be developing the characteristics of "a cult leader", in the words of

one of his employees. Little sense could be made of his decisions to promote an employee to CEO one week and fire her the next. The rapid changes in personnel could have material implications for financial reporting risk.

3. Why did executives and employees tolerate Fenne's erratic behavior? When should other executives and employees take action if an executive is behaving strangely?

Executives and employees likely tolerated Fenne's erratic behavior in the hope that they would become wealthy through the firm's initial public offering. Fenne had been handing out numerous shares of Pixelon stock to employees and partners and they were loathe to leave the possibility of riches on the table. Executives and employees are in a difficult position with regard to the erratic behavior of one executive. It is necessary to bring violent or criminal behavior to the attention of the Board of Directors, but simply eccentric behavior may or may not be a concern of the Board of Directors. Eccentric behavior that directly impacts the organization's welfare probably should be brought to the Board, but generally this type of assessment is made by the Board.

4. What warning signs indicated that Fenne might not be what he appeared?

The fact that Fenne did not have either a driver's license or a Social Security card was one big warning sign that he had something to hide. In addition, extreme mood swings and bizarre workplace behavior are often associated with fraud due to the pressure to keep the fraud hidden. Auditors must be aware of the warning signs of fraud (Albrecht, Wernz, and Williams, 1995).

5. Why did the Board of Directors agree to have Fenne stay on as a consultant after they ousted him?

The Board of Directors may have perceived that they needed his technology skills or that he would provide some continuity during the transition period. Also, the Board may have been trying to discourage Fenne from filing a wrongful termination lawsuit.

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CRISIS MANAGEMENT AT THE NATIONAL INSTITUTES OF HEALTH

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CASE DESCRIPTION

Scientists at the National Institutes of Health (NIH), while government employees earning around \$200,000, were consulting and serving on private firms' scientific advisory boards. Although such practices were rare before the 1980s, they became increasingly common during the 1990s and into the twenty-first century. These practices raised concerns over perceived, and real, conflicts of interest, when the same firms received grants from (and did research with) the NIH. Defenders of the practice, however, suggested that the development of scientific knowledge was enhanced when research scientists had regular contact with private industry. Federal ethics guidelines did not prohibit federal employees from "moonlighting" in their free time, but did place strict guidelines on such practices. The primary issue in the case is to understand the nature of conflicts of interest, conditions under which "knowledge sharing" can be appropriate, and when such actions can be inappropriate and potentially illegal.

A second issue explores "crisis management," when the allegations of impropriety and conflict of interest are leveled at the NIH in December 2003. The director of the NIH has called for a review of all consulting arrangements and the establishment of a Blue Ribbon Panel, but there are concerns that this does not go far enough and that the NIH is trying to avoid seriously dealing with the situation.

The primary audience for this case is a junior/senior course in Business Government and Society, or a Business Ethics course. The case would also be applicable in Public Administration classes, particularly where administrative ethics are discussed. The case might also prove of interest in a class on knowledge management issues in a graduate program. While both of the above identified issues should be addressed in any discussion, the instructor has discretion regarding which one should serve as the primary focus in a class. This note takes the perspective that students need to explore the positive and negative aspects of government scientists' involvement with private industry, and potential exposure to real and perceived conflicts of interest. After this is understood, then appropriate responses to the concerns can be evaluated.

CASE SYNOPSIS

In December 2003, the Los Angeles Times reported that many senior scientists in the National Institutes of Health (NIH) had outside consulting and advisory relations with health science and pharmaceutical firms. The story suggested that these arrangements created both the reality and the perception of a conflict of interest, and were in violation of federal ethics regulations. Dr. Elias Zerhouni, Director of the NIH, quickly defended the integrity of his agency and its scientists, and indicated that the health and safety of Americans had never been at risk. Nevertheless, he instituted a review of all consulting arrangements, and announced the formation of a Blue Ribbon Panel that would advise the NIH on ways of dealing with this matter in the future.

Various members of Congress jumped on the story, and promised full inquiries into the matter. It was hard to feel sympathetic for the scientists, as many earned around \$200,000 in governmental salaries – more than members of congress. Should these scientists be allowed to consult for private firms while government employees? Is the nation's interest best served by allowing (and encouraging) knowledge transfer between federal research labs and private firms via such consulting arrangements? At the NIH, there was a need to proactively deal with both the perceptions of conflict of interest, and the potential reality of conflicts of interest.

INSTRUCTORS' NOTES

The focal issue in the case involves the actions that should be taken by the Director of the NIH, Dr. Elias Zerhouni, to deal with recent press reports regarding conflicts of interest. Before students can reach a thoughtful conclusion on this issue, however, they need to evaluate whether they believe any potential conflicts of interest by NIH scientists should be: a) strictly avoided; b) effectively managed via administrative procedures; c) simply not an issue since we should expect that people will conduct themselves with utmost integrity (and when problems are identified, legal action can be taken). Most undergraduate students will lean towards one of the first two opinions, with relatively few students feeling that scientists are above reproach.

This case can be assigned for use with whatever chapter is appropriate in a text. Students can also be referred to “An Ethics Handbook for Executive Branch Employees” (INK "http://www.usoge.gov/pages/forms_pubs_otherdocs/fpo_files/booklets/bkdoitright_95.pdf" "http://www.usoge.gov/pages/forms_pubs_otherdocs/fpo_files/booklets/bkdoitright_95.pdf"), or portions of it. This document outlines ethics issues for federal employees, and specifically addresses conflict of interest. (Keep in mind that these are updated from time-to-time, and thus this booklet could be replaced by an updated version by the Office of Government Ethics.) If not assigned, an instructor may want to read this to be able to supplement the case's discussion of federal conflict of interest guidelines. Our interpretation after reading the document is that some ethics guidelines

may have been violated, but even if the NIH skirted the legalities, clearly the spirit and intent of the guidelines were violated.

Prof. Ashnish Nanda at the Harvard Business School has also published several notes on how professionals (e.g., lawyers, accountants, consultants) should deal with conflict of interest issues. Due to the tangential relation with the issue in the case (the “client”, for NIH scientists, is “the public”), these notes are generally not as appropriate for student handout (except at a graduate level), but could be useful to an instructor in preparing for the class. (Managing Client Conflicts: HBS #9-904-059; The Essence of Professionalism-Managing Conflict of Interest; HBS # 9-903-120.)

The following discussion questions can be provided to students prior to class to help them prepare for class discussion. The class discussion can also generally follow this sequence. The third question, “have ethics rules been violated,” may come up while discussing either question 1 or 2. It can be dealt with anytime the instructor wishes to address it. There is some advantage in holding off this discussion, as it is important to discuss what students feel the rules should be, not just whether existing rules have been violated.

SUGGESTED DISCUSSION QUESTIONS:

1. Is there a conflict of interest if government-employed NIH scientists also serve as consultants to firms that do business with the NIH? Should it matter whether the scientists are directly involved with the same firms in both professional and private roles? What if they only privately consult with firms that are not directly related to the same institute or research projects that they supervise in their governmental role?
2. How important is it for NIH scientists to avoid even the appearance of conflicts of interest? Would the nation’s health, and the advancement of medical research, be better served by allowing outside consulting by NIH scientists, or prohibiting consulting arrangements?
3. Based on the information provided in the case, would it appear that NIH scientists have violated the letter, or the spirit, of federal ethics rules?
4. Are the current actions proposed by Dr. Zerhouni appropriate? Should additional action be taken at this time?

Is there a conflict of interest?

The incidents cited in the case make clear that certain scientists did have conflicts of interest between their governmental responsibilities and their private consulting. It is not clear that they ever made improper decisions as a result of these conflicts, but the facts

suggest that they were in situations where there was the potential to have private relations influence their professional decisions, or vice versa. When they work with the same firms both as government officials (e.g., allocating grants, performing studies) and as private consultants, there is reason to believe that their judgment can consciously (or even unconsciously) conflicted.

There may not be a conflict if the private consulting is with firms that have no relations with a scientist's institute. (In theory, this would be no different than moonlighting as an automotive mechanic or baseball coach.) Some student's may have difficulty understanding the differences between the various institutes without some help. Thus, it may be necessary to make clear that a scientist studying eye diseases would unlikely have any conflict serving on the advisory board of a firm developing treatments for stomach cancer. Once many members of the class come to understand this, some student may pose the obvious question: Why would a firm that investigates stomach cancer ever hire an eye doctor as a consultant? While perhaps the scientist may be hired for his/her general knowledge of medicine, it would more likely be for his/her knowledge of the workings of the NIH. If this were the case, is it appropriate to advise private firms on the policies of the NIH? (Should IRS agents be allowed to advise taxpayers on how to deal with an IRS audit, even if they are not the direct auditor on the case?) A scientist [or IRS auditor], by revealing to firms [individuals] how grants [tax forms] are evaluated, would be giving an advantage to those who avail themselves of the consultant's services, and disadvantaging those who did not [or could not] afford the same expenditure. In doing so, the consultants would be potentially undermining the objectivity of the evaluation process

As with many ethical issues, there is room for different individuals to have different opinions. Nevertheless, it is rare that one comes to the conclusion that there would be no potential for conflict of interest, or no potential adverse consequences from a conflict. But even if some student(s) hold to this view, as long as some students feel that a conflict of interest may exist, then it makes sense to explore ways to avoid the appearance of conflicts of interest.

Should private consulting by NIH scientists be allowed?

This discussion can be easily facilitated by exploring the pros and cons of consulting. On the positive side, this allows scientists to supplement their government salary, which can help attract and retain the best people. While the salary may seem high, in private practice or industry, salaries for such professionals can be even higher. It also fosters knowledge sharing, whereby scientists can learn what is going on in the "real world," and firms can understand developments in the NIH. By simply fostering collaboration between the government and industry, when both may be working on a particular disease, the likelihood

of finding cures can be increased. Thus, there is reason to believe that the NIH, the health of the nation, and efficient use of taxpayer funds can all be enhanced by collaboration and consulting.

On the negative side there are both direct effects, and indirect effects. If a scientist's judgment is impaired when making decisions regarding grants, research tracks, or patient health by their own private gain, clearly the direct effects can be negative. Also, taxpayer money may not go to the most worthy projects, but to those projects where a scientist is receiving additional compensation from the company (either in direct fees, or in appreciating stock value). But it can be argued that existing guidelines that limit or prohibit such direct relations, if properly enforced, would keep these situations from occurring.

The indirect effects are more subtle, but arguably a more important issue. If the NIH allowed, and even encouraged scientists to take on consulting roles, this could affect the overall relation between the NIH and private industry. Firms might feel obligated to have NIH scientists on their payroll, just to get the "inside" scoop. Smaller firms, that did not have the capital to afford consulting, could feel left out of the loop. Once many scientists had various consulting arrangements, it could be administratively difficult to keep track who should not be involved in which decisions. This problem becomes exacerbated when the consolidation in the pharmaceutical industry is taken into account. Many firms are subsidiaries of other firms, have joint ventures with other firms, or are directly competitors with each other. Completely avoiding any potential conflict of interest could mean that those scientists most qualified to make decisions for the NIH may have to allow other individuals to make the decisions. Thus, bad decisions could result not out of explicit conflicts, but rather by trying to avoid the appearance of conflicts.

Were ethics rules violated?

It should be clear from the case that some ethics rules were violated in the examples given. However, the scientists involved either stated that they did not know that this was a violation of ethics rules, or were advised that they were in compliance with ethics rules. Dr. Katz transferred responsibility for overseeing a grant to a subordinate, but even this is not allowed under ethics rules. Dr. Gallin's stock ownership in a firm that did business with his lab clearly allowed for the possibility that he could privately gain based on the relation between his lab and the firm. The fact that Dr. Germain's consulting work with a private firm predated its involvement with his lab does not absolve him of the need to be concerned, in fact it calls into question whether the decision by his lab to work with the firm was based solely on the merits of the project. In all the situations described in the case (and others in the Los Angeles Times report), it would appear that ethics rules had been violated.

It would also appear that the practices of the NIH, and the advice given to scientists, were not consistent with the ethics rules. There were conscious efforts to do the minimum necessary, and interpret rules to minimize reporting and disclosure. Whether these decisions simply skirted (or overtly contradict) the letter of the law we do not know, but they certainly were counter to the spirit and intent of ethics rules.

Most rules leave room for interpretation and discretion. (While there are clear rules regarding the speed at which vehicles are allowed to drive in certain locations, exceeding this by a small margin is usually allowed. Under special circumstances, it can even be viewed acceptable to exceed it by a larger margin [e.g., taking a critically ill person to the hospital, or for a fire engine going to a fire].) The question here is whether these were simple, and seemingly harmless violations, or something much worse. It appears that there was a deliberate series of decisions that served to undermine the intent of federal ethics rules. Even if the integrity of the scientists is above reproach, by subverting the rules, it appears that they may have something to hide.

Should additional actions be taken?

There are a range of potential alternatives to consider at the time of the case. On one hand the current actions may be sufficient as a first step. By taking a close look at what consulting arrangements are in place, and forming a Blue Ribbon Panel, the NIH will have an opportunity to gather information and come to a carefully reasoned course of action. Until the true extent of the problem is known, any more dramatic actions could cause harm rather than solve any problems. Clearly gathering information is an important first step.

A second alternative is to move swiftly to more strictly follow existing ethics rules. By reversing decisions regarding pay scales and public disclosure, existing consulting arrangements would be clearer, and open to scrutiny. Similarly, restrictions on stock ownership and overseeing contracts with clients could be enforced. When there is room for interpretation, one can err on the side of allowing, or prohibiting, certain activities. The NIH could move its interpretation of rules towards the latter.

A third alternative is to place significant restrictions on any new consulting arrangements while evaluating current arrangements (as proposed by the NIH). This would simply serve to decrease the possibility that new consulting arrangements would be entered that might have to be subsequently curtailed. This could be stated as a temporary moratorium until the Blue Ribbon Panel completes its work.

A fourth alternative is to prohibit all consulting and paid activities by NIH scientists. The key point in this argument is that there is too much potential for conflict, leading to bad decisions and loss of public trust. Unfortunately, this alternative would decrease the

potential for contact between scientists and private industry, and thus flow of information.

Students may well come up with other alternatives, or variations on these alternatives.

SUBSEQUENT EVENTS

While there was considerable pressure and bad press, no additional actions were taken by the NIH in early 2004. The Blue Ribbon Panel delivered its findings in May, and there were congressional hearings in May and June 2004. During the Summer of 2004 the NIH moved to generally prohibit any new consulting arrangements while rules and guidelines were being rewritten. Under continued pressure, in February 2005, the NIH announced that all consulting arrangements would be wound down, and in the future no consulting or outside income would be allowed. The NIH also moved to impose strict limits on scientists' ownership of medical industry stocks, and medical sector-focused mutual funds. As a result, the NIH has moved from what might be considered quite lax interpretation of ethics guidelines previous to 2004, to what might be considered quite stringent interpretation by 2005. One can only guess whether an intermediate solution might have been found, had the NIH not been perceived as dragging its feet initially.

ORGANIC FOODS: THE FINANCIAL REPORTING OF DISCONTINUED OPERATIONS

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CASE DESCRIPTION

The primary subject matter of this case concerns the proper financial reporting of gains or losses on discontinued operations per Generally Accepted Accounting Principles (GAAP). This case has a difficulty level of three, appropriate for junior level courses. The case is designed to be taught in a one class hour and is expected to require three to four hours of outside preparation by students. The case would be appropriate for an undergraduate intermediate accounting course or graduate courses in either financial accounting theory or applied financial accounting research. Students will need access to Statement of Financial Accounting Standard No. 144, "Accounting for the Impairment or Disposal of Long-Lived Asset" and APB #30. These standards can be downloaded from the Financial Accounting Standards Board (FASB) web site at www.fasb.org or can be found on the Financial Accounting Research System disk that may be packaged with Intermediate Accounting or other advanced financial accounting textbooks.

CASE SYNOPSIS

This case provides students the opportunity to apply a financial reporting standard to a real-world situation where there is uncertainty about the proper reporting of restructuring costs. Specifically, Organic Foods, a publicly owned organic food retailing chain, is restructuring parts of its business and management is hoping to report all the related costs in a discontinued operations section at the bottom of their Income Statement. Financial analysts often spend very little time evaluating the discontinued operations section since it is not considered part of income from operations and usually includes only non-recurring disposal costs. For this reason, company managements have been known to pressure their accountants to include inappropriate costs in discontinued operations rather than reporting them as operations related expenses.

The case requirements have been separated into two parts -- Part A and Part B. Instructors can choose to have students complete Part A only or both Part A and Part B. In Part A, students: 1) read and interpret FAS #144 to determine the GAAP requirements for discontinued operations, and 2) apply those requirements to Organic Food's restructuring costs. However, Part A does not require the actual completion of any financial statements. Instead, Part A focuses on understanding

the appropriate accounting for Organic's restructuring costs without getting into the computational details of preparing Comparative Income Statements.

Part B provides financial information and requires students to complete Comparative Income Statements based on the decisions they made in Part A. In addition, Part B requires students to discuss the impact of the required financial reporting on management and shareholder decision making. Overall, the case provides students the ability to develop skills they will need to understand and apply FASB based financial reporting standards to uncertain situations.

INSTRUCTORS' NOTES

This case examines the financial reporting requirements for discontinued operations. The case is designed primarily for intermediate accounting or graduate accounting students. For intermediate accounting classes, the case would best be used as a supplement to the property, plant, and equipment chapter. Prior to beginning the case, students will need to acquire FAS #144, "Accounting for the Impairment or Disposal of Long-Lived Assets" and APB #30 from the FASB web site (www.fasb.org) or from other sources. In addition, students should be told to concentrate on the FAS #144 sections that relate to discontinued operations (i.e., FAS #144, para. 41 - 44 and FAS #144, Appendix A, para. A24 - A31).

The case requirements are divided into two parts -- Part A and Part B. Instructors may assign Part A only or both Part A and Part B, depending on the depth of analysis desired.

Part A: The Financial Reporting Research Issue, may be assigned without Part B if instructors want students to apply the discontinued operations reporting requirements to the case situation without actually preparing the related Comparative Income Statements.

Part B: Preparation of Comparative Income Statements and Analysis, may be added to the assignment if instructors wish to extend the case to include the preparation of the Comparative Income Statements. Students are also asked to discuss the likely impact of the required financial reporting on management and stockholder decision-making.

Prior to beginning the in-class discussion of the case, instructors should emphasize that financial analysts often give discontinued operations less scrutiny because it is believed that the section only includes special, nonrecurring gains or losses. For this reason, company managements often try to pressure their accountants to place a variety of losses in the discontinued operations section with the hope that analysts will not focus on those losses. As such, the ethical responsibilities of the accountants in the case can also be discussed.

CASE OVERVIEW

This case can be used for the following primary purposes:

- ◆ to develop students' technical knowledge of the FAS #144 requirements for reporting gains/losses on discontinued operations,
- ◆ to develop analytical thinking skills by requiring students to apply the FAS #144 reporting requirements to a set of business activities where it is uncertain whether those activities qualify for discontinued operations treatment,
- ◆ to use FAS #144's discontinued operations reporting requirements to prepare Comparative Income Statements for Organic Foods,
- ◆ to develop an understanding of how FAS #144 reporting requirements differ from those that were in place under the superseded APB #30, and
- ◆ to develop an understanding of the potential impact of discontinued operations on management and stockholder decision-making.

DISCUSSION QUESTIONS FOR PART A: THE FINANCIAL REPORTING RESEARCH ISSUE

1. **Based on FAS #144, "Accounting for the Impairment or Disposal of Long-Lived Assets" where are gains and losses associated with discontinued operations shown on an Income Statement? Where are gains and losses on the disposal of long-lived assets that do not qualify as discontinued operations usually shown?**

FAS #144, para. 43 requires that the results of discontinued operations, less applicable income taxes (benefits), shall be reported as a separate component of income before extraordinary items and the cumulative effect of accounting changes (if applicable).

FAS #144, para. 45 requires gains and losses on disposal of long-lived assets that do not qualify as discontinued operations to be shown in the income from operations section of an Income Statement.

FAS #144, para. 43 also provides an Income Statement format that may be used when discontinued operations are included. Students that will not be completing the Part B requirements of the case should be asked to review this format to ensure they understand how an Income Statement would be presented when a company incurs discontinued operations.

2. Based on FAS #144, “Accounting for the Impairment or Disposal of Long-Lived Assets” what criteria are used to determine if a gain or loss qualifies for discontinued operations treatment?

Answering this question is critical in the process of determining the proper financial reporting for Organic Foods. Students must be able to correctly extract the appropriate discontinued operations criteria from FAS #144 prior to assessing the facts in the Organic Foods case. FAS #144 does not have the criteria well laid out so students will need to use their analytical thinking skills to summarize the required criteria.

The answers to this question are buried in FAS #144, para. 41 - 43. Some of the criteria are explicit that students will identify quickly, while some are more implicit and students are likely to miss them. **A summary of the four key criteria students should identify include:**

1. The PPE assets being disposed of must be classifiable as a “component of an entity.”

The standard indicates that a component of an entity comprises operations and cash flows that can be clearly distinguished, operationally and for financial reporting purposes, from the rest of the entity (FAS #144, para. 41). A component may be a reportable segment, a operating segment (as per FAS #131), a reporting segment (as per FAS #142), a subsidiary, or even just an “asset group” (as per FAS #144, para. 4).

Students do not need to get into the specifics of the different ways a component can be defined. They should understand that 1) more than one asset is being disposed of, 2) there is a logical argument for calling that set of disposed assets a component of the entity, and 3) those assets must have distinct operations and cash flows.

2. The component has been disposed of or is classified as held-for -sale.

This is noted in FAS #144, para. 43, but it is not highlighted and students may easily miss this requirement. This criteria will be important in classifying some of Organic Food’s gains/losses. Specifically, students should understand that impairments of PPE assets being held-for-use do not qualify as discontinued operations gains/losses.

3. The operations and cash flows of the component have been (or will be) eliminated from the ongoing operations of the entity as a result of the disposal transaction (FAS #144, para. 42).

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4. **The entity will not have any significant continuing involvement in the operations of the component after the disposal transaction (FAS #144, para. 42).**

 3. **Identify what you believe are appropriate components of the entity for Organic Foods. Identify any related costs discussed at the February 1 meeting that you believe will qualify for the discontinued operations section of the Income Statement.**

This is the core question for Part A of the case. If students have completed the prior discussion questions they should be able to apply the criteria summarized in discussion question 2 to Organic Foods. If desired, this question can be segmented into the components shown in the answer below to help provide students a more focused way to respond.

Arizona Segment. Most students will classify all the Arizona stores into one operating component of Organic Foods. Some students may argue that each of the Arizona stores should be viewed as a separate component of Organic Foods. However, the reporting of the related gains/losses will not be affected by that distinction and it is recommended the discussion include all of the Arizona stores as a component.

Clearly, the Arizona stores are a component of the company and the first criteria noted under discussion question 2 is met. Further, the existing five stores will be sold under the proposed restructuring plan so the second criteria noted in discussion question 2 is also met. However, criteria three and four from discussion question 2 above are not met and the restructuring of the Arizona operations DOES NOT qualify as discontinued operations. Overall, the company will continue to service the Arizona segment with the new megastores so the company will not be eliminating the component from continuing operations and they will have continuing interest in the Arizona segment operations. Therefore, any gains or losses on this restructuring cannot be included in the discontinued operations section and must be shown as income from operations.

Note that FAS #144, Appendix A, para. A-24 to A-31 provides specific examples of how to apply the discontinued operations criteria. The example in FAS #144, Appendix A, para. A-31 specifically addresses this exact situation where a company is combining individual stores into a “superstore.” That example indicates the gains/losses incurred when combining stores do not qualify as discontinued operations. Instructors should note that FASB often provides examples in appendixes that give guidance as to what was intended in the standard.

Nevada Segment. The Nevada stores and warehouse are to be closed and Organic Foods will exit doing business in the area. Students applying the four criteria shown in discussion question 2 should determine that all criteria are clearly met and any gains and losses from closing the Nevada operations do qualify as gains/losses on discontinued operations.

As part of this discussion, instructors should ask students how to report the regular operating losses the Nevada stores incurred in 2008 and 2009 and those they will incur until the stores are closed in 2010. FAS #144, para. 43 indicates that Income Statements for current and prior periods shall report results of operations of the component in discontinued operations. This indicates that the operating losses from 2008 and 2009 need to be reclassified into the discontinued operations section when preparing the financial statements for the 2009 Annual Report. In addition, the operating losses in 2010 until the stores are closed will be included in the discontinued operations section in the 2010 Income Statement. Students completing Part B of the case will need to apply these requirements in preparing the Comparative Income Statements.

Impairment Loss on Southern California Warehouse. The Southern California warehouse will likely have an impairment loss. The company believes the loss is primarily due to the closing of the Nevada segment. However, students will still need to use the criteria identified in discussion question 2 above to determine how the impairment loss should be reported.

Overall, the impairment loss does not meet any of the discontinued operations reporting criteria. Specifically, the first criteria does not appear to be met since the warehouse is part of the Southern California operations and it is not a component of the entity. Recall that a component is some type of grouping of assets which has “operations and cash flows that can clearly be distinguished, operationally and for financial reporting purposes, from the rest of the entity” (FAS #144, para. 41). Further, the second criteria is not met since the company appears to be leaning toward holding the warehouse for further use. Finally, the third and fourth criteria are not met since the warehouse is not being eliminated from on-going operations of the company. Overall, the company will need to show any impairment loss as part of income from operations.

- 4. Be prepared to discuss in-class how you and the Controller might want to communicate your financial reporting recommendations to the CEO given the reporting preferences he voiced at the February 1 restructuring meeting.**

This discussion question gives instructors the opportunity to discuss how to best communicate your financial reporting recommendations to a supervisor who desires a specific financial presentation of the restructuring costs. In this case, it would be best that

the Controller accept your findings and have a willingness to carry them to upper management. Some of the key things that could be done to help the CEO understand your financial reporting recommendations include:

- a. The discontinued operations requirements of FAS #144 should be clearly summarized in writing for the CEO and objectively applied to the components of Organic Foods.
- b. The documentation provided to the CEO should clearly indicate that the company's auditor would not accept a financial presentation of the costs that would violate FAS #144 requirements.
- c. The Controller might ask the company auditors (or other CPAs) to provide additional guidance as to how they believe the restructuring or disposal costs should be presented. The response of the CPAs can be forwarded to the CEO.

Overall, any discussion with the CEO should rely on the FAS #144 requirements as the basis to show costs in a discontinued operations section of an Income Statement.

**DISCUSSION QUESTIONS FOR PART B:
PREPARATION OF COMPARATIVE INCOME STATEMENTS AND ANALYSIS**

5. **Prepare the Comparative Income Statements for 2008 and 2009 using the format provided by the Controller. Use the decisions you made in Part A of the case when completing the Other Operating Expenses and the Discontinued Operations sections.**

The appropriate Comparative Income Statements are shown below. All costs (both operating and disposal) for the Nevada operations are shown in the discontinued operations section. Restructuring costs for the Arizona segment and the impairment of the Southern California warehouse are shown as Other Operating Expenses.

| Organic Foods | | | | |
|---|--------------|-----------------------|-------------|------------------------|
| Comparative Income Statements | | | | |
| For the Years Ended 12/31/2009 and 12/31/2008 | | | | |
| (In Thousands) | 2009 | | 2008 | |
| | | | | |
| Revenues | | \$186,000 | | \$155,000 |
| - Costs of Goods Sold and Occupancy Costs | | <u>- \$121,000</u> | | <u>- \$99,000</u> |
| Gross Profit | | \$65,000 | | \$ 56,000 |
| | | | | |
| Other Operating Expenses: | | | | |
| General and administrative expenses | \$58,100 | | \$50,400 | |
| Other items classified as operations related expenses: | | | | |
| Restructuring Costs to Arizona Operating Segment | \$ 240 | | \$ 0 | |
| Loss on Impairment of Southern California Warehouse | <u>\$ 60</u> | | <u>\$ 0</u> | |
| | | | | |
| Total Operating Expenses | | <u>- \$58,400</u> | | <u>- \$50,400</u> |
| | | | | |
| Income From Continuing Operations (Before Taxes) | | \$6,600 | | \$ 5,600 |
| - Income Tax Expense (30%) | | <u>- \$1,980</u> | | <u>- \$ 1,680</u> |
| Income From Continuing Operations | | \$4,620 | | \$ 3,920 |
| | | | | |
| Discontinued Operations: | | | | |
| Loss from operations of discontinued component(s), | | | | |
| less applicable income taxes of \$150 for 2009; \$180 for 2008. | \$350 | | \$420 | |
| | | | | |
| Loss from disposal of discontinued component(s), | | | | |
| less applicable income taxes of \$123 for 2009; \$0 for 2008. | <u>\$287</u> | | <u>\$ 0</u> | |
| | | | | |
| Total Net Losses on Discontinued Operations | | <u>- \$ 637</u> | | <u>- \$ 420</u> |
| | | | | |
| Net Income | | <u><u>\$3,983</u></u> | | <u><u>\$ 3,500</u></u> |

Income Statement Preparation Related Notes for Instructor:

- (a) The revenue and cost of goods sold/occupancy costs are the combined Southern California and Arizona segment amounts from Exhibit 1 in the case. All related revenue and cost of goods sold/occupancy cost items for the Nevada segment have been restated to the discontinued operations section for both 2008 and 2009.
- (b) The other operating expense section includes the Arizona segment restructuring costs and the impairment loss on the Southern California warehouse. These items cannot be included in the discontinued operations section (as discussed in Part A of the case).
- (c) The discontinued operations subtotal for “loss from operations” includes all operations related losses for 2008 and 2009, respectively, that are shown in Exhibit 1 for the Nevada segment, net of the 30% tax rate. The \$20 thousand dollar expected 2010 operating loss for the Nevada Segment is excluded (see Exhibit 2). FAS #144 requires expected future operating losses to be reported when they are incurred (i.e., 2010 Income Statement). Finally, FAS #144 requires all operations related gains or losses to be reported in the “loss from operations” subtotal regardless of whether they were incurred before or after the date the segment was classified as held-for-sale. Therefore, the note provided to the students in Exhibit 1 that separates the operating losses into those that were incurred before and after the restructuring decision date is not relevant to the preparation of the Comparative Income Statements.
- (d) The discontinued operations subtotal for “loss on disposal” for 2009 is \$287 thousand dollars, net of the 30% tax. It consists of the actual Nevada segment disposal costs to date of \$400 thousand dollars plus the \$10 thousand dollar estimated future Nevada segment PPE losses (see Exhibit 2) times .70. Unlike estimated future losses on operations discussed in note 3 above, FAS #144 requires that estimated future losses on disposal be recognized in the period the component is classified as held-for-sale.
- (e) Prepare a memo to the Controller that provides in bullet points the critical differences between FAS #144 requirements for the discontinued operations section and those that were required by the superseded APB #30.

The student memos should include the following key differences between FAS #144 and APB #30:

- a. FAS #144 expanded the discontinued operation provisions so that more disposal situations would likely trigger the display of discontinued operations. Specifically, FAS #144 allows any “component of the entity” to be considered for discontinued operations treatment while APB #30 only allowed “segments of the entity” to be considered. A component of the entity can be a much smaller portion of a company than a segment of the entity was under APB #30.
- b. APB #30 required that both estimated future operating losses and future disposal losses be anticipated and recorded in the year the segment was classified as held-for-sale. However, under FAS #144 the treatment of operating losses of a component designated as held-for-sale has changed considerably from prior practice. In particular, FAS #144 requires that expected future operating losses be recorded in the period incurred. This change was made because the accrual of estimated future operating losses under APB #30 did not conform to the definition of liabilities as stated within the FASB’s Conceptual Framework. On the other hand, FAS #144 continues to require that estimated future losses on disposal be anticipated and recorded in the period the component is classified as held-for-sale.
- c. FAS #144 abandoned the APB #30 requirement of distinguishing between operating results that occurred before and after the date the disposal was announced (i.e, the “measurement date” under APB #30). Operating losses for a discontinued component that occur after the disposal announcement date are now included in the losses from operations subtotal in discontinued operations and not under the losses on disposal subtotal as required by APB #30.

THE NATIONAL CANCER SOCIETY: CORPORATE GOVERNANCE IN A NONPROFIT ORGANIZATION

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CASE DESCRIPTION

The primary matter of this case concerns corporate governance in a nonprofit organization. Secondary issues examined include motivation of volunteer members in an organization and organization lifecycle. The case has a difficulty level of four, appropriate for senior level (it could also be used for first year graduate studies, level five). The case is designed to be taught in two class hours and is expected to require three hours of outside preparation by students.

CASE SYNOPSIS

NCS (National Cancer Society) was an organization founded and operated by volunteers. The organization received memorial contributions and distributed them as grants to applicants who meet the organization's criteria. The group also maintained a worship space (bay) in a local church and holds regular memorial services for the deceased.

At the time of the case, the organization had existed for about 18 years. The original enthusiasm of the founding members had waned and no one had come forward to replace them. Specifically, the president had not provided the leadership needed to maintain the organization's momentum. The board of directors was divided about how to deal with this problem so that rare meeting degenerate into arguments. A former president was still collecting mail and was still the authorized signatory for checks. The state had issued delinquency notices because the organization has failed to file required informational forms. These notices provide a point of departure for discussing the future of the organization. Students should consider the responsibilities of a board in such a situation and whether the organization is viable. More specifically, the details of revitalizing or discontinuing the organization must be addressed.

Accountants may find that volunteer organizations to which they belong call on their professional expertise to fill positions of financial responsibility. These organizations may operate informally and the accountant is in a difficult position as he or she attempts to impose standards that other members do not see as necessary. This case provides opportunity to discuss such a situation.

INSTRUCTORS' NOTES

Recommendations for Teaching Approaches

This case could be used in public administration courses, nonprofit accounting or strategic management courses (emphasizing governance and the responsibilities of the board of directors) and organizational behavior courses (emphasizing organizational life cycle and viability).

Learning Objectives

Students should:

1. Analyze the responsibilities the Board of Directors.
2. Determine whether this organization continues to be viable.
3. Create a plan to revitalize the organization or for disbanding it in an orderly fashion.

DISCUSSION/ANALYSIS

1. **If you were a member of the Board of NCS, what would you be concerned about in this situation? Are you doing your job as a Board member?**

The responsibilities of the Board of Directors in a charitable or not-for-profit organization are essentially the same as a for-profit enterprise. The legal responsibilities are to comply with state and federal law and to fulfill fiduciary duties. These duties involve avoiding conflicts of interest (duty of loyalty) and providing the same oversight and scrutiny for the organization's affairs that a prudent person would employ in dealing with personal business (duty of care). The Board of NCS is not fulfilling either responsibility. Specifically

- ◆ Meetings are not being held
- ◆ Mission is not being carried out
- ◆ State laws are not obeyed
- ◆ Organization by-laws are not being followed.
- ◆ The organization is only one concerned or dissatisfied donor away from embarrassment (at the least).

2. **What action alternatives does a concerned Board member have?**

Students may want to fire Kathy, but a replacement is problematic. Motivating volunteers with uneven commitment to an organization is a common issue for not-for-profit organizations. In this case, the President is chief among the uncommitted and the board must

find a way to either replace or gain her cooperation. Compounding the problem is the fact that key members of the organization appear to be burned-out

Motivation to get involved in NCS was probably high for those who have recently experienced a tragic loss. A loved one has succumbed to cancer and the survivor was seeking a way to memorialize the one they are mourning. The opportunity to volunteer with NCS provided a way to deal with loss. As time passed however, other motivation would be needed to replace the initial impetus to join and get involved. The benefits of continuing involvement versus initial involvement should be explored. Volunteers generally respond to opportunities to participate meaningfully in problem solving and decision-making, to work that relates to their personal interests, and to developmental opportunities. Initial involvement in this organization is likely to be more meaningful than continued involvement. The attrition rate of volunteers bears out this conclusion.

While volunteers are free to come and go, when a person accepts a leadership role, there is the expectation of commitment. The Board of Directors has responsibility for ensuring that the President is functioning effectively. This Board seems to feel that selecting a President is their only obligation. There are many ways that the Board could deal with the situation. Selecting a new president or having the vice-president function in the president's absence are two that should be suggested. When the organization has only one person who is willing to serve in a leadership capacity and that person is not actively functioning, the survival of the organization is called into question.

3. Is there a larger problem here? Where is NCS in the organization life cycle?

The concept of the organization life cycle suggests that organizations pass through predictable stages with predictable problems. If the problems of a given stage are not dealt with appropriately, the organization is in danger of not surviving. Dealing with the problems effectively generally propels the organization to the next stage. NCS does not appear to have appropriately built a team and thus is unable to move to a more formal approach to its mission. An organization in decline has a limited period of time to make necessary changes. As the decline proceeds, the choices are narrowed. The last option is reorganization after which there are no choices except dissolution.

4. What steps should be taken to ensure the continuity of the organization?

Two plans may be developed from this incident. One would be for a reorganization which would revitalize the organization. The Board would be the source of this plan and it would need to go beyond the problems with the President to find ways to motivate the members of the Board and other volunteers. A drive for new board members is in order. The Advisory Board might be a good starting point, although these individuals are in this group in the first place because they didn't want to be active. Grant recipients (organizations or individuals)

and donors seem to be another possible source of volunteers. Would there be a conflict of interest if grant recipients joined the board? An alternate analysis of the problem is that there are too many jobs for this group to do effectively. A plan to cut back on meetings has been in effect and no one but Carl appears to be very disturbed by this. Kathy could create a mission review committee to evaluate activities (grants vs. worship) to determine if the group could do one of the other but not both. Donations could be used for maintenance of the bay. A recommendation to cut back on activities should be accompanied by a restructuring of the organization.

The second plan would be for dissolution and would need to specify how to deal with the money that the organization still holds. The organization controls funds for which board members are responsible. These funds should be dispersed in a way that adheres to the donors' original intention.

EPILOGUE

The next board meeting was held as planned and a lot of discussion took place around the inactivity of the group and who was at fault. Lots of excuses were offered and at no point did Kathy Jones accept any responsibility for the current situation. At one point, the treasurer raised concerns about the funds that remained in the bank account and whether NCS was actually fulfilling its mission. Kathy's supporters were mainly other founding members of NCS who had continued to be involved in the organization either on the advisory board or served on a committee.

During the reorganization meeting, officers were elected or re-elected and board members with unexpired terms re-elected. At this point, the board of directors had only eight of twelve members. Some board members expressed their reservations to continue serving with Kathy Jones as president. However, they agreed to continue serving on the board because of their support for NCS mission.

This was the last formal meeting of the NCS. No meetings have been held for the last four years. The president has not returned numerous phone calls left by the former president and other board members nor has she initiated any type of communication with the board. NCS continues to hold funds received from the public even though it has not awarded a grant in the last four years.

DISCLAIMER

This critical incident and teaching note was prepared by Raymond Elson and Phyllis Holland and is intended to be used as a basis for class discussion rather than to illustrate either effective or ineffective handling of the situation. The names of the organization, the individuals, and location have been disguised to preserve the organization's desire for anonymity. Copyright © 2005 by Raymond Elson and Phyllis Holland.

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