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Belverd E. Needles, Jr., Editor

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TRENDS
NOW I'M GOING TO TEACH ACCOUNTING: WHAT DO I DO NOW?

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In the three previous *Trends* (Fall 2013; Winter and Spring 2014) I addressed managing change through continuous improvement, identified the learning actitivies as building blocks for constructting a succfessful course, and addressed how to implement these learning strategies. Even as an experienced instructor I find it helpful to focus periodically on the basics of preparing to teach a class as if I was doing it for the first time. The following material provides suggestions for new instructors and reminders for experienced instructors on how to prepare your course and conduct classes most effectively. You are encouraged to adopt the suggestions that work, modify those that don't quite fit, and completely discard the ones that do not work for you. As you read these, your imagination or memory of past experiences may stimulate you to create your own new teaching techniques.[1]

BEFORE CLASS BEGINS

Locate the Classroom Before the quarter or semester begins, visit the classroom. This will give you an idea of the environment in which you will be teaching. You can determine how audio-visual materials may best be used in that particular classroom. You can also note the type of seating and how it will affect in-class group activities.

Meet with the Course Coordinator With the course coordinator or your peers discuss course plans and how you intend to teach the class. Your department may provide guidance as to course format, topic coverage, and illustrative examinations. You also have the opportunity to learn, and perhaps to adapt, teaching techniques used by your peers.

Set up Class Projects Plan in detail any activities you will ask students to perform in or out of class. To better understand the process students will use to complete more complex assignments, such as field studies or role-playing, you may want to complete one yourself. Use your work as an illustration of the quality of work you expect from them.

Keep Idea Files Course topics can be made more interesting and points can be emphasized by referring to current events articles, data from research, relevant movies and books, and inspirational quotes. Students' attention can be focused prior to a lecture by sharing this information.

[1] Many of these ideas are adapted from the Course Manual to accompany *Becoming a Master Student,* Seventh Edition, by David B. Ellis, pp. 307–338.

Review the Syllabus The syllabus is perhaps the mopst important means of communicating to students the exact nature and requirements of the course. Is the syallabus up to date? Does it includeall essential information.? Here is a short cheklist:

- Instructor's name, title, office location, office phone, office hours, and where to leave messages in case of an emergency
- Course title and number, with spaces for section number, meeting days, time, room, and building
- A statement of the overall course objectives and more specific objectives concerning what the students should know and be able to do by the end of the course
- A brief discussion of course format so that students know how the instructor will spend class time, especially if nontraditional learning activities will be used
- A clear statement of your expectations about student responsibilities for participation and required performance on assignments
- A statement on use of laptops, phones, and other elctronic devices in class
- Required purchases: text and readings packets or a reading list
- A class schedule, including topics to be covered, in sequence, with dates, assignments, and instructions for submitting
- Description of course management sytem and other technology to be used.
- Specific explanations of assignments and examinations with dates
- Place, date, and time of final examination
- A statement of grading methods that will be used to evaluate students, including information on grading policies

Consider a Focus Group of Former Students Invite a group of former students of your class to meet with you on an informal basis to discuss your course and how it can be improve. Provide them with a syllabus, divide them into groups of two or three and ask them to examine various parts of your syllabus with a view to improvement. Then conduct a discussion starting with each group presenting their ideas. You will be surprised at how many sincere, worthwhile suggestions you will receive. Reward them with some refreshments.

CLASSROOM LOGISTICS

Grade Papers Promptly Schedule your time so you can grade papers between classes and return all papers by the next class. Students are usually eager to receive feedback, and immediate feedback is a powerful educational tool.

Test Frequently Frequent feedback keeps most students from developing an attitude of "Well, I think I am doing OK. I'll wait and see." Most of us perform better when we are given small increments of material to master.

Schedule Other Activities Schedule videos, movies, guest speakers, or field trips that stimulate discussion and add to the material being presented. Consider interrupting movies periodically to add your personal emphasis or to engage the class in discussion.

Consider the Classroom a Luxury It is expensive to bring students together with one teacher in a room for an hour. View class time as a luxury and use it for something beyond what students can get out of reading a textbook. Plan lectures, exercises, guest speakers, and conversations/sharing that will provide students with an opportunity for learning that they cannot get by reading the text or prepared handouts.

CLASSROOM TECHNIQUES

Be on Time If for some reason you will be unable to be on time to a class, make certain you have someone go to that classroom and let students know you will be late.

Arrive Early Arriving early allows you to greet individual students as they enter the classroom. This increases the comfort level in your class, gives you a chance to learn more about the students, and offers a convenient time to answer questions.

Use the Entire Class Period Always schedule class activities so that they will occupy the entire class period. If you are giving a short quiz or test, prepare lecture material or another class activity for the balance of the class period. Dismissing classes early sends a message that class time is not very important.

Be a Role Model Role modeling may be the most important ingredient in teaching. Practical methods of modeling include admitting when you don't know the answer; using a variety of sources to get information; being willing to take risks by trying new ideas; and communicating about yourself openly, genuinely, and sincerely. Sharing personal experiences about the material you are presenting adds credibility to your presentation. Remember, too, that being enthusiastic is contagious.

Use Class Time for Human Interaction You can dramatically reduce the amount of time you spend lecturing by using exercises, group discussion, small group interaction, guest speakers, frequent testing, question/answer sessions, brainstorming, role-playing, student presentations, movies, slide/tape programs, field trips, demonstrations, simulation games, forming study groups, etc.

Use technology Powerpoints, Internet, videos, in addition to the chalkboard and flip charts, add interest and effectiveness to presentations.

Paraphrase Questions When a student asks a question or asks for clarification, restate the question in your own words. This will let the student asking the question know that you understood it. It will also help other students who might not have heard or understood it.

Write Clearly It is difficult for people to read anything written on the board if it is not done precisely. Slow down when you write on the board and make sure your writing is legible.

Start with a Bang Begin each class with something that captures (demands) student attention. Setting the stage for learning and encouraging focus and participation help students be fully present.

Use In-Class Exercises When you choose to do recordkeeping in class (attendance, grade recording, etc.), ask students to do a short exercise—for example, "Look at the review questions at the end of the chapter," "Preview the next chapter and write down three questions for discussion," or "Look at the project just assigned to see if you have any questions."

Keep the Class Moving You can keep the class interesting and lively by varying your tone of voice, walking around, and choosing a variety of activities and methods for teaching each class.

Acknowledge Effective Learning Let students know when you are pleased with their academic behavior (test results, effective questions being asked, contributions to discussions, etc.). Compliment the class and congratulate them on accomplishments—for example, "This is difficult material, and you seem to understand it well," "You have a lot of energy," "I like your sense of humor," "Good question," "I appreciate your hard work," or "Thank you."

Pause After Questions After you have asked a question, wait and give students a chance to respond. Give them at least ten seconds of silence to collect their thoughts and respond.

Break up Presentations If you have a long lecture or presentation to make, break it up every 15 or 20 minutes with an activity or at least a lighter moment in the presentation (relevant jokes, anecdotes, etc.). Anecdotes or jokes are used to gain attention, and they can be followed immediately with technical material.

Use Repetition Use repetition. The more often a concept is used or an experience is repeated, the more likely it is to be remembered. Use repetition.

Be Aware of Nonverbal Communication Realize that people will remember only a small percentage of what you say. Mostly, people remember their experience of you, which is largely influenced by your nonverbal communication.

AFTER CLASS

Post Lectures, Videos, and Other Materials Make full use of course management systems to provide students with materials to help them study. Conscientious students will review class materials and will take practice tests.

Start a Weekly Discussion Board Make full use of your class management system to engage students during the time they are not in class. Allocate part of the course grade to participation on the discussion board.

Encourage students to use office hours, labs, and tutors, if available Give students opportunities to review their exams. Some schools offer tutoring: encourage students to make use to this service. Giving a comprehensive final examination also encouraging students to take these steps.

CONCLUSION

The basic idea behind these suggestions is to step back and think about how you plan for and conduct your course. Such a review is beneficial not only for the students but also is refreshing and invigorating for you, the instructor.

PROMOTING EXPERIENTIAL LEARNING IN AN INTRODUCTORY MANAGERIAL ACCOUNTING COURSE

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"Tell me and I forget, teach me and I may remember, involve me and I learn."
— Benjamin Franklin

INTRODUCTION

This paper describes an instructional approach that introduces students to entrepreneurial decision-making and a practical way of learning the basics of short-term profit planning. Using a familiar frame of reference, students conceive of a food product to sell in a booth at a one-week carnival or local community festival, estimate the costs involved in producing and selling the product, ascertain an appropriate selling price for the product, and examine the feasibility of the one-week venture using cost-volume-profit (CVP) analysis. The project involves research, analysis, decision-making, and written communication-all of which are sought-after competencies in the marketplace. In addition, the project affords students an opportunity to enhance their Excel-based skills. The project is intended to engage students in a realistic context that reinforces core profit-planning concepts learned in the classroom.

Meeting the educational needs of business students is a pedagogical challenge, especially for accounting educators teaching the required introductory accounting courses. The introductory courses in accounting are critical in establishing a foundation and providing essential accounting tools—necessary preparation for any business career. However, studies show that many business students do not assign much value to these courses (Chen et al. 2004) or feel that these courses are not relevant to success for future careers (Turner et al. 2006). This is especially the case with non-accounting business majors.

Lacking a familiar frame of reference, students often fail to grasp the importance of concepts such as the relationship between cost, volume and profit. An experiential-type learning approach within a familiar frame of reference (such as a carnival or a local community festival) can be useful in reinforcing basic managerial accounting concepts. Students learn from experience by doing the kind of "homework" that anyone contemplating starting a small business venture would do before actually setting it up.

Specifically, students select a food item to sell in a booth at a local carnival set up to run for six days. They determine the costs of materials, labor and overhead by procuring and cooking a sample batch to test the recipe, assess cooking time and general practicality; or by estimating costs based on quantities from a recipe. Once students determine the overall costs of their food product, properly classify each cost as fixed or variable, research and set a target sales price; they use cost-volume-profit (CVP) analysis to determine the feasibility of a one-week venture.

The reminder of the paper is organized as follows. In the next section, we offer a brief overview of the literature. Section three presents the project details and instructions provided to the students, and followed by the learning goals. Section four contains related pedagogical issues and teaching guidance for instructors. Section five presents assessment including student feedback. The final section contains a summary and limitations.

LITERATURE REVIEW

The literature contains numerous calls for increased use of experiential learning assignments in accounting courses (McCarthy & McCarthy, 2006; Albrecht & Sack, 2000; AECC, 1990) as this approach to learning develops a deeper understanding of the topics (McCarthy, 2010; Brickner & Etter, 2008; Prince, 2004; Francis, Mulder, & Stark, 1995; Cottell & Millis, 1993; Bonwell & Eison, 1991). In addition to a solid grasp of content knowledge, another critical competency required in the modern workplace is the ability to manage ambiguity. Libby (1991) suggests that the ability to (1) deal with ambiguity, and (2) make sound judgment are two skills that can be practiced within the context of case studies or experiential learning projects.

Experiential learning

Experiential learning is simply "learning by doing." Kolb (1984, 41) defines it more formally as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience." The benefits of experiential learning have been discussed in the literature on teaching, learning, pedagogy, and education (e.g., Moody 2012; Gitsham 2012; Eyler 2009). These benefits include increased student engagement and retention, transformation of inert knowledge into knowledge-in-use, deeper understanding of the subject matter, and application of knowledge to complex or ambiguous situations (Eyler 2009).

Tapping into the fun factor, Davis (1993) notes that fun and interesting instructional tools increase student interest. Similarly, McKeachie (1994) concludes that when students are engaged, they are much more likely to remember the concepts they have studied. Engaging taxation students in an experiential learning environment was found to improve skills in communication,

creativity, decision-making, and problem-solving (Sawyer, Tomlinson & Maples 2000)..

There are several examples of innovative assignments that address management accounting concepts (e.g., Braun, 2013; Greenberg & Schneider, 2010; Bremser and White 2000; Burns & Mills, 1997; Lightbody, 1997). Braun (2013) uses a comprehensive job order costing exercise that "requires students to analyze overhead costs, determine the optimal job size, schedule production, calculate the amount of materials to purchase, complete material requisitions, update raw materials records, analyze labor time records, complete a job cost record" (p.400). Bremser and White (2000) successfully utilize an experiential approach to learning about the balanced scorecard through the study of real-world organizations that helped students understand strategy and gain an insight into how to measure performance.

Cost-Volume-Profit

Two major topics covered in most introductory managerial accounting courses are product costing and CVP analysis. Determining unit cost of a product is complex. It involves obtaining an accurate final cost that incorporates all contributing streams. Product costing is considered a core concept of the introductory managerial accounting course as established by Braun's (2013) review of fifteen introductory managerial accounting textbooks. Given that an entire chapter is devoted to product costing and is typically placed in the beginning of the book, the coverage of this topic typically occurs early in the introductory managerial accounting course.

CVP analysis is one of the most widely used management accounting techniques (Garg et. al., 2003) in business. It represents the economics of short-term profitability, and helps answer 'what-if' type questions in planning and strategic decision-making. Having sound working knowledge of these concepts is, therefore, critical.

The challenges of introductory accounting courses have prompted faculty to develop various strategies to enhance student learning. This paper describes one such effort where we seek to foster self-directed learning behaviors in students in order to augment skills in communication, decision-making, and the ability to deal with ambiguity. Unlike previous examples, our approach requires students to gather data. Students not only have to decide what information/data to collect but where and how to find it**.**

The project described in this paper uses experiential-type learning to integrate product costing, CVP analysis, and setting of a target-selling price to ultimately determine the feasibility of a business venture. In the process, students must deal with ambiguity and understand that there are rarely right or wrong answers available, which are all desirable developmental goals. The latest AACSB accreditation requirements speak to the issue of "engagement". This project is consistent with the goals of engaging students in the learning process. It encourages students to think like an entrepreneur and it has elements of both having to deal with ambiguity and decision-making.

THE PROJECT

In eight weeks, you will be heading home for the summer (time flies when you are having fun!). A local church is running its annual carnival and has offered you an opportunity to

set up a booth. In this booth, you can sell a single food item you desire (e.g., funnel cake, deep-fried Oreos, hot dogs). The carnival will run from Monday through Saturday (June 13th thru June 18th) each evening from 6:00 pm – 10:00 pm. In operating this booth, you will need to buy all materials, hire all of your own help (if needed), and pay 12.5% of your gross sales revenue to S&S Amusement Company (the operator of the carnival) and 12.5% of your gross sales revenue to the church. In addition, you will have to pay the church a $200 rental cost (which includes utilities expense) for the booth for the week. Obviously, you are very busy during the summer, and in order to make this opportunity a good use of your time, you need to determine the feasibility/profitability of this proposed venture. In addition, a good portion of the money you earn in the summer may go towards your college education, so it is important that you are able to have some success with this opportunity.

Your profit-planning task is multifaceted. You will need to think like an entrepreneur, deal with ambiguity, and make informed judgments as you gauge the practicality and financial viability of this business venture. To do that, you will need to determine your financial goals; identify the product to make and sell; understand the process of getting the product ready for sale; and identify and research all costs (direct or indirect) associated with the undertaking. In addition, you will need to perform market research to set a price for the product, estimate demand, and use CVP analysis to determine the feasibility of the one-week venture.

Like an entrepreneur contemplating a new venture, you have the real-world task of gathering the relevant information ahead of you. As you proceed, you will need to decide what data (e.g., various costs, production time, capacity) to collect, and where and how to find this information**.** In addition, you will need to organize, analyze, and communicate information in a way that makes sense to you and to others, as you may want to convince them to collaborate with you. Other parties are often involved in lending decisions and may require reports containing detailed analyses. The specific requirements for the project are as follows:

A. Determine your financial goal for this one-week venture (for example, how much money you expect to make on a net basis?).

B. Briefly describe the product that you will sell at the carnival as well as all of the costs that you will likely incur during the week. Identify and define an appropriate cost driver. Classify each cost as variable, fixed, or mixed for the carnival time horizon. For mixed costs, be sure to identify the variable and fixed components. Use Excel to compile, organize, and present data in a logical way.

C. For each of the costs you identified above in (B), perform research as to the cost of the direct materials, direct labor, and overhead involved in making your product. (Document your sources for each of these costs. For example, if you are selling lemonade, you should develop an estimate for the actual cost per glass. You may want to do some shopping to verify prices and actually make the product to verify quantities for the ingredients.)

D. Perform some market research to estimate the appropriate price to charge for your product. Keep in mind that your chosen selling price will be partly a function of the

financial goals and partly market-determined (i.e., the price needs to be realistic competitively).

E. To ensure that this business venture is a viable idea and not a waste of your time, you need to perform preliminary CVP analysis. This analysis provides the basis for assessing the reasonableness of this business opportunity. An important part of this break-even analysis is for you to determine the contribution margin per unit. From parts C and D, you will be able to determine your contribution margin per unit. After determining your contribution margin per unit, answer the following questions:

1. What is the contribution margin per unit of your product?
2. What is the contribution margin ratio?
3. What are the total fixed costs?
4. What is the sales volume at the break-even point?
5. What is the sales revenue in dollars at the break-even point?
6. What is the sales volume in units required to reach your *financial goal*?
7. What is the sales revenue in dollars required to reach your *financial goal*?

Use Excel to complete this part. Automate your worksheets using cell references and formulas to perform CVP *analysis*, show the *break-even point* and display the results *graphically.*

F. In no more than two pages, summarize your results and calculate your earnings per hour to determine if this opportunity is worth your time.

Use the requirements in A-F above as a guide to organize/prepare your report. The report must include the following items: (1) the financial goal for the one-week venture, (2) selling price of the product as well as the market research supporting this price, (3) itemized costs of the direct materials (as well as the sources of those costs), direct labor and overhead involved in making the chosen product, (4) classification of each cost as variable, fixed, or mixed with respect to the chosen cost driver, (5) break-even and target-profit analysis, (6) spreadsheets supporting CVP analysis and graphs, and (7) a two-page summary describing the results as well as the calculations.

Learning goals

Understanding product cost and CVP relationships is difficult for many students. Yet being able to accurately calculate unit cost and apply CVP analysis is crucial for profit planning, pricing, and profitability considerations. Given the importance of calculating the cost of a product and using CVP analysis, the primary learning goals of this project are for students to apply what they have learned in the classroom about cost behavior, product cost, and CVP analysis, to determine the feasibility of this one-week business venture. To meet these goals, students must act like an entrepreneur and perform the necessary planning and research to estimate the costs necessary to produce their product as well as determine the appropriate price to charge for their product. Students must also demonstrate the use of Excel. Since improving the written communication skills of students is important, they are required to write a description

of the product as well as the results of this one-week venture. Upon successful completion of this case students will be able to

1) Conduct research and find relevant information such as sales price, anticipated demand.
2) Identify and estimate direct (e.g., food ingredients) and indirect (e.g., transportation) costs
3) Identify an appropriate cost driver and classify costs as variable, fixed or mixed.
4) Calculate the cost-per-unit of the chosen product.
5) Perform the CVP analysis and calculate the break-even point.
6) Prepare cost-function and profitability spreadsheets and create CVP graphs

TEACHING GUIDANCE & PEDAGOGICAL ISSUES

The nature of the carnival project is different and fun. As the carnival is such a familiar context for students, the uncertainty that typically arises due to inadequate understanding of a novel situation is minimized. Students can learn from experience by doing the kind of "homework" that anyone contemplating starting a small-business venture would do to ensure that the venture is feasible. Although this one-week business venture is on a small scale, the managerial accounting concepts and the thought process used are easily transferrable to concepts managers use in larger entities. It highlights the complicated nature of what often appears on the surface to be a simple process. Given the myriad of details in such a small operation, students quickly learn to appreciate the complexity of identifying costs, calculating cost-per-unit, setting a target price, and determining overall profitability. By applying "classroom theory" to a real-world context they employ research, analytical, and decision-making skills. An important point to note here is that although students may not actually make and sell the product to customers, they do engage in experiential learning by applying accounting concepts, an essential prerequisite for anyone intending to sell a product at a carnival.

Implementation experience

This section describes authors experience on how the project was used over several semesters and offers suggestions for alterations. It also provides guidance on the amount of time required to administer, complete, and grade the project.

The project was delivered over several semesters at two institutions (one public, one private) in the Mid-Atlantic region of the United States in five sections of the required undergraduate introductory managerial accounting course at one college, and three sections of the required managerial accounting course in a MBA program at the other university. Each institution enrolls approximately 6,000 students with similar SAT/ACT scores in the 25^{th} – 75^{th} percentiles ranging, in the case of SAT scores, from 1150 to 1350.

Two different instructors in a traditional undergraduate managerial accounting course and one instructor in the required managerial accounting course in a MBA program have used this project. MBA students completed the project individually whereas more than half of the undergraduate classes completed the project in 3-person groups. The undergraduate classes consisted primarily of sophomores, with some juniors and a few seniors. A total of 190 students completed the project, 53 graduate students and 137 undergraduate students. Average class size at the undergraduate and graduate level was 27.4 and 17.7, respectively.

When the scheduled assignment date arrived, the instructor distributed the project and the grading rubric to students in class and thoroughly reviewed the requirements and the assessment criteria. The project was introduced and details were provided after material on product cost and CVP analysis was covered in each of the courses. During this class, a preliminary discussion of the six-night church carnival describing its relationship to the amusement company and the church was followed by a discussion of the specific details of the assignment requirements. At first, students were quite taken by the catchy title as well as the familiarity of the context. It is so familiar that most, if not all, students quickly understood the nature of the assignment as per the impression of the instructors. In addition, having done numerous exercises and problems from the textbook on product costing and CVP analysis provided them the basic building blocks to complete this project.

We began the discussion by devoting some time to discussing carnivals/festivals in general and how they typically operate. The instructors then tried to place students in the setting of this entrepreneurial endeavor by setting the tone as to why they might be interested in this one-week venture. Reasons such as additional income, the challenge of running your own business venture, as well as the feeling of giving back to the community were cited as motivation for students to take on this business venture. Ideas of different food products that can be used for the project usually stimulate a lively discussion and create a sense of excitement about the project. Students were encouraged to be creative in their product selection, to research carnival food ideas, and to even make the sample product. The following websites provide ideas for potential carnival foods, supplies, and rentals: www.bartscarts.com, www.carnivaldepot.com, and www.sandsamusementspa.com. These and other web sites were helpful to students in developing a product idea and obtaining estimated costs of supplies and rental of equipment. Although they are quite savvy at locating information on the Internet, we encouraged students to visit a supermarket for cost information as well. Ultimately, it was up to the students to gather information from whichever source they saw fit, as long as it was documented

After discussing the potential food products to be produced, instructors stressed the importance of setting a realistic financial goal, performing thorough market research as to the price to be charged, and balancing the costs of manufacturing the product to obtain an accurate cost of the product. Students are instructed to first develop a financial goal, the earnings they would be happy with for 24-plus hours of work. They were instructed to think about a food product that would enable them to be successful in reaching their financial goal.

Once the product is identified, a recipe and ingredients to make the product need to be ascertained and the costs of the materials to make the product need to be researched and documented. Students are encouraged to actually make the product, but are not required to do so. The instructors also motivated the students to "dive in" and be thorough in capturing all of the costs necessary to make the product. In addition, the instructors discussed the 12.5% commission paid to the amusement company and the 12.5% commission paid to the church without revealing to the students the cost classification of these commissions. The 25% fees paid to the amusement company and church are similar to royalties and are a variable overhead cost that needs to be considered in calculating contribution margin. Students tend to struggle to understand where this cost fits and this project forces them to think about how this cost behaves

in response to changes in a designated cost driver (activity variable). The $200 booth-rental cost for the week represents a common fixed cost and ensures that the venture has at least one fixed cost. Students were reminded of the importance of arriving at an accurate cost for the product, as that would affect the price charged and the ultimate profitability and feasibility of their business venture.

Once the cost of making the product has been estimated, students need to perform market research to determine a sales price for the product. Web sites of amusement parks and restaurants can be most helpful in performing market research and setting a price for the product. Students should be reminded to keep in mind that there would be competition as there will be several food items for sale at the carnival.

Each instructor took approximately 30 minutes of class time to explain and discuss this assignment. We consider this a good investment of time, as sound understanding of the assignment by students is crucial for them to submit accurate, thorough and complete final reports. The authors have found that the more effort expended by the instructor in explaining what the project submission should look like will ensure a more uniform, complete, and easy-to-follow submissions, which will ease the grading process. The student's submission should include a hard copy of all spreadsheets (which provide detail regarding parts C and E) stapled together with the written answers to parts A, B, D, and F of the project.

Use of Excel

Instruction and demonstration was given on the use of Excel. Sample templates were designed for this project. Ideally, it would be best for students to develop their own spreadsheets, decide how best to present the data and analysis. However, we have also found that by providing a sample template and requiring students to apply relevant Excel functions to analyze business issues leads to a uniform submission by all students making the grading of this project less time consuming. Some of the essential Excel skills to master include functions for moving and manipulating data, using data filters and pivot tables, and presenting data. Naturally, the templates for students would not include input values or the formulas for CVP analysis. A sample Excel template with automated worksheets is available from the authors upon request.

Although the use of an Excel template provided by the instructor may potentially limit student creativity, it is helpful in ensuring consistency and managing assessment. Given that the assignment is much less structured than traditional textbook-driven homework problems or published case studies, very specific instructions are needed to guide students.

Student questions

The instructor can expect students to have several questions during class when the project is first introduced and throughout the weeks that students are working on this project. Some of these questions in the beginning will range from "Is this a good product?" to "Should I buy or rent the grill or fryer I need to make the product?" Inevitably, other students will get stuck on trying to figure out how many people will attend the carnival and they will frequently ask the question "How many people will attend the carnival?" At this point the instructor needs "to reel the student back in" and draw the parallel of this project to the entrepreneur starting a business

where he or she does not know how many people will shop at their store or buy their product. This aspect of the project injects real-world ambiguity similar to what would be encountered in practice. This is also an opportunity to point out that people starting a business to determine if the business venture is feasible commonly use CVP analysis.

Students were encouraged to consult the instructor with any questions, as this assignment was open-ended and was very different from most assignments they had seen in other classes. As there may be difficulty in determining the cost, identifying overhead and/or deciding on a selling price, the instructors reinforced his/her commitment to assisting the students as they explored these steps and tackled ambiguity. As it turned out, the instructors did not expend a significant amount of time inside or outside class discussing the project beyond the 30-minute discussion on the day the assignment was distributed.

The project can be given either as an individual assignment or as a team project. Having used the project both ways over different semesters, we prefer the team approach for large classes, and individual assignments for smaller classes and for graduate courses. The use of teams helps mitigate the time commitment involved for both students and instructors, while having each student complete the project mitigates some of the typical problems encountered with team projects.

ASSESSMENT

There is no one correct answer for this project since each student will potentially produce and sell a unique product. Even if there is duplication of product ideas among students, the financial goal, selling price, and estimated cost of the product may be entirely different and thus yield different results as to the feasibility of the proposed venture.

Broadly speaking, the assessment approach is one of student choice. As students complete parts A-F of the project requirements, they have the flexibility to present their understanding/learning/findings/analysis…in any way they like, provided all parts are answered.

Sample Solution

Based on the Excel templates referred to earlier, Exhibits 1-4 show sample data for funnel cakes, a popular product at most carnivals.

EXHIBIT 1

Direct Material

Sample Carnival Cost Projections in Excel

Course:	ACC 202		Submitted by:			
Section:						
Material:	$80.62	Total Fixed:	$1,881.85	Sales price per serving:	$4.00	
Overhead:	$ 1,999.69	Total Variable:	$ 198.46	Variable cost per serving:	$1.49	
				Contribution margin per serving:	$2.51	

Direct Material per batch of 200 funnel cakes

Item	Source	Quantity	Unit Cost	Extended Cost	Cost Type
Pennsylvaniz Dutch Funnel Cake (25 lbs. per bag)	www.funprofit.com	1	$ 52.45	$ 52.450	Variable
Domino's Confectioner's (powdered) Sugar (32 oz. per bag)	www.shoprite.com	6.25	$ 2.59	$ 16.188	Variable
Vegetable oil (128 fl oz. per bottle)	www.shoprite.com	1.5	$ 7.99	$ 11.985	Variable
			Total direct material cost	**$ 80.62**	

EXHIBIT 2

Manufacturing Overhead

Sample Carnival Cost Projections in Excel

Course:	ACC 202		Submitted by:			
Section:						
Material:	$80.62	Total Fixed:	$1,881.85	Sales price per serving:	$4.00	
Overhead:	$ 1,999.69	Total Variable:	$ 198.46	Variable cost per serving:	$1.49	
				Contribution margin per serving:	$2.51	

Manufacturing Overhead

Item	Source	Rate	Extended Cost	Cost Type
Booth rental		$200 per week	$ 200.00	Fixed
Funnel cake fryer rental	www.rental-world.com	$128.75 per day x 6 days	772.50	Fixed
Funnel cake kit rental	www.rental-world.com	$31.50 per kit x 6 days	189.00	Fixed
Mixer	www.zappos.com		399.99	Fixed
Staff worker		$10 per hour x 24 hours	240.00	Fixed
Damage waiver on equipment	www.rental-world.com		50.00	Fixed
America's Choice napkins (400 count)	www.shoprite.com	$2.79 per package x 6 days	16.74	Varable
America's choice plates (40 count/pack)	www.shoprite.com	$ 3.37 packs x 5 packs x 6 days	101.10	Variable
Good Cook Tongs (1)	www.shoprite.com		3.29	Fixed
Good Cook Wisks (1)	www.shoprite.com		2.29	Fixed
Aprons (2)	www.walmart.com	$1.99 per apron x 2 aprons	3.98	Fixed
Poster boards (2)	www.shoprite.com	$0.40 for 1 sheet x 2 sheets	0.80	Fixed
Transportation cost to pick up/drop off rental equipment	www.rental-world.com		20.00	Fixed
		Total manufacturing overhead	**$ 1,999.69**	

EXHIBIT 3

Fixed Costs

Sample Carnival Cost Projections in Excel

Course:	ACC 202	Submitted by:			
Section:					
Material:	$80.62	Total Fixed:	$1,881.85	Sales price per serving:	$4.00
Overhead:	$ 1,999.69	Total Variable:	$ 198.46	Variable cost per serving:	$1.49
				Contribution margin per serving:	$2.51

Fixed Costs

Item	Total Amount
Booth rental	$ 200.00
Funnel cake fryer rental	772.50
Funnel cake kit rental	189.00
Mixer	399.99
Staff worker	240.00
Damage waiver	50.00
Tongs	3.29
Whisk	2.29
Aprons (2)	3.98
Poster boards	0.80
Transportation cost	20.00
Total Fixed Costs	**$ 1,881.85**

EXHIBIT 4

Variable Costs

Sample Carnival Cost Projections in Excel

Course:	ACC 202	Submitted by:			
Section:					
Material:	$80.62	Total Fixed:	$1,881.85	Sales price per serving:	$4.00
Overhead:	$ 1,999.69	Total Variable:	$ 198.46	Variable cost per serving:	$1.49
				Contribution margin per serving:	$2.51

Variable costs

Item	Basis	Cost per serving	Approximate production = 200 funnel cakes per night
Funnel Cake Mix	$52.45/200	$ 0.26	1 bag (25 lb.) makes 200 funnel cakes
Sugar	$16.19/200	0.08	6.25 bags (200 oz.) for 200 funnel cakes
Oil	$11.99/200	0.06	1.5 bottles (192 fl oz.) for 200 funnel cakes
Plate	$16.85/200	0.08	5 packages (40 count per pack) for 200 servings
Napkins	$2.79/200	0.01	1 package (400 count) for 200 servings
Fee paid to Church (% of sales price)	$4.00 x 12.5%	0.50	
Fee paid to Amusement Company	$4:00 x 12.5%	0.50	
Total Variable Costs		**$ 1.49**	

For illustration purposes, we present a worksheet, containing cost projections for funnel cakes in rows 1-62. The worksheet is divided into four exhibits according to the type of costs: direct material, overhead, fixed costs, and variable costs. One feature of note is the 'freeze pane,' which allows the top portion containing summary numbers to remain on screen as one scrolls down a worksheet for details of various costs. In addition, the top portion is automatically updated as new data is entered or exiting data changed. In essence, the top portion serves as a

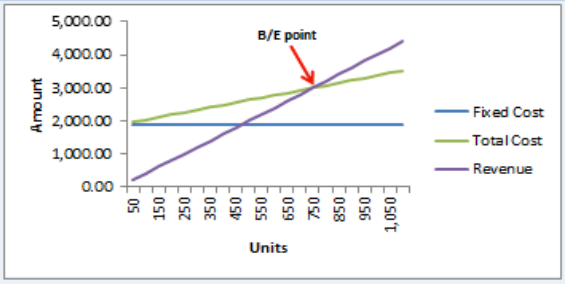
simple dashboard. Another example of a dashboard is the break-even analyzer presented in Exhibit 5. The analyzer shows a CVP graph that is automatically updated with changes in data. Overall, students learn to apply many Excel functions, construct alternative ways to organize data, automate worksheets using cell references and formulas, and graphically display results. They are able to perform break-even analysis and examine costs from different perspectives.

EXHIBIT 5
Break-Even Analysis

CARNIVAL BREAK-EVEN ANALYSIS

Total Fixed Costs:	$1,881.85
Total Variable Unit Costs:	$1.49
Expected Sales in Units:	1,000
Price per Unit:	$4.00

Break Even Units:	750



Units	Fixed Cost	Variable Cost	Total Cost	Revenue	Profit
50	1,881.85	74.50	1,956.35	200.00	-1,756.35
100	1,881.85	149.00	2,030.85	400.00	-1,630.85
150	1,881.85	223.50	2,105.35	600.00	-1,505.35
200	1,881.85	298.00	2,179.85	800.00	-1,379.85
250	1,881.85	372.50	2,254.35	1,000.00	-1,254.35
300	1,881.85	447.00	2,328.85	1,200.00	-1,128.85
350	1,881.85	521.50	2,403.35	1,400.00	-1,003.35
400	1,881.85	596.00	2,477.85	1,600.00	-877.85
450	1,881.85	670.50	2,552.35	1,800.00	-752.35
500	1,881.85	745.00	2,626.85	2,000.00	-626.85
550	1,881.85	819.50	2,701.35	2,200.00	-501.35
600	1,881.85	894.00	2,775.85	2,400.00	-375.85
650	1,881.85	968.50	2,850.35	2,600.00	-250.35
700	1,881.85	1,043.00	2,924.85	2,800.00	-124.85
750	1,881.85	1,117.50	2,999.35	3,000.00	0.65
800	1,881.85	1,192.00	3,073.85	3,200.00	126.15
850	1,881.85	1,266.50	3,148.35	3,400.00	251.65
900	1,881.85	1,341.00	3,222.85	3,600.00	377.15
950	1,881.85	1,415.50	3,297.35	3,800.00	502.65
1,000	1,881.85	1,490.00	3,371.85	4,000.00	628.15
1,050	1,881.85	1,564.50	3,446.35	4,200.00	753.65
1,100	1,881.85	1,639.00	3,520.85	4,400.00	879.15
1,150	1,881.85	1,713.50	3,595.35	4,600.00	1,004.65

A sample summary solution is presented in the Appendix. The financial goal (target profit) of $1,000 of profit for the week is feasible as the funnel cake booth would need to produce and sell 1,150 funnel cakes for the week, which equals 192 funnel cakes produced and sold per night, or 48 funnel cakes produced and sold per hour. The break-even point of producing and selling 750 funnel cakes for the week or 125 funnel cakes each night, 31.25 funnel cakes per hour. Assuming adequate carnival attendance, this seems reasonable as it is well within the maximum capacity of 48 funnel cakes per hour. The capacity is based on the number of funnel cakes that can be made with a fryer in an hour.

Reaching the financial goal of $1,000 would yield a $20 per-hour wage rate--an attractive hourly rate for most college students. This venture may be deemed a worthwhile financial endeavor and an educational and rewarding experience that provides a popular and necessary product for the carnival and aids the church in its fundraising effort.

Grading Rubric

The grading rubric for evaluating student work evolved over several semesters into a 25 item, 5-point scale rubric (see Table 1). The rubric captures various elements of the assignment. It divides student work into five categories that parallel the learning objectives of this project. The five categories are: planning, determination of cost and selling price of the product, preliminary break-even analysis, summary, structure and content, automated spreadsheet, and the use of market and online research resources to support all costs and the selling price. Points are awarded for accuracy of computations and quality explanations in each of these categories. In addition, because college courses and the real work of business professionals stress writing skills, instructors may provide students a writing rubric and additional feedback on writing quality Instructors may adjust the grading scales or weights to tailor the assignment to their own educational objectives. As a whole, the rubric helps students understand the basis of their overall grade.

The rubric was used to grade projects in 8 classes (3 graduate, 5 undergraduate), taught by 3 different instructors. Projects in five of the eight classes were done individually; a 3-member group approach was used in the other three classes. Graduate classes completed the project as individual assignments, while three of the five undergraduate classes completed the same as group assignments. Individual projects were not graded for use of Excel, although students did use Excel templates to complete the project and seemed quite proficient at it. Group projects were graded for use of Excel and the groups were given the rubric in advance.

Summary Assessment

Assessment was done using rubric scores from four classes taught most recently. Panel A of Table 1 shows the assessment results for individuals (3 graduate classes); Panel B shows the summary assessment for groups (1 undergraduate class). The assessment followed the six areas of the rubric: planning, determining the cost and selling price of the products, preliminary break-even analysis, summary paragraph structure and content, use of Excel, and external research. The assessment results are reported in Table 1.

The planning section of the project required students to determine a financial goal, describe the carnival food product, and classify the costs as fixed, variable, or mixed costs. Both the graduate and undergraduate students met or exceeded expectations on these aspects. The only notable difference was that the undergraduate students working in groups scored lower, on average, than graduate students working individually on the parts that required a description of the costs to make the carnival food product and the subsequent classification of each cost as fixed, variable, or mixed. Overall, both graduate and undergraduate students performed satisfactorily in this area.

Table 1
Assessment Results

Assessment of Learning Objectives	Average Performance			
	Panel A: Individuals (3 classes)		**Panel B: Groups** (1 class)	
	Mean	Std. Dev.	Mean	Std. Dev
Planning, Product Cost and Cost Behavior				
Reasoned statement as to the financial goal	4.604	1.276	4.222	0.833
Description of the carnival food product	4.509	1.395	4.000	0.866
Description of the costs to make the carnival food product	4.755	0.939	3.333	0.707
Classification of each cost as fixed, variable, or mixed	4.811	0.878	3.111	0.782
Cost Classification and Selling Price of the Product				
Direct materials cost	4.793	0.689	4.000	0.707
Direct labor cost	5	0	3.444	1.014
Manufacturing overhead cost	4.66	0.979	3.111	0.782
Selling price of the carnival food product	3.359	2.279	4.000	0.707
C-V-P Analysis				
Contribution margin ratio	4.943	0.412	4.444	0.726
Contribution margin per unit	4.793	0.885	4.333	0.707
Total fixed costs	4.962	0.275	3.444	1.014
Sales volume at the break-even point	4.699	0.889	4.222	0.667
Sales revenue in dollars at the break-even point	4.584	1.151	4.111	0.782
Sales volume in units required to reach your financial goal	4..660	1.037	4.222	0.667
Sales revenue in dollars required to reach your financial goal	4.51	1.25	4.111	0.782
Written Communication				
Content summarizes the results	4.849	0.632	3.444	0.726
Professional language and tone	4.943	0.412	3.556	0.726
Correct grammar and spelling	4.83	0.579	3.889	0.782
Paragraph organization/Flow of paper	4.962	0.0275	3.222	0.833
Use of EXCEL				
Cell reference			3.111	1.054
Appropriate formulas			3.111	0.782
Breakeven (sensitivity what-if) analysis			2.889	0.601
CVP graph			3.222	0.667
Neat, user friendly			3.556	0.726
Market & Online Research (use and citation)				
Adequate resources to support all cost figures and selling price	4.924	0.385	3.444	0.882

The cost and selling price determination section of the project required students to determine the direct materials needed to make the product, determine whether or not they would need any labor, and what manufacturing overhead cost would be needed to make the food product. In addition, the manufacturing overhead cost would need to be assigned on a per- unit basis. Both the graduate and undergraduate students met or exceeded expectations in this area with the area of difficulty for undergraduate students being the determination and allocation of manufacturing overhead. For some graduate students, the method used to determine the selling price was weak. Overall, both graduate and undergraduate students performed satisfactorily in this area.

The preliminary break-even analysis section of the project required students to calculate the contribution margin per unit, contribution margin ratio, total fixed costs, sales volume at the break-even point, sales revenue at the break-even point, sales volume required to reach the financial goal, and the sales revenue required to reach the financial goal. Both the graduate and undergraduate students met or exceeded expectations in this area with the area of difficulty for undergraduate students being the determination of total fixed costs. Overall, both graduate and undergraduate students performed satisfactorily in this area.

The written component of the project required students to write one paragraph summarizing the results and calculate the earnings per hour to determine if the opportunity is worth the student's time. The written component of the project was assessed for content, professional language and tone, grammar, spelling, and organization and flow of the paragraph. Both the graduate and undergraduate students met or exceeded expectations in this area with graduate students performing better than the undergraduate students, as expected. Overall, both graduate and undergraduate students performed satisfactorily in this area.

The Excel spreadsheet piece of the project was required for both undergraduate and graduate students, however, was only formally graded for undergraduate students. This section of the project required students to use appropriate cell references and formulas, and required students to perform break-even and sensitivity (what-if) analysis and to prepare a CVP graph. In addition, the Excel spreadsheet work was required to be prepared in a neat and user-friendly format. The undergraduate students met the expectations in this area however; the average scores in this area were lower in aggregate than the average scores of the other areas. Overall, the undergraduate students performed satisfactorily in this area.

Both undergraduate and graduate students were required to perform research in determining the costs and selling price of their product. Students were assessed based upon their use, application, and citation of the external research. Both graduate and undergraduate students showed competency in information search and relevant data gathering.

Based upon the results of the assessment both graduate and undergraduate students, we conclude that the learning objectives were met. There were differences in the performance between undergraduate and graduate students as well as between projects performed by individuals versus teams. Overall, this assessment provides evidence of the efficacy of this instructional resource.

Student feedback

Upon completion of the project, a survey was given to gain insight into students' perceptions. They responded anonymously to seven survey questions. Data from four classes, representing 137 surveys distributed (of which 113 were completed and returned), shows a survey response rate of 83%. Summary statistics are reported in Table 2.

Table 2
Student survey responses (n = 113)

	Survey Questions:	Frequency distribution 1	2	3	4	5	Mean	Standard deviation	Median
1.	This assignment helped me to apply what I have learned about job order costing and CVP analysis.	2	0	4	48	59	4.43	0.72	5
2.	Experiential learning exercises are an effective way to learn technical material.	2	1	6	45	59	4.40	0.78	5
3.	This project was a realistic simulation of the thought process used by someone starting a business.	2	1	10	50	50	4.28	0.80	4
4.	This experiential learning assignment was challenging.	0	5	29	52	27	3.89	0.81	4
5.	Ambiguity and uncertainty do not bother me when I am asked to solve a problem.*	13	22	41	23	12	2.94	1.20	3
6.	Generally, I would prefer to have more assignments of this nature in my classes.*	4	13	42	30	21	3.51	1.13	3
7.	Experiential learning assignments such as this job order costing and CVP analysis carnival assignment is an effective way for business students to learn.*	2	2	8	50	50	4.21	.82	4

Scale: strongly agree = 5, agree = 4, *neutral* = 3, *disagree* = 2, *strongly disagree* = 1
Number of blanks in survey question 5 = 2; Number of blanks in survey question 6 = 3; Number of blanks in survey question 7 = 1.

Students enjoyed doing this project as it enabled them to understand better how cost data and techniques such as CVP analysis are used in decision-making. Students viewed the development of a product for a one-week carnival as an effective way to learn (question 7). They also indicated that the case helped them apply what they learned about product costing and CVP analysis (question 1). In addition, students thought that this assignment realistically simulated the thought process of someone starting a business (question 3). Students found the assignment effective for learning technical material (question 2), and also perceived the project to be challenging (question 4). Some students stated that ambiguity and uncertainty bother them when they are asked to solve a problem (question 5). These students cited the difficulty in dealing with the unknown – such as how many people would attend the carnival or potentially how many

people would buy their product. Some students admitted they lack a strong desire to have more assignments of this nature in their classes (question 6). Some reasons, among others, why students may not want more assignments of this nature in their classes could be their lack of desire to work with ambiguity and uncertainty. Nevertheless, working with the unknown simulates real world situations and reflects the value of this active learning assignment. Ambiguity is an unpleasant but nonetheless a reality in today's business environment. Therefore, despite students' dislike for uncertainty, it is important to employ pedagogical tools that simulate the uncertainties of actually doing business.

Students were also asked if they found anything in the exercise unclear or unrealistic and whether they would recommend that instructors at their college and other universities use this assignment. Eighty-eight percent of surveyed students indicated that the assignment was clear and that the assignment was realistic, and 100% recommended that instructors at their college and other universities use this exercise.

Finally, students were asked to provide any other comments, suggestions or ideas that they might have regarding the assignment; Table 3 reports a representative sample of student responses. Although most students found the project to be clear and realistic, many students commented that the project was challenging and difficult because they did not know the number of people that would be attending the carnival and how many people would buy the product. Not knowing carnival attendance figures and the resulting production required presented students with some difficulty in assigning overhead to individual units and determining the overall profitability of the business venture. This uncertainty and ambiguity bothered some students. During the short debriefing/discussion session, students identified 'dealing with ambiguity' to be the most disconcerting part of the project. Some suggested it took them out of their 'comfort zone'. However they understood our rationale that such unknowns are realistic questions that many businesses face day to day.

Table 3
Student comments

A. Positive Feedback

The exercise was the most realistic assignment I think I've done in college.

It teaches real world skills that would not be learned in the classroom.

It is a better way to learn than just simply reading a textbook, which may not accurately depict the real business world.

It was a good project and fun to do.

This project was a good example of considering all of the possible costs associated with running a successful business.

It was a great assignment. It also opened my eyes to the challenges that arise when running the smallest businesses.

It was fun and I would like more projects like this. The Internet was very useful—I controlled information that I could use. It took time and was positively challenging. The project was not boring and not too long and straightforward.

This project was a good example of considering all of the possible costs associated with running a successful business.

It puts you in the situation to make the decisions an actual business owner/operator would need to.

It's a great way to apply learned information to real-world scenarios.

It was challenging, but it added to my learning experience.

It brings a real world way of thinking into the classroom to make it easier to understand the material.

I definitely feel that experiential learning assignments should be in the course. I learn material more completely when I do them.

A great way to apply what you're learning in a real world environment where you start from scratch, do research, etc, rather than just plugging in given numbers.

Going through the process gives a better idea of how valuable the accounting process is.

A good assignment. It teaches one to be realistic and see what would happen if one wanted to go into business.

"Hands on", real world learning is the best methodology.

This project helps a student apply formulas to real life scenarios, therefore seeing how important it is to understand the formula, not just memorize it.

I think assignments like this are especially good for ACC classes because this is a subject that I have found difficult and they help me understand and do better. Rather than just doing calculations and formulas, we were able to look at it from a different perspective.

This project utilized practically all of the lessons we learned in class making it very relevant. The equations were a great way to also study for the final.

Choosing whatever we wanted to make, freedom to affect costs as we choose.

B. Suggestions for Improvement

There could have been more calculations to broaden our scope of the situation.

I felt that some of the parts overlapped, so perhaps improve the organization of the questions.

Estimations on ordering for the product were extremely difficult and took up a lot of time. Knowing how many customers there would be per night or for the week would have made it go smoother.

Leave as much ambiguity out of the assignment as possible. There were a few things such as outside research and the amount of outside research that were left too open.

I wasn't sure exactly how to format my data and results.

More guidance for what information is preferred. Too much ambiguity on what specifics are asked for.

More class time to work

Data from a recent undergraduate class indicated that on average, students spent 11.05 hours to complete the project. The range varied greatly, from 7 to 20 hours. This information was not solicited from earlier classes. Overall, students agreed that this project was a clear and realistic application of developing a product, calculating the cost of the product and determining the viability of this one-week business venture. Student responses indicated that the assignment was fun, challenging, and hands-on and an engaging method to apply the material learned in class to the "real world."

SUMMARY AND LIMITATIONS

This instructional tool can easily be adopted in introductory management accounting courses at the undergraduate level or at an MBA program. The strength of this assignment is its use of an experiential learning approach involving a familiar and entertaining event (the carnival) that requires students to determine the cost of a food product that they actually make. This assignment also compels students to use the thought process of an entrepreneur to determine if a business concept or venture is potentially profitable. Given the significant research calling for experiential learning to be integrated into the business school curriculum (e.g., McCarthy and McCarthy, 2006), this project provides an option for most accounting instructors and is very easy to implement into a course. The project also supports the Accounting Education Change Commission's call for "making students more active participants in the learning process not just recipients of information" (AECC, 1990). Instructors will find this tool to be a relatively straightforward way to teach several managerial accounting concepts in an undergraduate managerial accounting course and simultaneously make the course relevant.

Naturally, some limitations exist and should be recognized. One is the time constraint that it puts on the professor in grading each unique project. Each individual project has different assumptions, sources for their costs and price as well as numerous calculations. Use of this assignment as a group project can reduce the time commitment of the instructor. There is a significant amount of time required to remain consistent in grading each unique project. Use of the Excel templates will cut down this time. Another possible limitation is that the assignment may not be reusable every semester due to potential leakage of assignments among fellow students. There are several different product concepts that can be developed; however as with any assignment, students can pass them down from year to year. Instructors can overcome this problem by forcing students to develop new products each year and not allow certain food products to be manufactured again in the following semester. Instructors can also modify this assignment by changing the venue from a carnival to a craft fair where students produce a craft item to be sold at a church or school sponsored craft fair.

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Appendix

Sample Solution to Requirements A-F

A. The financial goal for this one-week venture of operating a funnel cake booth at the local church carnival is to generate a $1,000 net profit. With set-up and clean-up time, administrative time and the 24 hours of carnival show time, it is expected that the time invested for this venture would be 50 hours, and $1,000 net profit would result in an hourly earnings rate of $20 per hour.

B. One of the more popular food items at any carnival or amusement park is funnel cake. The process of making funnel cake as well as the equipment that needs to be rented and costs necessary to operate this booth for a one-week carnival is detailed below.

Production and sales of 8" funnel cakes will require certain pieces of equipment. This venture will require renting a funnel cake fryer and also a funnel cake kit which includes 1 sugar sifter, 1 square skimmer, 2 half-gallon batter pitchers, and 4 8" funnel cake rings. There is also an insurance/damage waiver fee to be paid on the equipment.

Pre-made funnel cake mix from the Pennsylvania Dutch Company, enough to produce approximately 200 funnel cakes per 25 lbs. of mixture, will be used to make the funnel cakes. The dough is mixed with 6 ounces of water and whisked together in a mixer. The dough is poured from a pitcher in several crisscross patterns in the 8" cake rings. The cakes fry in oil in the rented fryer and are removed using tongs. Once the cakes are done, the sugar sifter is used to sprinkle 1 ounce of confectioner's sugar on top of the cake. Each funnel cake takes 3-4 minutes to prepare, and the plan is to make 4 funnel cakes at a time, or approximately 48 funnel cakes per hour.

There is a weekly rental charge of $200 to rent the booth as well as a 12.5% of sales revenue royalty to be paid to the church and 12.5% of sales revenue royalty to be paid to the amusement company. There will be an additional cost of $20 in travel costs in order to pick up and drop off the rental equipment as well as for picking up supplies before the first day of the carnival. Other supply costs include the paper plates used to serve the funnel cake, along with paper napkins for the customers. Aprons will be purchased for each worker to protect their clothing from damage. Poster boards will be used to make signs to advertise the sales price of the funnel cake. Refer to Exhibits 1-4 for the cost data.

C. The direct materials and manufacturing overhead costs for this funnel cake operation are presented in Exhibits 1-4. The labor cost for this one-week venture is a fixed cost and therefore is included in the manufacturing overhead cost total.

D. The selling price of one funnel cake is $4.00. This price was market researched by looking at prices charged at amusement parks such as Hershey Park ($5.55 per funnel cake) and other amusement parks where prices ranged from $3.00 - $7.50. The price of $4.00 was selected based upon this market research as well as the fact that several competing food items will be sold at the carnival; this price prevents the funnel cake from being overpriced.

Appendix (continued)

E. C-V-P analysis results for the funnel cake are summarized below:

Sales price per funnel cake	$ 4.00
Variable cost per funnel cake	1.49
Contribution margin per funnel cake	$ 2.51
Sales price per funnel cake	$ 4.00
Contribution margin ratio	62.75%
a. Total fixed costs	$ 1,881.85
b. Contribution margin per funnel cake	$ 2.51
c. Sales volume at break-even point in *units* (a ÷ b)	750 units
a. Total fixed costs	$ 1,881.85
b. Contribution margin ratio	62.75%
c. Sales revenue at break-even point in *dollars* (a ÷ b)	$ 3,000.00
a. Total fixed costs plus target profit	$ 2,881.85
b. Contribution margin per funnel cake	$ 2.51
c. Sales volume needed to reach financial goal in *units* (a ÷ b)	1,150 units
a. Total fixed costs plus target profit	$ 2,881.85
b. Contribution margin ratio	62.75%
c. Sales revenue needed to reach financial goal in *dollars* (a ÷ b)	$ 4,600.00

F. According to the results, the financial goal (target profit) of $1,000 profit for the week is feasible as the funnel cake booth would need to produce and sell 1,150 funnel cakes for the week, which equals approx. 192 funnel cakes produced and sold per night or 48 funnel cakes produced and sold per hour. The break-even point of producing and selling 750 funnel cakes for the week or 125 funnel cakes each night, approx. 32 funnel cakes per hour, seems reasonable as it is well within the maximum production capacity of 48 funnel cakes per hour.

Reaching the financial goal of $1,000.00 would yield a $20.00 per hour wage rate, which is an excellent hourly rate for any college student. This venture is a worthwhile financial endeavor and an educational and rewarding experience that provides a popular and necessary product for the carnival and aids the church's fundraising effort.

EXPERIENTIAL LEARNING IN COST ACCOUNTING

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INTRODUCTION

Experiential learning is a fancy term for something we all learned as children. As children, we quickly learned not to touch a hot stove. This was learning from experience. Experiential learning is learning from experience. A Chinese proverb, listed as quotation #12,274 in the Columbia World of Quotations also describes experiential learning. Confucius, the Chinese philosopher and reformer, is credited with the proverb, which states: I hear and I forget, I see and I remember, I do and I understand. Experiential learning is learning by doing. Thus, the essence of experiential learning is that experiential learning emphasizes active rather than passive participation on the part of the learner.

RELATED LITERATURE

The question, "What causes learning?" is as old as teaching. The Accounting Education Change Commission "is convinced that an increased emphasis on teaching and curriculum and course development is vital to the future of Accounting Education" and "the importance of effective teaching and innovative curriculum cannot be overemphasized (AECC, 1990, p. 330). Williams (1991, p. 128) wrote, "A major step for reforming accounting curricula is to encourage experimentation and innovation. Experiential learning revolves around experimentation and innovation.

The AECC Objective of Education for Accountants Position Statement number One states that, "The overriding objective of accounting programs should be to teach students to learn on their own. Students must be active participants in the learning process, not passive recipients of information. Learning by doing should be emphasized. Working in groups should be encouraged. Faculty who are effective teachers are those who develop and implement new and innovative approaches to teaching and curriculum design should be recognized and rewarded for such scholarly activities (Sept, 19909, p4). In addition, the Commission notes, "The content of the program must create a base upon which continued learning can be built. A focus on memorization of rules and regulations is contrary to the goal of learning to learn (Sept, 1990, p6).

Many different methods are used to provide learning experiences for students. Baker, et al, (1987) identified six major teaching methods that have been presented in a wide body of education research literature. These are Lecture/discussion, programmed instruction, mastery

learning, problem-centered seminars, lab, workshop, experiential learning, and system analysis. Baker et.al conclude that the optimal teaching method for most accounting courses is the experiential method developed by David Kolb.

David Kolb (1984) developed a model for experiential learning theory that emphasizes, "Experience is translated into concepts, which, in turn, are used as guides in the choice of new experience" (kolb, 1984, p31). According to Kolb, the learner goes through four stages for maximum learning. The phases are: Concrete Experience (CE), Reflective Observation (RO), Abstract Construction (AC), and lastly Active Experimentation (AE). Kolb believed that the learners performance is determined as p=f (ce, ro, ac, ae). The core of his model, noted above, is that experience nets concepts, which nets experimentation and that learning should go through all four phases for maximum learning efficiency.

Though much has been written about experiential learning, little empirical evidence has been gathered and tested in order to determine the statistical significance of experiential learning versus other modes of learning. James E. Stice (1987) used Kolb's learning cycle with engineering students. Stice states that his experience "has confirmed the assertions that students will learn effectively through the application of Kolb's theory (p. 226).

McMullen and Cahoon (1979) encouraged students to identify and conceptualize their experiences through what was called a Personal Application menu (PAM). The PAM's required students to answer questions based on the four learning stages presented by Kolb. Hutchings and Wutzdorff (1988) wrote about the integration and effect of experiential learning at Alverno College. Alverno has adopted the works of Argyris and Schon (1974) and Kolb (1984) to a learning environment that integrates what is termed "knowing and doing".

Agrawal and Siegel (1991) conducted a study to gather empirical evidence to test Kolb's learning theory. The study was small in scope and conducted in a principles of accounting course. The results of their study indicated some statistical evidence that student performance improved through the integration of Kolb's learning cycle. Until recently, this was the only study available providing statistical evidence of the usefulness of Kolb's theory.

Jensen and Agrawal (2003) conducted a study where the primary research questions was whether applying Kolb's experiential learning model in introductory accounting would improve learning of the treatment group. They tested the hypothesis: The mean score of the control group will be equal to or greater than the mean score earned by the treatment group for each exam. Statistical tests revealed a significant difference in the exam scores of the treatment and control groups on all exams.

Jensen and Agrawal state "the motivation for this study was to fill a gap in the literature by providing empirical evidence on the validity of learning theory applications in Accounting…The classes receiving the teaching strategies designed to integrate the theory did significantly better than the classes taught by the traditional lecture format….evidence not previously published in the literature" (p.. 38)

THE ASSIGNMEENT

The assignment requires the student to purchase raw materials, make something out of the materials, keep a journal of cost and experiences, and make a presentation to the class of the results. Thus, the assignment combines elements of experiential learning, oral communications, and written communications. I tell the students I don't want projects such as puzzles or snap/glue together kits. Rather, I want them to start with an idea for a project, buy the raw materials, manufacture the item, and keep a journal of what they did.

Over the years I have made a few modifications to the assignment. For instance, the first semester I made the assignment, many students made cookies and cakes. Since the first semester, students are told the must make something non-perishable. Some students made large items and brought only pictures to class. One of my current requirements is the project must be something small enough to bring to class for presentation.

Students are graded on their oral and written report. This comes as a great relief to many students who at first feared a part of their grade would be on their finished product. I ease their mind by telling them the finished product has nothing to do with their grade on the assignment.

The two main questions are the same each semester: How long does the journal need to be and how much time for the presentation. I tell them the journal should be long enough to detail all their experiences while making the project and tracking the cost. I do not specify a particular length. I tell them the presentation needs to be about 2-3 minutes beginning with the name of their product and the amount of its cost.

Grading the assignment requires a great deal of judgment. I am never 100% sure a student actually made the item. However, by listening to their presentation, reading their journal, and looking at the product, I am able to at least record a grade with some informed judgment. The project is usually worth 25 points and most students, who make something, give the oral presentation, and turn in their journal will get 25 points.

The least expensive project on record is the one where a student took three pipe cleaners and made a stick man. One was for the torso, one for the legs, and one for the arms. His presentation was good and his report was good so he received the max score on his project.

The most expensive was a 12x24 shop building. (This was before I made the requirement for the project to be small enough to demonstrate in class.) The student brought a series of pictures showing from the bare ground, to the foundation, to the walls, to the ceiling, to the roof. He was very knowledgeable of the construction process and based on his presentation and journal he received max credit on his project.

Perhaps the most interesting item was the time a student began his presentation by saying "I made a candle and it cost $235". After the laughter subsided, he explained his wife's

microwave blew up during the heating process and he had to buy her a new one. This particular project generated a great deal of discussion about adding the cost of the microwave to the cost of his one candle.

Perhaps my favorite project to date is the one where the student made "Dancer the Reindeer". This is the project I hand out to students once all the presentations are made. I use it as a good example of the detail that goes into a cost report, both the financial aspect and the written aspect. The project enables us to discuss many concepts dealing with direct and indirect materials, direct and indirect labor, variable and fixed factory overhead and reporting procedures. Complete detail about "Dancer the Reindeer" is included in the appendix.

SUMMARY

The vast majority of the students seem to enjoy this project. Some students I talk with years later tell me the one college project they remember most was the one in cost accounting where they had to make something. I particularly like the project because it has some many learning elements. It has the experiential learning aspect, the oral communications aspect, and the written communications aspect.

One student comment about the project is typical of what many students write. They wrote "I enjoyed the experiential learning assignment. It was very interesting to think about all the different costs that can go into even a simple item. The costs and hands on experience almost made me understand why some people do this stuff for a living as Cost Accountants. (Notice I said almost).

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APPENDIX
DANCER THE REINDEER

DIRECT MATERIALS

$1.36	BEIGE FELT
$0.79	BROWN FELT
$0.10	RED FELT
$0.27	GREEN FELT
$0.56	BLACK BEADS
$0.83	RIBBON CHRISTMAS TREE
$2.50	FIBERFILL
$1.67	AQUARIUM GRAVEL
$1.00	BLUE JEANS
	RED GLITTER
$1.49	GLUE
$0.33	POINSETTIA TRIM
$0.27	CANDY CANE
$11.17	TOTAL DIRECT MATERIALS

LABOR

HOURS	RATE	TOTAL
8.75	$6.00	$52.50

OVERHEAD

??	ELECTRICITY
$0.59	BLACK EMBROIDERY THREAD
$0.59	RED EMBROIDERY THREAD
$0.99	HOT GLUE STICKS
$0.59	BEIGE THREAD
$0.59	BROWN THREAD
$0.59	NAVY THREAD
$1.00	BLUSH
$6.98	PATTERN
$11.92	TOTAL OVERHEAD

COST SUMMARY

DIRECT MATERIALS	$11.17
DIRECT LABOR	$52.50
OVERHEAD	$11.92
TOTAL COST	$75.59

TOOLS USED INCLUDED:
SEWING MACHINE
MINI GLUE GUN
SCISSORS
PINS
NEEDLES
IRON
RULER

I WENT TO WAL-ART. It took me about 1 hour to plan my project and purchase the materials. I immediately came home and got started.

The first step is beginning my project was to trim the pattern with my scissors and to read the instructions. This took 30 minutes.

I ironed the pattern, pinned it to the materials and began the cutting process. There were 4 pieces each for the arms and legs and 2 pieces for the 4 head of which the ears were a part of (in case you were wondering) that were cut from the beige price of plush felt. The antlers included 4 pieces cut from regular brown felt. The nose consisted of 1 round price of red felt. The two pieces for the body and the pocket were cut from an old pair of jeans. The scarf consisted of 2 long pieces cut from green sparkle felt. The cutting process took 1 hour and 30 minutes.

Sewing Process

I first sewed the body pieces together and the filled the bottom with a cup of aquarium grave to help it stand upright. I then proceeded to fill the body with fiberfill, stuffing it to the brim. I turned under the top edge of the body and slipstitched it together. This step took about 35 minutes. I then sewed the head sections together to form the ears. I wrapped thread several times close to the head and tied it off. I then stuffed the head with fiberfill. Next I used the black embroidery thread to hand attach the beads to the head for the eyes, and then hand-stitched the eyebrows and mouth. I hand gathered the red felt circle, stuffed it and tied it off to make the nose. I then glued the nose to the head with the hot glue gun. Next, I glued the head to the body and added a few stitches here and there to secure it. This process took me 2 hours.

Antlers: I stitched the fabric, stuffed the antlers and glued them to the top of the reindeer's head. I applied blush to the inner ears and cheeks. I glued the poinsettia decoration between the antlers. This process took 55 minutes.

I then prepared the decorations on the pocket. I first traced the letters on the pocket and then used red glitter glue to go over the tacking. I set the pocket to the see to let the glue dry overnight. This took 1 hour 15 minutes.

Arms and legs: I stitched each set of two pieces together and stuffed them with the fiberfill. I then glued the arms and legs to the body in their appropriate positions. This took 1 hour and 15 minutes.

I stitched the two green scarf pieces together, punched 4 holes in each end with my scissors. I then inserted and tied off red embroidery thread to make fringe and tied the scarf around the reindeer's neck. This process took about 30 minutes. I then hand stitched the Christmas decoration on the pocket and glued the pocket to the body of the reindeer with the hot glue gun. this took 10
minutes.

Last I placed a candy cane in Dancer's pocket. This took 2 seconds.

Merry Christmas.

ACCOUNTING FOR NORMAL REWORK COMMON TO ALL JOBS – CAPTURING THE ESSENCE OF MANUFACTURING OVERHEAD

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INTRODUCTION

The essence of manufacturing overhead is to capture all manufacturing costs other than direct materials and direct labor and then assign, apply or allocate these overhead costs to products in an organized and evenhanded way. When teaching Cost Accounting, direct materials and direct labor present few problems – but a good grasp on the essence of overhead can be elusive. Perhaps the best illustration of overhead at work is found in accounting for normal rework common to all jobs, whereby manufacturing overhead can be both a debit and a credit in a single journal entry. This paper first presents an overview of manufacturing overhead, followed by a discussion of all types of rework: normal rework for a specific job, abnormal rework, and normal rework common to all jobs. A normal rework common to all jobs detailed example is also presented to show the purpose of manufacturing overhead and the efficiency with which this purpose is accomplished.

OVERVIEW OF MANUFACTURING ACCOUNTING

Manufacturing overhead is defined by using a backdoor approach. Direct materials and direct labor are first defined as materials and labor that are conveniently and economically traceable to the finished product. Additionally, direct materials become a part of the finished product. All other manufacturing costs are, by default, manufacturing overhead. Accordingly, manufacturing overhead includes indirect materials and indirect labor costs as well as many other costs, such as factory depreciation, factory property taxes, factory utilities, and factory security – just to name a few. All three factory costs (direct materials, direct labor and manufacturing overhead) are incurred making a product and, accordingly, are called product costs. These product costs are considered an asset (inventory) until sold. Costs outside the factory, such as selling and administrative expenses, are not considered product costs, but are instead considered period costs which are not inventoried, but expensed in the time period in which they are incurred. For example, suppose a security guard is paid a salary of $50,000 a year to guard the business operations of Several Products Company. A determination would have to be made concerning the percentage of the guard's time spent guarding the factory (suppose 60%) versus guarding the selling and administrative operations (suppose 40%). Accordingly, 60% of the salary ($30,000) is a product cost and 40% of the salary ($20,000) is a period cost. The period cost is expensed during the time period incurred. The product cost, however, must first be assigned to the products produced and then expensed as the products are sold. The unsold products are inventoried as an asset until sold. For example, suppose in the first year of operations, the only inventory with an ending balance is finished goods and that exactly two-thirds of the products produced were sold (and that overhead assigned exactly equaled overhead incurred). In such a case, the $30,000 product cost portion of the security guard's salary would be assigned to the products, with two-thirds ($20,000) expensed as a cost of the goods sold and the other one-third ($10,000) included in finished goods ending inventory carried on the balance sheet as an asset.

TYPES OF REWORK

Rework is where a product does not meet quality standards and must undergo additional (or repeat) production to be inventoried and eventually sold. There are various types of rework. Rework can be either normal or abnormal. *Normal* rework is expected during cost-efficient production operations. For example, it may be cost prohibitive to produce perfect units. However, producing units whereby 90 percent of the units turn out perfect the first time and 10 percent need to be reworked to meet quality standards may result in a product that can be produced and sold very competitively. Since the units that do not pass inspection the first time are reworked to the point that 100 percent meet quality standards, a quality product results. It should be noted that inspections should be timed to detect defects as soon as possible to minimize further work on a defective unit. *Abnormal* rework is unexpected and the costs for abnormal rework are usually first offset against any insurance proceeds or other receipts that might be triggered by the unexpected event, with the balance carried to the income statement as a loss from abnormal rework.

Normal rework can be attributable to a *specific job*, as in a *job-order* costing situation, where the costs of the rework would be added to the cost of the job under production. The work-

in-process inventory account is debited for the rework cost. This increases the total cost of the job, but only by an already expected amount. The total cost of the job, after rework, could be less (perhaps far less) than the cost of producing perfect units with no rework. Normal rework that is *common to all jobs*, as in a *process* costing situation, is also expected rework. The manufacturing overhead account is debited for the rework costs, which increases the cost of all jobs under production. The credits for rework journal entries are to the items needed for production – direct materials, direct labor (i.e., wages payable) and manufacturing overhead.

CAPTURING THE ESSENCE OF MANUFACTURING OVERHEAD

Manufacturing overhead must capture all manufacturing costs other than direct materials and direct labor. Overhead costs are applied or allocated to all products produced. One of the best illustrations of the essence of manufacturing overhead is found in accounting for normal rework *common to all jobs*. The manufacturing overhead is both debited and credited in a single journal entry. Consider the following example:

The table division of Several Products Company manufactures solid oak tables. Last month, 10,000 tables were produced. Each table required $23 for direct materials, $10 for direct labor and $10 for applied overhead for a total cost of $43. How were these manufacturing overhead costs derived?

Correctly Captured Normal Overhead

Manufacturing overhead for the period was determined as follows:

Estimated Overhead:					
Indirect Materials	$ 14,000				
Indirect Labor	13,000				
Factory Depreciation	18,000				
Factory Security	3,000				
Factory Utilities	14,000				
Factory Property Taxes	10,000				
Other Factory Costs	18,000				
Normal Rework	10,000		Estimated Base		Overhead Rate
Total Estimated Overhead	$100,000	÷	10,000 units	=	$10 per unit

For this example, assume the estimates above proved to be exactly right, such that overhead was neither overapplied nor underapplied. Normal (expected) rework results in 10 percent of the tables produced needing rework. The rework includes additional direct materials of $6 per table, additional direct labor of $2 per table, and additional overhead of $2 per table. The rework is also done under strict supervision to ensure that the reworked tables are of a quality equal to the tables produced that needed no rework. All of the reworked tables pass inspection once completed. Accordingly, when the 10,000 tables were produced, 1,000 tables (10%) needed normal rework. The applicable journal entry is:

Manufacturing Overhead	10,000	
Direct Materials		6,000 [1]
Wages Payable (Direct Labor)		2,000 [2]
Manufacturing Overhead		2,000 [3]

[1] 1,000 tables @ $6 each
[2] 1,000 tables @ $2 each
[3] 1,000 tables @ $2 each

Incorrectly Captured Normal Overhead

Note what the above entry accomplished. Suppose manufacturing overhead, in a process costing environment, is not correctly capturing normal rework as part of the overhead costs to be allocated. Several Products Company overhead rate is:

Estimated Overhead:						
Indirect Materials	$ 14,000					
Indirect Labor	13,000					
Factory Depreciation	18,000					
Factory Security	3,000					
Factory Utilities	14,000					
Factory Property Taxes	10,000					
Other Factory Costs	18,000					
~~Normal Rework~~	~~10,000~~		Estimated Base		Overhead Rate	
Total Estimated Overhead	~~$100,000~~	÷	10,000	=	~~$10~~	
	$ 90,000		units		$9 per unit	

COMPARISON OF CONTRASTING COST RESULTS

The correct treatment of rework results in 10,000 tables with a cost of $43 each. The incorrect assignment of rework costs results in 9,000 tables with a cost of $42 each and 1,000 tables with a cost of $52 each as shown below:

Correct Calculations:

10,000 tables – 1,000 of which have rework:

Direct Materials	$23.00
Direct Labor	10.00
Overhead	10.00
Total Cost	$43.00 each

Incorrect Calculations:

9,000 tables with no rework:		1,000 tables with rework:				
Direct Materials	$23.00	Direct Materials	$23.00	+ $6.00	=	$29.00
Direct Labor	10.00	Direct Labor	10.00	+ 2.00	=	12.00
Overhead	9.00	Overhead	9.00	+ 2.00	=	11.00
Total Cost	$42.00 each	Total Cost				$52.00 each

COMPARISON OF TOTAL COSTS OF PRODUCTION

The total costs of production under both the correct and incorrect methods are the same, as follows:

Correct Method – Rework as part of Overhead:

Direct Materials:	10,000 tables @ $23		= $230,000
Direct Labor:	10,000 tables @ $10		= 100,000
Manufacturing Overhead:	10,000 tables @ $ 9 =	$90,000	
	+ Rework of Materials =	6,000	
	Labor =	2,000	
	Overhead =	2,000	100,000
	Total		= $430,000
This results in:	10,000 tables with a cost of $43		= $430,000

Incorrect Method – Rework Separate from Overhead:

	Production	Rework	
Direct Materials:	10,000 tables @ $23	+ 1,000 tables @ $6	= $236,000
Direct Labor:	10,000 tables @ $10	+ 1,000 tables @ $2	= 102,000
Manufacturing Overhead:	10,000 tables @ $ 9	+ 1,000 tables @ $2	= 92,000
	Total		= $430,000
This results in:	9,000 tables with a cost of $42		= $378,000
	1,000 tables with a cost of $52		= 52,000
	Total		= $430,000

The key question is, when all production has been completed for the 10,000 tables, should there be 9,000 non-reworked tables with a cost of $42 and 1,000 reworked tables with a cost of $52? The answer is, "No." The 10,000 tables are now all of equal quality and can be priced to sell at equal sales prices. The $10,000 spent on the 1,000 reworked tables was a normal, expected part of production that was necessary to produce the 10,000 tables. Rework costs need to be captured and distributed (or allocated or applied) to *all* the tables produced, including the 1,000 that were actually reworked. The journal entry (as previously shown) is as follows:

Manufacturing Overhead	10,000	
Direct Materials		6,000
Wages Payable (Direct Labor)		2,000
Manufacturing Overhead		2,000

Here is overhead at its best! This unusual journal entry wherein manufacturing overhead is both a debit and a credit accomplishes the task of taking a cost like normal rework that may be applicable to only a few items and spreading the cost throughout production. Each individual unit of the product (or each table in this case) bears a proportional share of the cost, regardless of whether it actually received the specific rework. Accordingly, the end result is 10,000 tables (whether reworked or not) with a manufacturing cost of $43 each.

SUMMARY AND CONCLUSIONS

This paper presented an overview and then an example to illustrate the purpose of manufacturing overhead to take production costs (other than direct materials and direct labor) and capture these sometimes erratic costs that may be applicable to only a few of many similar items, and systematically apply these production costs in an organized and predetermined way. When teaching Cost Accounting, an illustration such as the one presented in this paper can help clarify the role of overhead in production. Once students understand why overhead is part of production, it is much easier for them to comprehend how to accumulate and assign overhead costs and to understand that, without the essence of overhead at work, each product might well have its own unique cost – such that products made on a hot day when the air conditioning had to be turned on high could cost slightly more than those otherwise identical items made on a comfortable spring day. Ultimately, customers take a close look at quality and price, but do not expect otherwise identical items to cost more or less because of the weather on the day an item was made. The cost for identical products under normal manufacturing conditions and made in the same time period should be the same. This is possible thanks to the essence of overhead and its ability to corral, capture and assign the costs of production in an evenhanded way.

Visual Representation of Accounting Standards[1]

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INTRODUCTION

The new normal in the regulatory environment of financial reporting is the rapid change in accounting standards with large philosophical and conceptual shifts in underlying principles. The rate of change and increasing complexity in accounting standards make teaching of advanced level courses in financial accounting difficult and challenging. For example, in the realm of the International Financial Reporting Standards (IFRS), newly issued IFRS 9 *Financial Instruments*, IFRS 10 *Consolidated Financial Statements*, IFRS 11 *Joint Arrangements* and IFRS 13 *Fair Value Measurement* and IFRS 15 *Revenue from Contracts with Customers* have significant impact on the future of financial reporting. Further, the exposure draft on lease accounting is likely to be released in the near future that would change well-established accounting approaches. Accounting professors face the tremendous challenge of equipping students to deal with the rapid change in accounting standards. This paper explains how a project assignment has been used in an Advanced Financial Accounting course to instil in students the skills of analyzing and deconstructing the logical flow of a new accounting standard.

The Advanced Financial Accounting course is a core senior level accounting course, covering advanced accounting topics relating to business combinations, inter-corporate investments, consolidation, foreign currency translation and accounting for financial instruments. This assignment was given as a research project to students at the start of the course, which tested their ability to exploit the massive knowledge resources and address the assignment questions. Students were expected to commence the project prior to the topics being taught, to acquire independent learning ability.

This project assignment has been rated on "quality and usefulness" by students as "most useful" at a very high score of 6.54 out of a perfect score of 7, which is 95th percentile in the university-wide ranking[3].

LEARNING OUTCOMES

This project has the following learning goals:

[1] The authors are grateful to comments and feedback received from participants at the Effective Learning Strategies segment of the American Accounting Association Annual Conference, Anaheim, 2013 and to Singapore Management University for support and funding for the participation at the Conference.
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- Instil in students an independent and pro-active learning spirit to deal with dynamic changes in financial reporting.
- Students to acquire skills of analyzing, deconstructing and identifying the conceptual underpinnings in International Financial Reporting Standards (IFRS) and to better understand the standards.
- Students to be able to visually represent the flows and connectivity within a new accounting standard. The chosen standard discussed in this paper is IFRS 10 *Consolidated Financial Statements* which changes the definition of control and is potentially challenging to apply in special situations. IFRS 10 will have a major impact on determining the boundaries of economic unit reporting in the future.
- The ability of students to critically evaluate IFRS 10 and implementation issues.

ASSIGNMENT IDEA

We chose new accounting standards or exposure drafts as the focal point. Examples are IFRS 9 *Financial* Instruments, IFRS 10 *Consolidated Financial* Statements, IFRS 11 *Joint* Arrangements, IFRS 13 *Fair Value* Measurement, IFRS 15 *Revenue from Contracts with Customers* and the exposure draft on leases. We used IFRS 10 in our assignment.

Resources were provided to students to facilitate their independent learning. Guest speakers were invited to speak on the new standards. Students are required to read the Basis of Conclusions of the Board members of the International Accounting Standards Board to understand the rationale for the requirements of the new standards. Students form teams to read, analyze and draw the flow of the selected standard's requirements.

Students are given a free hand to use their creativity to present the flows in an interesting and visually appealing manner. For example, they may use decision flowcharts, concept mapping techniques or any suitable form to visually represent the contents of a standard. The students need to apply their decision flowcharts to a real-life case and interpret the effects of the new standard on existing practices.

The most common modes of visually representing a standard are decision flowcharts and concept maps. In decision flowcharts, critical questions are asked in a logical sequence. The answers may be closed ended such as "Yes" or "No" or some other categorical responses (e.g. "more likely", "less likely" or "neutral") or they may be open ended responses. For example, the main objective of IFRS 10 is to assess if an investor has control over an investee. The decision making process is complex and requires consideration of multiple factors and is more open than closed ended. To assess existence of control, IFRS 10 provides a process to guide the evaluation process. The responses to the sequential steps are generally open ended. An example of an open-ended and a close-ended flowchart relating to IFRS 10 are shown in Appendix A.

Another suitable mode for documenting principles is the concept map. Concepts may be presented in a diagram that presents the relationships among sub-concepts and the relationships between sub-concepts and the main concept. Concepts may also be linked in a hierarchical manner showing the significance of the main concept in relation to the sub-concepts. Examples of concept maps relating to IFRS 10 are shown in Appendix B.

BACKGROUND OF IFRS 10

On 12 May 2011, the International Accounting Standards Board (IASB) issued IFRS 10 *Consolidated Financial Statements*, IFRS 11 *Joint Arrangements* and IFRS 12 *Disclosure of Interests in Other Entities.*

IFRS 10 seeks to resolve divergent practices arising from the differences in the concept of control in the incumbent standards IAS 27 *Consolidated and Separate Financial Statements* and SIC-12 *Consolidation – Special Purpose Entities* and the inconsistent application of this concept among entities and across situations. For example, entities had different applications of the control concepts in circumstances where the investor controls the investee but with less than the majority of the voting rights, special purpose entities, agency relationships or protective rights.

IAS 27 defines control as the power to govern financial and operating activities of an entity to obtain benefits from these activities. SIC-12 places greater emphasis on risks and rewards in the context of special purpose entities. This conflict between the two standards leads to inconsistent application of the standards. IFRS 10 replaces SIC-12 and the consolidated financial statement requirements in IAS 27.

The financial crisis of 2008 also highlighted an urgent need to clarify the concept of control to ensure that special purpose entities do not remain as off-balance sheet vehicles when these vehicles are a source of significant risks to investors. Towards this end, IFRS 10 provides an overarching conceptual framework that governs the determination of control for all arrangements, including those arising from non-voting rights. The International Accounting Standards Board (IASB) issued IFRS 10 in May 2011 and requires the standard to be effective for annual periods beginning on or after 1 January 2013. Earlier application is permitted (IASB, 2011).

INSTRUCTIONS TO STUDENTS

The focus of this assignment is on the definition of control in IFRS 10 *Consolidated Financial Statements* and the application of this definition to special situations. IFRS 10 sets out the definition and principles relating to control to enable entities to determine the boundaries for consolidation of subsidiaries. The elaboration of the principle of control is spelt out in both the standard and its Application Guidance. Hence, your responses to the detailed assignment questions should incorporate the principles for determining control in IFRS 10, in accordance with the appropriate definitions in Appendix A of IFRS 10 and the Application Guidance of IFRS 10 in Appendix B. You need not consider the accounting requirements relating to the consolidation process and loss of control (paragraphs 19 to 26 of IFRS 10 and the related Application Guidance). To add richness to your understanding of the principles and requirements of IFRS 10, you are strongly encouraged to read the Basis of Conclusions to IFRS 10[4].

[4] IFRS 10, without the Basis of Conclusions, is downloadable from www.iasb.org. The Basis of Conclusions is downloadable from PwC Comperio, a database subscribed by SMU Library.

Detailed Assignment Questions

1. Visually represent the requirements of IFRS 10 relating to control in a flowchart or any other suitable mode. The objective of the visual representation is to show the conceptual, logical flow and connectivity of concepts, principles and requirements in IFRS 10 and the related Application Guidance.

Some points to note:

- Examples of visual representation include decision flowcharts, concept/mind maps or schematic diagrams. There is no one prescribed mode. The visual representation can take on any form and is limited only by your imagination.
- Credit will be given for logical flow, accuracy of representation, ease of understanding, creativity and visual impact.
- Your visual representation diagrams should be as original as you are (please note instructions concerning plagiarism).
- Hand-drawn maps are acceptable.
- Your diagrams should not exceed a total of **five** single-sided A4 pages.
- There is no specified font-size but the diagrams should be legible and readable.

2. IFRS 10 was issued to deal with situations when assessing power over an investee may not be "straightforward". These situations may arise, for example, when the power over an entity is not obtained directly and solely from the voting rights granted by equity instruments and where more than one factor may need to be considered such as, for example, one or more contractual arrangements (paragraph 11 from IFRS 10).

Choose any one real-life entity, arrangement or relationship which, in your opinion, has a voting right structure or arrangement(s) which do not permit a "straightforward" evaluation of control. To guide your choice, your candidate should be sufficiently complex so that it is not clearly a subsidiary or clearly not a subsidiary at first glance[5]. Your case entity should also not be totally devoid of information such that you will not be able you to proceed reasonably in your project execution or be able to make reasonable assumptions or inferences.

The entity[6] may originate from any country but you must provide the links/source of your information which should be in the English language. It is not important to establish whether the entity presently has a controlling interest and who the interest is. You may also select an entity for which there is no existing controlling interest. In your evaluation, you will disregard the existing control relationship, if any, and evaluate the control relationship, if any, afresh using the IFRS 10 framework.

(a) Why is the determination of control not "straightforward" in your case entity? Explain the arrangements, voting rights structure or other factors that complicates the determination of control in your case entity.

[5] These entities may include what the FASB describes to as "variable interest entities". You may refer to FASB Accounting Standards Codification, Subtopic 810 to the characteristics of these entities. However, your candidate need not be restricted to these entities.

[6] For brevity, the term entity in this assignment refers to an arrangement, relationship, structure and any other unit that is clearly identifiable and separate from the investor or its stakeholders.

(b) Apply your flowchart in part (1) to guide your determination of control for your entity using the IFRS 10 framework. Where information is not available at various nodes in your flowchart, you should propose "what if" scenarios and the possible paths in your flowchart for each scenario. You may also make reasonable assumptions in place of "what if" scenarios. (However, please note the condition with respect to availability of information in the selection criteria).

(c) From your analysis, conclude whether control exists, and if so, indicate the most likely source of "control". If you conclude that control does not exist or is ambiguous, explain your basis of conclusion.

Some points to note:

- Credit will be given for the following:
  - The choice of an interesting candidate reflecting your diligent and creative search process and understanding of the principles of IFRS 10.
  - The relevant application of control principles and factors in IFRS 10 and the logical application of your flowchart.
  - Appropriate identification of relevant information and assumptions.
  - Ability to explain the complexities of the control evaluation and application of the process.
  - Good communication skills – clear, concise and grammatically-correct expressions.
  - Sound reasoning and conclusions.

- Part (b) of Question 2 may be presented in any suitable form, e.g. a mixture of text and diagram. However, you need to be clear and relevant in all your responses, regardless of the mode of presentation.

- The page limit for parts 2 and 3 of this assignment is 12 pages, 11 pt. font size with one inch margins. The page limit includes appendices but excludes attachment of materials relating to your case entity.

3. From insights gained in (1) and (2), identify any five[7] requirements in IFRS 10 and the Application Guidance that pose the greatest challenge in interpretation and application and suggest any further steps, if any, that the IASB may take to ensure greater comparability among reporting entities. If you think that no further steps need to be taken, explain your conclusion.

[7] This assumes a group of 5 members. For equitable reasons, the number of requirements will vary according to the group size.

IMPLEMENTATION

This assignment was given in Term 1 of the 2011-2012 academic year, with submission timeline the week before the last lesson of the term. This was a group project (comprising five to six students in each group) with an assessment weighting of 20% in the AFA course. The assessment considered completeness, logical flow, ease of understanding and visual appeal of the submitted projects. An example of the rubric is attached in Appendix C.

The soft copy of their reports was compared with other reports (past and present) and other data sources using an anti-plagiarism software. A visual comparison was made of known internet sources (e.g. the Big 4 literature) to check for plagiarism. None was detected.

As this was a group project, students could submit a peer review form in case they felt there was an unequal distribution of work within their groups. The peer review form would indicate the contributions of individual members. The professor would review the peer review forms and make a final decision. No students submitted peer review forms for this assignment.

CONCLUSION

We present a novel approach to learning accounting standards via visual representation using decision flowcharts, mental mapping or concept charts. Students learn to visualize the requirements of a standard better. In doing so, they remember the standard in more than one way – besides cognitively processing the requirements - they visually see the connections between critical variables and the flow in the standard. In addition, students find the project more interesting when they can use their creativity to express their understanding of the standard. To many, it is definitely more fun than writing an essay!

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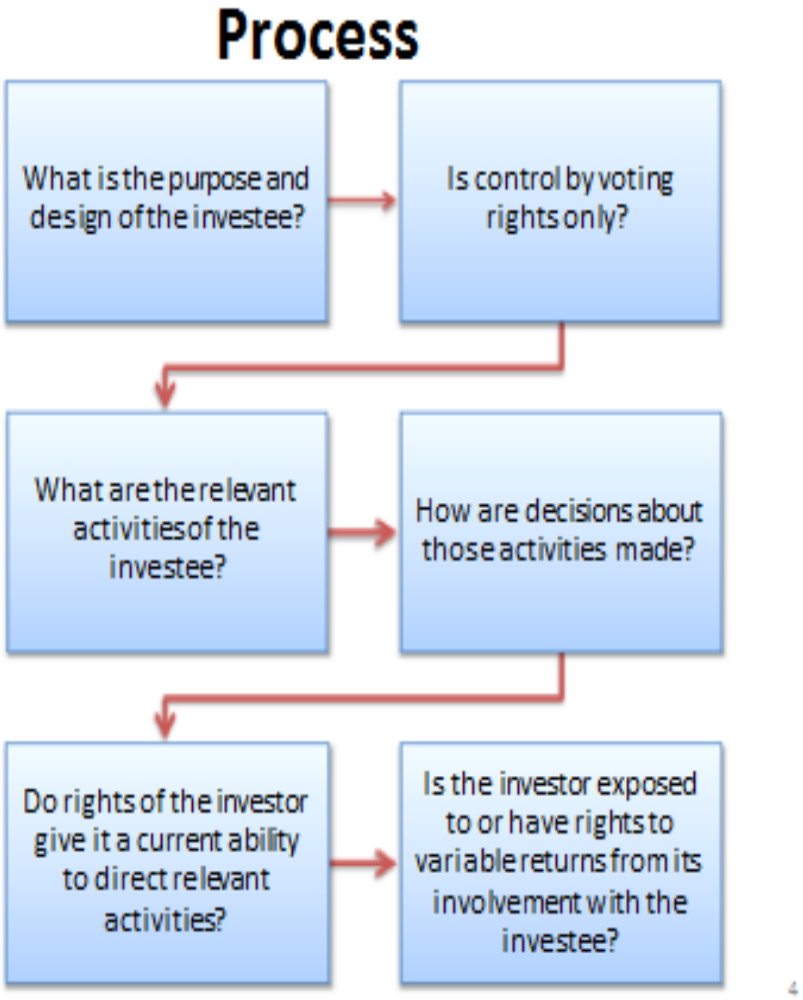
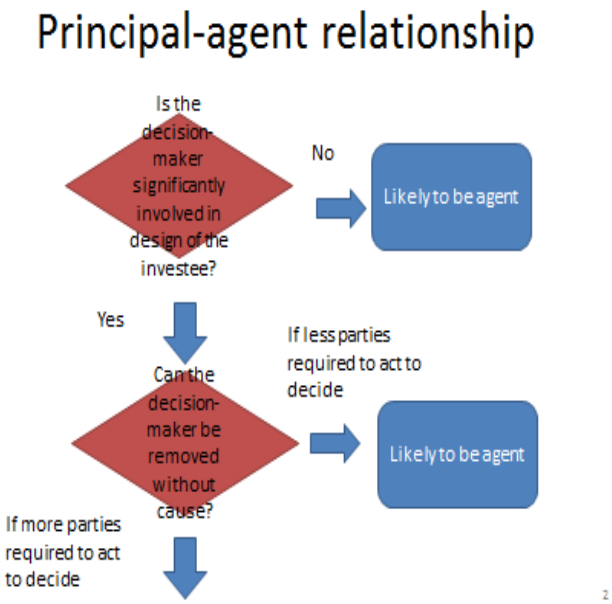
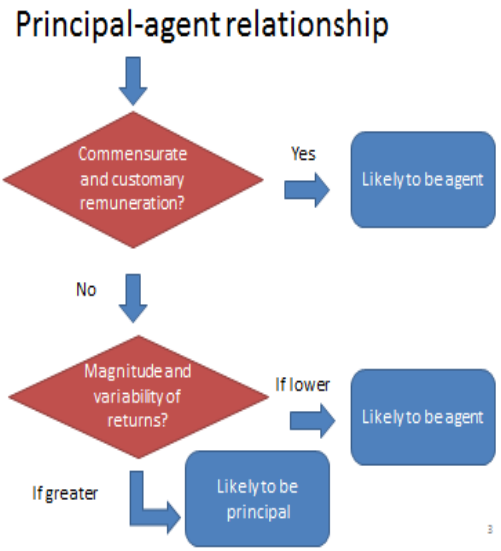
Appendix A.1: An example of an open-ended decision flow chart

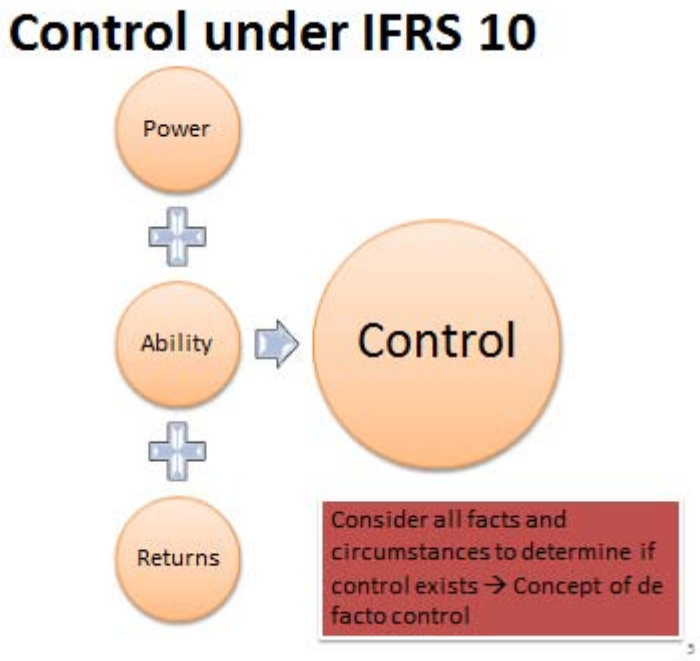


Appendix A.2: An Example of a Closed-Ended Flowchart

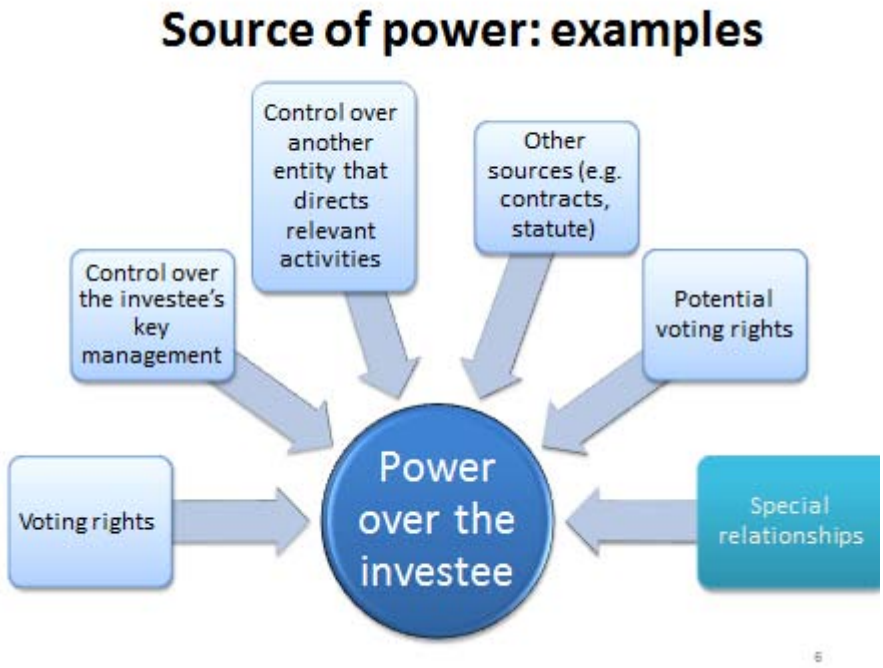




Appendix B.1: Equation Type Concept Maps



Appendix B.2: Convergence of sub-concepts with main concept



Appendix C

Group members:

	Below expectations Below 70%	Meets expectations 70% to 79%	Moderately exceeds expectations 80% to 85%	Far exceeds expectations 86% to 100%
Q1. Visual representation (40%)				
• Logical flow				
• Accuracy of representation				
• Ease of understanding				
• Creativity and visual impact				
Overall assessment for Q1				
Q2. Case analysis (40%)				
Part (a) • Ability to identify and explain salient control issues and complexities • Choice of an interesting candidate				
Part (b) • Logical and systematic application of control principles and flowchart • Appropriate identification of relevant information and assumptions				
Part (c) • Sound reasoning and conclusions				
Overall assessment for Q2				
Q3. Critical analysis (20%)				
• Ability to explain interpretation and application challenges • Overall assessment for Q3				
Strengths:				
Areas for improvement:				

Overall Grade:

AN EFFECTIVE STRATEGY TO INTRODUCE IFRS INTO THE ADVANCED ACCOUNTING CURRICULUM

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ABSTRACT

This paper describes an innovative cooperative learning project set in the context of current discussions on International Financial Reporting Standards (IFRS). Student partners were tasked to become champions on specific IFRS standards and share their understanding with the fellow students in an advanced accounting class. First, students were required to individually research an area of IFRS based on a local CPA presentation. Afterwards, a local CPA firm made a formal IFRS presentation to the advanced accounting class. This was followed by students working independently in pairs to research a specific IFRS standard and synthesizing their findings into a formal oral presentation to educate their classmates. Finally students wrote individual reflection papers on learning IFRS. A key feature of the project was building learning interdependence within and across groups. Student feedback suggest this project enhanced student learning and interest in IFRS by moving away from the passive "chalk and talk" pedagogical approach towards an active, deeper learning experience. The paper is focused on instructors with limited or no prior experience on teaching IFRS.

INTRODUCTION

In 2005, the European Union, and subsequently multiple other countries, began requiring IRFS primarily for listed entities. In 2010, more than 117 nations either mandate or allow the use of IFRS with more on the way (Holtzblatt & Tschakert, 2012). However most countries still maintain a separate national generally accepted accounting principles (GAAP) that is used for at least some domestic companies (Larson & Street, 2012).

With the rapid adoption of International Financial Reporting Standards (IFRSs) around the world, accounting educators and students are in need of IFRS instructional materials. To a large extent, financial statements that conform to International Financial Reporting Standards (IFRSs) are based on estimates, judgments, and models rather than exact depictions (Wells, 2012) .

At the University level, the appropriate format for teaching IFRS depends on the status of IFRS in the country in which graduates will be practicing accounting, auditing, or using financial statements (Larson & Street, 2012). The most frequently utilized approach in the US is to teach key differences that exist between national GAAP and IFRS (particularly during a transition to IFRS). The IFRS foundation and the IAAER recommend teaching approaches that that extend beyond simply memorizing current standards and requirements (Larson & Street, 2012).

IFRS TEACHING STRATEGIES

There have been traditional and non-traditional strategies to teaching IFRS with mixed results. Some programs have used traditional pedagogical materials such as books, articles, and various publications from large global accounting firms. However, these resources limit the ability to engage expert speakers. The result may be similar to Economic courses where the teaching method of choice in undergraduate classes – at least among instructors – is chalk and talk (Rhodes, 2013).

Nontraditional information includes online videos and webcasts. These resources provide expert speakers. Many students have heightened interest in viewing subject matter experts. However, despite these benefits, there is a drawback to the use of expert webcasts and videos. Students still can be in passive mode and simply consumer the lecture. In addition, the student is unable to ask expert questions and has limited interactive or personal communication.

PROJECT DESIGN

The accounting department at a small Midwestern liberal arts school focused on teaching IFRSs to advanced accounting students with the help of a local CPA firm. By engaging a local CPA firm, the project was enhanced because students had access to a professional firm with expertise in the subject. (Some students used the resource of the local CPA firm by pursuing internships with smart and timely phone calls). In addition, students were tasked with making a professional presentation. Students unanimously recommended the CPA firm attend their formal presentations.

One goal of the project was to answer the clear calls from employers and other stakeholders for accounting graduates to possess better generic skills such as communication and judgment. These goals have resonated with accounting education scholars who are increasingly focused on these areas. These calls for accounting curriculum revision are often not content-related, but rather focus on development of students' competencies in areas such as communication, critical thinking, teamwork, and independent learning (Garvin).

The AICPA Core Competency Framework for Entry into the Accounting Profession (n.d.a) was created by academics, practitioners, and accreditation board representative using a variety of frameworks, curriculum models, and research as well as results of the CPA Vision Project. The Framework identified 20 competencies necessary for students to transition from college to professional life regardless of whether they pursued public, business and industry, government, or nonprofit organization employment. A study by Garvin found communication skills as the most important among the AICPA 20 core competencies in a survey of employers, faculty, and practitioners.

The project also embraced cooperative learning. Cooperative learning is a subset of active learning that involves "instructional use of small groups so that students work together to maximize their own and each others' learning" (Johnson, Johnson, and Smith 1991b, p. iii). Working in groups, students are engaged in a process that enhances each other's learning, rather than being passive recipients of dictated concepts from the instructor. The responsibility for

learning is shared by the instructor and the students. Not only do students better learn complex concepts, but they also develop social skills such as learning how to effectively work together in a small group (Johnson, Johnson, and Smith 1991b). Cooperative learning in school is important preparation for the workplace, which often involves working in small interdependent teams in order to solve complex problems (Kagan 1994a). The project included this feature through professional presentations that were informative and interactive with other students.

THE ASSIGNEMNT

The goal of the Advanced Accounting IFRS project was for students to effectively communicate an understanding of accounting standards through a formal presentation that compares and contrasts new international standards with known U.S. standards. The goal was to promote active and cooperative learning. Active learning shifts class activity away from teacher-centered process to a student-centered process (Rhodes, 2013)

According to Kagan (1994b), there are four basic structures that characterize cooperative learning.:

1. First, positive interdependence builds student responsibility for the learning of the other group members in addition to their own learning.
2. Second, individual and group accountability ensures that individual contributions to the group provide valuable inputs which enhance the group output.
3. Third, equal participation structures reduce the possibility for free riders and dominant leaders.
4. The final key structure, simultaneous interaction, enhances learning because more students are engaged in the active learning process at any one time.

In order for a cooperative learning exercise to be successful, each of these four structures must be implemented.

PROJECT DESCRIPTION

The project had five major stages, (1) beginning with an initial individual research assignment, (2) participation in a presentation by a local CPA firm, (3) a cooperative partnership research and synthesis phase, (4) a partnership oral presentation, and (5) individual reflections. The entire project lasted about eight weeks and included both in- and out-of-class work.

Individual Research Assignment and CPA Firm Presentation

The first two phases of the project culminated with the CPA firm presentation. The students were informed that a local CPA firm was making a presentation on IFRS midway through the semester. The CPA presentation marked the start of the project that would culminate with a required oral presentation at the end of the semester. Students were informed the CPA firm presentation would cover the following topics.

1. The History of IFRS
2. What are the Differences? GAAP vs. IFRS
3. Financial Statement Presentation
4. Why Do We See a Need to Start Preparing Now?
5. What's Currently Happening Within the Profession?
6. Why the Strong Push for a Single Set of Standards

Students were required to research one of the 6 topic areas outlined in the agenda provided by the CPA prior to the class presentation. Students were offered participation points for engaging the CPA firm with questions that were aligned with any of the 6 topic areas. This phase recognized that asking questions requires students to think critically about the material, which in turn, commits more of the learning to long-term memory.

Group Cooperation

Next, students worked in pairs outside of class over the next five weeks on the cooperative learning phase – enhancing their understanding of a specific area of IFRS and translating them into a ten-minute oral presentation. The class of thirty-two students was divided into groups of two and each was assigned an IFRS area. The primary differences between IFRS and US GAAP were summarized into topic areas related to recognition issues, financial statement disclosures, and measurement issues.

In the class of 32 students, 16 topics were identified as final presentation topics. Student teams (two students per team) were required to research differences between US GAAP and IFRS in one of the 16 topic areas.

Since the class met once a week, the final 30 minutes of each class time was reserved for cooperative partner work. Regular visits by the instructor during this period were done to ensure research findings and presentation skills were accurate. In addition, presentation skills were reviewed to ensure the final presentations facilitated learning for other students.

Formal Presentation

The presentation stage of the project required students to synthesize, evaluate, and summarize the information they collected during their research into a ten minute presentation. An oral presentation rubric was provided for students to understand how they would be evaluated. The rubric categories included organization, development of the material, style and delivery, references and audience centered. Student scores on the presentation rubric ranged from 13 to 21 on a 25 point scale.

Individual Reflection

Finally, students were responsible for individually authored reflections of IFRS based on their work and the work of other students in the class. Since students had only researched one of the issues intensely, they had to rely heavily on the information presented by the other groups. The individual reflections were a method to determine if learning occurred beyond the individual

assignment. All student reflections included positive comments about the project. Similar to the work of (Rhodes 2013), students increased their knowledge of the subject matter. Instead of simply reading about IFRS, by utilizing a cooperative learning design in the context of current events, this project brought the issues to life.

While there was a range of student performances, the distribution of grades did not necessarily follow the grades received by students in other major accounting courses. Generally, in accounting classes, the grade is directly related to mastery of standards and technical information which usually involves performing application exercises using Bloom's taxonomy. In this presentation assignment, the basis for grading shifted from application of knowledge to communication of knowledge with an emphasis on critical thinking to organize information.

There were a total of 14 students who completed Intermediate ll and Advanced Accounting with the same instructor. Based on the results of the IFRS project, some of the best students in application and problem solving in intermediate ll did not perform at the equivalent level in presentation skills, and conversely some of the best presentations were from students who were average in application and problem solving.

The study was consistent with findings by Bartlett (2006), Students learn more effectively, and become more involved in the subject matter

STUDENT FEEDBACK

Student responses included the following

- ***I actually really enjoyed the project. I was able to learn and describe how IFRS will change in comparison to GAAP. I would never have understood this just by reading it in a book. In addition to focusing on my area, I was able to listen to others present so I have a general idea of the other topics."***
- ***"In researching I was able obtain so much better understanding of what IFRS is and not feel so overwhelmed."***
- ***" I was nervous about making a formal presentation. However, I found that my preparation on the subject helped give me confidence talking about something that was new to me. I could see how this could be an assignment on my job."***

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