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Integrating Research into an Undergraduate Accounting Course

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ABSTRACT: Consistent with educational theory, research studies in accounting education substantiate claims of the benefits associated with active learning. This paper describes how I integrate research into an undergraduate accounting course using a pedagogical approach which fosters active learning. Throughout the course, students read and discuss excerpts from accounting journal articles related to class topics. These readings are intended to enhance students' understanding of the topics and develop their awareness of how accounting research and accounting practice are related. After becoming familiar with research articles and the research process, students are then challenged to complete a research study following the scientific method, in which they investigate research questions corresponding to the course content and test hypotheses using archival data. Results from a survey created to assess this research experience reveal that 94 percent of respondents indicated this project substantially improved their level of knowledge, skills, and abilities related to accounting. I supply instructional tools for faculty interested in implementing a similar program.

INTRODUCTION

This paper describes how I integrate research into an undergraduate accounting course using a pedagogical approach which fosters active learning. Educational theory stresses the importance of active approaches to learning (e.g., Dewey 1916, 1938), and the benefits associated with active learning are well documented by prior research studies in accounting education (e.g., Hermanson 1994; Springer and Borthick 2007). Active approaches to learning are also acknowledged as a part of faculty accreditation standards set forth by the Association to Advance Collegiate Schools of Business (AACSB 2009). Designing classroom activities that promote scholarship, emphasize innovation, and encourage collaboration is compatible with the AACSB's mission to improve the quality of accounting education programs.

Consistent with the learning objectives of developing critical thinking abilities, communication skills, and experience working in teams, I design an approach to understanding accounting that incorporates these objectives and directly contributes to mastering the subject material. Specifically, I develop a research-based framework for a financial accounting course consisting of

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two elements.[1] First, students read and discuss peer-reviewed journal article excerpts applicable to each class topic. These readings span the entire course and are intended to enhance students' understanding of course topics, as well as deepen their appreciation for the relationship between accounting research and accounting practice. Second, a distinctive feature of the framework is that students work in teams to complete a fully developed research paper and present their findings in a setting intended to simulate a research workshop. Students follow the scientific method and identify research questions, develop hypotheses, design tests for the hypotheses, and gather and examine evidence.

A pedagogical approach that integrates research throughout a course encourages and promotes active learning in several ways. First, integrating research, especially the research paper, engages students in higher-level critical thinking tasks (e.g., analysis, synthesis, and evaluation per Bloom's [1956] taxonomy). Students conduct a "scientific experiment" by working with primary source materials—journal articles, news articles, and data—to answer an original research question. Second, integrating research develops students' oral and written communication skills by requiring students to discuss and summarize research articles, complete a written research paper, and describe and defend their research findings through a class presentation. Third, integrating research enhances student learning through collaboration and development of cooperative learning skills. Throughout the semester, students work in small teams to complete the research assignment.

This research experience has been very well received by students. Results from an assessment survey reveal that 94 percent of students responded that it substantially improved their level of knowledge, skills, and abilities related to accounting. The survey results also reveal that a majority of students responded that the research experience improved their ability to use business databases and their oral and written communication skills. The quantitative survey results are accompanied by qualitative student comments, for which the consensus view is positive and students conclude it is a valuable learning opportunity.

Unlike undergraduate research arrangements which bring together a faculty member and a student or a small team of students in an honors-like setting, the learning gains derived from this pedagogical approach are available to *all* undergraduate accounting students at my university. During the past four years, more than 200 students have participated in this research-based approach to learning. Another benefit of introducing students to accounting research during their academic program is that it provides a foundation for students to consider the role of research in accounting and the possibility of pursuing doctoral studies. Even if only a fraction of students are motivated to choose an academic career in accounting, a research-based approach to learning would make a contribution to the projected future shortage of accounting educators. Finally, in addition to emphasizing students' comprehension of accounting knowledge, this research experience seeks to develop their critical thinking and interpersonal skills, qualities that are demanded by an accounting profession in which judgments, estimates, and face-to-face interaction with clients are commonplace. Moreover, with a transition to less-prescriptive International Financial Reporting Standards (IFRS) on the horizon, these qualities will assume ever-greater importance.

The next section provides a discussion of prior work which supports integrating research into an accounting course. This is followed by a section which proposes a model for implementing this research-based framework and includes sample instructional tools. Finally, I summarize how students assess the research experience and I evaluate my pedagogical approach.

[1] While the examples and suggestions provided in this paper are discussed in the context of the second half of the intermediate accounting course sequence, the general framework is intended to benefit any course in the accounting curriculum beyond the introductory levels.

CONTEMPORARY PEDAGOGY

The research-based framework central to the design of my undergraduate accounting course combines traditional methods of instruction with active learning techniques. This framework is designed to simultaneously achieve a variety of learning objectives that are widely recognized as being essential for an accounting professional. This section presents a sampling of prior work that is supportive of active learning and undergraduate research participation, and then discusses the prior contributions of several accounting instructors with regard to integrating teaching and research.

Evidence on Active Learning

Educational theory stresses the importance of active approaches to learning (e.g., Dewey 1916, 1938; Kolb 1984; Druckman and Bjork 1994; Slavin 1995) and the development of higher-order cognitive thinking skills (e.g., Bloom 1956; Anderson and Krathwohl 2001). In accounting, empirical studies provide evidence consistent with active learning techniques leading to a higher tolerance for ambiguity, better recall of material, and improved performance (e.g., Carland et al. 1994; Hermanson 1994; Ravenscroft et al. 1995; Ciccotello et al. 1997; Stone and Shelley 1997; Hwang et al. 2005, 2008; Springer and Borthick 2007). My pedagogical approach encourages and promotes active learning by integrating research-focused experiences that require students to read, write, discuss, present, work collaboratively, and ultimately answer an original research question.

Benefits of Undergraduate Research

Studies examining undergraduate research participation find that students benefit from engaging in research. These benefits include: an improved understanding of the research process, an ability to carry out more demanding research, an aptitude for analyzing data, an increased tolerance for obstacles, a willingness to solve problems independently, a greater interest in the discipline, and enhanced career preparation (e.g., Bauer and Bennett 2003; Lopatto 2004; Seymour et al. 2004). Given the many benefits associated with engaging in undergraduate research, it is logical and important to design an approach for creating research experiences that can be offered to all or a majority of accounting majors.

Integrating Teaching and Research

Leading accounting scholars have long called for an integration of teaching and research. For instance, Beaver (1984) characterizes the relationship between research and teaching as a two-way process. Dopuch (1989) argues that research is a primary method in which faculty can enhance their accounting courses and possibly inspire the design of new courses.

Following these recommendations, several authors describe how they synthesize research findings and incorporate research-based assignments into their accounting courses. Burilovich (1992) discusses how findings taken from empirical accounting studies can be used to supplement introductory accounting topics. Similarly, Clikeman (2000) provides learning and evaluation techniques for incorporating research into an auditing course, including suggestions for classroom exercises and homework assignments. Bierstaker (2007) uses a series of writing assignments in his auditing course and, in particular, one of the assignments requires students to write a short critique of two accounting journal articles. Paisey and Paisey (2003) also involve students with critiquing an accounting journal article as part of a management accounting course.

My research-based framework is motivated by the need to design a learning environment that introduces a topic and simultaneously presents both the principles and controversies involved, thereby expanding the intellectual scope of the course. Throughout the semester, students read, discuss, and summarize excerpts from research articles germane to the topic being covered at that

point in the course. This first element of the framework is comparable to the approach taken in the papers cited above. The second element of the framework is both essential and original. After becoming familiar with research articles and the research process, students work in teams to complete a research paper and present their findings in a setting intended to approximate a research workshop. Below, I discuss in greater detail how interested faculty might implement this research-based framework into their courses.

IMPLEMENTATION

Reading and Discussing Research Articles

The first element of the research-based framework, reading and discussing research article excerpts, familiarizes students with the research process. These article excerpts are intended to enhance students' understanding of class topics and develop their awareness of how accounting research influences and is influenced by accounting practice. Research article excerpts are assigned as required readings to complement the textbook material and are presented as an extension of a particular class topic.

For example, an important aspect of one of the course topics, intangible assets, is evaluating goodwill for impairment. After presenting the technical side of goodwill impairments (e.g., how the carrying value of goodwill is adjusted for an impairment), an article by Beatty and Weber (2006) is used to illustrate a trade-off facing managers when the accounting for goodwill was last modified (e.g., whether to record the goodwill charge below net income in the current year or possibly above net income at a later date). This article excerpt supplements the underlying principles of accounting for goodwill impairment by broadening the class discussion to the issues of accounting choice and flexibility in the financial reporting system.

Article excerpts consist of the paper's introduction, motivation, and/or review of the prior literature, and hypothesis development. In addition, figures or tables that are critical to conveying the paper's primary findings are also included (e.g., Figure 1 in Ball and Brown [1968]). Most article excerpts exclude the paper's "back end"—that is, the research design and results sections. A finite amount of class time and students' limited research skills make this exclusion necessary.

In some instances, students submit a short, one-page written summary of an article excerpt. In these summaries, three questions are answered: (1) What is the article's research question? (2) Why is this question important? (3) What are the main findings of the article? These questions are also used to guide the class discussion. Students are evaluated on the quality and consistency of their contributions to the class discussion and the quality of their written summaries. These evaluations are reflected in the overall participation score for the course.

Exhibit 1 provides a list of research articles that I have used to supplement each course topic. As noted earlier, this list is tailored for an intermediate accounting course, yet the general implementation process is meant to be functional for any accounting course. Two articles which have received the American Accounting Association's Seminal Contribution to the Accounting Literature Award—Ball and Brown (1968) and Beaver (1968)—are used in introducing the course to make the claim that accounting information is useful. For the remaining course topics, each selected excerpt contributes a finding or point of view which assists in extending what is covered by the textbook.

Research Paper and Presentation

Reading article excerpts from the outset of the course helps to establish a precedent that research findings are valuable. After students become acquainted with reading and evaluating research articles written by others, they are challenged to create their own research paper and present it near the end of the course term. Together, the paper and presentation are intended to

EXHIBIT 1

Research Article Reading List

Course Introduction
- Ball and Brown (*Journal of Accounting Research*, 1968)
- Beaver (*Journal of Accounting Research*, 1968)

Investments
- Comiskey and Mulford (*The Accounting Review*, 1986)
- Graham, Lefanowicz, and Petroni (*Journal of Business, Finance, and Accounting*, 2003)

Intangible Assets
- Beatty and Weber (*Journal of Accounting Research*, 2006)
- Hirschey and Weygandt (*Journal of Accounting Research*, 1985)

Debt and Leases
- Dhaliwal (*The Accounting Review*, 1980)
- Ryan, Herz, Iannaconi, Maines, Palepu, Schipper, Schrand, Skinner, and Vincent (*Accounting Horizons*, 2001)

Taxes
- Dyreng and Lindsey (*Journal of Accounting Research*, 2009)
- Maydew (*Journal of Accounting Research*, 1997)

Pensions
- Bergstresser, Desai, and Rauh (*Quarterly Journal of Economics*, 2006)
- Comprix and Muller (*Journal of Accounting and Economics*, 2011)

Equity and Stock Compensation
- Grullon and Michaely (*Journal of Finance*, 2002)
- Irving, Landsman, and Lindsey (*Journal of Business Finance & Accounting*, 2011)
- Lie (*Management Science*, 2005)

enhance students' understanding of the research process and to further develop their abilities to communicate, collaborate, and think analytically. To incentivize students to invest in this research project, the paper and presentation are a significant combined percentage weight of the overall course grade (30 percent in the current format).

Most undergraduate students have a general awareness of the scientific method, but have had little to no exposure to research articles or the research process. Reading research article excerpts from the outset of the course is critical for developing this awareness. However, the article excerpts typically do not include how the data is collected, how the hypothesis is tested, or how the results are reported. Therefore, to prepare students for these tasks, it is important to reserve class time for demonstrating the available data resources and reviewing basic statistical techniques. To gain experience using data resources, students complete two mandatory assignments familiarizing them with how to retrieve financial statement and footnote data, stock price data, etc., from the Wharton Research Data System (WRDS) databases and the SEC EDGAR company filings database. The review of basic statistical techniques includes a discussion of how to construct a multiple regression model, as well as how to report and interpret descriptive statistics and regression summary statistics. Functions within Microsoft Excel are sufficient for compiling these statistics.

EXHIBIT 2

Implementation Timeline

Week 1
- Distribute timetable and deliverables handout (excerpt in course syllabus)

Week 4
- Distribute background and resources handout*
- Distribute the sample grading rubrics*

Week 6
- Preliminary research idea deadline

Between Week 6 and Week 8
- Teams complete WRDS and SEC EDGAR database assignments
- Statistics review class

Week 8
- Individual team meetings with professor
- Distribute structure handout*
- Distribute a sample research paper from the prior year

Week 10
- Revised research idea and plan for data collection deadline

Weeks 13 and 14
- In-class presentations

Week 15
- Final research paper deadline

This timeline was designed for a semester course which lasts 15 weeks.
* See Exhibit 3 for these instructional tools.

Timeline and Other Instructional Materials

Exhibit 2 presents a suggested timeline for the research paper and presentation. This timeline is proposed for a 15-week course, but could easily be adapted for a course operating over a different time horizon. The course syllabus is distributed during the first class meeting. In addition to providing a reading list of research article excerpts, the syllabus summarizes the deliverables and deadlines for the research paper and presentation (there are four formal deliverables). The first deliverable is a summary of the preliminary research idea and it is submitted during Week 6. By this stage of the course, a variety of research articles have been introduced and students are more acquainted with what they are expected to create. Two weeks before the first deliverable is due (Week 4), a summary of the background and available data resources for the research paper and presentation is distributed. This summary, which includes the expected content for the first deliverable, is available in Panel A of Exhibit 3.

In Week 8, each team meets with the instructor about its preliminary research idea. The instructor provides feedback on the idea and the teams are given the opportunity to resolve uncertainties they have about how to proceed with the study. At the conclusion of the meeting, each

team receives a document which provides general guidelines for how to structure the oral presentation and the final research paper. This document is available in Panel B of Exhibit 3. In recent years, each team has also been provided with a high-quality paper from the previous year as an indicator of what is expected as a final deliverable. Additionally, between Week 6 and Week 8, teams complete the database assignments and class time is reserved for a review of basic statistics. These tutorials provide exposure to key databases and statistical techniques in advance of the more comprehensive second deliverable.

Using the guidelines from Panel B, the second deliverable is submitted during Week 10. This deliverable is a revised version of the preliminary idea and also includes an overview of the paper's hypothesis, method used to test the hypothesis, and specific plan for data collection. No formal feedback is provided by the instructor following this submission if a team is on the right track. However, if after reviewing the revised idea the instructor notes a team is in need of significant redirection, this message is communicated to the team.

Following submission of the revised research idea, the basic interim requirements are complete and teams have several weeks to prepare for the oral presentation. While the final research paper is not submitted until after the oral presentation, obviously, teams' analyses must be substantially complete in order to deliver the presentation. The class sessions during Week 13 and Week 14 are reserved for the oral presentations. Teams are allotted 15 minutes to present their ideas, followed by 5–10 minutes of questions. During the question and answer period, presenting teams respond to queries from their peers, as well as from a panel of judges consisting of accounting faculty members and professionals from accounting practice. Shortly after the presentations, teams receive a memo from the instructor which highlights the key issues raised in the question and answer period. The teams are expected to incorporate pertinent comments and suggestions into their final paper. The final research paper is submitted during week 15.

Grading Rubrics

Panel C of Exhibit 3 presents the grading rubrics used to evaluate the research paper and presentation deliverables. These grading rubrics are made available to the student teams in Week 4 of the course so that they are fully aware of what is expected and how they will be assessed. Below the first subheading in Panel C is the rubric for the preliminary research idea submitted during Week 6. The three evaluation components map into the three questions teams must answer in their preliminary research idea summaries, as outlined in Panel A of Exhibit 3.

Beneath the second and third subheadings in Panel C are the rubrics for the oral presentation and the final research paper, respectively. The judges (consisting of accounting faculty members and professionals from accounting practice) rate the oral presentations, and their feedback is considered by the instructor in evaluating the presentations. The research paper is rated on nine different dimensions corresponding to the steps of the scientific method and the standard elements of a research paper. Together, the percentage weights of preliminary research idea summary (15 percent), the oral presentation (30 percent), the final research paper (45 percent), and peer evaluations in which students rate their team members (10 percent) sum to 100 percent.

Research Paper Topics

Exhibit 4 tabulates the number of students and the number of research papers completed for each year and for each course topic. Over a four-year period, 204 students have completed 88 research papers. The distribution of paper ideas by topic is relatively well balanced. There is a slight tendency for students to shy away from the topics that are not covered until the second half of the course, and this is especially true for students/teams that are apprehensive of the integrated approach to research.

EXHIBIT 3

Instructional Tools

Panel A: Background and Resources for the Research Paper and Presentation

Background

You will complete the project in three- or four-person teams of your choice (the members of your team must be in your section). You should submit your team to me by March 3. If you would like me to assign you to a team, please notify me by February 23.

Your first written deliverable, an executive summary of your preliminary research idea, is due on March 3 and should be one single-spaced page in length. From a content perspective, the only requirement is that your idea should be related to financial reporting. In the executive summary, you should address three questions:

- What is the research question?
- Why is this research question important?
- How will you answer the question? In other words, what data will you need and how will you use these data to test your hypothesis?

I will review your preliminary ideas during March 4–6. Each team will meet with me the following week (March 9–13) to discuss your idea.

Your second written deliverable, a revised research idea and plan for data collection, is due on March 31. Your final written deliverable, the completed research paper (incorporating revisions from presentation feedback), is due no later than May 7. These subsequent submissions will be outlined in greater detail in future classes. I will also provide you with a completed project from last year's class as an example.

You will have 15 minutes to present your idea during our class meetings on April 21, 23, 28, or 30. There will also be a 5–10 minute question and answer session following each presentation. Presentations will be evaluated by a distinguished panel of judges, as well as by your classmates.

Resources

Data

- WRDS databases, http://wrds.wharton.upenn.edu
- SEC EDGAR database, http://www.sec.gov/edgar/searchedgar/companysearch.html

Papers

- Published—Electronic journals (accessible through the university library website)
- Unpublished—SSRN, http://papers.ssrn.com/sol3/DisplayAbstractSearch.cfm

Panel B: Structure for the Research Paper and Presentation

1. Research Question

- If the question is not interesting, why proceed with steps 2–6?
- Should be a topic you want to live with for the rest of the semester

2. Motivation

- What makes your idea significant? (one or more of the following)
  a. Prior academic research articles
  b. Anecdotal insights from financial press articles
  c. Economic reasons
  d. Behavioral or sociological reasons
  e. Other reasons

EXHIBIT 3 (continued)

3. Hypothesis
- Must have "tension" (If we already know the outcome or if the alternative outcome is improbable, why study it?)

4. Data/Design
- What data items do you need and from what sources will you gather them? (electronic databases, surveys, etc.)
- What companies will you focus on?
- What time period makes sense to study?
- How will you execute the "experiment"? (i.e., How will you test the hypothesis?)

5. Results
- Descriptive statistics (mean, median, std. deviation, etc.) and tests of differences
- Regression model, $Y = X_1 + X_2 + \ldots + X_N$ (What X_i's explain the variation in Y?)
- Display findings in tables and/or figures

6. Conclusions
- If your results support your prediction(s), what do you conclude?
- Alternatively, if your results do not support your prediction(s), what do you conclude?
- What are the limitations of your study?

Panel C: Grading Rubrics

Executive Summary of the Preliminary Research Idea (1 = Poor and 5 = Excellent)

[1] Clarity	1	2	3	4	5
[2] Originality/Potential	1	2	3	4	5
[3] "Executability"	1	2	3	4	5
[4] Comments					

Oral Presentation (1 = Poor and 10 = Excellent)

[1] Content	1	2	3	4	5	6	7	8	9	10
[2] Clarity/Organization	1	2	3	4	5	6	7	8	9	10
[3] Originality/Creativity	1	2	3	4	5	6	7	8	9	10
[4] Comments										

Final Research Paper (1 = Poor and 5 = Excellent)

[1] Clarity of the research idea	1	2	3	4	5
[2] Originality of the research idea	1	2	3	4	5
[3] Motivating the importance of the research idea	1	2	3	4	5
[4] Quality of the hypothesis development	1	2	3	4	5
[5] Quality of the empirical analysis	1	2	3	4	5
[6] Quality of tables and figures	1	2	3	4	5
[7] Quality of references	1	2	3	4	5
[8] Quality of writing	1	2	3	4	5
[9] The authors incorporated comments and suggestions from the oral presentation	1	2	3	4	5
[10] Comments					

EXHIBIT 4

Research Papers by Year and by Topic

	Year 1	Year 2	Year 3	Year 4	Total
Number of students participating	28	33	72	71	204
Number of research papers	28	16	24	20	88
Papers by topic:					
Investments	4	1	2	4	11
Intangible Assets	6	3	3	4	16
Debt and Leases	3	2	2	2	9
Taxes	5	4	2	2	13
Pensions	5	1	2	1	9
Equity and Stock Compensation	5	3	5	2	15
Other	0	2	8	5	15

Teams are permitted to choose a research idea that is not explicitly linked to a course topic. If a team opts to pursue this path, it is required to clearly explain how its idea is affiliated with the underlying theme of the class, financial reporting. The "Other" category has resulted in interesting papers and lively post-presentation class discussions. A sampling of "Other" paper topics includes: the factors associated with charitable giving to corporate foundations, the determinants of sports franchise valuations, and the effect of the Sarbanes-Oxley Act on U.S. stock exchange delistings.

ASSESSMENT

During the third year of my research-based framework innovation, my course was selected for AACSB assessment. Part of this assessment included creating a voluntary, anonymous online survey and distributing it to each student completing the course. While the assessment pertains to the entire course, the two learning objectives that I selected for the survey directly corresponded to the research experience. The survey was independently administered by the business school's associate director of academic services, who is responsible for AACSB compliance activities. I was provided a report of the survey results and student comments after the survey closed.

Quantitative Results

Exhibit 5 summarizes the results of this survey. Panel A lists the two expectations for student learning included in the survey. The first expectation assessed whether students showed evidence of effective oral and written communication skills and were competent with business-related applications of technology. The second expectation assessed whether students satisfactorily completed an accounting research experience. Panel B reports the results from the first set of survey questions, in which students were prompted to respond yes or no to four questions. Of the 51 students who responded to the survey (of a possible 72 students, a 71 percent response rate), they agreed almost unanimously that the course provided them with an *opportunity* to display oral and written communication skills, use business-related applications of technology, and perform accounting research and generate creative ideas in accounting.

Although Panel B confirms that the students were given the opportunity to meet the two expectations for student learning, Panel C is a stronger measurement of the research experience's value. It asked the students to rate on a scale from 1 to 5 how much the course *improved* their

EXHIBIT 5

Students' Assessment of the Research Experience

Panel A: Expectations for Student Learning

This survey assesses the following two expectations for student learning:

1. Students will display:
   - Effective oral communication skills,
   - Effective written communication skills, and
   - Facility with business-related applications of technology.

2. Students will perform relevant research and generate creative ideas.

Panel B: Opportunity to Meet the Expectations for Student Learning

Please indicate whether you think [this course] addressed the two expectations for student learning. Specifically, did you have the opportunity in this course to:

Item on survey	Yes	No
Display effective oral communication skills?	50	1
Display effective written communication skills?	50	1
Display facility with business-related applications of technology?	49	2
Perform relevant research and generate creative ideas?	51	0

Panel C: Improvement in Level of Knowledge, Skills, and Abilities Related to the Expectations for Student Learning

Compared with your knowledge, skills, and abilities at the BEGINNING of this course, how much has [this course] IMPROVED your knowledge, skills, and abilities in the following areas:

Item on survey	n	Mean*
Effectiveness of my oral communication skills?	51	3.53
Effectiveness of my written communication skills?	51	3.51
My facility with business-related applications of technology?	50	4.10[a]
My ability to perform relevant research and generate creative ideas?	50	4.54[b]

* Student responses were measured on a five-point scale, where: 1 = Not at All; 2 = A Little; 3 = Some; 4 = A Good Amount; 5 = A Great Deal.

[a] Differences in means between the improvement in facility with business-related applications of technology and the improvement in the effectiveness of both oral and written communication skills is statistically significant at a probability < 0.01 (two-tailed). A nonparametric Wilcoxon signed-rank test of the differences in distributions is also statistically significant at $p < 0.01$.

[b] Differences in means between the improvement in performing relevant research and generating creative ideas and the improvement in the effectiveness of both oral and written communication skills is statistically significant at a probability < 0.01 (two-tailed). A nonparametric Wilcoxon signed-rank test of the differences in distributions is also statistically significant at $p < 0.01$.

knowledge, skills, and abilities with respect to oral and written communication, competence with business-related applications of technology, and performing accounting research and generative creative ideas in accounting. The mean values for oral and written communication were 3.53 and 3.51, respectively. These values indicate that the average student believes their improvement in oral and written communication falls somewhere between "A Good Amount" (rating of 4) and "Some" (rating of 3). The mean value for facility with business-related application of technology was 4.10.

Of the 50 responding students, 40 (80 percent) rated their exposure to and use of the WRDS and SEC databases as improving their competence with business-related applications of technology "A Great Deal" (rating of 5) or "A Good Amount" (rating of 4). Most notably, the mean value for improving students' knowledge, skills, and abilities to perform accounting research and generate creative ideas in accounting was 4.54. Of the 50 responding students, 47 (94 percent) answered that their abilities improved "A Great Deal" (30 students) or "A Good Amount" (17 students).

Qualitative Feedback

The survey also included a free response area for suggestions or comments related to the two expectations for student learning. Of the 51 students completing the survey, 23 chose to leave comments. The student reactions to the research experience are almost uniformly positive. To summarize, students seemed to appreciate the uniqueness of the experience and the challenge associated with developing and executing an original research idea. Specifically, a sampling of the positive comments includes:

- The financial reporting research project was an excellent exposure to academic applications of business—something that is not open to most students. I learned a great deal, not only about my topic, but about clear/concise writing, the scientific method, and teamwork. I can't say enough about this project. Please consider implementing similar models at lower levels of business classes as well.
- I think the project was worthwhile . . . many times we just learn textbook accounting and stop there. This overarching understanding beyond the textbook/mechanical work is really where the class was valuable.
- The research in this class was great and very interesting. It greatly improved my ability to research and run regressions and think about business issues in a different manner.
- The research project was something different and allowed me to expand my mind beyond the cut and dry exams which are usually given. I appreciated the fact that we were not limited in the topic and were encouraged to exercise creativity.
- The research project we completed allowed me to reach beyond the numbers and connect to a larger issue in the business world.
- The research project was VERY valuable both in learning how to conduct a research project and in the material that we learned.
- The research project was a great chance to meet the criteria of the two learning expectations. It pushed me to learn and do accounting research like no other class.
- The research was by far the most enriching experience in the course.

The frequency of positive comments far exceeded the negative comments. However, there were three comments that I classify as critical, as follows:

- Since this is my 4th semester in the business school, I felt that it was unlikely for me to show a great deal of improvement in the areas listed. By [this point], everyone is pretty good at all of those skills (except maybe research). Other classes can only perfect the good foundation.
- The only way I improved in oral communication was during the final presentation.
- The written component didn't have a lot of guidance and it didn't seem as important as the other parts of the project.

These comments appear to be concentrated in the areas in which students have prior experience—oral and written communication. My class consists primarily of junior and senior accounting majors who have completed multiple group writing assignments and oral presentations during their previous semesters as college students. Thus, it is plausible that students do not

perceive the opportunity for improving oral and written communication to be on par with the perceived opportunity for improvement in using business databases or performing accounting research. This notion is supported by the findings in Exhibit 5, Panel C. In particular, the mean values for the latter two learning expectations—areas in which the students have had limited or no exposure—are significantly greater than the mean values for the oral and written communication learning expectations (p-values < 0.01 in each case).

Anecdotal Evidence

A select group of students have shown an enthusiasm for research beyond my course, and they have engaged in two types of additional research experiences. First, eight students have taken the initiative to partner with faculty members and complete a research assistantship, either during the summer or while completing their masters of accounting coursework. Second, several students have continued to work on a variation of the original paper completed for my course. In one instance, a student completed an independent study paper using the same dataset collected for my course. In Year 3 and Year 4, I nominated the team submitting the highest-quality paper to revise and submit it to a peer-reviewed undergraduate research journal. The paper selected in Year 3 is currently under review for publication. The abstract of this paper is included in Exhibit 6 as an example of student work. The paper selected in Year 4 is presently being revised for submission.

DISCUSSION

This section offers an evaluation of the research-based approach, consisting of changes in my pedagogical approach across time as well as caveats and limitations.

Evaluating my Pedagogical Approach

Although my current approach of incorporating research article excerpts into the course is similar to my original approach, this is not the case for the research paper and presentation. Based on my experience during the first implementation year and the feedback I received from students, I made a few adjustments to the research paper and presentation following Year 1 that have noticeably improved the quality of student work and seemingly enhanced the overall student research experience in Years 2 through 4.

First, I mandated data collection and analysis (it was optional in Year 1). This requirement ensures that student teams experience first-hand the challenges associated with empirical research, such as data limitations and measurement issues. In addition, teams' fully developed empirical studies are more scientific than the Year 1 papers, which lacked evidential support. Second, the student teams submit a minimum of two interim project updates during the semester. This change to a multiple-deliverables model frontloads several critical aspects of the project, such as developing a sound research idea and collecting a dataset, and it reduces the likelihood of an unprepared presenting team or an incomplete final paper. Third, I made a switch from individual projects to team projects. This change has created a collaborative learning environment in which individual members bring complementary talents and abilities to the team. This change has also reduced the total number of projects and, in a relative sense, has enabled me to allocate more time per team and provide more timely feedback.

Caveats

A first caveat applies to the generalizability of a research-based approach. It is not feasible for research to be adapted to every accounting course or in all accounting curriculums. In some college settings, this approach may work better as an elective course or as an honors course. While the

EXHIBIT 6

Example of Student Work[a]

"What Set of Accounting Standards Make Financial Statement Users Better Off? Evidence from a Comparison of Existing U.S. and International Leasing Standards"

ABSTRACT: Perhaps the greatest challenge facing regulators, preparers, and users of financial statement information, as well as the business community as a whole, is the forthcoming international convergence of accounting standards. The purpose of this study is to investigate the effects that differences in accounting standards have on companies' financial reporting behavior. We choose a setting in which the existing accounting guidance in the United States explicitly differs from the existing international accounting guidance. Specifically, we select the current leasing standards and compare U.S. companies reporting under a regime considered by many to be rules-based with Canadian companies reporting under a regime regarded as more principles-based. Our results show that, relative to Canadian companies, U.S. companies keep a significantly greater proportion of their lease contracts *off* balance sheet. This finding suggests that the rigidity in rules-based standards, such as the bright-line tests inherent in the U.S. leasing standard, may facilitate capitalization avoidance and may result in distorted financial information. Our study may be of interest to accounting standard setters who are actively engaged in developing a new leasing standard.

[a] Full paper available upon request.

opportunity to introduce a topic and simultaneously present the principles and controversies involved provides the student with a depth of understanding ideally suited for a dynamic international career, this depth comes at a cost in terms of the scope of the course. Because of concerns related to scope, I would not recommend using this approach in the first intermediate course at my university. On the other hand, I have found that the approach is well suited to the second intermediate course.

A second caveat is the issue of capacity. The interactive nature of the projects necessitates periodic feedback, time to conduct team meetings, and availability to provide assistance with issues that confront first-time researchers. The process of simultaneously guiding and monitoring the progress of many research teams requires a solid commitment on the part of the instructor.

A third caveat relates to the feedback from the "Assessment" section. The quantitative survey results are positive, especially the students' perceived gains in knowledge, skills, and abilities. However, the underlying data is limited. These data are from a single year, which precludes any across-time benchmarking. In addition, I am the only instructor of this course at my university and both of my sections complete the research experience, meaning there is no within-course comparison group. Furthermore, the student comments and the anecdotal cases of students pursuing additional research experiences are encouraging, but again, I do not have a point of reference against which to evaluate either outcome.

A final caveat is the gap between what some students can reasonably be expected to achieve and what I expect them to achieve. While this is true of many evaluative settings, this setting is somewhat unique in that it is possible for some students/teams to close the expectations gap. For instance, if the gap is a function of inexperience or intimidation of the research process, I have observed that continued exposure to research ideas and methods instills confidence and in some instances reduces or eliminates this gap. As with many new experiences, the expected level of achievement is attainable once the learning curve flattens out. On the other hand, if the gap is a function of deficient ability or effort, typically this leads to a less-rigorous and lower-quality research paper and presentation.

CONCLUSION

In this paper, I suggest a new way of thinking about the role of accounting research in an undergraduate accounting course. I design an integrated approach to learning which encourages the development of critical thinking skills, communication skills, and experience working in teams, which are skills students need to "learn how to learn" without being dependent upon a textbook. I have found this integrated approach effective for keeping the course content stimulating and a valuable way to keep on top of current research and current developments in accounting practice.

This research-based framework first provides a foundation in accounting research by using selected research article excerpts to enhance course topics. These readings are intended to extend students' understanding of class topics and develop their awareness of how accounting research and accounting practice are related. After students become accustomed to reading research articles and become familiar with the research process, they are challenged to develop and execute an original research study from the idea formation stage to the completed research paper stage.

There are several distinctive features of this research experience. First, it is available to all undergraduate accounting students. Second, student teams complete a fully developed empirical research study following the scientific method, in which they identify research questions, develop hypotheses, design tests for the hypotheses, and gather and examine evidence. Finally, I provide detailed instructional materials for faculty who might desire to implement a similar program.

As discussed earlier, this study is unable to thoroughly calibrate the benefits of integrating research into an undergraduate accounting course. Future research might examine outcomes associated with accounting students who complete an undergraduate research experience by tracking alumni decisions, perceptions, and achievements. For example, it would be valuable to know the proportion of students who complete a research experience and subsequently enroll in a doctoral program, are receptive to research as practitioners, or reach certain career milestones. Future research might also focus on comparing a sample of students completing a research-focused course with a sample of students enrolled in an identical or similar course without a research focus. This approach could assess both current students and alumni, and may help to provide additional insights on the incremental benefits of this form of content delivery.

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