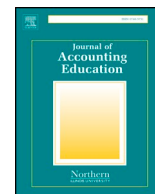




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Case

Beyond debits and credits: Using integrated projects to improve students' understanding of financial accounting

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ABSTRACT

This paper discusses a method for developing integrated, multi-step projects that will help students better understand the accounting cycle and develop the problem-solving and technology skills that they need to become successful accounting professionals. More specifically, this method allows instructors to develop projects designed to review specific topics, introduce basic tax consequences, demonstrate how transactions affect the financial statements and encourage students to think about investor reactions and possible ethical dilemmas without sacrificing substantial amounts of class time. After discussing how to develop this type of project, the paper provides suggestions on how to incorporate the project into an intermediate accounting course.

1. Introduction

While the core accounting knowledge taught for decades remains important, it is no longer sufficient to prepare our students for the rapidly changing business world (Lawson et al., 2014). As educators, we have to include the skills students need to effectively compete. We need to shift the way we teach, from journal entries and standards to critical thinking and the use of technology (Lawson et al., 2015). This shift poses a significant challenge to most departments as they do not have sufficient resources to constantly update curricula (see Pincus, Stout, Sorensen, Stocks, & Lawson, 2017). Thus, we need to develop projects, cases, and other instructional methods that can help students develop these important skills without the need to repeatedly redesign our courses. This paper discusses a method for creating one such resource, an integrated project for the intermediate accounting series.

Professionals and regulators have made appeals to the academy to address these weaknesses since the early 1990s. For example, the Accounting Education Change Commission (1990) specifically mentioned the need to “present accounting as an information development and communication process. The central theme should be how information is identified, measured, communicated, and used” (309). Similarly, professionals surveyed in the early 2000s specifically mentioned critical thinking, problem-solving, and Excel skills as critical areas for improving accounting education (see Arguero Montaña, Donoso Anes, Hassall, & Joyce, 2001). In 2014, the AICPA called for additional emphasis on problem-solving and Excel skills in its core competency framework (Institute, 2014) and recently changed the CPA exam structure to place additional emphasis on those skills, shifting the focus away from the rote knowledge testing used previously to scenarios that must be solved (Conrad, Decker, & Niswander, 2015). Similarly, the Pathways Commission has suggested that the academy produce new resources that “can help students understand the basic bookkeeping elements that serve as a foundation of an accounting education while also conveying the more strategic, dynamic aspects of accounting” (The Pathways Commission, 2012, p. 88).

The academic literature has supported these professional calls for change, with many papers suggesting instructors make significant changes to the intermediate accounting curriculum to address these issues (see, for example, Amernic & Robb, 2003;

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Catanach, Croll, & Grinaker, 2000; Jennings, 1998; and Springer & Borthick, 2004). In recent years, the literature has called for a shift to more active learning styles to not only address the concerns of professionals but also to make the college experience more appealing and relevant to new generations of students whose learning style is significantly different from that of prior generations (see Boyce, Williams, Kelly, & Yee, 2001, Lavoie & Rosman, 2007, and Riley & Ward, 2017).

These calls for change, both professional and academic, led to the recent development of a competency-based framework for accounting education (see Lawson et al., 2014). This framework suggests that, in addition to traditional accounting competencies, we need to provide our students with foundational competencies such as communication, quantitative-problem-solving, interpersonal, and technological skills. Similarly, we should be seeking to develop basic management competencies, such as leadership, ethics, process management, and governance skills, in our students.

Since there are limits to our time and resources (see Pincus et al., 2017), this paper describes a method for creating and implementing an integrated project in an existing intermediate accounting curriculum. The resulting project can help students develop three of the foundational competencies suggested by the Competency Integration Framework (i.e., quantitative, problem-solving, and technological skills) as well as one of the accounting competencies (external reporting & analysis) (Lawson et al., 2014). More specifically, these projects help students consider the implications of business decisions on the financial statements, choose appropriate accounting methods, improve Excel skills, practice the calculations and methods taught in intermediate accounting, and expand their understanding of how investors will see and interpret the information in the financial statements. By developing and using a supplemental project, we can help students develop these competencies without completely redesigning our courses.

The following sections will describe the benefits provided by, and costs incurred from, using an integrated project and how to create an integrated project, then will provide ideas on how an integrated project can be introduced and used in intermediate accounting courses. The final sections will present student feedback on this type of project and offer concluding remarks.

2. Benefits and costs of implementing an integrated project

Creating and implementing an integrated project provides three important benefits over traditional homework problems and cases. Traditional homework problems focus on a particular chapter, providing students with important opportunities to practice making the calculations and journal entries taught in that chapter, but do not integrate how that information flows through the accounting cycle into the financial statements and, thereby, affects decisions made by stakeholders. Wells (2018) suggests that some of the difficulties currently faced by the academy and our students are due to our focus and reliance on textbooks since the teaching style in those books has not significantly changed in recent years.

Published cases, on the other hand, provide a more integrated look at specific issues and help students develop some of the competencies in the Competency Integration Framework. However, cases typically require significant class time to teach, student time to complete, and instructor time to grade. Also, cases typically focus on one or two specific issues, providing successful illustrations of those issues, but not providing continuous practice throughout the semester (see, for example, Burke & Eaton, 2016, Caplan, Dutta, & Marcinko, 2017, Porter, 2012, and Sonnier, Hennig, Everett, & Raabe, 2012). To effectively develop a competency, our students must practice the skills multiple times and, preferably, over multiple scenarios. However, because of the time commitment, most instructors are reluctant to incorporate multiple cases into the intermediate accounting series.

The first important benefit of implementing an integrated project is overcoming the challenges with traditional homework and cases. The suggested project requires students to create a set of financial statements, to adjust those financial statements for the effects of various adjusting entries, then to consider the implications of those adjustments on financial ratios and investor perceptions. These three steps require students to use the full accounting cycle and to think critically about how specific business decisions (e.g., factoring receivables and exchanging equipment) affect investors and other stakeholders. By repeating this process over multiple chapters, students can develop a greater understanding of the continuity of the accounting cycle and its impact on investors and other stakeholders, moving away from the simple “scorekeeping” or “bean counting” focus sometimes perceived in accounting courses (Wells, 2018). That said, the integrated project proposed here is not meant to replace traditional homework or cases, but rather to supplement those resources and help students develop their external reporting & analysis and problem-solving competencies (Lawson et al., 2014).

The second important benefit of implementing an integrated project is providing an opportunity for students to work in Excel, developing their technological competency (Lawson et al., 2014). Excel skills are some of the most beneficial tools we can provide our students since Excel continues to be one of the most important tools in accounting (see Institute, 2014, and Lee, Kerler, & Ivancevich, 2018). Perhaps the most powerful recent evidence of Excel’s importance to the profession is the decision of the AICPA to add Excel to the CPA exam starting in 2018 (Conrad et al., 2015). Requiring students to create and update financial statements over multiple chapters forces them to work extensively in Excel, especially if they are required to submit their solutions in Excel and if templates and other supporting material is provided in Excel. In addition to using the Excel basics that they are already familiar with, the continuity of the project provides opportunities for an instructor to demonstrate Excel skills throughout the semester.

The third important benefit of implementing an integrated project is greater flexibility in the way we teach these concepts (i.e., integration and Excel skills). Traditional homework and cases are pre-written, which saves time. However, creating a unique, integrated project for their classes allows instructors to focus on topics and methods they have found to be troublesome for their own students or to meet assessment or other department needs. For example, if students struggle with understanding the importance of the new revenue recognition or lease standards, the project can be written or adapted to emphasize these new standards.

Developing the project in Excel also provides the instructor with flexibility in changing numbers each semester, reducing the possibility of cheating. For example, changing beginning account balances and specific methods and estimates in individual portions

of the project (e.g., using Weighted Average instead of First-in-First-Out for calculating inventory values or changing interest rates so that a bond will be purchased at a discount instead of a premium) will create a project that looks significantly different from versions used in previous semesters.

As with any teaching tool, there are costs associated with creating and implementing such a project. First is the time required to create the initial set of problems and solutions, especially when creating a set of financial statements that allow for easy adaption between semesters. Creating the first such project will take a significant amount of time, but subsequent projects for other courses will take significantly less time.¹

Second is the time required to implement the project. The greatest part of this time commitment is grading student submissions. Even having the students work with a partner on the project and using a standard rubric, the grading still takes approximately four to five minutes per student per portion of the project. It also consumes time to answer student questions. An instructor should anticipate spending several office hours or one class session working with students on each portion of the project.

Third are the inevitable mistakes that occur when updating the project. When using a case for multiple semesters, the methods stay consistent and, typically, so do the values. If there are errors in the case or the case solution, the instructor can choose to move on to the new case or can fix them in the first semester and use the corrected numbers moving forward. When updating an integrated project every semester, however, mistakes will inevitably occur (numbers typed incorrectly, forgetting to transfer updated numbers from the solution to the assignment file, etc.), leading to challenges in answering student questions, problems with grading, or simply the embarrassment of admitting to the class that the numbers are wrong and need to be changed. Students typically forgive these mistakes when they are corrected quickly and fairly, but it is still a cost that needs to be considered.

Overall, the benefits, in my opinion, of helping students develop core competencies of problem-solving and working with technology, as well as developing a greater accounting competency in external reporting, easily outweigh these costs. The flexibility allowed by creating and maintaining the project provide additional benefits that help to counter the costs.

3. Creating an integrated project

3.1. Essential elements in an integrated project

To best provide the benefits described above, an integrated project should include several important elements. These elements are a focus on key concepts discussed in class, an introduction to tax implications, the process of updating the financial statements to include new transactions, opportunities for financial analysis, and the use of only one company to provide continuity throughout the project.

First is a focus on key concepts discussed in class. These key concepts can be topics or transactions that students typically struggle with (e.g., amortizing the premium or discount on a bond), standards that are changing (e.g., revenue recognition), and topics that will be important for future courses (e.g., deferred taxes). While these key concepts can be covered in traditional homework assignments, asking students to make calculations and create the journal entries, use those entries to adjust the financial statements, and then use the updated financial statements to calculate financial ratios and predict likely investor reactions moves students into higher levels of Bloom's Taxonomy, such as application and analysis, which can improve student understanding and retention of these key concepts (see [Lord & Baviskar, 2007](#)).

Second is an introduction to tax implications. Most of the traditional examples and problems in intermediate accounting courses instruct students to "ignore the effects of income taxes." Since no business decision can effectively be made without considering the tax effects, at least in the U.S., many professionals feel that implicitly teaching them to ignore taxes does our students a disservice. Requiring students to address taxes throughout the integrated project helps to address this issue. Since intermediate accounting is not a tax class, this introduction to tax consequences can be kept relatively simple: an increase in net income requires a debit to income tax expense and a credit to income tax payable; a decrease in net income requires a debit to income tax payable and a credit to income tax expense. These adjustments, while simplified, should be made any time the entries for a portion of the project affect net income. While this may seem simplistic, it serves the intended purpose of requiring students to acknowledge that taxes affect almost every business decision.² Once students are familiar with deferred taxes, these adjustments can be made more realistic.

Third is the process of updating the financial statements. While most intermediate accounting courses review the accounting cycle in the first few sessions, traditional homework and other activities do not effectively reinforce the cycle later in the course. More specifically, the activities typically focus on identifying a transaction and making the appropriate journal entry but do not require posting, updating trial balances, or adjusting the financial statements. This narrow focus leaves students without practical experience in how specific transactions affect the financial statements and, as a direct consequence, investor reactions to those statements. Requiring students to adjust the financial statements for the effects of the journal entries they have made allows students to see how business decisions, and the journal entries associated with those decisions, affect a company.

The fourth important element in creating an integrated project is providing opportunities for financial analysis. This element is added by requiring students to calculate common ratios before and after making adjustments to the financial statements, then asking

¹ Creating the author's original version of this project for the first part of an intermediate accounting series required most of a summer, but creating a second project for the second part of the series required only a month.

² This project has been discussed with several tax professionals and most agree that, while this style is simplistic, it is useful to have students at least think about tax effects and observe the effect on the financial statements.

them what stakeholders' reactions are likely to be. This analysis pushes students to a higher level of Bloom's Taxonomy (Bloom, Englehart, Furst, Hill, & Krathwohl, 1956), which can improve their understanding and retention of the key concepts covered by the project (Lord & Baviskar, 2007), and also makes accounting topics more relevant for non-accounting majors taking the course.

Fifth is providing continuity throughout the project by working consistently with one company. Homework problems and cases used in intermediate accounting typically each use a different company. Using one company throughout the integrated project allows students to see how multiple changes throughout the accounting period affect a single company, leading to very different financial statements by the time all of the corrections or adjustments have been made. In addition, using only one company allows students to become familiar with that company, its goals and processes, and how the management team reacts and thinks, providing improved opportunities to ask questions about investor perceptions and ethical issues within the company. It also requires students to correct errors made in one portion before moving on to the next portion of the project.

3.2. Creating an integrated project

3.2.1. Creating the original financial statements

The first step is to design a set of financial statements that balance and are adjustable from semester to semester. Starting with an example from practice, a case already being used, or from existing lecture notes can greatly speed up this process. The example can then be simplified (if necessary) by removing accounts students are not yet familiar with (like deferred taxes and pension liabilities) and changing some account names to provide the foundation for future adjustments. For example, if you wish to include a portion on intangible assets, then you might want to include a patent or goodwill account. For comparison purposes, you might wish to include information about both the current and previous year.³

After creating the basic set of financial statements, create a set of common-sized financial statements (i.e., financial statements that are percentages instead of dollar amounts) based on one key number (e.g., sales or cash). You can then create a final set of financial statements made of equations: the percentage from the common-sized financial statements times the key number. This set of financial statements will automatically update when you change that key number, allowing you to easily change the project each semester.

While most of the equations in this final set of financial statements will be the percentage times the key number, some values will need to be equations to ensure that the financial statements will balance when updated. These values include income tax expense (income before taxes times the tax rate), retained earnings for the current year (beginning retained earnings plus net income minus dividends), the summary numbers (e.g., net sales, net income, current assets, total assets, cash flow from operations, etc.), and one account (such as accounts payable) as a final plug figure. The values on the statement of cash flows will also need to come from equations based on the income statement and balance sheet values (e.g., cash paid for equipment equals beginning equipment minus ending equipment).⁴

After creating a template, it is typically a good idea to try several values of the key number to ensure that the automatic updates work effectively. You might also consider adding rounding equations to your values to make the example financial statements consistent with publicly available financial statements and writing a simple introduction to the company and its goals to give students context and discussion points for future portion of the project.

3.2.2. Creating the first portion of the project

When working with lower-level students (i.e., those just starting the intermediate accounting series), this first portion of the project should be relatively simple. For example, you might ask students to make a simple set of journal entries and create an adjusted trial balance. This topic matches up with the review of the accounting cycle chapter typically covered at the beginning of intermediate accounting textbooks. Simple journal entries might include declaring and paying dividends, adjusting for bad debt expense, and prepaying insurance. Creating the adjusted trial balance could be as simple as adjusting a trial balance provided for the entries or it could require students to create a trial balance from a list of accounts in alphabetical order and then creating an adjusted trial balance after making adjusting entries. Having to create a trial balance provides students with the opportunity to practice classifying accounts and putting them in appropriate order. You might also include a few accounts that students are not familiar with (e.g., additional paid in capital and investments in other businesses), so that the students have to do some research to learn about these accounts.

When working with higher-level students (i.e., those who have already completed the first intermediate accounting course), it is not as essential to ease into the project. Since higher level classes tend to have more content to cover, it is often best to introduce students to the project using a simple topic from an earlier class (e.g., recording a coupon liability or issuing a bond) and taking some class time to walk through the templates provided, explain the general process, and answer students' questions.

3.2.3. Creating additional portions of the project

The number of portions of the project that need to be created will vary based on instructor goals and student needs. Four or five strategically spaced portions of the project would provide students with good experience working with the financial statements and

³ Appendix A provides an example of the author's integrated project.

⁴ While these equations are simplifications, they help ensure that the financial statements balance and that the statements are not too complex for students starting intermediate accounting.

observing the effects of business decisions on journal entries and the financial statements. However, having one project per chapter would provide the most student benefit.

When creating a project that will be used with every chapter, the first few portions of the project should focus on reviewing the accounting cycle, consistent with the review of introductory material common in intermediate accounting courses (see, for example, the proposed schedule suggested by [Catanach et al., 2000](#)). For example, requiring students to first make adjusting entries and create an adjusted trial balance. Then, as a second portion of the project, requiring them to use that adjusted trial balance to create an income statement, and third requiring them to use the adjusted trial balance and income statement to create a balance sheet. To provide them with additional practice, extra credit can be offered on those portions for making the closing entries or for creating the statement of cash flows.⁵

For more advanced classes, the instructor can provide students with a basic template of the financial statement that they can adjust moving forward. The template provided should include all of the appropriate numbers, equations for summary numbers, calculation of income tax expense, and equations for the cash flow from operations section of the statement of cash flows. Giving students this template provides two important benefits. First, it ensures that students can focus on adjusting the financial statements instead of fixing mistakes or broken links in their earlier work, especially since many of those mistakes won't appear until much later in the semester when they will become distractions instead of learning experiences. Second, it greatly speeds up the grading process because all of the students are using the same basic format and have their accounts listed in the same order.

The other portions of the project should cover a mix of topics. For most segments, choose adjustments that students struggle with or that are not sufficiently covered in other course activities. For a few segments, choose easier adjustments that provide good discussion points or interesting adjustments to the financial statements. Students typically struggle with topics such as factoring receivables, market value adjustments for investments, amortization of bond premiums, pension adjustments, and deferred taxes. Since those are challenging topics for students, mixing in topics such as ending inventory calculations, coupons, and treasury stock moderates the workload while still providing students with the benefits of the project. An example list of the portions of the project for an intermediate accounting part 1 course is available in [Table 1](#).

Using a standard format for each portion of the project simplifies the process of writing, explaining, and grading the project. In the example project (please see the [Appendix A](#)), students are required to do the following:

1. Calculate a set of ratios (which change from portion to portion) using the financial statements as they appear at the end of the previous portions.⁶
2. Read the scenario and make the appropriate adjusting entries, including the entry for taxes.
3. Update the financial statements to include the effects of the adjusting entries just made.
4. Recalculate the set of ratios using the updated financial statements.
5. Write a brief discussion of the likely stakeholder reaction to the change.⁷
6. Write a brief answer to an ethics question.⁸

After choosing the topics and selecting a format, the next step is to create the solutions. When doing so, keep in mind that you will be updating numbers, answering student questions, and grading the project for a long time, so you might want to create detailed solutions that are easy to read either in Excel or as a print out. It will also save time in grading and in working with students if you create each solution in a separate Excel tab, including a separate set of financial statements for each portion of the project that is linked to the financial statements from the solution to the previous portion.

3.2.4. Creating the assignment files

Once the topics have been selected and the solutions made, the next step is to create the assignment files for the students: the instructions for each portion and the Excel template, if any. While you can provide separate instruction files for each portion of the project, it can save time to provide all the instructions in one document. Using one document also serves to keep the project more organized for the students and reduces the chances of forgetting to provide an assignment file or providing the wrong assignment file after updating the project each semester. To provide overall context for the project, the instruction file, or the first of the instruction files, should begin with a set of general instructions for the project (expectations, overall goals, deadlines, grading details, any rounding instructions, etc.) and background on the company.

For each portion of the project, the instructions should provide the background information, numbers, and details that students

⁵ Requiring students to do these additional elements can lead to frustration, but providing them as extra credit improves students' attitudes, at least based on my experience.

⁶ Non-accounting majors tend to appreciate the ratio analysis because it is what they intend to use accounting for after they graduate. Accounting majors appreciate the ratio analysis because it helps them to understand the impact their work will have on individual companies and their stakeholders. Overall, this element and the stakeholder reaction (Step 5) have, anecdotally, helped motivate students to learn all of the material in the course.

⁷ While it is tempting to focus on one stakeholder throughout the project (e.g. stockholders), students typically start to provide boilerplate answers after the first few portions. To keep them engaged, switch between owners and lenders. This change not only encourages students to think about their answer, but it also provides an opportunity to consider the different reactions likely from each group.

⁸ Regular consideration of ethics issues has helped students realize that ethics is not a one-and-done issue in the business world, but rather something that needs to be considered on a regular basis.

Table 1
Summary of the ABC project.

Part of the project	Due date (by class session)	Description	Effect on net income
Part 1	Session 7	Review portion: making simple adjusting entries and the adjusted trial balance	N/A
Part 2 [*]	Session 9	Review portion: making the income statement and calculating preliminary ratios	N/A
Part 3 [*]	Session 11	Review portion: making the balance sheet and calculating preliminary ratios. statement of cash flow can be created for extra credit	N/A
Part 4	Session 15	Factoring accounts receivable	Decrease
Part 5	Session 18	Correcting an error in a perpetual inventory system	Increase
Part 6	Session 20	Recording a property, plant, and equipment exchange with substance	Decrease
Part 7	Session 22	Reducing depreciation expense to show partial year depreciation on a new asset	Increase
Part 8	Session 24	Recording the new fair value for an available-for-sale securities portfolio	N/A
Part 9	Session 28	Recording an estimated liability for coupons	Decrease
Part 10	Session 29	Recording the issuance of a new bond, the accrual of interest, and the first amortization of the bond premium	Decrease
Part 11	Session 31	Recording the declaration of a dividend and the repurchase of common stock	N/A

This table presents the different portions of the ABC project, the approximate due date of each portion in a 30-session semester, a discussion of the basic topics covered in each portion, and the basic effect of the transaction on net income. After students have completed the first three portions of the project, I provide them with a template for the financial statements.

* These portions of the project include extra credit opportunities: performing the closing entries (part 2) and creating the statement of cash flows (part 3).

will need to complete that portion of the project. Even if you choose to keep the requirements for each portion the same (as mentioned above), it is useful to restate the questions in each portion to ensure that students don't forget a required element. Restating the questions also allows the instructor to change the ratios required, the critical thinking questions, and the ethics questions between portions of the project.

The instructions for each portion of the project might also include a specific goal for that portion. For example, "This portion will help you practice accounting for changes in the market value of available-for-sale securities, and making the corrections to the financial statements." Providing a goal can help students relate each portion of the project to the stated goals of the course and can provide documentation of how an instructor is achieving course goals for assurance of learning purposes.

In addition to the goal, basic information, and questions, the instructor might also include hints that help students with challenging elements in the entries or in the financial statement adjustments. These hints should focus on common questions from earlier semesters and, if desired, can provide additional background on accounting standards or methods that were not included in lecture materials.

An example of the instruction files is provided in [Appendix A](#). The example includes the general instructions at the beginning of the project, the background information about the company, and examples of five portions of the project, the last two of which include sets of hints.⁹

3.2.5. Creating grading templates

Trying to grade this type of project point by point takes an inordinate amount of time. Instead create a standard template that can be used for each portion.¹⁰ Using a standard template also makes it easier to assign grading to a teaching assistant, especially if that template is created in the learning management system (LMS). Creating the template in the LMS also simplifies the process of assigning grades and providing feedback to the students. An example grade breakdown is provided in [Table 2](#) and a sample grading template is provided in [Table 3](#).¹¹

3.2.6. Creating solution files

One of the challenges for students with this type of project is addressing mistakes that they make in earlier portions. If they make a mistake on part 1, that mistake will flow through the remainder of the project, making it more difficult for the student to work on and for the instructor to answer questions about and grade future portions. One easy way to address this challenge is to provide students with the solutions for each portion after the due date. Students can then adjust their numbers, examine their calculations, and, hopefully, learn from their mistakes.

To discourage both laziness and cheating, solutions should not open in the LMS until noon on the day after that portion of the project is due, and no submissions are accepted after the solution becomes available. The delay allows students a short grace period if

⁹ To reduce the chance of students finding this paper, its discussion, and the solutions provided in the appendix, "ABC Company" is used throughout this article.

¹⁰ If you choose to use introductory portions that include building the adjusted trial balance and financial statements, you will need to design different templates for those portions of the project.

¹¹ The tone of the rubric in [Table 3](#) is relatively informal because it focuses on its primary audience: the teaching assistants that would be using it and the students who would be reading it. The goal was to produce a rubric that would be easy for both groups to understand with a lighter tone to keep the focus on improvement, not on points.

Table 2
Summary of the ABC project grade allocation.

Making the appropriate adjusting entry(ies)	24%
Making the appropriate tax entry	16%
Adjusting the financial statements	36%
Calculating ratios (pre and post)	16%
Answering the critical thinking questions	8%

This table presents the grade allocation for the different elements of the ABC project. Overall, the project typically accounts for 8–12% of the course grade.

they forget to submit a file on time or have issues with the technology, while still providing the solutions quickly after they have finished their work. In addition, the solutions are provided as PDF files and not as Excel documents. This format, which does not provide any equations, reduces the chances of students saving the instructor's work to pass on to their friends in future classes.¹²

3.2.7. Updating the project each semester

Once you change the key number that you selected when creating the template, all of the financial statement values will also change throughout the project, as long as the solutions are linked to the initial financial statements. The new numbers can then be pasted directly into the assignment file and student template.¹³ Making changes to the values in individual portions requires careful comparison of the Excel solution and the student assignment file. Adjust the numbers for each portion of the project in Excel, making sure that you are comfortable with the results and how they flow into the financial statements, and that the numbers are sufficiently different from the previous version of the project. After making the changes in the solutions, change the numbers in the assignment file to match the new numbers in Excel, then, two or three days later, go back through the two versions (assignment file and solutions file) to make sure that numbers match.¹⁴

4. Using an integrated project

4.1. Introducing the project

While the integrated project provides important benefits, students typically focus on the workload instead of those benefits. This student focus can lead to frustration, especially in a course that already has a heavy workload. To reduce this challenge, the instructor should take time at the beginning of the semester when discussing the course objectives and assignments, and again before beginning the first portion of the project, to discuss the benefits the project provides to students. As new elements are incorporated into the project (e.g., updating the financial statements, performing ratio analysis, and answering questions about stakeholder perceptions), a few minutes can be taken to explain how these skills can help students prepare for a career in finance or accounting and for taking the CPA exam.

Another way to help address the workload, both for students and for graders, is to assign students partners, with each partnership making one submission for each portion of the project. While groups of 3–4 students can also work, more significant “free riding” can occur with larger groups. While free riding does still occur with partnerships, it appears to be less of an issue, especially when students choose their own partners.

4.2. Using class time for the project

4.2.1. Traditional classes

In a traditional, lecture-based class format, classroom time in intermediate accounting is limited. Because of the limited time available in this format, very little classroom time can be used to work on the integrated project. However, it can be beneficial to take some time to introduce the project, discuss the purposes, allow students to find their groups, and walk through an example. It is not necessary to discuss actual numbers but instead conceptually walk through the process of making calculations, journal entries, and explaining the tax entry that would need to be made for that adjustment. The instructor might also wish to discuss how a debit to an asset account will increase the account balance and a credit would decrease the balance, how a debit to an expense account will increase the balance, etc. Finally, the instructor should let students know what type of help will be available (i.e., checking the

¹² Examples of the solutions are available from the author upon request.

¹³ When pasting updated financial statement information into the student template, make sure that you paste in the new account balances as “values” to avoid problems with broken links. However, be careful not to inadvertently also replace the equations you want to provide to the students with static values.

¹⁴ It is possible to create the instruction file in the Excel file as well, using the DOLLAR, TEXT, and FIXED functions to directly link the numbers from your solution calculations into the text that you will provide to students. If the instructions file is kept on a separate tab, then it can easily be saved as a PDF file. This format requires more work when creating the project, but doing so reduces the chances of a mistake in the student instructions and the time required to update the project.

Table 3
Suggested grading rubric.

	Poor	Needs improvement	Good	Exceptional
Adjusting entry or entries	The entry is completely wrong. 0 points	They have tried to make a good entry. While they are wrong on several points, at least they show effort in getting the correct answer. 2 points	The entry is basically correct. One of the three parts might be wrong. 4 points	The entry is correct (i.e., account names, amounts, and description are all correct). 6 points
Tax entry or entries	The entry is completely wrong. 0 points	They have tried to make a good entry. While they are wrong on several points, at least they show effort in getting the correct answer. 2 points	The entry is basically correct. One of the three parts might be wrong. 3 points	The entry is correct (i.e., account names, amounts, and description are all correct). 4 points
Adjustment of the financial statements	The financial statements have not been adjusted. 0 points	They tried hard, but the adjustments are essentially incorrect. One of the statements may have been forgotten completely, the statements don't balance, or most of the changes were made to the incorrect accounts. 3 points	The adjustments look pretty good, but aren't quite right. Despite their efforts to correctly make the adjustments, one of the three statements may no longer balance. One or two changes may have been made to incorrect accounts. 6 points	The financial statements are correct. All accounts show the correct balances, the equations are correct, and the statements all balance. 9 points
Calculation of financial ratios	The required ratios are missing. 0 points	They tried hard, but the ratios are essentially incorrect. Either the equations were wrong or they used the wrong numbers. 3 points	The ratios look pretty good, but aren't quite right. They may have used ending balances instead of averages, mixed up one ratio, or made a couple of other minor errors. 6 points	The ratios are correct. Both the equations and the numbers are correct and they have correctly rounded to 3 decimal places (as directed in the project instructions). 9 points
Interpretation	They have made no effort to interpret the effects of their adjustments. 0 points	They tried hard, but the interpretation doesn't make sense. Either the logic is inconsistent with the changes made or they have made only a minimal effort to justify their conclusion. 2 points	The interpretation looks pretty good, but isn't quite right. While their argument is logical and well supported, it isn't correct based on the changes made. In contrast, their essential argument may be correct and they have made some effort to justify it, but they have addressed all of the changes. Finally, they may have misinterpreted the effects of one or two of the changes. 3 points	The interpretation is correct. Their arguments follow the logical consequence of the changes made to the financial statements and ratios and shows considerable thought. There are no logical gaps, no important support missed, and no incorrect interpretations. 4 points
	0 points	1 point	1.5 points	2 points

This table presents an example grading rubric for one of the later portions of the ABC project. Because the first few portions of the ABC project are a review of accounting basics (please see the description of the different portions of the project in Table 1), a simplified version of the rubric is used for these sections. Using a rubric instead of a detailed answer key allows for faster grading of the project throughout the semester. Attempts to grade the projects using specific points for each journal entry, calculation, and financial statement adjustment were prohibitively time consuming. Rubrics like this one also make it easier for a teaching assistant to complete the grading instead of the instructor. Finally, this rubric format can be easily incorporated into the tools provided by most LMS (such as Blackboard or D2L), allowing the system to immediately assign grades to each student.

numbers, only discussing the concepts, etc.).

Later in the semester, after the students have completed the introductory portions (i.e., those that require them to build the financial statements for the company) and are ready to move on to adjusting the financial statements, it is typically worthwhile to use one class session to help them become familiar with the template you want them to use moving forward (if any) and to walk them through an exercise on how to adjust the financial statements for the adjusting entries they are making. This exercise can be a simple one, since the goal is to familiarize the students with the process of making adjustments and not to take the place of the project.

An example exercise based on a small firm is used. The staff completed the annual financial statements before leaving work on December 31, then finds out there was a flood during the night that destroyed a warehouse and the inventory in it. They now need to update the financial statements to show the effects of the flood, since it happened before year-end.¹⁵ After letting the students work on the activity on their own, the instructor can then walk through it with the class, creating the journal entries for the loss, the simplified tax entry, and demonstrating the changes that would need to be made to the financial statements.¹⁶

After students have completed the first portion of the project that adjusts the financial statements, it is typically worth five minutes of class time to show students how to prepare their Excel spreadsheet for future problems. The easiest way to do this is to have students hide the columns or rows in Excel that have their work for the first portion of the project. Hiding columns allows students to keep working with the same set of financial statements throughout the project, making it easier for them to move forward with new portions of the project and simplifying the grading (since the instructor or teaching assistant doesn't have to spend time trying to find the newest submission in a spreadsheet). An alternative method is to show students how to copy the financial statements to a new tab while keeping their equations intact. Without a demonstration by the instructor, students often spend so much time on figuring out Excel that they cannot focus on the new portion of the project.

4.2.2. Online classes

In an online class, a few changes need to be made to use the project effectively. The first change is to make partnerships optional, since it can be difficult for students to find times to work with a partner, especially when partners are randomly assigned. The format for project groups can be included in the initial video or lecture that walks through the elements of the course, but it also may be useful to discuss it again in a live Q&A session soon after the class has started.

The second change is to hold the discussion of the template and the classroom activity introducing students to the methods for adjusting the financial statements during a live session in Collaborate Ultra (or similar online classroom meeting software) instead of in a recorded lecture. To encourage engagement, it is helpful to require that students participate in the sessions by answering or asking a question. This live session should walk through a basic discussion of the assignment, materials provided, deadlines, etc., then should walk through the exercise on how to adjust the financial statements discussed in the previous section. Students should be provided with the scenario and Excel template for the exercise in advance and given time during the session to work on the problem before it is discussed. One downside to the online class format is that students can't easily discuss their work with their classmates and the instructor can't move around the room to answer questions. However, once students have had a few minutes to work through the problem, the instructor can walk step-by-step through the example in Excel, letting students provide answers where possible.

Other than these two minor changes to introducing the project, you should be able to run the project the same way in an online class as in a traditional class. Some universities require that online classes be taught in a condensed format. If the time provided is too short (less than eight weeks), a portion of the project for each chapter may be too much for the students. While I believe instructors should do everything possible to keep the workload consistent between online and on-campus classes, I have found that students in an online class struggle more with the project (i.e., have lower grades) because they cannot get as much help as students on campus. Thus, a project with fewer portions might be appropriate.

As a final note, many instructors allow students in their online classes flexibility in completing lectures, quizzes, assignments, etc. However, to reduce the likelihood of cheating, it is useful to enforce specific deadlines for submitting each portion of the project and releasing the solutions.

4.2.3. Flipped classes

An integrated project provides an excellent in-class activity in a flipped, activity-based course because it not only allows students to practice, but also emphasizes or identifies the challenges students are having with the methods introduced in each chapter or with the accounting cycle.

As the students work on the project, the instructor can move around the room and answer questions and check students' work. In the first few work sessions, students are often shy about asking for help, so the instructor needs to offer suggestions and help without formal questions. As the semester progresses, however, and students become more comfortable with the format of the class and with the "no judgement" answers to their questions, they become more willing to ask questions and to listen to the discussions the instructor has with their classmates. In addition, students start to work with each other more closely, with partnerships reaching out to others sitting nearby to collaborate on difficult calculations or adjustments. While this collaborative environment could lead to

¹⁵ While it is not realistic for a company to complete annual financial statements by the close of business at year end, the simplification allows students to focus on changing or updating the financial statement without getting into GAAP issues of when an adjustment needs to be made for subsequent events. Since the purpose of this exercise is to help students see how financial transactions flow into the financial statements, not to learn the timing of creating the financial statements, this simplification is justified.

¹⁶ A copy of this activity is available from the author upon request.

freeriding, the in-class setting encourages students to work carefully through each portion of the project. While there is still freeriding, the overall environment is close to what students will experience in the profession, a benefit which is worth the cost.¹⁷

During these work sessions, an instructor can save time and repetition by answering some questions for the entire class. This can be done at the beginning of the session as a list of “hints” that answer common questions from past semesters or as short discussions during or at the end of class that address questions that have been received multiple times that day. Over time, these common questions can be used to modify the project or to add permanent “hints” to the project instructions.

Since many questions can be answered during class in this format, the amount of time dedicated to this project during office hours is significantly less than in a traditional or online class. There are a few topics, however, that are typically challenging enough that students still need significant help after the class session. These topics include leases, deferred taxes, correcting errors, and creating the statement of cash flows.

4.3. Grading the project

To simplify the grading process, each portion of the project should be turned in as an Excel or PDF file through an electronic drop box in the LMS. Most LMS systems allow instructors to create rubrics that automatically release grades to the students. As mentioned previously, a common rubric that breaks each portion of the project into 3–5 elements (as shown in Table 3) makes grading easier. Using this rubric, grading each portion requires about four minutes per project and can be done by a teaching assistant with little or no input beyond providing a copy of the solutions.

In order to motivate students to take the project seriously, I make the integrated project worth about nine percent of their final grade in the course. For comparison, course exams are worth 55 percent of their grade, chapter quizzes are worth 10 percent, traditional homework is worth five percent, and other course projects are worth 21 percent of the grade.

4.4. After each portion of the project is submitted

As time permits, the instructor might wish to spend some time discussing the solution in class. The focus of these discussions should be on the changes in the financial statements and how investors are likely to react to these changes, not the debits and credits (which students can see in the published solution). This discussion provides opportunities to talk about some aspects of financial reporting not normally covered in a busy intermediate accounting series. For example, these discussions could address the market’s functional fixation on EPS (see Abarbanell & Bernard, 2000), management’s incentives to manage earnings and possible methods of manipulation (see Burgstahler & Dichev, 1997, and Nelson, Elliott, & Tarpley, 2003), and common interpretations of financial ratios. These discussions also provide opportunities to discuss misinterpreted results, such as a loss on exchange of PPE or a loss due to factoring that usually signals a good business decision, even though the immediate net income effects are negative. Showing students that good decisions can lead to short-term negative accounting effects can also lead to a discussion of the information the footnotes can provide to investors.

4.5. Reducing the likelihood of cheating

One the biggest challenges with any project is cheating, especially if the project will be used for multiple semesters. While there is no way to eliminate cheating, there are some ways to encourage students to work on the project appropriately. First, letting the students work with a partner gives them someone that they can legitimately talk with and be accountable to about the project. Second, providing detailed help when students are stuck or confused reduces the pressure to cheat and allows the instructor to provide guidance and teach concepts with which students struggle. Third, changing the project every semester reduces the usefulness of past materials and encourages students to do the work.

At a minimum, changing the project should include a new set of numbers in the original financial statements provided to the students and in each of the portions of the project. As time permits, changes can also include changes to the scenarios in individual portions. For example, switching the interest rates on a bond payable problem changes the present value so that the entries reflect a bond premium instead of a discount, making it easy to see if students are using work from the previous semester. Other examples of changes that can be made to the portions of the project include changing depreciation methods, making preferred stock cumulative instead of noncumulative, making an exchange of PPE a loss instead of a gain, changing the estimation methods for determining bad debt, and adding a prior service cost to a pension problem. Updating the project to match new GAAP can also provide significant changes in both the required journal entries and the adjusted financial statements (e.g., the change in lease accounting requires significant changes to the journal entries and the financial statements). Over the semester, even small changes lead to significantly different numbers in the financial statements, which further reduces the value of using work from previous semesters.

5. Feedback regarding the integrative project

While students typically complain about the amount of work involved in the project, they also seem to recognize that the project

¹⁷ Students are also encouraged to keep working because of the instructor actively moving around the room and talking with them about their work. It’s embarrassing for students to be caught on social media or studying for another class.

helps them to learn. Student feedback about the integrated project was gathered as part of a survey about the course given after the first midterm, approximately halfway through the semester. The survey asked students about a variety of elements in the course, including the integrated project. Students were offered bonus points for logging onto the survey; they were not required to complete the survey questions to get the bonus points.¹⁸ The response rate was approximately 84% of the students enrolled.

Overall, the survey was completed by 577 students over 17 semesters. During those 17 semesters, the class was taught in all three styles (traditional for five semesters, online for three summer sessions, and flipped for nine semesters) at two different land grant universities in two different states. The students at the first university (the first nine semesters) were a mix of finance and accounting majors. The students at the second university were almost all accounting majors. Students were asked how useful the project was in helping them understand how financial transactions affect the financial statements and how much time they typically spent each week doing the project outside of class. The overall results are presented in Table 4 and Table 5 presents a comparison of average responses broken down by classroom style and university. To calculate average scores, a numerical value was assigned to each answer the student could provide, with 1 being “Strongly Disagree” (“Less than 1 h” for the time spent question) and 5 being “Very Useful” (“More than 6 h”).

As shown in Panel A of Table 4, feedback from the students was primarily positive. Overall, 84% of the respondents classified the project “Useful” or “Very Useful” in helping them understand how transactions affect the financial statements. Panel B of Table 4 shows, unsurprisingly, that students taking the class online spent the most time outside of class working on the project, followed by students in the traditional class and then by students in the flipped class. Table 5 suggests that as the average time spent decreased, students’ overall opinion of the project increased. This could be due to the reduced workload or to the additional help and clarification students were able to get in the flipped and traditional classes over the online class. It could also be due to refinements in the project, improvements in my teaching abilities over time, or the increase in accounting majors in later semesters. Regardless, even with the differences in class style and university, the mean values were consistently between “Useful” and “Very Useful.”

Students’ comments about the project focus on how it reinforced the materials discussed in class, how it focused on the flow of information through the financial statements, and the more “real world” setting of the project compared to more traditional homework and other projects. One former student talked about the project in an email she sent me after completing the course:

“I have never had to work so hard for a grade in my entire life. But at the same time, accounting concepts never made more sense than after completing an [ABC] assignment. By [the] time I finished [the] class, I didn’t just know how different types of transactions were recorded and how they affected the financial statement, I understood why.”

The surveys about the class included a request that the students provide comments about what they liked about either the course or the ABC Project. The following are a subset of comments from those questions:

- The second thing I like about this course is the [ABC] Project, although it can be a pain, I think it helps us put the concepts that we are learning into “real-life” situations.
- I think that the [ABC] Project is great in that it helps students think about what is going on and how to properly journalize transactions and create the financial statements.
- I feel the [ABC] is pretty well done. I really like how it builds on itself.
- I really like the [ABC] Project, because I feel like it helps me relate to do accounting in the real world for real situations. I like how it is set up because it provides me with a challenge in applying the concepts we learn in class to the project.
- I like it because it is progressive and uses the same numbers so you can see how the different statements change and better understand how they affect one another.
- I like that it helps us practice the concepts learned in class and how it affects the financial statements.

On the negative side, students frequently complain about the amount of work involved in the project and the lack of direction. This last concern is due, I believe, to the difference between this project and traditional homework, since students are expected to address the challenge raised in each portion without being told exactly what method they are to use or how many journal entries are expected. As I have added hints to the more difficult portions of the project and become more adept at answering student questions, comments such as those presented below have become less frequent and less vehement:

- I like the idea of the [ABC] Project and how we are able to implement the accounting principles that are learned in class. However, I feel as if they are sometimes almost too difficult for what is taught in class and that sometimes it might be nice to have a little more direction.
- The [ABC] projects can sometime be too difficult. Also, to get help from the professor can be challenging because sometimes there is a line and I have to wait to ask for help.

The concern about the time required can be valid, as shown in Panel B of both Tables 4 and 5. Student responses to a specific survey question about the amount of work required outside of class each week to complete the project suggest that the majority of students spent between 3 and 4 h of work each week completing the project during a traditional semester. In the online courses, the

¹⁸ Use of the data from this student survey was classified as satisfying the criteria for exempt research by the Institutional Review Boards at the institutions where the survey was administered.

Table 4
Summary of student feedback.

	Traditional class		Online class		Flipped class		Total	
	Number of respondents	Percentage	Number of respondents	Percentage	Number of respondents	Percentage	Number of respondents	Percentage
<i>Panel A: The ABC project has been _____ in helping me understand how financial transactions affect the financial statements.</i>								
Very not useful	3	1%	1	2%	1	0%	5	1%
Not useful	9	4%	2	5%	3	1%	14	2%
Sort of useful	32	15%	5	12%	38	12%	75	13%
Useful	94	43%	19	46%	146	46%	259	45%
Very useful	81	37%	14	34%	129	41%	224	39%
n	219	100%	41	100%	317	100%	577	100%
Response rate		83%		75%		87%		84%
<i>Panel B: How much time do you normally spend each week doing the ABC project outside of class?</i>								
Less than 1 h	5	2%	1	2%	22	7%	28	5%
1–2 h	2	1%	3	7%	170	53%	175	30%
3–4 h	123	56%	6	15%	96	30%	225	39%
5–6 h	82	38%	22	54%	23	7%	127	22%
More than 6 h	6	3%	9	22%	7	2%	22	4%
n	218	100%	41	100%	318	100%	577	100%
Response rate		83%		75%		88%		84%

This table presents the results from questions about the ABC project answered by students as part of a more comprehensive survey about the course. The students completing the survey came from the Fall 2011 through Spring 2018 semesters at two different universities (Fall 2011 – Summer 2014 at one university and Fall 2014 – Spring 2018 at another). The Fall and Spring semesters from Fall 2011 through Fall 2013 were taught using a traditional, in-class lecture format with the ABC project as homework outside of class. The Summer sessions in 2012, 2013, and 2014 were taught as online classes. The Spring 2014 through Spring 2017 semesters (Fall and Spring) were taught using a flipped, outside-of-class lecture format with the ABC project as an activity during class.

Table 5
Comparison of average responses.

	Class format		
	Traditional	Online	Flipped
<i>Panel A: The ABC project has been _____ in helping me understand how financial transactions affect the financial statements</i>			
Mean	4.1005	4.0488	4.2587
Variance	0.7972	0.8976	0.5278
	University		
	University 1 (Fall 2011 – Summer 2014)	University 2 (Fall 2014 – Spring 2017)	
Mean	4.0855	4.2930	
Variance	0.7517	0.5388	
<i>Panel B: How much time do you normally spend each week doing the ABC project outside of class?</i>			
Mean	3.3761	3.8537	2.4434
Variance	0.4477	0.8780	0.6640
	University		
	University 1 (Fall 2011 – Summer 2014)	University 2 (Fall 2014 – Spring 2017)	
Mean	3.2937	2.4562	
Variance	0.6651	0.7105	

This table presents the mean and variance of student responses by category. In order to calculate the mean and variance, I assigned a numerical value to each answer the student could provide, with 1 being “very not useful” (“less than 1 h” for the time spent question) and 5 being “very useful” (“more than 6 h” for the time spent question).

majority of students worked on the project 5–6 h a week, but that is most likely due to the nature of the class rather than the students or the project. These online classes were taught during summer sessions which were only eight weeks long, requiring students to complete the course material, including the projects, at twice the normal pace. In addition, because of the challenges in meeting and working with a partner in an online course, students had the option of completing the work on their own, requiring them to do more of the work. In a flipped class where at least 40 min of class time was dedicated to each portion of the project, the amount of time students spent outside of class dropped to 2–3 h, on average, with most students in the 1–2 h category.

6. Conclusions

Lawson et al. (2014) recently proposed a new model for teaching core concepts to our students. The goal, both of the model and of most instructors, is to effectively prepare our students to succeed as business professionals. This paper describes a method for creating and implementing an integrated project that can be used in intermediate accounting to help develop students' general competencies in problem-solving and technology, as well as their accounting specific competency in financial reporting. The suggested project combines the transactions and adjusting entries that form the basis of most intermediate accounting courses with simplified tax transactions and adjustments to the financial statements. Since most of the work is done as an assignment, little change is required to the existing curriculum, especially when the instructor writes the project so that it focuses on those transactions that are already being discussed. In addition, allowing students to see the effects of transactions on the financial statements can improve student attitudes and motivation throughout the course as they come to understand the integral nature of accounting and investor perception.

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Appendix A. Examples from the ABC project

This appendix provides the general instructions for the ABC Project, the background information on ABC Co., and an example of five of the portions of the project. The solutions to these portions are available in a separate Excel file.

A.1. Introduction

Most college courses in accounting focus on teaching the various components of the accounting system. While this is an effective way to learn and master each of the various components, it usually leaves students with only a vague notion of how those components work together. My goal is to bridge that gap using this ABC Project.

The goal of this project is to help you to consider a series of individual situations, how they should be accounted for and what each will do to the company's bottom line. Basically, this project has three goals: (1) to give you practice with at least one of the important topics we will cover in each chapter; (2) to encourage you to consider the consequences of business decisions on the financial statements; and (3) to provide you with an opportunity to work with a small group or partner to solve accounting problems.

To accomplish the first goal, I have provided you with some basic information about the financial accounts already prepared by ABC Co. For most of the chapters we cover, I will give you information about at least one transaction that ABC's accounting department has not yet recorded. It will be up to you to determine whether any adjustment needs to be made because of this new information. If so, then you will need to make the appropriate journal entries (including any tax effects).

To accomplish the second goal, each assignment will require you to create or adjust ABC's financial statements based on your adjusting entries. In most cases, you will then have the opportunity to look at several commonly used financial ratios to determine what effect your changes will have on investors' opinion of ABC Co.

To accomplish the third goal, you will work with a partner (or partners, depending on the class size) of your choice. Because of the way the system is set up for grading, once you have set up your ABC teams you will have to continue with that team for the rest of the semester. Your choice of partner is due **at 11:00 pm on the due date given in the course schedule**.

For those of you who are accounting majors, this project will provide you with some experience in the types of activities you will be doing throughout your professional careers: making journal entries, fixing financial statements, recognizing the effects of certain decisions of the financial statements, and discussing those effects with others.

For those of you who are majoring in other areas, this project will provide you with some perspective on how your business decisions will affect the way investors, creditors, and other outside stakeholders see your company. Remember that most investors see only the financial statements, so you must impress them with those numbers if you are to get the funding you need. Since GAAP is relatively strict on how information must be reported once the transaction has been performed, you will need to know the financial statement effects of your options *before* you make your decision. This project will help you get a feel for how various decisions will affect the financial statements and the financial ratios.

Finally, remember that accounting is not only important, it's also fun! And this project has been written to give you lots of opportunities for fun.

A.2. Grading

Each part of the project will be worth **25 points**. The journal entries, if any are needed, will be worth **10 points**, the corrections to the account balances and financial statements will be worth **9 points**, and the interpretation of effects (including changes to the financial ratios) will be worth **6 points**. In some cases (see the instructions for Problems 1–3), this scale will be adjusted slightly due to the nature of the problem. Partial credit will be awarded on the work you **show**. I can't give partial credit if I only see a summary number or if I can't find or understand your work, so please take the time to show your work and label it clearly. Your files (see

below) should be formatted so that they print out clearly and easily on standard portrait pages.

Each part of the project should be turned in to the appropriate assignment drop box in Blackboard by 11:00 pm on the due date given in the course schedule. Please note that because we will talk about this project in class, **NO LATE WORK WILL BE ACCEPTED** for this project after noon on the day following the due date.

The assignments are **cumulative**, meaning that you will use the information from part #1 to answer part #2, and the information from part #2 to answer part #3. In order to help eliminate carry through error, I will post the solution to each part after the due date. It will be your responsibility to correct your answers (and your Excel spreadsheet) before moving on to the next part.

A.3. Rounding

EPS should be rounded to the nearest penny (\$0.01) through the case, and all other ratios should be rounded to **three (3)** decimal places (0.001).

A.4. Background information

ABC Co. sells backpacks, laptop bags, briefcases, and other bags. The bags are purchased already made, then the ABC branding and finish is added. Because of several exclusive contracts and high-quality products, the company has a strong following in its home state of Georgia and the surrounding area. In addition to its own brand, the company also has contracts with many colleges, firms, and local organizations to sell bags with these other groups' logos. This practice has greatly increased ABC's sales, especially since the company is usually able to use lower quality inventory to fill these orders (this leads to lower costs for the other groups without damaging ABC's reputation).

Because of its success during the past two (2) years, ABC was able to go public in January of last year. This has given the company additional capital to grow, as well as allowing the original owners to diversify some of their risk. Management's goal now is to begin marketing in the Northeast and Central regions of the country. If they are successful, they will continue on to the West Coast within a few years. Since much of their advertising is done through personal contacts and word of mouth, their growth will be slow. While that worries some of their new investors, recent economic trouble has left many investors pleased with the management team's more cautious growth.

In their rush to go public, ABC's management has forgotten one small detail. They have not created a very strong accounting department. While their auditors have been willing to help them clean up their books in the past, the managers are starting to realize that their lack of in-house accounting expertise is a problem. During the past year, they engaged in several transactions and decisions that might have important repercussions on their financial statements, and they didn't know it. In an effort to start cleaning up their accounting system, they have finally hired you and your partner. Your first job will be to go through ABC's decisions for the year and clean up any mistakes that have been made, and to record any transactions that have been missed. In the future, you will be expected to give management good advice about the accounting consequences of their actions *before* decisions are made.

Based on recommendations from their auditor and SEC regulations, ABC uses an accrual accounting system based on U.S. GAAP. The company's fiscal year end is December 31st. Since ABC is a relatively small public company with an easy audit, the auditors don't usually arrive until about January 15th. However, you are expected to have the financial statements ready to go by January 1st so that upper management can issue an earnings announcement to the stockholders. Although an earnings announcement is known to be unaudited, investors are traditionally very harsh with companies that have a final earnings number below the initial earnings announcement. You will need to be as accurate as possible in order to avoid this type of market consequence.

A.5. Example portion #1: the accounting cycle

A.5.1. Goal

To practice making necessary correcting and adjusting entries and using them to create an adjusted trial balance.

A.5.2. Information

The table on the next page reports ABC's account balances on December 31st for the current and prior years (see [Table A1](#)). The following entries have not yet been made for the current year:

- During the year the board declared and paid a \$350,000 dividend.
- During the year the sales department wrote off \$250,000 of accounts receivable (already included in the account balances). They have now decided that 15% of their ending A/R balance is uncollectible. ABC uses the % of A/R method for recognizing bad debt expense.
- On June 1st, a year's lease on a new warehouse was prepaid for \$48,000. The original payment was recorded appropriately, but no other entries have been made for this contract since that time.

ABC's reported income tax expense (see below) includes an estimate for this year's taxes. Only the three adjustments mentioned above have not yet been included in this tax estimate. Because of this, you will need to record any tax effects from the transactions throughout this case (starting with the tax effects, if any, of these three entries). Since another tax payment will not be made until April, these adjustments should be accounted for in Income Tax Expense and Income Tax Payable. ABC's tax rate is 30%.

Table A1
ABC Co. account balances.

	Year 2	Year 1
Accounts receivable	\$1,012,500.00	\$956,250.00
Accounts payable	\$529,770.00	\$675,000.00
Accumulated depreciation	\$1,350,000.00	\$1,125,000.00
Additional paid-in capital	\$337,500.00	\$337,500.00
Advertising expense	\$210,938.00	\$150,000.00
Allowance for bad debts	\$56,250.00	\$281,250.00
Building	\$900,000.00	\$900,000.00
Cash	\$675,000.00	\$562,500.00
Common stock	\$500,000.00	\$500,000.00
(\$1 par, 1,000,000 authorized, 500,000 outstanding)		
Cost of goods sold	\$6,157,786.00	\$4,400,000.00
Current portion of loan payable	\$56,250.00	\$56,250.00
Depreciation expense	\$225,000.00	\$180,000.00
Equipment	\$3,150,000.00	\$1,462,500.00
Executive salaries expense	\$492,188.00	\$500,000.00
Expansion fund	\$337,500.00	\$337,500.00
Income tax expense	\$592,599.00	\$450,000.00
Income tax payable	\$196,875.00	\$112,500.00
Insurance expense	\$16,875.00	\$45,000.00
Interest expense	\$71,719.00	\$50,000.00
Inventory	\$1,350,000.00	\$1,575,000.00
Land	\$1,237,500.00	\$787,500.00
Loan payable	\$281,250.00	\$337,500.00
Loans to other businesses	\$450,000.00	\$450,000.00
Miscellaneous admin. expenses	\$5,555.00	\$8,000.00
Miscellaneous selling expenses	\$54,844.00	\$40,000.00
Notes payable	\$1,575,000.00	\$900,000.00
Office supplies expense	\$43,594.00	\$75,000.00
Patents	\$168,750.00	\$168,750.00
Prepaid insurance	\$84,375.00	\$168,750.00
Prepaid rent	\$140,625.00	\$112,500.00
Rent expense	\$40,781.00	\$15,000.00
Rent revenue	\$35,156.00	\$19,000.00
Retained earnings	???	\$2,846,875.00
Sales discounts	\$112,500.00	\$50,000.00
Sales force salaries expense	\$154,688.00	\$155,000.00
Sales returns	\$984,375.00	\$500,000.00
Sales revenue	\$11,250,000.00	\$8,000,000.00
Selling commissions expense	\$562,500.00	\$40,000.00
Shipping expense	\$92,109.00	\$100,000.00
Unearned revenue	\$281,250.00	\$168,750.00
Utilities expense	\$84,375.00	\$80,000.00
Wages payable	\$112,500.00	\$140,625.00

This table presents the account balances for the current and previous year of ABC Co. The ending retained earnings (RE) balance for Year 2 has been omitted to help students understand how RE changes during the period. At the time of the adjusting entries, which the students are completing, RE has the balance as it did at the end of the previous (assuming that no changes have been made for errors or changes in accounting principle, a reasonable assumption at the beginning of intermediate accounting).

A.5.3. Assignment A.5.3.1. Calculations.

1. Make the appropriate journal entries, if any, to account for the adjustments mentioned above (including any necessary changes to income tax expense).
2. Create ABC's Year 2 adjusted trial balance. **Hint:** Trial balances need to be in a specific order and they are only for **the current year!**
3. Do you think it's a problem that ABC is still making these changes, even when all of their other numbers are set? What do these last-minute corrections suggest about the company's accounting department?

A.6. Example portion #2: the income statement

A.6.1. Goal

To practice creating a multi-step income statement in good form.

A.6.2. Information

Now that all of the necessary adjusting entries have been made and an adjusted trial balance prepared, management would like you to create ABC's financial statements. In addition to creating the financial statements, ABC's management has asked you to calculate the following financial ratios:

- Profit Margin (NI/Net Sales)
- Times Interest Earned (Income before Interest and Taxes / Interest Expense)
- EPS (NI/Common Stock Shares Outstanding)

A.6.3. Assignment A.6.3.1. Calculations.

1. Create a multi-step income statement *in good form* for ABC Co. for Year 2. Although ABC uses a perpetual inventory system, the purchasing department has kept track of the following inventory information (for use in creating the multi-step income statement):

Purchases	\$ 6,061,641
Purchase Discounts	90,914
Purchase Returns	50,597
Purchase Allowances	78,750
Shipping Charges (i.e., Freight In)	91,406

The following information can be used to break down ABC's operating activities:

- Reported depreciation expense is for administrative, not selling, equipment.
- Shipping expense refers to shipping out sales orders.
- Insurance, rent, and utilities costs are treated as administrative expenses.

If you have other questions about how the operating activities should be broken down, please ask the instructor!

2. Calculate the two (2) ratios listed above. Please round your ratios to three decimal places on all parts of the ABC Project!
3. If appropriate, include the ratios in the income statement. A.6.3.2. Critical thinking.
4. Management teams, analysts, and investors typically focus their attention on EPS and net income. Do you think that this focus is appropriate or should they be focused on cash flows or asset balances? Defend your answer.

A.6.4. Extra credit

Many students struggle with closing entries when we first learn about them, so I would like to give you an extra opportunity to practice these entries. For up to **2 bonus points**, make all of the necessary entries to close ABC's revenue and expense accounts to the income summary account. For an additional **3 bonus points**, make the necessary entries to then close the income summary and dividend accounts.

A.7. Example portion #3: the balance sheet

A.7.1. Goal

To practice creating a balance sheet in good form.

A.7.2. Information

Now that all of the necessary adjusting entries have been made, an adjusted trial balance prepared, and an Income Statement finished, you are ready to create ABC's last two financial statements: the balance sheet and the statement of cash flows. After you have created the balance sheet, ABC's management has asked you to calculate the following financial ratios:

- Current Ratio (Current Assets / Current Liabilities)
- ROA (Net Income / Average Total Assets)
- ROE ([Net Income - Preferred Stock Dividends] / Average Total Equity)

A.7.3. Assignment A.7.3.1. Calculation.

1. Create a balance sheet in good form for ABC Co. for Year 2 (HINT: Follow the U.S. GAAP format we discussed in class).
2. Calculate the three (3) ratios listed. A.7.3.2. Critical thinking.
3. Many companies actively seek ways to reduce the liabilities listed on their balance. They argue that because most assets are listed at historical cost (with no adjustments for increases in market values) reducing liabilities helps to even out the information

provided, making the two categories easier to accurately compare. Do you agree with this argument? Why or why not?

A.7.4. *Extra credit*

Although it is an important skill, I am not requiring you to create ABC's Statement of Cash Flows. However, if you would like the extra practice in creating this important financial statement, you can earn up to **5 bonus points** by giving it a try. The grading for the extra credit will be similar to the grading on the rest of the project. Whether you attempt the bonus or not, the solution to this portion of the project will include the statement of cash flows for use in future assignments.

A.8. *Example portion #4: partial year depreciation*

A.8.1. *Goal*

To practice accounting for partial-year depreciation, and to determine the effect of switching to partial-year depreciation on the financial statements.

A.8.2. *Information*

ABC purchased \$1,875,000 of new equipment during the year (not including the exchange in Part #7). Most of this equipment was purchased during January; however, the last purchase (Machine X7S4) occurred on October 1st for use in the sales department. Machine X7S4 cost the company \$650,000.

Originally, ABC recorded depreciation on all of its new equipment for the entire year. Now, however, the CFO is worried that the auditor will insist that they use partial-year depreciation on Machine X7S4. In order to avoid problems with the auditor, he has decided to go ahead and switch to partial-year depreciation now. At the time of the purchase, the sales manager estimated that Machine X7S4 would last eight (8) years and have a \$90,000 salvage value. ABC uses the double declining balance method of calculating depreciation. Additionally, ABC's management would like to know the effect of the conversation to partial-year depreciation on the following ratios:

- Asset Turnover (Net Sales / average total assets)
- Current Ratio
- ROA

A.8.3. *Assignment*

1. Calculate each of the three (3) ratios *before* you make any adjustments.
 2. Make the appropriate journal entries, if any, to account for the switch to partial-year depreciation (including any necessary changes to income tax expense) on Machine X7S4 **only** (the rest of the depreciation has been appropriately recorded).
 3. Make any necessary changes to the financial statements.
 4. Calculate the three (3) ratios *after* you make any adjustments.
- ##### A.8.3.2. *Critical thinking.*
5. What do you think investors' reaction will be to the decision to use partial-year depreciation? In other words, based on your changes to the financial statements and the change in the ratios, do you think investors will be happy with the CFO's decision to use partial-year depreciation instead of full-year depreciation? Why or why not?
 6. After looking over the numbers, you believe that ABC would be better off following the more conservative option of reporting a full year of depreciation. Provide two (2) arguments that you could use to convince the management team that your plan is the most appropriate.

A.8.4. *Hints*

1. The easiest way to do this problem is to make both entries: full-year depreciation and partial-year depreciation.
2. Once you have both entries, determine what you need to debit and credit to adjust your books from the first entry (full-year depreciation) that was actually made to the second entry (partial-year depreciation) that should have been made.
3. Remember, if you change an income statement account, there WILL be a tax effect!

A.9. *Example portion #5: recording and amortizing bonds payable*

A.9.1. *Goal*

To practice recording long-term liabilities and reporting them in the financial statements.

A.9.2. *Information*

On December 1, ABC issued a \$1,300,000, quarterly, 10-year, 10% bond. The market rate for similar bonds on that day was 8%. ABC uses the effective interest method to record the amortization or premiums and discounts. ABC's management has decided to report net bonds on the balance sheet, instead of reporting the bond and its premium or discount separately. No entries have yet been made for the bond. Additionally, ABC's management would like to know the effects of the new bond on the following ratios:

- Debt to Equity Ratio (Total Liabilities / Total Equity)
- Current Ratio
- ROA

A.9.3. Assignment A.9.3.1. Calculations.

1. Calculate each of the three (3) ratios *before* you make any adjustments.
2. Make the appropriate journal entries, if any, to account for the new bond and any accrued interest (including any necessary changes to income tax expense).
3. Make any necessary changes to the financial statements.
4. Calculate the three (3) ratios *after* you make any adjustments. A.9.3.2. Critical thinking.
5. What do you think investors' reaction will be to management's decision to issue a new bond? In other words, based on your changes to the financial statements and the change in the ratios, do you think investors will be happy with the decision to issue the new debt? Why or why not?
6. ABC's CFO has been concerned about the issuance of this bond. The company really doesn't need the additional cash at the moment, despite some vague plans to expand in the near future. The rest of the management team, on the other hand, felt that the additional cash would allow them to repurchase shares and pay a larger dividend for the period, both of which would help to calm investors' fears after all of the changes that needed to be made to the financial statements this period. Although he felt this was a poor excuse for issuing long-term debt, the CFO chose not to argue with the rest of the team. What ethical issues (if any) do you see in this scenario?

A.9.4. Hints

1. Start out by making the journal entry to record the issuance of the bond.
2. Next make the journal entry for the first payment. Don't worry about what the payment will be made, just do the calculations like we practiced in the lectures.
3. If the payment isn't actually being made during the current year, then multiply your values from Hint 2 by the number of months the bond has been outstanding divided by 6 (for the 6 months in each semi-annual payment period).
4. You will need to add three-line items to your Statement of Cash Flows to make it balance after recognizing the issuance of the bond and the accrued interest. One line item is the cash from the bond issue. One of the others is one of the four non-cash (4) accruals that have to be reversed in your Cash Flows from Operations section.

Appendix B. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jaccedu.2018.12.002>.

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