J. of Acc. Ed. ■■ (2016) 1–13

Contents lists available at ScienceDirect

J. of Acc. Ed.

journal homepage: www.elsevier.com/locate/jaccedu

Case

A model for teaching technology: Using Excel in an accounting information systems course

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ARTICLE INFO

Article history:
Received 28 September 2015
Revised 10 May 2016
Accepted 10 May 2016
Available online

Keywords:
Microsoft Excel
Accounting Information Systems
Accounting education
Peer teaching
Instructional resources/projects

ABSTRACT

In response to recommendation #4 of the Pathways Commission Report, this teaching note describes an instructional project that allows students to learn new functions in Microsoft Excel. While this project is used in a small undergraduate Accounting Information Systems course, it can be used in larger classes and in any class where students learn technology. In addition to strengthening their understanding of Excel, students are given an opportunity to communicate their understanding of Excel via peer teaching. Since accountants use Excel frequently, students need to be exposed to the vast array of functions and capabilities in Excel in order to enhance student success in the accounting profession. Students enter the course with varying degrees of Excel experience potentially making teaching and developing projects that meet the needs of all students a daunting and challenging task. This paper explains how the experience level problem is overcome in order to help students learn Excel in an environment that not only allows them to learn how to use selected Excel skills but also allows them to learn why and when these skills are useful for accountants.

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http://dx.doi.org/10.1016/j.jaccedu.2016.05.002
0748-5751/

1. Introduction

Technology is an important part of business and continues to evolve. As such, employers expect accounting students to acquire basic technological skills during their academic studies and instructors continually strive to provide this training. Accounting associations and standard setters (e.g. the American Accounting Association (AAA) and the Association to Advance Collegiate Schools of Business (AACSB), and the American Institute of Certified Public Accountants (AICPA)) have issued guidance that takes on a more technological focus. The AAA and AICPA released the Pathways Commission Report, Charting a National Strategy for the Next Generation of Accountants in 2012. The overall goal of Recommendation #4 was to "develop curriculum models and engaging learning resources and mechanisms for easily sharing them as well as enhancing faculty development opportunities in support of sustaining a robust curriculum" (Pathways Commission, 2014, 11). The recommendation suggests the creation of three task forces, consisting of academicians and practitioners from public and private firms. The Technology Task Force is currently "exploring the different accounting technologies used in practice today and what will be expected in the future and the technologies currently being taught in accounting programs as well as how current and emerging educational technologies can improve accounting education" (Pathways Commission, 2014, 13).

The AICPA's core competency framework consists of functional, personal, and broad business perspective competencies. While all three areas discuss technology, the functional competency area states that "individuals entering the accounting profession must acquire the necessary skills to use technology tools effectively and efficiently" (AICPA, 2014). The personal competency area suggests that continual technological learning is essential and states "as technology advances, the accounting professional must acquire new skills and determine how new technologies should be best incorporated into their practices" which will enhance other personal competencies (AICPA, 2014).

Additionally, the AACSB standard A7 requires that "accounting programs include learning experiences that develop skills and knowledge related to the integration of information technology in accounting and business" (AACSB, 2013). This instructional project addresses the concerns and requirements of these educational and professional bodies and adds to the body of research relating to instruction in technology, specifically Microsoft Excel (hereafter, Excel) instruction within the Accounting Information Systems (AIS) course.

With the increasing body of knowledge in accounting, developing the curriculum for any accounting course can be both exciting and challenging. However, unlike many other accounting courses (e.g., Principles of Accounting, Intermediate Accounting, Auditing, etc.) where the content is fairly standard across universities, the content in the AIS course can vary greatly in both delivery and coverage (Apostolou, Dorminey, Hassell, & Rebele, 2014). Furthermore, the AIS class is always changing as developments in the content and in technology are constantly emerging.

When asked to teach the AIS course, I explored current course topic coverage at other universities and similar to Apostolou et al. (2014), found that the topics varied greatly. As many employers want new hires to possess knowledge of Excel, I chose to include Excel in the AIS course. Additionally, since accountants frequently use Excel, students need to be exposed to the vast array of functions and capabilities that Excel offers in order to enhance student success in the accounting profession. However, Excel continues to evolve and improvements are made with every version. Thus, the goal in incorporating Excel into the AIS course is to give students an opportunity to learn how to learn new aspects of Excel as opposed to simply teaching them how to perform certain functions. Another goal of this project is to provide an opportunity for students to communicate their learned skills to fellow students through peer teaching.

As students enter the AIS course with varying levels of Excel experience, the instructor needs to develop Excel assignments that are not only applicable and challenging to the beginner student but also to the more advanced student as well. Prior research indicates that students tend to inflate their knowledge, competence, and class performance as they progress through the course (Grimes, 2002). Ravenscroft, Waymire, and West (2012) and Schleifer and Dull (2009), studying metacognition and mindset theory, find that lower performing accounting students tend to overestimate their academic performance. In my AIS class, students frequently demonstrate this overconfidence in their knowledge of Excel as well. Furthermore, some students may be familiar with Excel, but they may not be

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familiar with using Excel in an accounting environment. This paper describes a project that exposes students to Excel in an undergraduate AIS class and explains how the students' varying experience level problem is overcome. The project helps students learn Excel skills in an accounting environment that not only allows students to learn how to use selected Excel functions but also learn why and when these functions are useful. This project also provides an opportunity for students to strengthen both their Excel and presentation skills. This project can be used in classes of any size as well as in any class that teaches new technology.

The remainder of this paper is organized as follows: The next section briefly reviews prior literature related to the evolution and instruction of spreadsheets in accounting and related to peer teaching. The third section discusses the university setting as well as the benefits and challenges of teaching Excel in an AIS class. The Excel project, alternatives for larger classes, and examples of the students' work are provided in the fourth section. The fifth section describes the grading of the project, summary statistics, and student comments about the project. The final section presents concluding remarks. A sample Excel quiz, a list of Excel functions, the actual assignment, and the evaluations are included in the appendices.

2. Literature review

Accountants have used spreadsheets to capture, analyze, and present data since 1974 when VisiCalc was introduced. Over time, the power of spreadsheets has become extensive (Luthy, 1994). As spreadsheets are a fundamental tool used by accountants, current graduates are expected to have a basic understanding and knowledge of how accountants use spreadsheets in practice. Excel was introduced in 1987 and is currently one of the most popular spreadsheet applications used by accounting professionals. However, there appears to be a gap in expectations between employers and students (Ragland & Ramachandran, 2014). To explore this gap, Ragland and Ramachandran (2014) surveyed public accounting firms and accounting students to determine which Excel functions are perceived to be most important for accounting graduates to understand. They found significant differences in both the Excel features perceived to be important by different groups, such as new hires and supervisors, and in the student's knowledge and usage of these functions.

In attempts to close the expectation gap, accounting instructors developed cases and projects to teach Excel to students. However, instructors still continue to struggle with what parts of Excel to cover and how to best teach Excel. Prior literature describes how accounting professors guide students in the use of Excel (Apostolou et al. 2014). Examples of recent articles include Convery and Swaney (2012) who describe a process where students analyze accounting data and develop expertise in selected spreadsheet functions and Braun (2013) who develops an instructional resource for managerial accounting.

Instructors are not only concerned with what Excel topics to cover but also with how to best teach Excel. Literature in other disciplines finds that students who tutor other students or students who study a topic in order to teach the subject matter to others perform better on exams, retain the information for longer periods of time, and are more motivated than students who only study a topic for testing (Bargh & Schul, 1980; Benware & Deci, 1984; Nestojko, Bui, Kornell, & Bjork, 2014; Paul, 2011). These findings are best explained in a quote by Seneca (n.d.) – "*While we teach, we learn.*" Therefore, I decided to let the students teach Excel features to their peers instead of simply using Excel manuals or other textbooks and programs that included step-by-step instructions. This project also eliminates the need for students to share the solution or to try to find the "correct solution," as each answer is unique.

3. University setting and benefits and challenges of teaching Excel

3.1. University setting

The university is a medium-sized state university with relatively low admission standards. The student population is a combination of traditional and non-traditional students. The AIS course is an

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undergraduate course and is normally taken in the first semester of the senior year. The prerequisites are Intermediate Accounting I and a computer class that covers basic business software including Excel. This computer class is part of the business core and is usually taken during a student's freshman year in college.

There is only one AIS course in the accounting program. Only one section of the course is offered each semester and it is offered either during the day or during the evening. The day class meets twice a week for 75 minutes and the evening class meets one night a week for 150 minutes. The day classes typically consist of only traditional undergraduate students whereas the evening classes consist of traditional undergraduate students, nontraditional undergraduate students, and some graduate students returning to school to complete the requirements to enter the Master of Accountancy program. The non-traditional and graduate students usually possess more advanced Excel skills and are, in general, more aware of the business environment. During the period studied, Fall 2012 through Spring 2014, there were no other undergraduate accounting classes that required students to use Excel. However, the accounting department has recently started to focus more on technology.

3.2. *Benefits and challenges of teaching Excel*

Teaching Excel in the AIS course provides an overall benefit to students as they get exposure to using spreadsheets and they get to reinforce Excel skills that they may have had exposure to in the past. Thus, the student ends up being better prepared to enter the accounting profession. However, instructors have to decide which topics to include in the course, how to handle students with different levels of Excel exposure, and how to effectively teach technology to a growing number of students.

In some aspects, teaching Excel is similar to teaching an AIS course and can be exciting and challenging. For instance, in an AIS course, there are various topics that an instructor can teach; however, there is never enough time to teach everything and an instructor must choose which topics to address. This is a similar challenge when teaching Excel, especially within another course. In my AIS course, the Excel project comprises approximately 17% of class time and is 15% of the AIS course grade. See Table 1 for a description of the makeup of the course. When teaching Excel, one of the main questions to be addressed is what skills to teach as there are many functions that Excel is capable of performing. This challenge is also a benefit because it keeps the course innovative and fun as different topics can be covered each semester.

Another challenge that the instructor faces is the students' varying levels of Excel experience. There may be students with very limited to no exposure to Excel (e.g., they can launch the program, input numbers into a spreadsheet, take out their calculators, add the numbers and enter the total into the spreadsheet). Some students have not used Excel recently or since they took the basic computer class which could be more than two years prior to taking the AIS course. Most of the students have moderate exposure to Excel (e.g., they can do most of the tasks that the limited exposure students can do

Table 1
Distribution of class and Excel work

	Class days	%	Grade distribution
Excel*	5.0	16.67%	15%
Visio	4.0	13.33%	10%
Current technology	3.5	11.67%	15%
QuickBooks	3.5	11.67%	15%
Textbook and exams	14.0	46.66%	45%
Total	30	100%	100%

* The Excel project consists of 3 days of presentations, 1 day for an overview of Excel, and 1 day of wrap-up.

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but they actually use the auto-sum and many of the other basic functions). Some students have a higher level exposure to Excel (e.g., they are frequent users of Excel and can perform many tasks beyond the basic user). To assess the class' expertise, on the first day of class, students are informally asked about their Excel experience and most say that they know Excel fairly well but quickly re-evaluate their experience level when they are given the Excel quiz on the second day of class and the project. Appendix A contains a sample quiz. As stated earlier, there also tends to be a disparity between what the student knows about Excel and what employers want the students to know and about what proficiency in Excel means (Ragland & Ramachandran, 2014).

The class size may also be an issue. In order to effectively teach technology in the AIS course, the optimal class size should be relatively small as there is normally only one instructor. However, this project can be modified for larger classes and suggestions for modification are provided later. At my university, the AIS course averages about 25 students per semester and is an undergraduate course only. As resources (i.e., computers and space) are limited, the university provides laptop computers with the required software for the students to use in class. Students are permitted to use their own personal laptop as well; however, they may have a different version of Excel.

4. The Excel project, modifications, and examples

4.1. The Excel project

In preparation for creating and teaching the Excel project, I asked current employers and working alumni to describe the Excel functions they currently use. This information was a great starting point to select various functions and tasks for the project. I compared the current list to the functions and tasks discussed by Ragland and Ramachandran (2014) to validate the current list. Based on supervisors and new hires perspectives, the top five skills that Ragland and Ramachandran (2014) find to be most important are basic Excel functions (add and subtract), filter and sort data, vertical/horizontal lookup, format functions, and if/then statements. Therefore, the project includes all of these skills as well as most of the other skills Ragland and Ramachandran (2014)[1] surveyed. Although the data validation function is another skill that accountants find useful, I did not include it in this project as there is a separate exercise later in the class that uses this function to address data entry controls. Appendix B contains a list of some of the tasks and functions that are incorporated in this project and indicates which Ragland and Ramachandran (2014) skills are included in the project. However, the list of functions in Appendix B can always be modified to include other Excel skills.

Project instructions are included in Appendix C. The project is a group project where three students are assigned to a group based on the students' skill level. Students in each group have similar skill levels and the assignments are deemed appropriate for each skill level. Placing students with similar skills levels in the same group alleviates students with higher Excel skill levels from doing all the work. As previously discussed, to determine students' skill level, I administer an Excel quiz that includes a brief survey about their experience with Excel on the second day of class (see Appendix A for a sample quiz). This quiz is not graded but is used strictly to determine students' skill level. In addition, I teach an Excel overview class where I review some of the information on the quiz and observe students completing basic Excel tasks. The overview class covers many of the basic Excel functions, such as inputting data, summation, simple formulas, and the help function.

Each group is given a task (such as pivot tables, charts, macros, conditional formatting, etc.) and a function (such as proper, concatenate, upper/lower, exact, etc.). Additionally, each group must select another Excel topic that they have found useful in their prior experience with Excel and that is not already assigned to or selected by another group. This aspect of the project is always exciting as the instructor may also learn something new in Excel. The goal is to assign each group something that they have not done before or have not mastered already. However, if there are students who are truly

[1] The statistical regression analysis and data analysis add-in functions are the only skills from the Ragland and Ramachandran (2014) study not currently included in this project.

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Excel masters, then the tasks of relating the functions to accounting and teaching others are still challenging to them. The students who are more experienced in Excel always indicate that they learned how to use Excel in different ways (e.g., learned new short-cuts).

Each group must submit a one-page summary and prepare a presentation on the topics assigned to their group. In the paper, the group members explain how their assigned tasks relate to accounting and provide examples as to when and why accountants would use these Excel functions and tasks. They do not explain how to perform the task or function in the paper. For the presentation, each group is given 20–25 minutes to demonstrate and teach the class how to perform the assigned tasks using data that the group developed. The students must use original data[2] and must apply their data to accounting or to the class in general. While the students can start teaching their assigned topics from a blank spreadsheet, approximately 85% of the groups will provide a spreadsheet for the other students to use. Students have approximately two weeks to work on their presentations from the time the project and their groups are assigned. Students may already be familiar with their tasks, or they may have to learn how to perform their tasks by using the Excel help function, watching videos on the Internet, or using Excel manuals.

As groups are presenting, the rest of the class has access to computers to perform the tasks. After each presentation, the remaining students in the class complete a five-question evaluation for each presenting group (see Appendix D for the evaluation) and may provide additional written comments to the instructor about the presentation. The evaluations are only seen by the instructor but some of the student comments are included in the feedback to the groups. Additionally, each student completes a project evaluation that includes an evaluation for their own group (see Appendix E). To conclude the project, a wrap-up session is conducted on the last day of the presentations or the next class day to cover any items that were omitted or not properly covered by the groups and to provide general feedback on the presentations. Lastly, students are provided with information about obtaining formal certification in Excel and I encourage them to pursue this certification in order to validate their Excel proficiency. There are several certification programs on the market. For example, one provider of this certification is *Certiport*. They offer certification exams in the Microsoft Office Suite and is highly recognized in the business community. Certification can be obtained at the specialist, expert and master levels (Certiport, 2016). Some students have obtained the specialist certification.

4.2. Project modifications

While developed to accommodate a class of 30 students or less, this project can be easily modified to accommodate larger classes. For example, presentation time can be deceased to 15 minutes or the group size could be increased from three to four students. Presentations can also be spread out throughout the semester and done at the beginning or end of each class session. For larger classes, group videos could be incorporated instead of allocating class time for presentations. Peer reviews, where a group critiques and grades another group's video, could be used if student videos are utilized. Additionally, the groups could present just one of their assigned topics. Students would have to prepare for all assigned topics, but then the instructor decides on the day of the presentation which topic the group presents. Also, the project could be modified to have students work at their own pace in teams and do assigned projects on the Excel topics without doing the presentations. Lastly, the project can also be used in other classes, such as Auditing, where students use Excel to analyze accounting data or to assist students in learning other auditing related technology.

4.3. Examples of the student work

The student creativity displayed in the project is truly outstanding. Many students really get excited about this project and take ownership of teaching the class what they know. The students who receive

[2] Students may create their own data or obtain data from their jobs or other sources.

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the highest evaluation scores from their peers provide comments in the spreadsheet or provide separate written instructions to the other students so that they can easily follow along or use the instructions for practice later. They also use student and faculty names in their data, have small exercises for students to do on their own, have rewards (e.g., candy) for the student who completes the tasks first, and use actual accounting terms and examples from other classes.

For example, one group who demonstrated pivot tables made up data for a used car dealership. The salespeople were the group members while the customers were the other students in the class and me. The spreadsheet summarized the sales and profit by salesperson, by model and by year. Students in the class were excited to see their names and to find out what model of car that they purchased. I was surprised to see that I "purchased" a Bugatti and contributed the most to the company's profit margin.

On another occasion during the spring semester, a group demonstrated the template feature in Excel. As it was close to Valentine's Day, the group demonstrated an invoice template using me as a customer who purchased bouquets of flowers for several class members. I was excited that I did not actually have to pay for all those flowers.

Using NETWORKDAYS, a group explained the accounting purpose of the function (frequently used to compute paid time-off and other payroll benefits) and then had students calculate the number of days until the end of the semester and until their birthdays. Another group used inventory lists to look up prices when demonstrating the VLOOKUP functions. One group also created a spreadsheet that included all the students in the class and fictitious student data (e.g., GPA, contact information, major, classification, etc.) and used the VLOOKUP and HLOOKUP functions to select students for scholarships. It is always fun to see what the students will develop to teach their topics. Each semester, the students continue to generate new ideas.

5. Grading of the project, summary statistics, and student comments

5.1. Grading of the project

The project has been used in class for four semesters. Appendix C provides the instructions given to the students as well as the grading scale. Students receive an individual grade on the entire project as well as feedback from the instructor, which includes select comments from other students in the class, on their presentation. Students are graded as a group on their knowledge of the assigned tasks and on the paper (50%), their individual participation in their group's presentation (15%), individual attendance and participation in other group's presentations (20%), and individual evaluations for their group and for the other groups' presentations (10%). Therefore, students in the same group may not earn the same overall grade on the project. The highest grade assigned on the project is 95% due to the subjectivity in grading this project and because it is not possible to determine how much assistance the students had from other individuals in completing this project. However, the project can be graded on a scale of 100%.

Table 2 compares the grading scale to the students' average grade on the project for Fall 2012 through Spring 2014. Most students do well on this project and the average total grade earned is approximately 85 and typically ranges from 70 to 95. On average, students lose the most points on the presentation. The presentation is graded on both a group and an individual student basis. On a group basis, points are deducted if the group does not submit their spreadsheet timely or if the submitted spreadsheet is different from the spreadsheet used in the presentation. Thus, presentation time has to be used to distribute the spreadsheet to class. Points are also lost when group members do not assist students who are struggling with the task. Individually, points are deducted for presentation skills such as eye contact and voice projection and if a student did not actively participate in the presentation.

The demonstration is graded on a group basis and is the second area where students lose points. While students lose points for performing the tasks poorly or incorrectly, the majority of the points are lost when their group does not cover an assigned topic. The paper is the third area that students lose points on and is graded on a group basis. Points are lost due to the organization of the paper, sentence structure, grammatical and typographical errors and omitted information. Lastly, points are lost in the evaluations when an individual student does not complete or turn-in the evaluations.

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Table 2
Summary of project grade

	Total possible points available	Average grade earned
Demonstration*	40	37.35
Presentation#	15	12.20
Other presentations#	20	19.51
Paper*	10	8.01
Evaluation#	10	8.27
Total	95	85.34

Fall 2012–Spring 2014.
* Graded as a group.
# Graded individually.

Table 3
Student project evaluation parameters Fall 2012–Spring 2014

	Average	Percent agree*	Percent disagree**	Min	Max	Mode	N
I learned something from working on this project.	4.77	100%	0%	4.00	5.00	5.00	87
I enjoyed doing this project.	4.40	90%	0%	3.00	5.00	5.00	87
Doing this project was a waste of valuable time.	1.43	2%	95%	1.00	4.00	1.00	87
This project should be an individual project instead of a group project.	2.52	16%	49%	1.00	5.00	3.00	87
The student presentations were helpful.	4.51	93%	0%	3.00	5.00	5.00	86

* The percentage of students who rated the statement with either a 4 or 5.
** The percentage of students who rated the statement with either a 1 or 2.

5.2. Summary statistics and discussion

The project evaluation is presented in Appendix E and Table 3 provides summary statistics on student views of the project. Students ranked the project on a five-point Likert scale where 1 is "strongly disagree" and 5 is "strongly agree." The summary statistics include data from the Fall 2012 to Spring 2014 semesters (two years of data). Statistics for the individual semesters are similar to the total four semesters. For three of the four semesters, the class size was approximately 25 students. The class size was 12 for one semester.

Overall, students indicated that they: learned from the project, enjoyed doing the project and thought that the student presentations were helpful. Approximately half (49%) of the students liked that the project was a group project whereas 35% were indifferent as to whether the project should be a group or individual project and 16% indicated that they would prefer an individual project. The students who preferred an individual project were typically nontraditional students who commuted to class after working a full-time job (12 of the 14 responses came from the two semesters when the class was taught in the evening.)

5.3. Student comments about the project

Some of the students' comments indicated that it was difficult to arrange schedules but group members were generally helpful and easy to work with, students thought that the project provided an easy and fun way to learn and that they "learned some great new tricks." One student indicated that the presentations were quick and it was hard to retain how to do all of the tasks and functions. However, remembering how to perform all of the tasks and functions is not an objective of this project. Instead, students should become familiar with some Excel skills and be able to, later, revisit how to apply these skills, and learn additional skills not covered in this project.

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Overall, students thought that the project requirements were very reasonable, that they learned various Excel features that will be useful now and in the future, and that the project got them out of their comfort zones to learn new things. One student stated that he "learned that teaching is just hard" and that he had "gained a new respect for teachers." Some students expressed a desire to have more time to present the topics. For example, one student thought that a 20 minute presentation was a long time to present before the presentation but after the presentation felt like more time to present was needed. One student wrote, "I believe this project was one of the most useful and valuable projects I have ever been involved in." Another student told me she, "wished we had something like this in the Intermediate class because having to explain something to someone else helped her understand the topic." Students are normally excited after the project and frequently tell me that they have already begun to use some of the functions at work and shared them with coworkers. After the semester ends, students frequently tell me that they still use some of the functions that they learned in this project. Also, past students have started suggesting that students complete the AIS course prior to obtaining internships because of the Excel coverage and some of the other topics covered. During the period studied, other projects were also incorporated in the AIS course. At the end of each semester, students are asked to rank all of the projects based on which projects they perceived were the most beneficial. The Excel project is always ranked first or second.

6. Conclusion

Accounting professionals are implementing technology more in their daily activities. Excel, one example of this technology, is an essential skill used in the accounting field and prospective employers value new hires who possess knowledge of this software. As such, accounting students need to acquire strong Excel skills, as well as other technology, before entering the profession. Standard setters and accounting instructors seek innovative and engaging instructional resources to assist students in learning new technology. This project provides an example of an instructional resource that can be implemented in the accounting curriculum so students can strengthen both their Excel and presentation skills. Students may learn some of the Excel functions, but most importantly, they learn how to figure out how to perform new Excel features. This skill can enable students to easily learn new Excel features, as well as other technology, when they enter the accounting profession. The project also allows students to practice their presentation skills in a "friendly" environment as students are very accepting and tolerant of groups with weaker presentation skills. Overall, both the students and I enjoy this project and I always learn something new from the student presentations.

Acknowledgements

The author thanks the editor-in chief, Natalie T. Churyk, the supervising associate editor, and two anonymous reviewers for comments and suggestions for improving the paper. The author also gratefully acknowledges the helpful comments of workshop participants at the 2013 Accounting Information Systems Educator Conference and editorial suggestions of Felicia Collins and Kathy Kapka.

Appendix A

Excel sample quiz

1. In a spreadsheet formula which symbol is used to multiply?
   a. +
   b. –
   c. *
   d. ×
   e. /

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2. To copy the formatting of one cell to another you would use the
   a. Delete key
   b. Chart Wizard
   c. Copy and Paste
   d. Format Painter
   e. None of the above
3. A formula in the spreadsheet should always start with
   a. A plus sign
   b. An asterisk
   c. A capital letter
   d. An equals sign
   e. A bracket
4. The cell labeled F5 refers to
   a. Row F Column 5
   b. Function available in Cells
   c. Column F Row 5
   d. Function key F4
5. The formula =B2+A3 is located in cell B3. If this was copied and pasted into cell D4 the resulting formula would be.
   a. =C2+C3
   b. =D3+C4
   c. =D3+D4
   d. None of the above
6. When you see a cell with a red triangle in the top right corner, what does this signify?
   a. There is an error in the cell
   b. There is a comment associated with the cell
   c. The font color of text in the cell is red
   d. A formula cannot be entered into the cell
7. The cell references from a range of cells that starts in cell B1 and goes over to column G and down to row 10 is _____.
   a. B1-G10
   b. B1.G10
   c. B1, G10
   d. B1:G10
   e. None of the above
8. What key should be used to change the content of a cell?
   a. F1
   b. F2
   c. F3
   d. F4
9. The formula =C3*D3 is located in cell B1. If this was copied and pasted into cell C1, what would the resulting formula be?
10. Have you ever used the concatenate function in Excel? YES NO
11. In Excel, what does the concatenate function do?
12. Do you know how to use the vertical/horizontal lookup functions in Excel?
13. Do you know how to create a pivot table in Excel?
14. Based on your current use and knowledge of Excel, what level would you rate your Excel proficiency?
    I have never used Excel
    I have very little knowledge of Excel but have used it before
    I can do many things in Excel and use Excel frequently
    I am an expert at Excel

Other, please explain.

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Appendix B

Examples of Excel tasks and functions used in the project

Selected tasks:	Selected functions:
Cell protection	Concatenate*
Charts*	DDB
Comments	Exact
Conditional formatting*#	Find/replace
Filters*#	Financial (e.g., FV, PV, ISPMT)*
Format painter*#	Match
Freeze frame	Min/Max
Headers/footers	Networkdays
Hlookup*#	Proper
Hyperlinks	Right, left, mid
If statements*#	Sumif, countif*#
Marcos*	Text-to-column
Name cells	
Paste special	
Pivot tables*	
Slicers	
Sorting data techniques (e.g., on color, text)*#	
Sparklines	
Symbols	
Tables*	
Templates	
Themes	
Track/display changes	
Vlookup*#	
Worksheet protection	

* Included in the Ragland and Ramachandran (2014) study.
\# Ragland and Ramachandran (2014) top five skill.

Appendix C

Excel project

Microsoft Excel is a spreadsheet program that allows one to enter numerical values or data into the rows or columns of a spreadsheet, and to use these numerical entries for such things as calculations, graphs, and statistical analysis. Microsoft Excel is easy to use and has many features so the more you use Excel, the more you learn. In addition, the Excel spreadsheet has great documentation through the built-in help menu.

The purpose of the project is to familiarize you with several of the features of Excel. **You will not be an expert in Excel after this project.**

TASK: Your team will be assigned a function and an activity. In addition, you will need to select one other item in Excel to demonstrate and teach. For your additional item, you must obtain approval from me prior to your presentation. Your group will

(1) Provide a one page summary explaining why these three items would be useful for an accounting student and/or professional. All summaries are due on the day of the first presentation.

(2) Demonstrate to and teach others in the class how to use these three items by giving a 20–25 minute presentation.

Your group may need to provide initial data for your demonstration to work. If so, you will need to get this to me by 8:00 am on the day of your presentation so that I can upload it for the class.

The maximum grade is 95 on this project. Your grade will be determined as follows:

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Demonstration:	
Activity	20
Function	10
Other	10
Overall Presentation	15
Participation in other Presentations	20
Paper summary	10
Group evaluation	10
Total	95

Appendix D

Excel group evaluations

Rank each presentation on the following criteria from strongly disagree (1) to strongly agree (5)*.

	SD	D	N	A	SA
1. The group's presentation was useful and professional.	1	2	3	4	5
2. I was able to complete the tasks for this group.	1	2	3	4	5
3. I understand the tasks explained by this group.	1	2	3	4	5
4. I learned something about Excel from the group.	1	2	3	4	5
5. The group appeared knowledgeable about their tasks.	1	2	3	4	5
6. Additional comments:					

*Students complete an evaluation for each presentation.

Appendix E

Excel project evaluation

Rank your Excel project on the following criteria from strongly disagree (1) to strongly agree (5).

	SD	D	N	A	SA
1. I learned something from working on this project.	1	2	3	4	5
2. I enjoyed doing this project.	1	2	3	4	5
3. Doing this project is a waste of valuable time.	1	2	3	4	5
4. This project should be an individual project instead of a group project.	1	2	3	4	5
5. The group presentations were helpful.	1	2	3	4	5
6. Additional comments:					

Peer Evaluations

I. Names of your team members: (On the second page, the student's name is represented by the corresponding letter below.)

a.___Your name – _____
b._____
c._____

[Do not base your evaluations on friendship or personality conflicts. Your input can be a valuable indicator to help assess contributions in a fair manner.]

THESE EVALUATIONS WILL NOT BE SEEN BY YOUR GROUP MEMBERS.

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II. Performance in the Group: Rank each member (**a, b, c**) with a **4, 3, 2, 1, 0** (4 = highest, 0 = lowest)

1. Attended meetings for planning purposes.	a._____	b._____	c. _____
2. Met deadlines for work.	a._____	b._____	c. _____
3. Contributed ideas to the group.	a._____	b._____	c. _____
4. Respected each group member's opinions	a._____	b._____	c. _____
5. Contribution during actual presentation.	a._____	b._____	c. _____
6. Overall contribution to the Excel project.	a._____	b._____	c. _____

III. In one or two sentences, what is your overall impression of each member's performance?

(a) _____
_____

(b) _____
_____

(c) _____
_____

[Do not base your evaluations on friendship or personality conflicts. Your input can be a valuable indicator to help assess contributions in a fair manner.]

THESE EVALUATIONS WILL NOT BE SEEN BY YOUR GROUP MEMBERS.

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