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Offering a 'Menu' of Software and Case Study Options for the Group Project for Students Enrolled in the Introductory AIS Course: An Experimental Application Study

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ABSTRACT

Instructors teaching the introductory accounting information systems (AIS) course generally include some type of group project to reinforce the principles emphasized in this course. One of the challenges facing AIS instructors is which type(s) of group project(s) potentially improve the students' overall course learning experience, while at the same time addressing future career student objectives. If the AIS instructor has a mix of students with such differing career goals when teaching the AIS course, it is important for the instructor to consider possibly offering a variety of project choices for the group project. We test offering a 'menu' of software and case study group project options reflective of several career choices students have after graduation. We also describe how the instructor can operationalize such a 'menu' approach effectively using a learning management system (LMS), a minimal level of grading assistance, and other factors. We then measure student satisfaction with this approach, as well as the impact on the instructor's teaching ratings of such an approach. Finally, we measure the impact of a 'menu' choice on students' performance on the comprehensive final examination in the course. This paper provides empirical evidence in support of a 'menu' approach for group projects in the AIS course, a 'menu' which can be altered to accommodate the career aspirations of students majoring in accounting in most programs across the nation.

Keywords: Accounting information systems, group projects, teaching evaluations, learning management system (LMS).

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INTRODUCTION

Many instructors teaching the introductory accounting information systems (AIS) course include some type of group project assignment as part of the course requirements. Group projects can be used by the AIS instructor to emphasize particular portions of the AIS course subject materials – for example, internal control issues, transaction processing cycles (e.g., revenues, expenses, payroll and human resources, or production), and system documentation techniques – which, according to Murthy and Ragland (2009), are examples of some of the topics being covered in the AIS course. Instructors including a group project in the AIS course may also wish to help develop student skills, for example, in working together in a group setting or to improve student presentation skills, depending upon the type of project assigned by the instructor. Many of these skills are defined under the AICPA's *Core Competency Framework*[1] as important for students entering the accounting profession, which include enhancing a student's (1) *functional competencies* – technical competencies aligned with the value contributed by accounting professionals, such as research and leveraging technologies, (2) *personal competencies* – problem solving and decision making, working and interacting with others in a diversity of roles, and communicating, and (3) *broad business perspective competencies* – strategic/critical thinking, industry/sector perspective, and marketing/client focus.

At the same time, it is important for AIS instructors to recognize students may have different career goals in the accounting profession as of the semester they academically participate in the AIS course. For example, some students may have as a future goal working for: a Big 4 CPA firm (either in audit, tax, or MIS advisory); a locally-based smaller CPA firm; or private industry, to name just a few of the career choices which are available to accounting majors after graduation. If the AIS instructor has a mix of students with such differing career goals when teaching the AIS course, it is important for the instructor to consider possibly offering a variety of project choices for the group project.

One of the authors involved in this study has taught the introductory AIS course at several universities, requiring all students taking the course to perform one particular group project (in the form of a case study) during a school (academic) year consisting of either the autumn or spring semester. The group project offering required of all students was, for several years, either 'Tasteless Tea Company: A Comprehensive Revenue Transaction Cycle Case Study' (Premuroso, Hopwood, and Bhattacharya, 2011) or 'Financial Statement Risk Assessment Following the COSO Framework: An Instructional Case Study' (Premuroso and Houmes, 2012). As a result, primarily, of an analysis of the open-ended comments received in the student course evaluations by one of the authors of this study, it became obvious students taking the introductory AIS class were asking for more choices for the group project. We then decided to investigate a number of different alternatives for the group project in the AIS course, focusing on alternatives designed to accommodate the wide range of future goals of students taking the course. On each of the major AIS textbook publisher's websites, we investigated the other products offered by textbook publishers as potential supplemental classroom offerings for the AIS course, including a variety of software-related options and some case study alternatives. We researched AIS course-related group case study options available in various accounting journals, including, for example, Issues in Accounting Education, the AIS Educator Journal, and the Accounting Educators' Journal. We also made inquiries to Big 4, other national and local CPA firms, and obtained some feedback with regards to what type(s) of group project offering(s) and related skills provided by a group project would be relevant and helpful to the firms themselves, when they look to hire accounting graduates from the University. Finally, we also informally polled members of the AIS Educators Association, an Association of AIS educators from around the nation, regarding what types of group projects these educators were utilizing in the classroom during the 2008, 2009, and 2010 Annual Conferences of this Association.

After considering many possible alternatives, we decided to offer and test a 'menu' of certain group project choices to students enrolled in the introductory AIS course during the 2010-2011 school year. This study provides AIS instructors with the details of an approach for offering a variety of group project choices to students corresponding to a wide variety of potential career choices and alternatives for students taking the initial AIS course, including how to administer a 'menu' approach for the group project requirements during the semester using a learning management system (LMS) and graders. This study also includes student survey feedback to

a number of related questions, including open-ended questions, at the beginning of the semester (when they make the group project choice), and at the end of the semester (after performing and completing the requirements of the group project and before they receive their final grade on the group project). Finally, this study also analyzes the impact on instructors' teaching evaluations of offering a 'menu' choice for the group project in the AIS course. Past research shows AIS instructors, and the AIS course itself, receive lower than average ratings when teaching the AIS course compared to other accounting courses (including Intermediate and Advanced, Tax, Cost/Managerial, and even Auditing) in the curriculum (Briscoe et al. 1996). Though no research has been performed since the Briscoe et al. (1996) study, perhaps offering a 'menu' choice for the group project in the introductory AIS course (a judgment-based accounting course) may help to improve AIS instructors' teaching evaluations.

GROUP PROJECT 'MENU' CHOICES OFFERED IN THE INTRODUCTORY AIS COURSE

At the university where this study was performed, students generally take the introductory AIS course during the first semester of their junior year of course work. The introductory AIS course is a required course for all students majoring in accounting. The AIS course is also taken by students majoring in Management Information Systems [MIS] as either an elective course, or for students majoring in MIS wishing to obtain an AIS Certificate[2], a required course to obtain the AIS Certificate upon graduation.

For the purposes of this study, two general sets of group projects (software or case studies)[3] were available to students taking the introductory AIS course during the 2010-2011 school year.[4] One of the author's was the only instructor for the introductory AIS course during that school year. Two sections of the introductory AIS course are offered in the Fall Semester, and 1 section is offered in the Spring Semester. Each class had approximately the same number of students in each section of the class at the beginning of each semester (between 34-37 students per section during the school year of this study). Each student was required to form a group of no less than three students and no more than five students, in total, and each group then picked one of the following 'menu' choices[5]:

Software Choices[6]

Each group purchased the academic software package (including a workbook and the related software) of their choice from the academic textbook supplier and split the cost among each student in the group.[7] Each group generally installed their copy of the related software on the desktops in the computer labs available for general student use at the university, using special administrative access sign-in procedures arranged by our School of Business Technology group for the related software application.[8] This allowed each member of each group to access the software at any time during normal school days and when the computer labs were open on the weekend using a password established by the group. Students forming groups and performing one of the software choices were required to prepare and submit their answers to a series of group assignments to the course LMS. At the end of the semester, each student in the group was required to prepare and submit his or her answers to an individual software assignment, illustrating his or her learning and understanding of the group work performed with the software throughout the semester.

Starting around the middle of the semester and on a weekly basis thereafter, each group prepared and submitted to the course LMS the solutions to a variety of chapter exercises assigned by the instructor in the textbook accompanying the software choices. The chapter group exercises were downloaded from the LMS by graders working for the instructor (generally, Masters of Accountancy students), graded, and then returned to each group on the LMS on a weekly basis so that each group member could review the results of his or her work, chapter by chapter, as the semester progressed. After the assigned chapter exercises were completed by each group (about three weeks before the end of the semester), there was a chapter in each of the software textbooks which included a comprehensive series of transactions (and a number of unique datasets for these transactions) which each student in each group was required to prepare individually (including the preparation of a set of financial statements), to provide evidence of each student's learning achievement with regard to the software throughout the semester. The group portion of the software choice (consisting of 10 different chapter

exercises) and the individual assignment were worth 10% and 5%, respectively, of the student's final grade in the AIS course.

The two software group project choices offered to students included the following:

•**Learning QuickBooks Pro 2010: A Practical Approach.** Brunsdon, Terri E., and offered by Pearson Higher Education.[9] QuickBooks is the number one accounting package used in the U.S. by small and medium-sized businesses and is developed and marketed by Intuit Corporation. "Learning QuickBooks Pro 2010: A Practical Approach" includes initiating a variety of transactions in each of the transaction cycles, performing various accounting activities, producing a set of financial statements, and analyzing company performance, all in a live software environment using a student version of QuickBooks software which, once activated, can be used over an entire semester (up to a maximum of 140 days after the software is activated and registered by the group online). The software and the chapter exercises include a number of exercises testing the application and comprehension of various internal controls in a software environment, an important reason why this particular software product offering was included in the AIS course.

•**Computerized Accounting Using Microsoft Dynamics GP 10.0.** Brunsdon, Romney, and Steinbart. 2009. Offered by Pearson Higher Education.[10] "Computerized Accounting Using Microsoft Dynamics GP 10.0" includes recording transactions and adjustments, performing month-end and year-end closings, and some advanced features including setting up records for a new company within the software which, once activated, can be used over an entire semester by the group (in a similar fashion to the QuickBooks software described previously). The instructor offered Microsoft Dynamics as an alternative to the QuickBooks software to accommodate those students with past experience working with QuickBooks software who were interested in obtaining experience with another type of computerized software accounting package. Similar to QuickBooks, the Dynamics software and chapters include a number of exercises testing the student's knowledge and implementation of internal controls in a software-based accounting environment.

Case Study Choices[11]

Student groups not wishing to perform one of the above Software Choices selected one of the following case studies to fulfill the group project requirement. Each one of the following case study choices required a presentation of the results at the end of the semester to representatives of a Big 4 accounting firm[12] (using PowerPoint®) for approximately 30 minutes.

- **Financial Statement Risk Assessment Following the COSO Framework: An Instructional Case Study**[13] (Premuroso and Houmes, 2012). The purpose of this case study is to teach students the fundamental and most critical aspects of performing a financial statement risk assessment following the COSO framework. Financial statement risk assessment is a skill vital to help ensure both auditor and public-company compliance with guidance found in the Sarbanes-Oxley Act of 2002 (SOX), the SEC's Interpretative Guidance regarding Management's Report on Internal Control over Financial Reporting, the control deficiency evaluation framework found in Auditing Standard No. 5 (AS5) of the Public Company Accounting Oversight Board (PCAOB), and the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The case study includes the development of skills important to students in performing financial statement risk assessments, either as an auditor or when working in a private industry environment, including making professional judgments related to risk assessment. This case study is specifically targeted at students thinking about working for one of the larger accounting firms in their audit practice upon graduation.
- **Assessing Information Technology General Control Risk: An Instructional Case Study** (Norman et al., 2009). This case study helps students assess overall Information Technology General Control (ITGC) risk within a hypothetical firm's information system and technology operations. The case study includes having students identify specific strengths and weaknesses within five ITGC areas, providing a detailed risk assessment for each area, and then making a final evaluation of a firm's overall ITGC risk within the context of an integrated audit of a set of financial statements. This case study is specifically targeted at students majoring in MIS, dual majoring in MIS and accounting, thinking about adding the AIS Certificate

to their study program, or whose goal is working for IT Advisory in one of the large CPA firms or for Accenture.

- **Interactive Financial Reporting: An Introduction to eXtensible Business Reporting Language (XBRL)** (Taylor and Dzuranin, 2010). This interactive exercise exposes students to XBRL and provides hands-on experience in using the related XBRL analysis tools available (at the time the class was offered). Students also learn about the underlying mechanics of XBRL, use a programmed learning approach to analyze financial information using the SEC's free interactive financial viewer, and answer discussion questions requiring research related to XBRL, including specific topics and subjects related to the AIS course.

USE OF THE LMS TO ADMINISTER THE GROUP PROJECT 'MENU' ASSIGNMENTS

We made extensive use of the University's LMS[14] to administer each of the group projects, with a focus on making administration of the projects paperless, centralized, and as efficient to grade as possible. The instructor setup a separate section in the LMS for each one of the 'menu'options. The instructor explained briefly in class, the first week of the semester, the various 'menu' choices to each class. The instructor then held, in the first month of classes on days outside of the regular class meeting time, 30-60 minute introduction sessions on each 'menu' option (individually), inviting students to attend these sessions and ask any questions regarding the 'menu' option-this was done to ensure that each student thoroughly understood their project choice before selecting the project they were going to perform that semester. The instructor used trained (by the instructor) accounting graduate assistants to help grade the software group and individual assignments on a timely basis throughout the semester including posting the related results to an Excel spreadsheet posted on the LMS. The instructor graded the other case study 'menu' choices using the grading rubric shown in Appendix 2 during the end of the semester presentations required of these groups.[15]

A separate group page and drop box section was set up within the course LMS for each group which was only accessible by members of each respective group. Every student deposited each of their required group and/or individual assignments throughout the semester based upon a timetable posted by the instructor in the LMS.

For the software projects, the LMS provided a date and time stamp so the instructor could ensure compliance with the related deadlines for the submission of each chapter-related group assignment. Also, an individual drop box, separate from the group drop box, for the individual software assignment due at the end of the semester was set up within the LMS for students to deposit their individual assignments. The software groups and the students in each group only had access to their own group and individual software submissions in the LMS and, therefore, did not have access to any other group's or student's submissions.

A grading sheet was developed for each group project, tailored to both the software and the case study projects, respectively, and was placed within each group's respective group page in the LMS. For the software projects due throughout the semester, with assistance from grading assistants, we downloaded the group software submissions, graded them, updated the grading sheet accordingly, and returned the graded submissions to the respective group page in the LMS with comments. The assignments were generally due on Friday nights during weeks 6 through 11 of the semester, and were returned to each group within a few days to help reinforce the learning objectives being taught in each chapter. For the case study projects, we graded each of the group presentations using PowerPoint® during the actual presentations themselves, including grading the presentation performance of each student group member, as well as any other requirements of the case study project. Appendix 1 shows an example of the schedule for each of the projects included in this study.

The grading of the group software assignments (six of them in total) required about 3-5 hours for each group throughout the semester. The grading of each individual software assignment required about 1-2 hours per student. To allow a sufficient amount of time for grading, the final individual software assignment was due about three weeks before the end of the semester.

STUDENT SURVEY RESULTS FOR THE 'MENU' APPROACH

Using surveys developed and administered using Survey Monkey®,[16] the following summarizes student feedback from utilizing a 'menu' approach to teaching the introductory AIS course at one university during the 2010-2011 school year. Students answered a series of survey questions both at the beginning of the semester, after explaining the group project choice to all students, and at the end of the semester, after students had completed all of the requirements of their group project and before the instructor posted the final grades for each student in the LMS for either the group project work or the course itself.[17]

Descriptive Statistics

Table 1, Parts A through F, shows the descriptive statistics for students taking the introductory AIS course where we tested the 'menu approach' to the group project. A total of n = 113 students took the course; 63 (56%) were female (Part A), 86 (76%) of the students had a (self-reported) GPA of at least 3.0 (out of 4) (Part B), and 108 were accounting majors (22 students were double majoring in other business subjects and 11 were undecided with regards to their major at the beginning of the semester, resulting in n = 141 in Part C). Approximately fifty-five (49%) of the students planned to work for some type of CPA firm upon graduation, ranging from a Big 4 to a locally-based or a next tier CPA firms (Part D), and 89 (79%) planned to sit for the Uniform CPA examination[18] upon graduation (Part E). Given a choice of projects, 84 (74%) of the students chose to perform either the QuickBooks or the Microsoft Dynamics software project choices, and 29 (26%) of the students chose to perform one of the three case study choices (i.e., COSO Financial Statement Risk Assessment, ITGC, or XBRL) (Part F).

Table 2 shows a cross-tabulation of the career choice of students compared to their group project choice. Interestingly, of the 20 students responding that it was their goal to work for a Big 4 CPA firm upon graduation, 16 of these students performed the COSO Case Study and the other 4 performed the IT General Control Risk Case Study. Of the 18 students unsure of their career goals, 9 of them choose to perform either QuickBooks or the XBRL Case Study. The rest of the remaining students in the class (84) performed either the Microsoft Dynamics (27) or QuickBooks (57) software choices.

Student Comments – Before Performance of their Group Project Choices

In each of the respective surveys below, students were asked to choose the one best answer that reflected their feelings about their group project choice at the beginning of the semester.

Software Project Choices

Table 3, Parts A and B, shows student (n = 84) feedback regarding their project choice before performing the QuickBooks or Microsoft Dynamics software assignments. Part A shows 60 (71%) of the students who chose one of the software project choices expected to use the software sometime during their professional careers; another 10 students (12%) believed it was important to have experience with the chosen accounting software for resume purposes. Part B shows 73 (87%) of the students choosing one of the software project choices believed their choice would benefit them professionally in the future.

Case Study Project Choices

Table 3, Parts A and B, shows student (n = 28) feedback regarding their project choice before performing one of the group Case Study Project choices. Part A shows 16 (57%) of students believed the case study project choice better suited their career goals at the time they made the choice, and 9 (32%) expected to work with colleagues in the future on projects like the case study they had chosen for their group project. Part B shows 23 (82%) students believed their case study project choice would benefit them professionally in the future.

Table 1
Descriptive Statistics-Introductory AIS Course Students-2010-2011 School Year

Part A: Gender

Gender	No. of Students	%
Male	50	44.2%
Female	63	55.8%
Total number of respondents	**113**	**100.0%**

Part B: Cumulative GPA

GPA	No. of Students	%
<2.0	0	0.0%
2.0-2.5	3	2.7%
2.5-3.0	24	21.2%
3.0-3.5	39	34.5%
>3.5	47	41.6%
Total number of respondents	**113**	**100.0%**

Part C: Major Course of Studies

Major	No. of Students	%
Accounting	108	76.6%
Finance	10	7.1%
Management Information Systems	11	7.8%
Management	1	0.7%
Other (Undeclared Yet/Not Sure)	11	7.8%
Total number of respondents	**141***	**100.0%**

*Students whom were double majors were asked to note each major course of study program they were currently enrolled in; hence, the total number of responses exceeds the number of students included in the study itself.

Part D: Career Goals at this Time

Response	No. of Students	%
Work for a Big 4 CPA firm	20	17.7%
Work for a locally-based smaller CPA firm[19]	28	24.8%
Work for a Next Tier CPA firm[20]	7	6.2%
Work in Industry	25	22.1%
Work in IT Consulting	1	0.9%
Work in Accounting/IT Consulting	8	7.1%
Establish My Own Business	6	5.3%
Unsure At This Time	18	15.9%
Total number of respondents	**113**	**100.0%**

Table 1 (Continued)
Descriptive Statistics-Introductory AIS Course Students - 2010-2011 School Year

Part E: Plan to Sit for the Uniform CPA Examination Upon Graduation?

Response	No. of Students	%
Yes	89	78.8%
No	5	4.4%
Undecided	19	16.8%
Total number of respondents	**113**	**100.0%**

Part F: Group Project 'Menu' Choice

Response	No. of Students	%
Dynamics Software	27	23.9%
QuickBooks Software	57	50.4%
XBRL Case Study	9	8.0%
COSO Case Study	16	14.2%
IT General Control Risk Case Study	4	3.5%
Total number of respondents	**113**	**100.0%**

Table 2
Cross Tabulation of Career Choice versus Group Project Choice

	Group Project Choice					
Career Choice	**QB**	**MSD**	**COSO**	**ITGC**	**XBRL**	**Row Total**
Work for a Big 4 CPA firm	0	0	16	4	0	**20**
Work for a Locally-Based Smaller CPA Firm	28	0	0	0	0	**28**
Work for a Next Tier CPA Firm	0	7	0	0	0	**7**
Work in Industry	5	20	0	0	0	**25**
Work in IT Consulting	1	0	0	0	0	**1**
Work in Accounting/IT Consulting	8	0	0	0	0	**8**
Establish My Own Business	6	0	0	0	0	**6**
Unsure at This Time	9	0	0	0	9	**18**
Total number of respondents	**57**	**27**	**16**	**4**	**9**	**113**

QB = QuickBooks Pro 2010 Software.
MSD = Microsoft Dynamics GP 10.0 Software.
COSO = Financial Statement Risk Assessment Following the COSO Framework: An Instructional Case Study.
ITGC = Assessing Information Technology General Control Risk: An Instructional Case Study.
XBRL = Interactive Financial Reporting: An Introduction to eXtensible Business Reporting Language.

Table 3

Student Survey Results before Performing the Group Projects

Part A: Why did You Pick the Software Project Choices or the Case Study Project Choice?

Response	No. of Students (Software)	%	No. of Students (Case Study)	%
I expect to use this software sometime during my professional career	60	71.4%	-	-
I heard it is important to have this particular type of software knowledge	6	7.1%	-	-
I wanted to have experience with accounting software to place on my resume	10	11.9%	-	-
I have experience with the other software option	5	6.0%	-	-
No particular reason	3	3.6%	-	-
I expect to work with colleagues on group projects like this in the future	-	-	9	32.2%
I heard it is important to have experience working on a project like the one I have chosen	-	-	3	10.7%
I believe the case study option I have chosen better suits me and my career goals	-	-	16	57.1%
None of the above reasons explain my choice	-	-	-	-
Total number of respondents	**84**	**100.0%**	**28**	**100.0%**

Part B: I Believe the Project I Have Chosen Will Professionally Benefit Me in the Future

Response	No. of Students (Software)	%	No. of Students (Case Study)	%
I agree	73	86.9%	23	82.1%
I somewhat agree	8	9.5%	5	17.9%
I am not sure	2	2.4%	0	0.0%
I somewhat disagree	0	0.0%	0	0.0%
I totally disagree	1	1.2%	0	0.0%
Total number of respondents	**84**	**100.0%**	**28**	**100.0%**

Software = QuickBooks Pro 2010 and Microsoft Dynamics GP 10.0.
Case Study = COSO; ITGC; and XBRL case studies.

Student Comments – After Performance of their Group Project Choices

QuickBooks Project Choice

Table 4, Parts A through D, shows student responses (n = 54) to a series of questions asked after performance of the QuickBooks software assignments. Part A shows 46 (85%) of these students were positive about their overall experience using QuickBooks, another 8 (15%) were neutral, and no students were negative about their overall experience using QuickBooks. Part B shows 47 students (87%) either agreed (n = 33) or somewhat agreed (n = 14) working with QuickBooks during the semester helped them understand the importance of the concepts covered in the AIS course. Part C shows 26 students (48%) spent between 25 and 29 hours on the project during the semester, and 28 students (52%) spent in excess of 30 hours on the project. Part D shows 38 students (69%) choosing QuickBooks were glad they did after performing the required assignments during the semester, nine students (17%) wished they had chosen the Microsoft Dynamics software project instead, and seven students (14%) wished they had chosen one of the case study projects (COSO or XBRL).

Table 5, Part A provides a summary of each student's personal "take away' from performing the QuickBooks project choice, and Part B summarizes comments and suggestions provided by students performing the QuickBooks project at the end of the semester regarding how the QuickBooks menu project choice could be improved in the future. Part C shows 33 students (61%) believed they gained a solid understanding of QuickBooks software by choosing QuickBooks as their project choice. On the positive side, many students thanked the instructor for the opportunity to learn QuickBooks and for having the choice among different group projects. On the other side, some students commented about computer-related software issues when using the QuickBooks software, while others suggested limiting the number of students in a QuickBooks group to 2-3 students.[21]

Microsoft Dynamics Project Choice

Table 4, Parts A through D, summarizes student responses (n = 22) to the same series of questions after performing the Microsoft Dynamics software assignments. Part A shows 18 students (82%) were positive about their overall experience using Dynamics, 4 students (18%) were neutral, and none were negative about their overall experience. Part B shows 17 students (77%) either agreed (n = 12) or somewhat agreed (n = 5) working with Dynamics during the semester helped them understand the importance of the concepts covered in the AIS course, 4 students were not sure, and 1 student disagreed. Part C shows 9 students (41%) spent between 25 and 29 hours on the project during the semester, and 13 students (59%) spent in excess of 30 hours on the project. Part D shows 4 students choosing Dynamics were glad they chose Dynamics as their group project, 13 students wished they had chosen the QuickBooks software project instead of Dynamics, and 5 students wished they had chosen one of the case study group projects (COSO or XBRL).

With regard to summarizing their personal 'take-away' from the Dynamics group project during the semester, Table 5, Part A shows 13 students (59%) believed they gained a solid understanding of Dynamics software by making Dynamics their project choice, while another 3 students (14%) learned about the importance of internal controls in a software environment. Table 5, Part B provides a list of comments and suggestions provided by students performing the Dynamics project at the end of the semester for how this software project choice could be improved in the future.

COSO Financial Statement Risk Assessment Project Choice

Table 4, Parts A through D, summarizes student responses (n = 17) to survey questions after performing the COSO Financial Statement Risk Assessment project choice. Eleven of the 17 students performing the COSO project (79%) rated their overall experience as positive and three students each rated the experience as either negative or neutral (Part A). Sixteen out of the 17 students felt the COSO project helped them understand the relevance and importance of the internal control concepts covered during the AIS course; only 1 student disagreed in this regard (Part B). Thirteen of the 17 students spent between 25 and 29 hours on the group project; the remaining 4 students spent more than 30 hours on the project (Part C). Seven of the 17 students were satisfied with the COSO project, 7 students wished they had performed the QuickBooks project instead of the COSO project, and 3 other students wished they had performed either the ITGC project (2 students) or the XBRL project (1 student) (Part D).

With regard to what the students' personal 'take-aways' were from the COSO group project, 11 students stated it helped them gain a solid understanding of internal controls and financial statement risk assessment, 4 students believe it helped them to learn how to problem-solve using judgment skills, and 2 students stated it helped them learn how to put together a professional presentation (Table 5, Part A). Of the 17 students performing the COSO project, 10 of them said the project was very challenging, and 4 students said the project was very beneficial to them (Table 5, Part B).

Table 4
Student Survey Results after Performing the Group Projects

Part A: How Would You Rate Your Overall Experience on the Group Project?

Response	No. of Students (QB)	No. of Students (MSD)	No. of Students (COSO)	No. of Students (ITGC)	No. of Students (XBRL)
Positive	46 (85.2%)	18 (81.8%)	11 (64.8%)	4 (100%)	8 (88.9%)
Negative	0	0	3 (17.6%)	0	0
Neutral	8 (14.8%)	4 (18.2%)	3 (17.6%)	0	1 (11.1%)
Total number of respondents	**54**	**22**	**17**[22]	**4**	**9**

Part B: Do You Feel That This Project Helped You Understand the Relevance and Importance of the Concepts Covered in the AIS Course This Semester?

Response	No. of Students (QB)	No. of Students (MSD)	No. of Students (COSO)	No. of Students (ITGC)	No. of Students (XBRL)
I agree	33 (61.1%)	12 (54.6%)	9 (52.9%)	4 (100%)	7 (77.8%)
I somewhat agree	14 (25.9%)	5 (22.7%)	7 (41.2%)	0	2 (22.2%)
I am not sure	3 (5.6%)	4 (18.2%)	0	0	0
I somewhat disagree	3 (5.6%)	1 (4.5%)	0	0	0
I disagree	1 (1.8%)	0	1 (5.9%)	0	0
Total number of respondents	**54**	**22**	**17**	**4**	**9**

Part C: Approximately How Many Hours Did You Spend on the Group Project This Semester?

Response	No. of Students (QB)	No. of Students (MSD)	No. of Students (COSO)	No. of Students (ITGC)	No. of Students (XBRL)
25-29 hours	26 (48.1%)	9 (41.0%)	13 (76.4%)	0	3 (33.3%)
30-35 hours	9 (16.7%)	5 (22.7%)	2 (11.8%)	0	6 (66.7%)
36-40 hours	10 (18.5%)	5 (22.7%)	1 (5.9%)	4 (100%)	0
>40 hours	9 (16.7%)	3 (13.6%)	1 (5.9%)	0	0
Total number of respondents	**54**	**22**	**17**	**4**	**9**

Table 4 (Continued)

Student Survey Results after Performing the Group Projects

Part D: Do You Wish You Had Chosen Another Group Project Besides the One You Chose? If So, Which Project?

Response	No. of Students (QB)	No. of Students (MSD)	No. of Students (COSO)	No. of Students (ITGC)	No. of Students (XBRL)
QuickBooks Software Group Project	-	13 (59.1%)	7 (41.2%)	-	-
Microsoft Dynamics Software Group Project	9 (16.7%)	-	-	-	-
COSO Risk Assessment Group Project	5 (9.3%)	3 (13.6%)	-	-	-
ITGC Group Project	-	-	2 (11.8%)	-	-
XBRL Group Project	2 (3.7%)	2 (9.1%)	1 (5.8%)	-	-
I am satisfied with my choice of QuickBooks	38 (70.3%)	-	-	-	-
I am satisfied with my choice of MS Dynamics	-	4 (18.2%)	-	-	-
I am satisfied with the COSO Risk Assessment Project	-	-	7 (41.2%)	-	-
I am satisfied with the ITGC Project	-	-	-	4 (100%)	-
I am satisfied with the XBRL Project	-	-	-	-	9 (100%)
Total number of respondents	**54**	**22**	**17**	**4**	**9**

QB = QuickBooks Pro 2010 Software.
MSD = Microsoft Dynamics GP 10.0 Software.
COSO = Financial Statement Risk Assessment Following the COSO Framework: An Instructional Case Study.
ITGC = Assessing Information Technology General Control Risk: An Instructional Case Study.
XBRL = Interactive Financial Reporting: An Introduction to eXtensible Business Reporting Language.

Table 5

Student Survey Comments after Performing the Group Projects

Part A: Which Response Best Summarizes Your Personal "Take away" From Your Group Project This Semester?

Response	No. of Students (QB)	No. of Students (MSD)	No. of Students (COSO)	No. of Students (ITGC)	No. of Students (XBRL)
Applied accounting/AIS concepts using real accounting software	8 (14.8%)	-	-	-	9 (100%)
Learned how to keep track of business transactions, etc.	6 (11.1%)	-	-	-	-
Learned how to prioritize and better manage my time	2 (3.7%)	-	-	-	-
Learned how to work in groups	5 (9.3%)	2 (9.1%)	-	-	-
Gained an understanding of the software	33 (61.1%)	13 (59.1%)	-	-	-
Learned the importance of internal controls	-	3 (13.6%)	-	-	-
Learned that mistakes are not easily corrected	-	2 (9.1%)	-	-	-
Was able to apply knowledge in a project	-	2 (9.1%)	-	-	-
Gained a solid understanding of internal controls and risk assessment	-	-	11 (64.7%)	4 (100%)	-
Learned how to problem solve by using judgment	-	-	4 (23.5%)	-	-
Learned how to put together a professional presentation	-	-	2 (11.8%)	-	-
Total number of respondents	**54**	**22**	**17**	**4**	**9**

Table 5 (Continued)

Student Survey Comments after Performing the Group Projects

Part B: Comments and Suggestions Provided by Students to an Open-Ended Question regarding the Group Project

Response	No. of Students (QB)	No. of Students (MSD)	No. of Students (COSO)	No. of Students (ITGC)	No. of Students (XBRL)
Thank you for giving the choice between different projects	15	-	-	-	-
Thank you for the opportunity to learn QuickBooks	10	-	-	-	-
Lab computers and software issues	7	-	-	-	-
Too time consuming	5	-	-	-	-
Limit the group size	10	3	1	-	9
Very beneficial, thank you	-	4	4	4	-
Poor, slow software with unclear instructions	-	2	-	-	-
Move these projects to accounting lab class for 2 credits	-	1	-	-	-
Personal conflict within group - very stressful	-	1	-	-	-
Should have an option of doing individual projects	-	1	-	-	-
Would like to do two projects instead of one	-	1	-	-	-
Had difficulties locating the right documents in Moodle	-	1	-	-	-
The project was very challenging	-	-	10	-	-
Total number of respondents	**47**	**14**	**15**	**4**	**9**

QB = QuickBooks Pro 2010 Software.
MSD = Microsoft Dynamics GP 10.0 Software.
COSO = Financial Statement Risk Assessment Following the COSO Framework: An Instructional Case Study.
ITGC = Assessing Information Technology General Control Risk: An Instructional Case Study.
XBRL = Interactive Financial Reporting: An Introduction to eXtensible Business Reporting

In the interest of parsimony, the student survey results at the end of the project for both the ITGC (n = 5) and the XBRL (n = 8) case studies presented in Tables 4 and 5 are not discussed in detail. In general, the results for both the ITGC and the XBRL projects are similar to the results described in the COSO survey, except all 13 of the students performing these two group project case studies were glad they had done so, and none of these students, in retrospect, wished they had performed any of the other group project choices offered in the introductory AIS course during that school year.

Of the 113 students filling out the survey at the beginning of the semester, 106 students (QuickBooks: 54; Dynamics: 22; COSO: 17; ITGC: 5; and XBRL: 8) actually completed their chosen group project; the other 7 students dropped the course during the semester.

INSTRUCTOR TEACHING RATINGS: BEFORE AND AFTER USING THE 'MENU' APPROACH TO THE AIS GROUP PROJECT CHOICE

Table 6 shows the mean teaching ratings (on a scale of 1 to 5 for each category) of the instructor teaching the introductory AIS course for 8 different course and instructor-related evaluation categories before and after implementing the 'menu' approach to the group project choice. The first column shows the rating categories broken down into two distinct groupings: 4 ratings where students were asked to consider their answers relative to other university courses they had taken, on factors ranging from Student Interest Level to General Course Quality, and 4 ratings where students were asked, taking into account the level of the course[23], to consider their answers relative to other university instructors who have taught the students on factors ranging from Instructor Availability to Instructor Effectiveness. Column 2 shows the mean ratings for the instructor

during the 2008-9 and 2009-10 school years (n = 176) (prior to using the 'menu' approach), and Column 3 shows the mean ratings for the instructor during the 2010-11 school year (n = 103), when the 'menu' approach was tested in the course. The last column in Table 6 shows the t-statistic (two-tailed) for the difference before and after implementing the 'menu' approach on the instructor's mean ratings for each of the 8 categories. Students completed the instructor evaluation forms during the last official day of classes at the end of each respective semester, before the instructor had posted each student's final group project grade in the LMS, and before each student had taken the (comprehensive) final examination in the AIS course.

In general, Table 6 shows the instructor's teaching ratings on 7 of the 8 instructor evaluation categories did not change significantly (i.e., improve or decline significantly) as a result of implementing the 'menu' approach to the group project in the AIS course except for the Student Effort Level rating category (t = 2.007). In general, students during the 2010-2011 believed the 'menu' group project choice required more effort on their part, on the whole, than students performing the one type of group project used by the instructor during the prior two school years. It is important to note the instructor's ratings in 5 of the 8 categories exceeded 4.5 on a scale of 1 to 5 before testing the 'menu' group project approach; therefore, there was little expectation of a statistically significant improvement in those 5 particular instructor ratings categories as a result of implementing the 'menu' group project choice. In fact, it can be argued it was possible for the instructor to potentially experience a reduction in several of the ratings categories as a result of testing the 'menu' approach to the group project if, for example, the projects had not been organized, administered, nor explained adequately to the student, or if the instructor had not maintained the relatively high ratings found in the four instructor rating categories (i.e., instructor availability, explanations, preparedness, and effectiveness) during the school year the 'menu' approach was utilized. As mentioned previously, we contend, given the fact that AIS instructors generally experience lower student ratings due to the subjective nature of the course materials (Briscoe et al., 1996), a well thought out 'menu' approach can potentially help AIS instructors improve their overall evaluations, especially if the ratings have in the past been relatively low, a factor which may be important, for example, to tenure considerations at many universities. This point is addressed in the suggestions for future studies section below.

STUDENT FINAL EXAM PERFORMANCE BEFORE AND AFTER IMPLEMENTING THE 'MENU' APPROACH TO THE AIS GROUP PROJECT CHOICE

The introductory AIS course over the three-year period described in this study required each student to take a cumulative final examination at the end of the semester. The examination consisted of 80 multiple choice questions. The examination questions were obtained from a combination of AIS textbooks and those prepared personally by the instructor.[24] Students were not allowed to remove the examination from the classroom nor retain copies of the examination. The instructor made changes in the examination (i.e., added new questions and deleted other questions) throughout the three years covered by this study to incorporate emerging topics in AIS, like Cloud Computing and the impact on AIS of IFRS implementation, to name a few, therefore making direct comparison of the overall examination results before and after implementing the 'menu' approach problematic. However, the instructor did maintain a pool of a total of 40 identical questions in order to attempt to measure the impact of the 'menu' group project approach on student exam performance related to these 40 questions. Those different group project approaches over the three-year period included the following: (1) in the 2008-2009 school year, all students taking the course performed the 'Tasteless Tea Company: A Comprehensive Revenue Transaction Cycle Case Study' (Premuroso et al., 2011) - 10 questions[25] related to the revenue cycle were included on the examination; (2) in the 2009-2010 school year, all students taking the course performed the 'Financial Statement Risk Assessment Following the COSO Framework: An Instructional Case Study' (Premuroso and Houmes, 2012) - 10 questions[26] related to the COSO Framework were included on the examination; and (3) in the 2010-2011 school year, students performed one of the 'menu' choices (i.e., QuickBooks; Microsoft Dynamics; COSO Financial Statement Risk Assessment; ITGC; or XBRL) - 20 questions[27] (excluding COSO) were included in the final examination related to these 'menu' choice topics.

Table 6
Impact on Mean Teaching Ratings of a 'Menu' Approach to the AIS Group Project

Instructor Evaluation Category:	School Years 2008-9/2009-10 n = 176	School Year 2010-11 n = 103	t-stat[28]
A. Consider Your Answers Relative to OtherUniversity Courses You Have Taken:			
Student Interest Level	3.95	3.77	0.065
Intellectual Challenge of Course	4.56	4.66	0.549
Student Effort Level	4.33	4.56	2.007
General Course Quality	4.19	4.11	-0.157
B. Taking into Account the Level of the Course, Consider Your Answers Relative to Other University Instructors Who Have Taught You:			
Instructor Availability	4.91	4.91	0.000
Instructor Explanations	4.53	4.44	-0.258
Instructor Preparedness	4.88	4.80	-0.118
Instructor Effectiveness	4.56	4.53	-0.111

Student Ratings Response Choices on the Course and Instructor Evaluation Form Were As Follows (on a scale of 1 to 5):

Student Interest and Effort Levels: 5 = High, 3 = Average, 1 = Low.
Intellectual Challenge of Course: 5 = Demanding, 3 = Average, 1 = Simple.
General Course Quality: 5 = Excellent, 3 = Average, 1 = Poor.
Instructor Availability: 5 = Very Available, 3 = Usually Available, 1 = Seldom Available.
Instructor Explanations: 5 = Very Clear, 3 = Usually Clear, 1 = Seldom Clear.
Instructor Preparedness: 5 = Very Prepared, 3 = Usually Prepared, 1 = Seldom Prepared.
Instructor Effectiveness: 5 = Very Effective, 3 = Usually Effective, 1 = Seldom Effective.

Table 7 shows the results (i.e., the percentage of the multiple choice questions answered correctly by students) testing the different approaches to teaching the introductory AIS course before and after the 'menu' project choice was introduced. Part A first shows the percentage correct on all 40 questions, combined, did not change significantly from the pre-menu choice school years (75.37% and 77.29%, respectively) to the post-menu choice school year (76.65%). However, when the 40 questions are further broken down into those specifically related to the Revenue Cycle, COSO, and Other (respectively), it can be seen in the 2009-2010 school year when students performed only the COSO Case Study, student performance was approximately 7-10% higher compared to the other two years. The focus and performance of the group project by all students during the 2009-2010 school year perhaps helped students better comprehend the importance and implications of COSO and the related COSO-topics tested on the examination compared to the other school years. Student performance on questions pertaining to the Revenue Cycle were also the best in the 2008-2009 school year when all students performed only the Revenue Cycle Case Study, but not nearly as significantly different from the other two school years as was found with COSO.

Part B of Table 7 shows the performance of the students in the 2010-2011 school year, where the 'menu' project choice was utilized, broken down into the menu choices themselves (i.e., software projects, COSO, XBRL and ITGC), to determine if parsing these results by the choice of the group project impacted student examination results. There was very little difference in the performance by students performing the software projects[29] among the three different examination question groupings. The highest performance on each of the

groups of questions was by the students performing the COSO project; it is our experience that most of the students performing the COSO project are targeting careers with a Big 4 accounting firm. It is important to note that students performing the XBRL and ITGC Projects, respectively, included mainly students majoring in management information systems taking the AIS course as an elective course in order to apply and interview for IT advisory positions. The examination results for these two groups of students were correspondingly lower on each of the three groups of examination questions compared to students performing either the software projects or the COSO project, most of whom were accounting majors.

Table 7
Student Final Examination Multiple Choice Question Results

Part A: Before and After A 'Menu' Group Project Choice Is Implemented

	Pre-Menu-Choice Revenue Cycle Case Study Only **2008-2009 % correct** (n = 81 students)	**Pre-Menu-Choice** COSO Case Study Only **2009-2010 % correct** (n = 95 students)	**Post-Menu Choice** 5 Menu Choices **2010-2011 % correct** (n = 106 students)
All 40 Questions Combined	75.37%	77.29%	76.65%
Groups of Questions:			
Revenue Cycle (10 questions)	78.40%	76.32%	77.36%
COSO (10 questions)	71.60%	81.79%	75.94%
Other (20 questions)	75.74%	75.53%	76.65%

Part B: Performance of Students in 'Menu' Choice Groups: 2010-2011

	Groups of Questions			
	Revenue Cycle 10 questions **% correct**	COSO 10 questions **% correct**	Other 20 questions **% correct**	Total 40 questions **% correct**
(Total: n = 103 students)				
Software Projects (76 Students)	77.63%	74.61%	76.97%	76.55%
COSO Project (17 Students)	80.00%	85.29%	79.41%	81.03%
XBRL Project (8 Students)	73.75%	71.25%	71.88%	72.19%
ITGC Project (5 Students)	70.00%	72.00%	70.00%	70.50%
Total % Correct	**77.36%**	**75.94%**	**76.65%**	**76.65%**

CONCLUSIONS, LIMITATIONS, AND SUGGESTIONS FOR FUTURE STUDIES

This study tests the results of offering a specific 'menu' of group software and case study options in the introductory AIS course to accounting majors at a public university reflective of several career choices these students may have after graduation. We survey students before and after they perform a group project choice ranging from using QuickBooks or Microsoft Dynamics software in a general ledger environment (including using internal control concepts taught in the AIS course) to case studies involving either a COSO financial statement risk assessment, an IT general control, or an XBRL application case study, again including many related concepts taught by the instructor in the AIS course. The university where this approach is tested

includes accounting majors with a wide range of career goals and aspirations, ranging from working for a Big 4 CPA firm to working in private industry in some type of accounting function.

In general, we find students, when given a 'menu' choice for the group project, choose a project aligned generally to their future career interest in the profession. We find in our study that the particular 'menu' choices provided to students will, according to the students themselves, benefit them professionally in the future.[30] We also find that a well thought out 'menu' approach to the group project appears to increase the perceived student effort required in the introductory AIS course and, potentially, the AIS instructor's overall teaching evaluations. Finally, we find some interesting impacts on student final examination performance in the course, before and after implementing a 'menu' approach, depending upon which type of project a student chooses.

The conclusions reached in this study have limitations. For example, the conclusions described in this paper are generally limited not only to the mix of the types of students (career-wise) taking the introductory AIS course in this particular study but also to the types of projects decided upon and used by the instructor in such a 'menu' approach. Therefore, we recommend for future studies that instructors teaching the introductory AIS course use a variety of different group project choices specifically tailored to the mix of students taking the course to maximize the benefits to their students of such a 'menu' choice. Also, in order to test whether offering the type of 'menu' choice for the group project improves an instructor's student evaluations when teaching the introductory AIS course (compared to prior evaluations), we leave it to future study to document changes in an instructor's evaluations from using various types of 'menu' approaches (including the details of the project offerings in this manuscript or other types of combinations of project offerings which an instructor may deem appropriate).

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Exhibit 1

Group Member Evaluation Form

Attention: (Name of Instructor) **Date:** _____

Your Name _____

Assume you have 100 points to allocate among your group members:
-List each group team member's name below, including your name;
-allocate the number of points (out of 100) each person should receive for his/her work on the Group Project, including yourself;
-The points must total 100 points (obviously); no fractional points, please;
-Do not collaborate with your other group members – this is YOUR evaluation only of each team member; and
-No two team members may receive the same points – everyone must be given a different number of points.

Points	**Group Team Member's Last Name**
100	**Total Points Allocated**

Be honest. Be fair. This is not an easy thing to do. If you indicate that one or more group team members did not do their equal share of work on the project, state why in the blank space at the bottom of this page. I mostly rely on the points above, but your explanation of why a team member (s) did not do his/her fair share is important to me. Individual group members' grades may be altered as a result of this evaluation; therefore, the information cannot be totally anonymous.

Exhibit 2

Group Project Menu Choice Descriptions and Potential Student Career Choices

Group Project Menu Choice	Potential Student Career Option Choices
Dynamics or QuickBooks Software (workbook including transactions and internal control applications in a software environment)	• Small or Mid-level CPA firm • Private industry accounting position
COSO Case Study (financial statement risk assessment of a publicly-listed company following the COSO framework)	• Big 4 CPA firm (Auditing) • Private Industry
IT General Controls Risk Case Study (assessment of IT General Controls risk in a company application situation)	• Big 4 CPA firm (IT Advisory) • Accenture
XBRL Case Study (case study including the application of XBRL in an industry-related application: soft drinks)	• Big 4 CPA firm • IT Industry Consulting Work

Appendix 1
Group Project Semester Timetable Included in the Course Syllabus
(Note: 16-Week Semester Length Including Finals Week)

Software Choices (QuickBooks and Microsoft Dynamics GP):
Weeks 1-4: Student's Form Groups/Buy Required Software Package and Accompanying Workbook from Bookstore; Instructor Sets up Group Pages on LMS.
Weeks 6-11: Groups Assignments Are Due, Chapter-by-Chapter, in the Course LMS Group Page Drop Box.
Week 13: Individual Assignment is due in the Course LMS Individual Assignment Drop Box.

Financial Statement Risk Assessment/IT General Control/XBRL Case Studies:
Weeks 1-4: Instructor Arranges Meetings of All Interested Students to Present these Case Study Projects and Related Information Posted on the LMS; Student's Form Groups; Instructor Sets Up Group Pages on LMS.
Weeks 5-9: First Portion of Group Project Deliverables Posted by Students in the Respective LMS Drop Box/ Reviewed by Instructor.
Weeks 10-14: Final Group Project Deliverables and Group PowerPoint Presentations Posted by Students in the Respective LMS Dropbox/Reviewed by the Instructor.
Week 15: Groups Make Presentations to Representatives of a Big 4 Accounting Firm.

Appendix 2
Grading Rubrics-Group Project Choices in the Introductory AIS Class
(Group Project is 15% of the Total Course Grade)

Software Choices (QuickBooks and Microsoft Dynamics GP):
Group Work-10 Chapters in the Related Textbook-each worth 1 percent (total: 10%)
Individual Assignment-Chapter 9 in the Related Textbook (with different versions for each student in each Group): 5%.

Financial Statement Risk Assessment/IT General Control/XBRL Case Studies:
Each of the following elements is graded on a scale of 1 (poor quality) to 5 (excellent quality) the instructor and added up for each student, divided by 20, and then multiplied by 15% to determine each Group Member's respective grade:

a. Overall quality of the PowerPoint Presentation (completeness; accuracy; spelling)
b. Ability to answer questions posed by the audience (completeness; accuracy; assuredness)
c. Quality of any supporting Excel worksheets or documentation posted on the LMS

For each Group Member: their presentation skills (quality; assuredness; accuracy; ability to answer questions posed by the audience accurately including adequate explanations or justifications)

The Group Member Evaluation Form shown in Exhibit 1 is used by the instructor to reflect in each Group Member's group project grade the feedback of each group member on each group member's performance (up or down, as dictated by the feedback received on this form).

Endnotes

[1]Available at: http://www.aicpa.org/interestareas/accountingeducation/resources/pages/corecompetency.aspx.

[2]To obtain the AIS Certificate at this particular University, a student majoring in accounting must take 4 specific courses in the MIS major program; a student majoring in MIS must take 4 specific courses in the accounting major program plus a 1-hour credit accounting lab. For more information on the AIS Certificate at this particular University, please refer to the following website: http://www.business.umt.edu/DegreesPrograms/AccountingAndFinance/CertificatesAccounting.aspx.

[3]Exhibit 2 summarizes the group project choices, a short summary of the objectives of each group project, and the potential career options each project is potentially designed to foster from a student perspective.

[4]The manual accounting practice set called the *Systems Understanding Aid*, marketed and distributed by Armond Dalton Publishing, Inc., is part of a separate required course at the University in this study called the Accounting Lab, which is required to be taken by all accounting majors as a pre-requisite or co-requisite to the introductory AIS course.

[5]Students were allowed to 'self-select' other students taking the AIS course that semester to join their group for the purposes of the group project, a common practice followed by one of the authors in this study for group project work in the introductory AIS course.

[6]Students shared the cost of buying the related software choice at the University bookstore among the group members. See footnote 7 below.

[7]The software and the accompanying textbook cost approximately $100. The software, once activated using the enclosed user verification code, lasts approximately 120-140 days from the date of activation. There was no cost to students for any of the case study choices (COSO; XBRL; or IT General Control Risk), as the instructor posted these case studies (with the permission of the related publications) to the course learning management system for student access.

[8]This is important, as generally any files generated on the University's lab desktop computers are automatically removed when the lab closes each evening by the University technology group in order to protect against potential viruses and other software and hardware desktop issues.

[9]The latest edition of Brunsdon's Learning QuickBooks Pro for use in the AIS course can be found at the following webpage: http://www.pearsonhighered.com/educator/product/Learning-QuickBooks-Pro-and-Premier-Accountant-2012/9780132751674.page.

[10]This product, Brunsdon et al. Microsoft Dynamics GP 10.0 for use in AIS courses, is no longer offered as of the date of the publication of this manuscript. Instead, the instructor uses today in the AIS course a similar Microsoft Dynamics GP 10.0 product offered by Armond Dalton which can be found at the following webpage: http://www.armonddalton.com/

[11]Students were also offered a choice to perform a transaction cycle review (i.e., revenues, expenses, payroll, etc.) for example, for their employer or some firm (profit or not-for-profit) located near the University, utilizing the system documentation course materials taught by the instructor in the AIS course, and including a final report with a group presentation containing recommendations for improvements in both internal and operational controls and procedures, but no students were able to arrange nor decided to select this choice for their group project during the 2010-2011 school year. In future years, we were able to arrange for such types of projects together with the University's Internal Audit group in coordination with various segments of the University's business operations.

[12]It is important to note these case studies can be presented to representatives of any type or size of CPA firm, not only to representatives of a Big 4 firm.

[13]Students did not know, nor were they informed before making their case study decision, that one of the authors of the COSO case study and this manuscript was also the instructor for the AIS courses.

[14]The University currently uses Moodle as its LMS; the University had used Blackboard in past school years during which this study was performed. Generally, any type of LMS can be employed by the instructor when administering the 'menu' approach described in this manuscript.

[15]Appendix 1 shows how the instructor, in the course syllabus and course schedule, spaced out the work required in these group projects during a regular school semester. Examples of the grading rubrics used by the instructor can be found in Appendix 2. The instructor estimates it takes about 10 hours to grade each of the software group projects (10 chapters throughout the semester, about 1 hour for each chapter); 1 hour to grade each individual students software assignment at the end of the project; and about 1-2 hours (including presentation time at the end of the semester) to grade the other, non-software related group projects.

[16]www.surveymonkey.com.

[17]The instructor, before posting the final grades for each student of the group project, required each student to confidentially fill out a form (see Exhibit 1, Group Member Evaluation Form) assessing the contribution of each student in the group to help ensure that no student 'shirked' their group project responsibilities. A student's grade was adjusted, accordingly (downward) depending upon the feedback obtained on this form.

[18]Of the 24 students not planning (5) or unsure (19) if they will sit for the CPA examination upon graduation, most of them were unsure, as of semester they took the introductory AIS class, of what their career choice or direction would be. This is not unusual, as the introductory AIS class is offered in the first semester of a student's junior year and is the first upper-division course in the accounting major program. Of these 24 students, 15 of them chose to perform QuickBooks and 9 selected the XBRL group project.

[19]Locally-based smaller CPA firm' means the State in which the University is located in this study.
[20]Next Tier CPA firm' means a non Big-4, non-Montana-based CPA firm.

[21]We actually implemented the suggestion to limit the software-related project groups to a maximum of 3 students (as opposed to a maximum of 5 students in the school year tested in this study) in future semesters.

[22]One student switched their group project choice from the XBRL Case Study choice at the beginning of the class to the COSO Case Study-hence, the increase in the number of students from 16 shown in Table 1 to 17 students here in Table 4.

[23]The 'level' of the course at the University where the introductory AIS course was taught is called the 300-level, which essentially stands for a junior-level college course of study.

[24]The corresponding author is a preparer of questions for the Uniform CPA Examination.

[25]The questions covered topics in the revenue cycle, including for example threats and internal controls, in the four following activities: sales order entry; shipping; billing; and cash collections.

[26]The questions covered topics related to COSO, including COSO's Internal Control Framework; COSO's Enterprise Risk Management (ERM) Framework; and the components of the ERM model, including the Internal Environment, Risk Assessment, Risk Response, Control Activities, and Monitoring.

[27]The questions covered topics including XBRL; for the expenditure, human resource and payroll, production, and the general ledger and financial reporting transaction cycles threats and controls including preventative, detective, and corrective controls, authorization and authentication controls, and separation of duties with regard to the custody, recording, and authorization functions in each transaction cycle; and IT general controls.

[28]T-stat for each category is a one-tailed t-test statistic of the difference p-value level of the difference in the mean student ratings before and after implementing the 'menu' group project choice in the introductory AIS course. The level of significance for the Student Effort Level t-statistic is 0.023 (one-tailed).

[29]There was no significant difference between the final examination performances of students performing the QuickBooks or the Microsoft Dynamics software projects; therefore, the results of these students were combined in Table 8 into the line titled 'Software Projects'.

[30]In fact, informally, we noticed many students taking the introductory AIS course listed the Group Project choice they performed in the AIS course as part of their professional resumes for the interviewing process which ensued in future semesters. Also, in years following the graduation of students taking this course, we have received numerous emails from students, thanking us for the group project choice given them in this course, and explaining to us how their choice improved their job prospects and/or job performance in their present employment situation.