

An Investigation of Accounting Education to Help Students Improve Important Job Skills

The Honors Program
Senior Capstone Project
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Table of Contents

Abstract	1
Introduction	2
Purpose of the Study	2
Literature Review	3
Research Methodology.....	10
Summary of the Methodology	10
Methodology Details.....	11
Sample and Setting.....	11
Survey Participants.....	11
Data Collection and Procedures	12
Data Analysis Techniques Used.....	14
Data and Results.....	16
Results by Category	17
Hypothesis Test Results	21
Year-to-year changes	28
Discussion	28
Limitations and Future Research Implications	30
Appendices	31
Appendix 1 – Survey Draft	32
Appendix 2 – Hart Research Graph	35
References	36

ABSTRACT

Upon graduation, many college students embark on their professional careers in accounting. These graduates have completed their degree and moved to their new, exciting, and challenging jobs; but have these corporations recently expressed satisfaction with the performance of these young employees? Some studies suggest that many executives do not think that their new employees have developed the skills needed to be successful in today's competitive business landscape. This project extends the literature by examining professional development in college graduates and applying it within the context of accounting education in college and universities nationwide. Overall, this project aims to investigate why corporations have their doubts about their entry-level employees by examining how job skills are developed in college accounting courses. The study uses primary data and previously existing studies to examine if the style of teaching (e.g. lecture-based or group work) has an impact on how well students build the skills executives believe are most important (e.g. working well in teams). The surveys administered during this study comprised of 142 undergraduate students at Bryant University. Statistical tests were conducted to determine whether significant skill development took place from one specific class year to another. The survey data suggests that significant development of selected skills occurs from freshman to senior year, whereas the one-year development stages (freshman-to-sophomore, sophomore-to-junior, and junior-to-senior) showed little to no significant change. The results of this study can be used by employers and employees alike to evaluate what initiatives universities can take to enhance the quality of accounting education as it pertains to professional skill development. University faculty and administration could also find value in this study, particularly with respect to curriculum evaluation.

INTRODUCTION

Today's business world continually undergoes change, as corporations seek to build and sustain competitive advantage. Thus, companies such as accounting firms are looking for future leaders who have the skills and abilities to transform and innovate the ways in which the corporations operate, seeking to increase overall effectiveness and efficiency in accomplishing the corporation's goals. This project will examine the shortcomings that firms have identified in the skills of students, and will attempt to identify innovative, creative solutions for college accounting courses to more effectively develop these skills. It is important for academic institutions to keep an eye on the future of education, specifically for accounting, in terms of continuing to prepare future accountants for success. Areas of discussion will include students' perceptions towards accounting (e.g. is accounting demanding, time-consuming, repetitive, etc.), their confidence in the development of selected skills (e.g. teamwork, problem solving, critical thinking), and overall accounting course trends (e.g. individual versus group work, fewer or several assessments). While the main focus of the study will discuss the students' skill development throughout their time in college, the effects of their perceptions and class experiences were also considered.

PURPOSE OF THE STUDY

The goal of this project is to gather insight regarding ways to better help students develop the skills they need in the workplace. Feedback from students, professors, and accounting firms (namely the "Big 4") will shed light on possible recommendations to potential amendments to accounting education. Additionally, the project seeks to gain a clearer understanding of which skills students should be developing (for instance, soft skills, which deal with more interpersonal relationship) during their college experience to prepare them to enter – and flourish – in the accounting field. Looking at how other institutions structure their accounting courses – and which goals those courses are addressing – it can be determined whether those stated objectives are compatible with the skills for which accounting firms are looking. If there is a significant mismatch between the two, future research can explore potential ways of changing the course structure and presentation (i.e. a shift from lecture-based classes to problem-solving or case study learning methods)

A great deal of research on this topic has been done, but most existing publications have addressed the question of continuous improvement from a general scope. This research assesses how the dynamic change in the business world impacts accountants specifically.

LITERATURE REVIEW

In the business world, there is a saying, “The only constant is change.” Along with advances in technology among other improvements, companies today are seeking out new employees with the skills and qualities of future leaders. Businesses understand that in order to survive in today’s harshly competitive environment, they have to find ways to create and sustain competitive advantage. That is one reason why corporations seek out new, young talent who can contribute to their future success. With increased job opportunities in recent years, demand for top-notch, job-ready college graduates is severely outpacing supply. However, companies find it difficult to find suitable employees because they largely find current graduates ill-prepared. Most companies, such as Google, have found themselves hiring more people who do not have college degrees, since they believe that having a degree does not necessarily indicate that person is job ready (Selingo, 2015). Selingo calls for colleges and universities to find and provide a mix of academic and practical experiences – and for students to fully capitalize on the opportunities that mix would bring – or, he asserts, that employers will move to seeking out other qualifications besides a degree in their recruiting efforts.

The goal of this project is to investigate why this expectation discrepancy exists between students, universities, and employers by examining specifically where university accounting education can improve in order to better reflect the needs of employers. By specifically examining the dynamics of today’s in-class environment – which is where the learning takes place – current learning patterns and trends can be discovered, and those findings can be used to determine which trends are most beneficial or potentially disruptive to the learning process. Successfully accomplishing this goal will benefit all parties involved; the students will have a greater chance of success and smoother transitions into their new professional roles, universities will gain prestige for their academic programs, particularly in accounting, and companies will find the new wave of leadership to take them into the next generation of business with a road

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

to sustainable competitive advantage. For the most part, however, college education has not been designed to exactly prepare a person for a specific job, such as accounting. Rather, the system is set up to assist students to develop their ability to think and make decisions for themselves and to learn from their mistakes. So that would potentially shed light on potential problems that changing the system would bring about.

These firms attribute most of the overall issues they see in college students to the current system of education, with specific time frames devoted to individual subjects, which has remained largely unchanged since its inception in the late nineteenth century (mltsfilm.org). Due to the static nature of this system, it has mostly failed to adjust its overall structure to cater to today's needs. That is why most employers are generally dissatisfied about the lack of specific skills demonstrated by their incoming employees. Traits like dependability, a penchant for innovation, and an openness to constructive criticism highlight some of the abilities that employers are looking for when attempting to find high caliber candidates (Cocco, 2012). Marie Artim, vice president of talent acquisition at Enterprise, remarked, "This is a generation that has been 'syllabused' through their lives. ---Decisions were made for them, so we're less likely to find someone who can pull the trigger and make a decision" (Selingo, 2015). With the way our current education system is structured, one can see exactly why employers such as Enterprise have concluded that today's college graduates are not ready to make an impact in the business world. Those assertions speak volumes, since Enterprise has recently been lauded as one of the top companies for hiring college graduates; according to CollegeGrad, Enterprise is by far the top firm for entry level hirings (Top Entry Level Employers – Collegegrad.com, 2015). Most students have recently taken the philosophy of "Just tell me what to do, and I'll do it," and that dangerously closed mindset takes decision-making power away from them; when asked to come up with a creative, out-of-the-box solution to a problem, most students ask their professors what to do, afraid that their ideas might not be perceived as adequate. This built-in "hand-holding" style of learning has clearly had an adverse effect on the development of students' critical thinking skills, which factor greatly into one's decision-making rationale. As John Leutner of Xerox adds, "People know how to take a course. But they need to learn how to learn" (Selingo, 2015). Part of that learning process involves empowering students to formulate

their own ideas for solutions to problems, something to which the tried-and-true method of lecturing cannot open itself.

The education system has hardly changed, and prior generations have been able to make reasonably sound decisions in the business world, so that begs the question: Why all of a sudden can today's students not make those same decisions? One explanation could be found outside of colleges and universities. As mentioned before, the methods and structure of education have changed very little over a long period of time, but the same cannot be said about the business world. Always adapting to a wide variety of changes – both internally and externally – businesses must expect the unexpected and be able to adapt in a timely fashion. In addition, business models that have worked successfully in the past may now be obsolete. For instance, in the marketing sector, D. Steven White observes that companies are currently focused on a social and mobile marketing strategy, whereas before they had employed a “Relationship Marketing” plan (2010). In all major job areas, it has become critically important to identify when and how change needs to be made to the overall strategy, and how to modify existing processes to ensure that the new methods are both feasible and efficient.

To fix the issue of an insufficient quality of accounting education, first one must identify what the chief detriments are. Some research suggests that student and teacher anxiety play a significant role. Some researchers suggest that accounting is perceived by many as a boring, tedious, and stressful subject for all involved (Buckhaults & Fisher, 2011). Other experts maintain that educators should spend more time adequately preparing their accounting courses in terms of concepts, structure, and goals because as students progress along the course track, each accounting class builds on one another (Borja, 2011). Borja also observes that students, especially those new to accounting, have likened the difficult of the subject to that of learning another language, which can result in extreme anxiety. That is why it is imperative that educators formulate various methods of teaching so that the students have a mastery understanding of the basics of the practice so they can then build on those skills in more advanced courses. In addition, responsibility for preparing for each class extends to the students,

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

as Borja insists that routine completion of homework problems and exercises before class can help reduce anxiety levels for both students and professors alike.

Reducing student and professor anxiety would contribute greatly in improving the quality of accounting education, but the need to engage students in the learning process still must be addressed. In one study done in 2004, Professor Bearden ran one of her accounting courses vastly differently than what she had traditionally done. Instead of coming to class in business attire, she arrived in casual clothing. Instead of having standard rows of desks, the classroom was arranged such that the professor could see the faces of each student. Rather than jumping directly into lecturing, Bearden spent the first day of class playing a get-to-know-you game with her students. She incorporated more business group projects and interactive activities into her teaching repertoire. Students had not shown signs of anxiety by the end of the second week of classes, as they had gotten themselves more involved and learning at a higher rate. (Buckhaults & Fisher, 2011). This study demonstrates that “new methods for teaching accounting engage students in the learning process” (Borja, 2011).

Another detriment to an effective accounting education system revolves around some of the negative stereotypes of the accounting profession. Bittner asserts that “secondary courses in accounting have been little more than courses in bookkeeping [which] casts the shadow of boredom on the subject of accounting” (Buckhaults & Fisher, 2011). Since most introductory level accounting courses deal primarily with the accounting cycle (i.e. recording transactions, posting to the general ledger, closing entries), most students mistakenly oversimplify the subject and tend to view bookkeeping as the sole aspect of accounting when in reality there are multitudinous other facets of accounting. Bittner proposes a three-part accounting course, where the first part in which students explore areas such as financial reporting, the role of the CPA, financial statement analysis, and relevant business and government agencies (Bittner, 2002). By laying this more exploratory foundation in place, Bittner noticed that more students gained interest in continuing further with the remaining parts of the course.

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

An efficient accounting education system strives to help students engage in and excel at their accounting courses and, eventually, their future job in the field. Excellence, however, should not be defined simply by mastery of the material; academic skill development must also take place so that students can use these life skills as they enter the work force. Francisco, Kelly, and Parham (2003) affirmed that too much focus has been placed on content mastery, which has hindered the potential to develop important skills such as decision making and analytical thinking. Francisco et al. (2003) expand upon a study done by Albrecht and Sack (2000) “to see if accounting students place the same level of importance on different skills as the accounting professors.” The results showed that students and faculty in the accounting program put more emphasis on communication and analytical thinking skills than other comparable majors (i.e. economics & finance). On top of obtaining a comprehensive understanding of the accounting principles, students also gain valuable experience, sometimes out of the classroom, which develop their oral and written communication skills and help the students make better informed decisions and being able to defend their choice.

The rise of technology over time, while viewed as an innovative possibility, it can also act as a significant obstacle when it comes to its use in the classroom environment. This notion goes for both students and professors alike. In the case of the students, how might they use their technology (i.e. laptop, phone, and tablet) to complete assignments outside of class? Do some students also use technology to take in-class notes, gradually moving away from paper-and-pencil formats of note-taking? It has gotten to the point where information technology (IT) plays an important role in our lives, especially in the work place (Khanlarian & Singh, 2015). They state, “Although the use of technology and the inherent frustration is so intertwined with the educational setting, it can affect the human psyche, motivation and ultimately the success of students”. Their research shows that low-performing students are affected the most by this give-and-take relationship with IT, where frustration with technology is inherent in the learning environment. Hamid (2001) examines e-learning, a computer and software-based approach where assignments, quizzes, and even exams are completed online. He recognizes the vast potential that improved technology can have on the learning environment, but that the system is incorporated without looking specifically at students’ learning methods and needs. This has

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

the possibility to create a discrepancy between the way students currently learn and the way in which the online assessments are structured, creating a common source of frustration.

A study done by the Council for Aid to Education (CAE) in 2013 saw roughly 32,000 students from 169 college and universities take the CLA+ exam, which measures students' complex reasoning skills and how they have developed from freshman to senior year. The study identified that "[h]igher-order skills are a necessity for navigating and excelling in today's complex, new knowledge economy" (CAE, 2014). The study showed that about 40 percent of college seniors "fail to graduate with the complex reasoning skills needed in today's workplace" (Selingo, 2015), and those who did excel at the exam "have been shown to experience greater success in their immediate post-college careers (Arum & Roksa, 2014). Those results further confirm the pressing need to revise the education system in ways that allow students to better develop these skills. One of the ways Hart proposes to amend the education system is to set up the course load such that students gain sufficient amounts of field-specific knowledge and a broad range of the overall business picture (Hart Research Associates, 2014).

More than 75% of employers want to see institutions place more emphasis on developing skills such as critical thinking, problem-solving, and effective communication, both oral and written (Hart Research Associates, 2013). Interestingly enough, these three goals are included as part of Bryant's First-Year Gateway Program, where those courses contain additional assignments geared toward building students' competencies in these skills. Courses which include substantial amounts of group work, presentations, and other creative projects can foster experience in these important areas. Hart also notes that employers agree that "a candidate's demonstrated capacity to think critically, communicate clearly, and solve complex problems is more important than their undergraduate major" (Hart Research Associates, 2013).

In a second research study, Hart challenges students' own perceptions of their skill levels compared to how employers assess those skills. Over a set of 20 skills, ranging from working with others in teams to awareness of diverse cultures outside of the United States, employers rated students much lower than the students judged themselves in all 20 categories (Hart

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

Research Associates, 2015). Selingo refers to Hart's research in his article and offers a graphical representation of how prepared students think they are versus how prepared employers perceive these students to be. Across almost every skill, the ratio of employer's confidence in skill development versus that of the student hovers roughly 1 to 2, which suggests that, for the vast majority of students, success in the classroom (as measured by course grade) does not necessarily *cause* success in a student's future job in the accounting field.

In a recent survey conducted by PwC, it was noted that roughly 650 of the 1300 CEOs surveyed planned to increase headcount from February 2015 to February 2016, but about 950 had growing concerns about a widened skill set gap (PwC, 2015). To adjust for this phenomenon, these CEOs advocated for college students to be equipped with a broader knowledge base, as well as a working knowledge of using data analytics and turning "reams of data into meaningful insights" (PwC, 2015). In addition, they "believe demand will continue to exceed the supply of candidates who have an analytical mindset, technical skills, *and* a foundation for leadership" (PwC, 2015).

American Express performed a study that resonates with what PwC wants to see in its next generation of accountants. "According to a 2013 study by American Express (AXP) and Gen Y research firm Millennial Branding, managers have an overall negative view of young workers, and point to their lack of soft skills regarding communication and interpersonal interactions, time management abilities and willingness to work as a team" (Vasel, 2014). Not only are these critical business skills missing, the overall professionalism from students is sorely lacking as well. Another survey by York College found that "Almost 40% of faculty responded that less than half of students demonstrate professionalism" (Vasel, 2014). Employers are unhappy not only with the lack of skill development in college graduates, they are also quite displeased at how these students carry themselves in their academic lives, whether it comes to adequate preparation for their courses or their conduct within the school environment.

De Villiers advocates for a balance between technical and soft skills for all business graduates, including accountants (de Villiers, 2010). She concedes the difficulty of assigning a universal

definition to soft skills, as the concept “differs from discipline to discipline, from context to context and possibly also from nation to nation” (de Villiers, 2010). Another study defines soft skills as “interpersonal, human, people or behavioral skills needed to apply technical skills and knowledge in the workplace” (Weber, 2009). Such soft competencies include effective communication, problem-solving, critical thinking, reasoning, leadership, and team work skills (de Villiers, 2010).

So now, the question of how to incorporate the development of soft skills into accounting classes should be addressed. What can be done to invigorate students’ enthusiasm in the classroom while challenging them to control their emotions? How about course adjustments which focus on delegating and developing strategies, two traits most frequently needed in teamwork? Innovative solutions to questions such as these can have a great impact on developing student confidence and ability to overcome setbacks. And although “meta-analytic evidence suggests that soft skills courses are not very effective for university students” (Hattie, Biggs, & Purdie, 1999), incorporating these soft skills into content-based courses as additional objectives offers several options to develop these skills in a setting that interests the students. One study observed that students generally perform better when courses are taught through the use of content specific to a field of interest (Martin and Broadus, 2014).

RESEARCH METHODOLOGY

Summary of the Methodology

A survey was used for data collection for this study. The questions and hypotheses of the survey were based heavily on existing literature. The determination of statistical significance was done via 2-sample t-tests (assuming unequal variances). The population surveyed was Bryant University undergraduate students spanning all four classes (Freshman, Sophomore, Junior, and Senior) of varying majors, roughly 75% of whom were accounting majors. They were evaluated in various areas including their perceptions towards accounting, their confidence in the development of selected skills, and overall accounting course trends using Likert scales. Refer to Appendix 1 for further details regarding the questions on the survey.

METHODOLOGY DETAILS

Sample and Setting

The survey was conducted by surveying undergraduate students from Bryant University, requesting input about their attitudes toward accounting, their level of skill development, and overall trends in their accounting course structure. Through a combination of class visits and online administration via BlackBoard, a grand total of 142 students participated in the survey, with each class year having some representation in the sample. Participation was completely voluntary, and individual responses were kept confidential and used only for the specific purpose of completing this study. Because of the voluntary nature of participation, the possibility exists that sample selection bias could have influenced the results; in other words, did the sample adequately represent the characteristics of the overall population of interest? In this study, the vast majority of respondents were either juniors or seniors (i.e. upperclassmen); however, since the focus of the project mostly lies with graduating seniors (and to a lesser extent juniors finding internship opportunities), this skewed distribution of students by class year does not pose a major concern.

Survey Participants

In total, 142 Bryant undergraduate students participated in the study. Of those, 80 students identified as male (56.3%), and the remaining 62 identified as female (43.7%). The average age of respondents was 20.65 years, with a standard deviation of 1.44 years. The average grade point average (GPA) of all students was 3.41 (approximately a B+ average), with a standard deviation of 0.35 (roughly one letter grade). These statistics suggests that the average student in this sample had one to two years of experience at Bryant, had experienced fair success in course mastery (as evident by the average GPA), and were well-versed in the accounting curriculum in terms of both content and course structure. Figure 1 on the next page summarizes key information regarding the survey respondents.

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schuberth

TOTAL NUMBER OF PARTICIPANTS:	142		
	Total Male:	80	56.3%
	Total Female:	62	43.7%
By Age:			
	18 years	10	7.0%
	19 years	18	12.7%
	20 years	24	16.9%
	21 years	63	44.4%
	22 years	23	16.2%
	23 years	1	0.7%
	24+ years	3	2.1%
By Class Year:			
	Freshman	18	12.7%
	Sophomore	16	11.3%
	Junior	33	23.2%
	Senior	75	52.8%
By Major:			
	Accounting	106	74.6%
	Finance	6	4.2%
	Economics	1	0.7%
	Other	29	20.4%

Figure 1: Survey Respondent Demographics

Data Collection and Procedures

The data used in this study was collected through a combination of class visits (in which surveys were completed with paper and pencil) and online administration via BlackBoard through coordination with selected professors. The primary researcher collaborated with several Bryant University professors to establish dates on which he would administer the paper-and-pencil surveys, or in cases where professors did not wish to take class time for students to do surveys, an online file was posted on BlackBoard for students to complete and turn in at a specified time. Each students' responses were coded to ensure confidentiality. The survey consisted of four primary parts, with all but the first part using Likert Scales to turn this qualitative data into quantitative data for the purposes of rigorous statistical analysis.

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

The first part covered demographic information regarding the participant, such as age, class year, gender, major, and grade point average (students selected where their GPA fell on a series of ranges, see Appendix 1 for more). The mean and standard deviation was taken for age and grade point average across the entire sample, as well as for each class level.

The second part collected data regarding the participant's perceptions towards accounting. For this section, the participant was given a series of words or phrases and was asked to rate on a Likert Scale from 1 (strongly disagree) to 7 (strongly agree) how well that word or phrase described accounting. The terms used in this part were the following:

- Organized
- Boring
- Time-Consuming
- Demanding
- Enjoyable
- Repetitive

Averages and standard deviations were taken for each term for the entire population, along with each individual class for comparison purposes.

The third part presented the participant with a list of ten skills for which he was asked to select an option on a scale from 1 (not developed at all) to 5 (extremely well-developed). The skills chosen for this part included:

- Teamwork
- Technical Skills
- Oral Communication
- Written Communication
- Critical Thinking
- Professionalism
- Leadership
- Creativity

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schuberth

- Real-World Application
- Problem Solving

Averages and standard deviations were taken for each skill for the entire population, along with each individual class for testing purposes. As the focal point of the survey, data from this part was used to test several hypotheses for significant improvement in each skill from one class year to another. There are six possibilities for comparison (freshman to sophomore, freshman to junior, freshman to senior, sophomore to junior, sophomore to senior, and junior to senior), along with ten skills tested, for a total of sixty hypothesis tests in all.

The final part provided the participant with questions regarding their class experience. Each participant was first asked to indicate how many accounting courses they had taken (including ones they are currently in) up to the date of the survey. The remaining four questions gave the participant four extreme cases and was asked to rate on a scale from 1 (one extreme) to 7 (the other extreme) what their accounting class experience was generally like. These questions included:

- Individual based or group based work
- Few assessments or many assessments
- Lecture-based or problem-based classes
- Light or heavy course workload

Averages and standard deviations were taken for each style for the entire population, along with each individual class for comparison purposes.

Data Analysis Techniques Used

The main statistical technique used for data analysis was 2-sample t-tests. For the purposes of this project, each t-test assumed an unequal variance in the populations of the two individual classes in question. These t-tests were conducted through multiple iterations to determine which factors were statistically significant. In determining the level of significance to be used, each test runs at an alpha equal to 0.05. That means that, with 95% confidence, the ensuing

results of each hypothesis test are accurate pertaining to the populations in question. The remaining 5% is attributed to a statistical phenomenon known as Type I Error, which is the probability of rejecting the null hypothesis even though it is true. The probability of Type I Error on any given test is equal to the alpha level determined for the test; in other words, if $\alpha = 0.01$ were chosen instead, there would be a 1% chance of committing a Type I Error. More discussion about Type I Error can be found in the Limitations section.

Hypothesis Tests were conducted for each of the final three parts mentioned in the Methodology section (perceptions, skill development, and class environment). Each test was run six times to correspond with each class year change. The following hypotheses were created for statistical analysis:

- Year-to-year improvement of skill development
 - $H_0: \mu_1 - \mu_2 = 0$; $H_1: \mu_1 - \mu_2 < 0$, μ_1 is a year prior to μ_2 . $\alpha = 0.05$
- Year-to-year change in accounting perceptions
 - $H_0: \mu_1 - \mu_2 = 0$; $H_1: \mu_1 - \mu_2 \neq 0$, μ_1 is a year prior to μ_2 . $\alpha = 0.05$
- Year-to-year change in class styles
 - $H_0: \mu_1 - \mu_2 = 0$; $H_1: \mu_1 - \mu_2 \neq 0$, μ_1 is a year prior to μ_2 . $\alpha = 0.05$
- 6 iterations each: FR-SO, FR-JR, FR-SR, SO-JR, SO-SR, JR-SR

Notice the difference between the wording of first test and the other two tests. The first test seeks to find an improvement in skills from one year to another in the future, which is why the alternative hypothesis tests to see if the later year's mean is greater than the earlier year's mean (in other words, it is the only one-tailed test of the three types). The other two hypotheses look for any change or significant difference in responses from one year to another, making them each two-tailed tests.

The two types of tests are largely run in the same fashion, with the only difference arising at the final p-value calculation. To start the tests, the t-score of the sample must be calculated, and that can be calculated using the formula shown on the next page:

$$t_{STAT} = \frac{\bar{Y}_1 - \bar{Y}_2}{se_p}$$

Y-bar 1 and Y-bar 2 are the sample means of the earlier year and the later year, respectively, and se_p is the standard error of the population. Since it is now known what that pooled error is, it can be approximated by the samples with this calculation:

$$SE_s = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$$

The s-terms and the n-terms represent that standard deviation and the size of each respective sample. Once this sample standard error is calculated, the t-score can be computed. Once that takes place, that value is used to compute the probability of the standard t-distribution having a value either greater than or less than the sample t-value, depending on the type of test being used. If a two-tailed test is being used, the resulting p-value must be doubled in order to get the true p-value for that test. If the final p-value falls below the established alpha level, the null hypothesis is rejected, and the alternative is deemed to be correct. If the final p-value is greater than the alpha level, the null hypothesis is *not rejected*. That does not mean that it is *accepted*; rather, the sample taken does not provide strong enough statistical evidence to reject the null hypothesis.

DATA AND RESULTS

Each table displayed in this section shows the results that the survey generated, along with determining whether to reject or fail to reject the null hypothesis for each of the t-tests mentioned in the Methodology section. For the hypothesis tests, any skill highlighted in yellow met the threshold for statistical significance.

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

Results by Category

SAMPLE SUMMARY

(1 to 7 scale)	Average	St. Dev.
Organized	5.48	1.49
Boring	3.63	1.58
Time-Consuming	5.35	1.35
Demanding	5.18	1.44
Enjoyable	4.21	1.57
Repetitive	4.47	1.58
(1 to 5 scale)		
Teamwork	3.01	1.12
Technical Skills	3.38	1.10
Oral Communication	2.92	1.09
Writing	2.85	1.10
Critical Thinking	3.74	1.11
Professionalism	3.75	1.16
Leadership	3.21	1.15
Creativity	2.76	1.20
Real-World Application	3.72	1.09
Problem Solving	3.77	1.10
(1 to 7 scale)		
Individual v. Group	2.56	1.39
Few v. Many Exams	5.09	1.45
Lecture v. Problems	3.87	1.39
Light v. Heavy Workload	5.21	1.45

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

FRESHMAN RESULTS

(1 to 7 scale)	Average	St. Dev.
Organized	3.17	1.69
Boring	3.33	1.88
Time-Consuming	4.11	1.68
Demanding	3.83	1.69
Enjoyable	3.44	1.76
Repetitive	4.06	2.18
(1 to 5 scale)		
Teamwork	2.67	1.64
Technical Skills	2.67	1.33
Oral Communication	2.56	1.34
Writing	3.50	1.25
Critical Thinking	3.06	1.30
Professionalism	2.83	1.62
Leadership	2.72	1.36
Creativity	3.56	1.34
Real-World Application	3.17	1.58
Problem Solving	2.67	1.33
(1 to 7 scale)		
Individual v. Group	3.94	1.98
Few v. Many Exams	4.28	2.11
Lecture v. Problems	3.83	1.29
Light v. Heavy Workload	4.06	2.36

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schuberth

SOPHOMORE RESULTS

(1 to 7 scale)	Average	St. Dev.
Organized	5.44	1.36
Boring	3.38	2.16
Time-Consuming	5.25	1.84
Demanding	4.56	1.86
Enjoyable	3.88	2.09
Repetitive	3.94	2.14
(1 to 5 scale)		
Teamwork	2.75	1.34
Technical Skills	3.00	1.67
Oral Communication	3.38	1.54
Writing	3.00	1.71
Critical Thinking	2.81	1.52
Professionalism	3.13	1.36
Leadership	2.88	1.54
Creativity	3.31	1.35
Real-World Application	3.06	1.44
Problem Solving	2.56	1.03
(1 to 7 scale)		
Individual v. Group	2.69	1.35
Few v. Many Exams	4.75	1.39
Lecture v. Problems	3.50	1.86
Light v. Heavy Workload	5.56	0.81

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schuberth

JUNIOR RESULTS

(1 to 7 scale)	Average	St. Dev.
Organized	5.94	0.97
Boring	3.45	1.28
Time-Consuming	5.55	0.90
Demanding	5.33	1.22
Enjoyable	4.45	1.35
Repetitive	4.33	1.27
(1 to 5 scale)		
Teamwork	2.97	1.05
Technical Skills	3.45	0.90
Oral Communication	2.70	0.81
Writing	2.58	0.90
Critical Thinking	3.91	0.98
Professionalism	4.06	0.90
Leadership	3.30	1.07
Creativity	2.39	1.06
Real-World Application	3.82	0.77
Problem Solving	4.06	0.66
(1 to 7 scale)		
Individual v. Group	2.15	1.12
Few v. Many Exams	5.24	1.28
Lecture v. Problems	4.12	1.39
Light v. Heavy Workload	5.24	1.20

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

SENIOR RESULTS

(1 to 7 scale)	Average	St. Dev.
Organized	5.84	1.13
Boring	3.83	1.48
Time-Consuming	5.59	1.16
Demanding	5.57	1.12
Enjoyable	4.36	1.44
Repetitive	4.75	1.36
(1 to 5 scale)		
Teamwork	3.17	0.92
Technical Skills	3.60	0.87
Oral Communication	3.00	0.99
Writing	2.77	0.92
Critical Thinking	4.03	0.82
Professionalism	3.96	0.94
Leadership	3.36	1.01
Creativity	2.61	1.09
Real-World Application	3.95	0.88
Problem Solving	4.17	0.83
(1 to 7 scale)		
Individual v. Group	2.38	1.13
Few v. Many Exams	5.28	1.28
Lecture v. Problems	3.84	1.30
Light v. Heavy Workload	5.41	1.25

Hypothesis Test Results

Test #1: Freshman to Sophomore Year Overall Skill Improvement

$H_0: \mu_{\text{freshman}} - \mu_{\text{sophomore}} = 0$

$H_1: \mu_{\text{freshman}} - \mu_{\text{sophomore}} < 0$

$\alpha: 0.05$

SKILL	P-VALUE	VERDICT
Teamwork	0.435951	Fail to Reject null
Technical Skills	0.264301	Fail to Reject null
Oral Communication	0.055319	Fail to Reject null
Writing	0.172177	Fail to Reject null
Critical Thinking	0.311021	Fail to Reject null
Professionalism	0.286048	Fail to Reject null
Leadership	0.381538	Fail to Reject null
Creativity	0.301413	Fail to Reject null
Real-World Application	0.420872	Fail to Reject null
Problem Solving	0.399475	Fail to Reject null

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

Test #2: Freshman to Junior Year Overall Skill Improvement

$$H_0: \mu_{\text{freshman}} - \mu_{\text{junior}} = 0$$

$$H_1: \mu_{\text{freshman}} - \mu_{\text{junior}} < 0$$

$\alpha:$ 0.05

SKILL	P-VALUE	VERDICT
Teamwork	0.242937	Fail to Reject null
Technical Skills	0.016672	Reject null
Oral Communication	0.342964	Fail to Reject null
Writing	0.005009	Reject null
Critical Thinking	0.010998	Reject null
Professionalism	0.003384	Reject null
Leadership	0.064654	Fail to Reject null
Creativity	0.001756	Reject null
Real-World Application	0.057228	Fail to Reject null
Problem Solving	0.0002	Reject null

Test #3: Freshman to Senior Year Overall Skill Improvement

$$H_0: \mu_{\text{freshman}} - \mu_{\text{senior}} = 0$$

$$H_1: \mu_{\text{freshman}} - \mu_{\text{senior}} < 0$$

$\alpha:$ 0.05

SKILL	P-VALUE	VERDICT
Teamwork	0.111178	Fail to Reject null
Technical Skills	0.004978	Reject null
Oral Communication	0.09945	Fail to Reject null
Writing	0.015034	Reject null
Critical Thinking	0.003358	Reject null
Professionalism	0.005064	Reject null
Leadership	0.037846	Reject null
Creativity	0.005428	Reject null
Real-World Application	0.028701	Reject null
Problem Solving	8.35E-05	Reject null

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

Test #4: Sophomore to Junior Year Overall Skill Improvement

$$H_0: \mu_{\text{sophomore}} - \mu_{\text{junior}} = 0$$

$$H_1: \mu_{\text{sophomore}} - \mu_{\text{junior}} < 0$$

$$\alpha: 0.05$$

SKILL	P-VALUE	VERDICT
Teamwork	0.285061	Fail to Reject null
Technical Skills	0.160863	Fail to Reject null
Oral Communication	0.05762	Fail to Reject null
Writing	0.181927	Fail to Reject null
Critical Thinking	0.007609	Reject null
Professionalism	0.010283	Reject null
Leadership	0.164507	Fail to Reject null
Creativity	0.012613	Reject null
Real-World Application	0.03155	Reject null
Problem Solving	1.41E-05	Reject null

Test #5: Sophomore to Senior Year Overall Skill Improvement

$$\mu_{\text{sophomore}} - \mu_{\text{senior}} =$$

$$H_0: 0$$

$$\mu_{\text{sophomore}} - \mu_{\text{senior}} <$$

$$H_1: 0$$

$$\alpha: 0.05$$

SKILL	P-VALUE	VERDICT
Teamwork	0.122202	Fail to Reject null
Technical Skills	0.090665	Fail to Reject null
Oral Communication	0.181965	Fail to Reject null
Writing	0.307062	Fail to Reject null
Critical Thinking	0.003201	Reject null
Professionalism	0.015447	Reject null
Leadership	0.122345	Fail to Reject null
Creativity	0.033666	Reject null
Real-World Application	0.014793	Reject null
Problem Solving	5.63E-06	Reject null

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

Test #6: Junior to Senior Year Overall Skill Improvement

$$\begin{aligned} & \mu_{\text{sophomore}} - \mu_{\text{senior}} = \\ H_0: & 0 \\ & \mu_{\text{sophomore}} - \mu_{\text{senior}} < \\ H_1: & 0 \end{aligned} \quad \alpha: \quad 0.05$$

SKILL	P-VALUE	VERDICT
Teamwork	0.169097	Fail to Reject null
Technical Skills	0.219607	Fail to Reject null
Oral Communication	0.049337	Reject null
Writing	0.151056	Fail to Reject null
Critical Thinking	0.274752	Fail to Reject null
Professionalism	0.299393	Fail to Reject null
Leadership	0.398473	Fail to Reject null
Creativity	0.164642	Fail to Reject null
Real-World Application	0.223864	Fail to Reject null
Problem Solving	0.226257	Fail to Reject null

Test #1: Freshman to Sophomore Year Change in Perceptions

$$\begin{aligned} & \mu_{\text{freshman}} - \mu_{\text{sophomore}} = \\ H_0: & 0 \\ & \mu_{\text{freshman}} - \mu_{\text{sophomore}} \neq \\ H_1: & 0 \end{aligned} \quad \alpha: \quad 0.05$$

TERM	P-VALUE	VERDICT
Organized	0.0001	Reject null
Boring	0.9528	Fail to Reject null
Time-Consuming	0.0703	Fail to Reject null
Demanding	0.2429	Fail to Reject null
Enjoyable	0.5238	Fail to Reject null
Repetitive	0.8747	Fail to Reject null

Test #2: Freshman to Junior Year Change in Perceptions

$$\begin{aligned} H_0: & \mu_{\text{freshman}} - \mu_{\text{junior}} = 0 \\ H_1: & \mu_{\text{freshman}} - \mu_{\text{junior}} \neq 0 \end{aligned} \quad \alpha: \quad 0.05$$

TERM	P-VALUE	VERDICT
Organized	1.4473E-06	Reject null
Boring	0.80867247	Fail to Reject null
Time-Consuming	0.002684684	Reject null
Demanding	0.002556814	Reject null
Enjoyable	0.042728061	Reject null
Repetitive	0.624243113	Fail to Reject null

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

Test #3: Freshman to Senior Year Change in Perceptions

$$H_0: \mu_{\text{freshman}} - \mu_{\text{senior}} = 0$$

$$H_1: \mu_{\text{freshman}} - \mu_{\text{senior}} \neq 0$$

$$\alpha: 0.05$$

SKILL	P-VALUE	VERDICT
Organized	2.63875E-06	Reject null
Boring	0.309865174	Fail to Reject null
Time-Consuming	0.001951046	Reject null
Demanding	0.000457	Reject null
Enjoyable	0.051796533	Fail to Reject null
Repetitive	0.213138329	Fail to Reject null

Test #4: Sophomore to Junior Year Change in Perceptions

$$H_0: \mu_{\text{sophomore}} - \mu_{\text{junior}} = 0$$

$$H_1: \mu_{\text{sophomore}} - \mu_{\text{junior}} \neq 0$$

$$\alpha: 0.05$$

TERM	P-VALUE	VERDICT
Organized	0.200273	Fail to Reject null
Boring	0.892842	Fail to Reject null
Time-Consuming	0.551504	Fail to Reject null
Demanding	0.146116	Fail to Reject null
Enjoyable	0.323721	Fail to Reject null
Repetitive	0.502335	Fail to Reject null

Test #5: Sophomore to Senior Year Change in Perceptions

$$\mu_{\text{sophomore}} - \mu_{\text{senior}} =$$

$$H_0: 0$$

$$\mu_{\text{sophomore}} - \mu_{\text{senior}} \neq$$

$$H_1: 0$$

$$\alpha: 0.05$$

SKILL	P-VALUE	VERDICT
Organized	0.283728	Fail to Reject null
Boring	0.434906	Fail to Reject null
Time-Consuming	0.492356	Fail to Reject null
Demanding	0.051224	Fail to Reject null
Enjoyable	0.388701	Fail to Reject null
Repetitive	0.164833	Fail to Reject null

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

Test #6: Junior to Senior Year Change in Perceptions

	$\mu_{\text{sophomore}} - \mu_{\text{senior}} =$		
	H ₀ : 0		
	$\mu_{\text{sophomore}} - \mu_{\text{senior}} \neq$		
	H ₁ : 0		$\alpha: 0.05$
SKILL	P-VALUE	VERDICT	
Organized	0.641738	Fail to Reject null	
Boring	0.189071	Fail to Reject null	
Time-Consuming	0.842703	Fail to Reject null	
Demanding	0.337115	Fail to Reject null	
Enjoyable	0.74341	Fail to Reject null	
Repetitive	0.131282	Fail to Reject null	

Test #1: Freshman to Sophomore Year Change in Class Styles

	$\mu_{\text{freshman}} - \mu_{\text{sophomore}} =$		
	H ₀ : 0		
	$\mu_{\text{freshman}} - \mu_{\text{sophomore}} \neq$		
	H ₁ : 0		$\alpha: 0.05$
STYLE	P-VALUE	VERDICT	
Individual v. Group	0.037384	Reject null	
Few v. Many Exams	0.442436	Fail to Reject null	
Lecture v. Problems	0.554368	Fail to Reject null	
Light v. Heavy Workload	0.018842	Reject null	

Test #2: Freshman to Junior Year Change in Class Styles

	$\mu_{\text{freshman}} - \mu_{\text{junior}} =$		
	H ₀ : 0		
	$\mu_{\text{freshman}} - \mu_{\text{junior}} \neq$		
	H ₁ : 0		$\alpha: 0.05$
STYLE	P-VALUE	VERDICT	
Individual v. Group	0.001754	Reject null	
Few v. Many Exams	0.089138	Fail to Reject null	
Lecture v. Problems	0.464019	Fail to Reject null	
Light v. Heavy Workload	0.05863	Fail to Reject null	

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

Test #3: Freshman to Senior Year Change in Class Styles

$$H_0: \mu_{\text{freshman}} - \mu_{\text{senior}} = 0$$

$$H_1: \mu_{\text{freshman}} - \mu_{\text{senior}} \neq 0$$

$\alpha: 0.05$

STYLE	P-VALUE	VERDICT
Individual v. Group	0.004311	Reject null
Few v. Many Exams	0.066625	Fail to Reject null
Lecture v. Problems	0.989553	Fail to Reject null
Light v. Heavy Workload	0.029819	Reject null

Test #4: Sophomore to Junior Year Change in Class Styles

$$H_0: \mu_{\text{sophomore}} - \mu_{\text{junior}} = 0$$

$$H_1: \mu_{\text{sophomore}} - \mu_{\text{junior}} \neq 0$$

$\alpha: 0.05$

STYLE	P-VALUE	VERDICT
Individual v. Group	0.181832	Fail to Reject null
Few v. Many Exams	0.242708	Fail to Reject null
Lecture v. Problems	0.24802	Fail to Reject null
Light v. Heavy Workload	0.27865	Fail to Reject null

Test #5: Sophomore to Senior Year Change in Class Styles

$$H_0: \mu_{\text{sophomore}} - \mu_{\text{senior}} = 0$$

$$H_1: \mu_{\text{sophomore}} - \mu_{\text{senior}} \neq 0$$

$\alpha: 0.05$

STYLE	P-VALUE	VERDICT
Individual v. Group	0.404367	Fail to Reject null
Few v. Many Exams	0.17266	Fail to Reject null
Lecture v. Problems	0.498764	Fail to Reject null
Light v. Heavy Workload	0.534091	Fail to Reject null

Test #6: Junior to Senior Year Change in Class Styles

$$H_0: \mu_{\text{sophomore}} - \mu_{\text{senior}} = 0$$

$$H_1: \mu_{\text{sophomore}} - \mu_{\text{senior}} \neq 0$$

$\alpha: 0.05$

STYLE	P-VALUE	VERDICT
Individual v. Group	0.338861	Fail to Reject null
Few v. Many Exams	0.877443	Fail to Reject null
Lecture v. Problems	0.32417	Fail to Reject null
Light v. Heavy Workload	0.523953	Fail to Reject null

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schuberth

Year-to-year changes

PERCEPTIONS

(1 to 7 scale)	Freshman	Sophomore	Junior	Senior
Organized	3.17	5.44	5.94	5.84
Boring	3.33	3.38	3.45	3.83
Time-Consuming	4.11	5.25	5.55	5.59
Demanding	3.83	4.56	5.33	5.57
Enjoyable	3.44	3.88	4.45	4.36
Repetitive	4.06	3.94	4.33	4.75

SKILL DEVELOPMENT

(1 to 5 scale)	Freshman	Sophomore	Junior	Senior
Teamwork	2.67	2.75	2.97	3.17
Technical Skills	2.67	3.00	3.45	3.60
Oral Communication	2.56	3.38	2.70	3.00
Writing	3.50	3.00	2.58	2.77
Critical Thinking	3.06	2.81	3.91	4.03
Professionalism	2.83	3.13	4.06	3.96
Leadership	2.72	2.88	3.30	3.36
Creativity	3.56	3.31	2.39	2.61
Real-World Application	3.17	3.06	3.82	3.95
Problem Solving	2.67	2.56	4.06	4.17

CLASS ENVIRONMENT

(1 to 7 scale)	Freshman	Sophomore	Junior	Senior
Individual v. Group	3.94	2.69	2.15	2.38
Few v. Many Exams	4.28	4.75	5.24	5.28
Lecture v. Problems	3.83	3.50	4.12	3.84
Light v. Heavy Workload	4.06	5.56	5.24	5.41

Items in yellow had increase in average for each successive year.

DISCUSSION

Based on the information obtained from the sample, one can conclude that a significant amount of time is needed in order for students to experience a substantial improvement in their proficiencies in the selected skills. As seen in the data, there were no skills that were shown to have developed significantly from freshman to sophomore year. Then from sophomore to junior year, five of the ten listed skills were shown to have developed at a statistically significant level. These findings stress the importance of understanding he

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

concepts and building one's work ethic in these beginning accounting classes; recall from the literature that each accounting class builds on one another (Borja, 2011). So as long as one continues on the right path in this regard, one should have a fair amount of confidence that most, if not all, of these skills will have developed significantly by the time one graduates. The data suggests that this claim holds validity, as all but two skills have been significantly developed going from freshman to senior year.

With regards to changes in perceptions, freshmen tended to change their philosophy most as they enter their junior year, with "organized", "time-consuming", "demanding", and "enjoyable" each showing statistically significant change. Upon reviewing the averages for each class, each of these aforementioned terms saw a clear shift towards the "agree" side of the Likert scale. One possible explanation of this phenomenon could be that since Bryant students are required to declare their major by the end of their sophomore year, coupled with the fact that the vast majority of respondents were accounting majors (roughly 75%), the respondents collectively knew some defining characteristics of the field into which they were going. No skills saw statistically significant change from sophomore to junior, sophomore to senior, or junior to senior levels.

For changes in class structure and style, the freshmen again experienced the most significant change of any class year. Through all three related levels (freshman to sophomore, freshman to junior, and freshman to senior), Individual versus group work was shown to have changed most drastically, with a trend towards far more individual-based work as respondents progress through their college careers. The overall course workload also saw a statically significant change for freshman to sophomore and freshman to senior, but not from freshman to junior. Similar to the perceptions tests, no significant change occurred from the other three levels (sophomore to junior, sophomore to senior, or junior to senior).

Examining the year-by-year trends in perceptions, respondents generally tended to agree that accounting could be better described as boring, time-consuming, and demanding, though the final figure for boring was still slightly in the disagree range (3.83). Three of the ten skills

listed saw consistent development through each year: teamwork, technical skills, and leadership. This result is extremely encouraging for both employers and prospective employees alike, especially considering that “demand will continue to exceed the supply of candidates who have an analytical mindset, technical skills, *and* a foundation for leadership” (PwC, 2015). The data would suggest that entry-level employees should improve in these skills that companies demand. Finally, with respect to class style, the only aspect that increased each year was few versus many assessments, with a gradual increase each year from freshman to senior year.

LIMITATIONS AND FUTURE RESEARCH IMPLICATIONS

As stated earlier, the possibility exists that an incorrect conclusion was made on any of the hypothesis tests conducted, either through Type I or Type II error. Type I error represents the probability of incorrectly rejecting a null hypothesis that is true, where Type II error is the probability of incorrectly failing to reject a null hypothesis which is false. In each case within this study, the probability of committing a Type I error on any given test is 5%, which matches the predetermined alpha level (level of significance). An example of a possible Type I error within the data can be found in the junior to senior year skill improvement test, as it appears that oral communication had indeed significantly improved. Oddly, no other year-to-year level yielded a significant improvement in this skill. Additionally, the calculated p-value of 0.04934 falls just below the 0.05 level of significance.

Another possible explanation for this discrepancy in the oral communication category is the nature of the random sample taken. The results from another identical sample of 142 students could have yielded several different results; that is why each decision carries with it a 95% confidence level that the correct verdict was reached. Furthermore, the possibility of response bias must also be considered; was *every* response from each participant their fully honest opinion, especially pertaining to their degree of skill development? As stated before, most of the respondents have experience with accounting classes and have performed quite well in those classes, so perhaps the effects of response bias were kept to a minimum as a result of this particular sample. Moreover, remember that the sample was comprised of undergraduate

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

students only. The graph found on Appendix B shows a study from Hart Research, detailing the noteworthy difference between students' confidence in skills compared to employers' confidence that these skills have been adequately developed. According to the graph, the students in their sample did not know the half of what they were expected to do by employers. Future research could make an attempt to further explore why this gap exists, and what actions employers and colleges can take to bring that gap down.

There are a wide number of possibilities for future research branching from this study. An interesting method would be to repeat the study using a different sample to see if any of the results differ from what this study generated. Another option could examine what effect a more even class distribution would have on the analysis. Recall that in this study, the vast majority of respondents (about 76%) were either juniors or seniors, so attempting to spread the sample out more equally among the classes could give a more definitive sign of which hypotheses to reject and which not to reject. Finally, one could potentially add a part to the survey itself; for example, including a section about which class styles students prefer would allow a direct comparison to which class styles students are actually experiencing to see whether the students are getting out of the program what their goals were.

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schubert

APPENDICES

Appendix 1 – Survey Draft

Part I:

What is your gender? M or F (please circle one)

What is your age? _____.

What is your class year? Freshman Sophomore Junior Senior (please circle one)

What is your major? _____.

Please circle your GPA Range:

3.81-4.00 3.61-3.80 3.41-3.60 3.21-3.40 3.01-3.20 2.81-3.20 Less than 2.80

Part II:

For each word or phrase, please select an option signifying the extent to which you agree or disagree that word or phrase applies to accounting.

1 – Strongly Disagree

4 – Neutral

7 – Strongly Agree

	1	2	3	4	5	6	7
Organized							
Boring							
Time Consuming							
Demanding							
Enjoyable							
Repetitive							

Part III:

For each skill listed, please select an option which expresses the extent to which you believe that skill has been developed in your accounting courses.

	1 - Not at all	2 - Not enough	3 – Somewhat Developed	4 - Well-Developed	5 - Fully Developed
Teamwork					
Technical Proficiency					

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schuberth

Oral Communication					
Writing Skills					
Critical Thinking					
Professionalism					
Leadership					
Creativity					
Real-World Application					
Problem Solving					

Part IV:

How many accounting courses have you taken, counting both college and high school?

0 1 2 3 4 More than 5 (please choose one)

If you have taken at least one accounting class, please indicate the choice that best describes your experience in these classes.

	1 – Individual-based	2	3	4	5	6	7 – Group-based
Most of my work done was...							

	1 – No exams or quizzes	2	3	4	5	6	7 – Frequent exams or quizzes
How often was I tested on material?							

An Investigation of Accounting Education to Help Students Improve Important Job Skills
Senior Capstone Project for Alec Schuberth

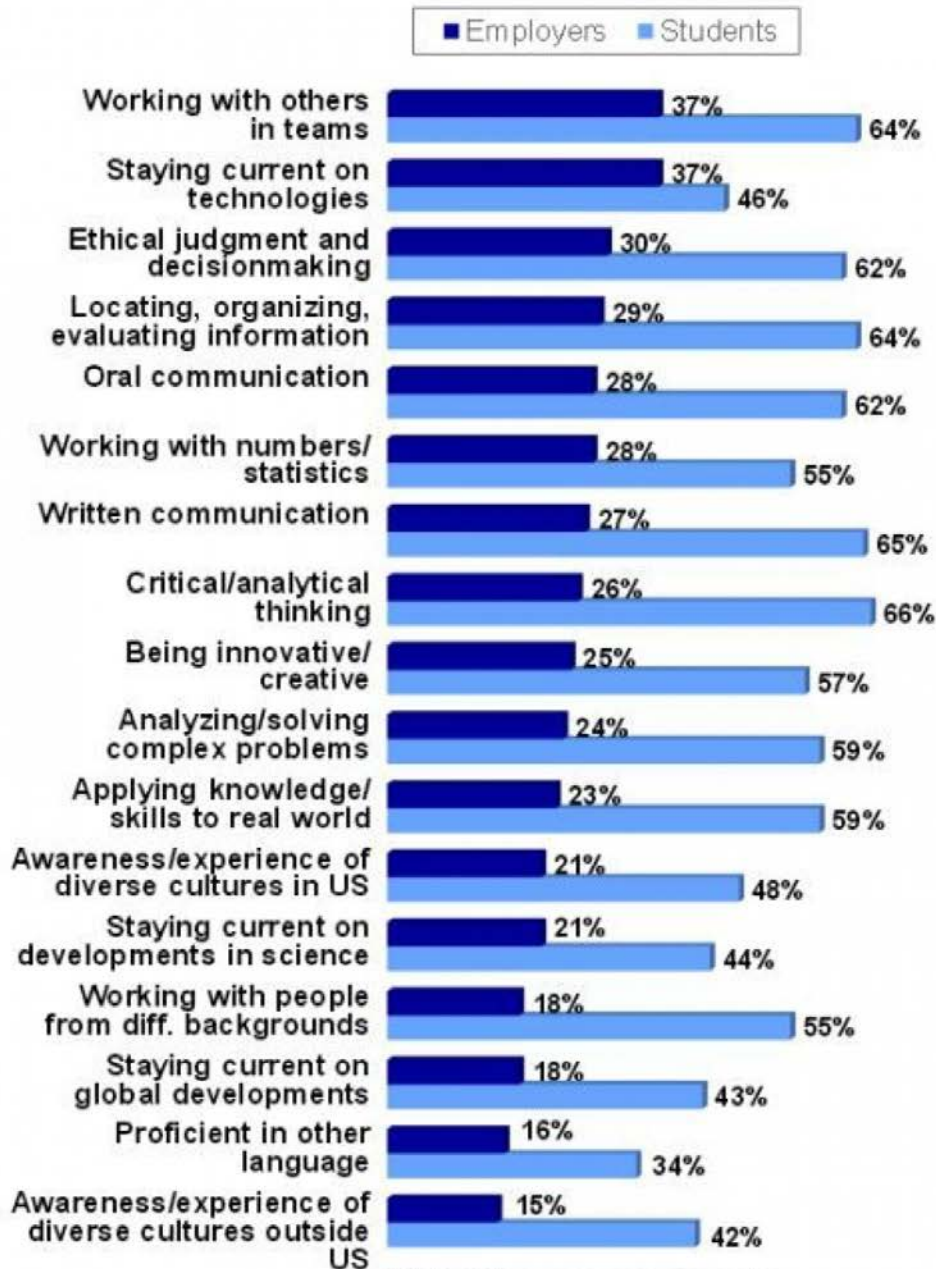
	1 - Lectures	2	3	4	5	6	7 - Problem Solving
The course structure was largely based on...							

	1 - Light	2	3	4	5	6	7 - Heavy
The course workload was typically...							

Appendix 2 – Hart Research Graph

Employers give college graduates low scores for preparedness across learning outcomes; students think they are better prepared.

*Proportions saying they/recent college graduates are well prepared in each area**



*8-10 ratings on zero-to-ten scale

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Senior Capstone Project for Alec Schubert

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