


A First Look At The Accounting Information Systems Emphasis At One University: An Exploratory Analysis

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ABSTRACT

Technology has dramatically changed the accounting profession. One response to this change is the development of accounting programs that emphasize Accounting Information Systems (AIS). This paper examines the job satisfaction, career paths, job placement and CPA examination success of graduates choosing an emphasis in AIS compared to graduates following a traditional accounting curriculum at one mid-western university. Survey results show that there are few differences between graduates who selected an AIS emphasis over the traditional accounting major. There are several reasons that insignificant differences were discovered. The graduates surveyed were some of the first AIS graduates in the market place. Thus, employers were uncertain how to best utilize the skill sets of these graduates and in many cases placed these graduates in the same career path as a traditional accounting major. Additionally, the data was collected in the summer of 2003 from alumni who graduated during the years 1995 – 2002. The dot.com bust was fully realized by the summer of 2003, thus, the AIS graduate's skills were of a lesser value at the time of the survey. Finally, small sample size is a contributing factor in the insignificant results. The current regulatory environment (i.e. Sarbanes-Oxley) has created a renewed demand for the skills of the AIS graduate. Future research will hopefully be able to measure the value of the accounting major with an AIS emphasis from both the student and employer perspective.

INTRODUCTION

 ver the last decade, the force of information technology (IT) has transformed the business environment. We are in the midst of a paradigm shift from the industrial paradigm of wealth creation to the information paradigm of wealth creation; and technology is the driving force behind these changes (Elliot, 1992). During this same time period, the field of accounting has undergone an extraordinary transformation relative to its use of IT. IT has increased our ability to capture, store, analyze, and process tremendous amounts of data, increased our ability to change business processes, and has significantly impacted the control process. Employers are demanding that their accounting and audit staff possess adequate backgrounds in IT.

The American Institute of Certified Public Accountants (AICPA) has recognized the growing importance of IT. The AICPA created the top 10 technologies process and the IT member section in the late 1980s and early 1990s. Furthermore, the AICPA created the Certified Information Technology Professional (CITP) designation, which is a CPA who is credentialed as a technology professional and recognized for his or her unique ability to bridge the gaps between business and technology. The Institute of Management Accountants (IMA) also recognized the growing importance of information technology. In 1990, the IMA warned that accountants who stay on the traditional accounting turf risk being overtaken by computer experts (Seigel and Sorenson, 1999).

Accounting education, however, has been slow to adapt to the increasing emphasis on IT. A study done in 1999 indicated that of all U. S. AACSB accredited business schools offering bachelor's degrees in accounting, just over 2% offered undergraduate programs in accounting information systems (AIS) or a field similar to AIS (Bryant et.

al. 1999). In 1996, one mid-sized mid-western university decided to embrace IT. Our university modified its accounting curriculum by offering a concentration in AIS as an option for students wanting a technology emphasis to accompany their accounting major. This paper presents an exploratory analysis of graduates of our traditional accounting program compared to our AIS program. Specifically, we investigate whether our accounting graduates with an emphasis in AIS, as compared to our traditional accounting majors, are more satisfied with their college education and their job; the career paths they have taken; and their CPA exam pass rates. Research into the post-graduation outcomes of AIS programs is nonexistent in the accounting literature. This paper provides an important first step in providing evidence of the differences, if any, of AIS graduates and traditional accounting major graduates.

The paper proceeds as follows. First, we will provide a brief description of our university. Second, we discuss the structure of our accounting program and the motivation for the AIS emphasis. Third, we will present our purpose for conducting the study. Fourth, we present our research methodology. Last, we summarize our results and summarize our conclusions.

BACKGROUND INFORMATION AND MOTIVATION FOR STUDY

Institutional Background

Our university is a mid-sized comprehensive university in the upper mid-west region of the United States. The university has just over 14,000 undergraduate students and 1,200 graduate students. It is located in a rural setting approximately one hour from a major metropolitan area with population in excess of 1.5 million. Over 90% of the student body consists of traditional resident students. The College of Business comprises approximately 10% of the university's enrollment (1,400 declared majors). The College of Business is AACSB accredited at both the undergraduate and MBA level. The accounting program has remained fairly constant in size over the past 15 years, graduating approximately 70 – 100 majors each year. The university operates a large on-campus recruiting program. Of each year's graduating accounting class, many find employment in public accounting. The program maintains a small master's degree program, which has not accepted any new students in a number of years. Also, the college of business has a large MBA program. The university is located in a state which has approved the 150-hour education requirement of the Uniform Accountancy Act, but the requirement will not take effect until July 1, 2006.

Motivation for Curriculum Change

At the time we started looking at the AIS emphasis over ten years ago, the accounting profession, from our perspective, was relatively stagnant. There was a decrease in the demand for our students, especially from the Big 5 firms (at the time it was the Big 5). We needed a way to revitalize our major and make our students more marketable. Furthermore, firms who recruited on our campus began to stress their preference to hire accounting majors who possessed strong IT skills.

At about this same time the College of Business began to see a sharp increase in the demand for the Business Computer Information Systems (BCIS) major. This was due in part to the boom of the Dot.com job market and also high starting salaries for our BCIS graduates. Many of the top students were choosing BCIS over accounting and IT skills were clearly becoming very important in the job market. We believed it was critical that we react to these changes in order to attract and keep the top students in the accounting major.

After considerable deliberation, we chose to react to the changes in the market by adding an AIS emphasis to our major as an option for accounting students interested in an IT focus. However, there were two major issues we knew had to be resolved in order to succeed. First, we needed ensure that we had faculty qualified to teach the IT classes. For the most part our faculty is technologically savvy, but we knew that we must make it a priority to recruit at least one new faculty member with a systems emphasis and/or train current faculty to teach AIS. Over the past several years, we have had an average of 16 faculty members in our department, including two non-tenure instructor positions and one adjunct position. In 1999 and 2000, we hired two new Ph.D.'s who both had an emphasis in systems. At this time we have three faculty members who are willing and qualified to AIS classes and one more

faculty member that is currently retraining. The three faculty members rotate between the two AIS courses we offer through the department.

Second, we needed to decide on an AIS curriculum. We wanted to include courses that would 1) enhance our students' general knowledge and skills related to IT, 2) emphasize the effect of IT on business processes, and 3) demonstrate how to control business processes in an IT environment. Our decision was to require two AIS courses taught by accounting faculty and offered through the accounting department. Then, we agreed to utilize the expertise of the BCIS department to cover the details of specific technologies such as programming, database, networking, e-commerce etc that were currently being covered in existing BCIS courses. Thus, our AIS emphasis was formed and became an option for students in 1995.

The Traditional Accounting Major Versus An AIS Emphasis

The AIS emphasis is not a major in itself, but rather an alternative, special focus area for accounting majors. We advise students to consider the AIS emphasis if they have a special interest in technology or may be considering a career in IT auditing or consulting. A traditional accounting major still exists as well.

A traditional accounting major consists of 40 semester hours of general education courses, 48 semester hours of business core classes (includes a variety of marketing, management, finance, ethics, and economics courses), 21 semester hours of required accounting courses, and 15 semester hours of accounting electives. The 21 semester hours of required accounting courses consists of seven, three credit courses: Accounting Information Systems I, Intermediate Accounting I, Intermediate Accounting II, Managerial Accounting, Business Taxation, Financial Auditing, and Accounting Information Systems II. Students also select five, three credit, elective courses from the following list: Commercial and Financial Law, Advanced Accounting, Personal Taxation, Not for Profit/International Accounting, Operational Auditing, Advanced Managerial Accounting, a one semester Internship experience, OR one upper level course in Finance, Management, Marketing, Economics, Real Estate, or Business Computers and Information Systems (BCIS)

In comparison, the AIS emphasis is a blend of the traditional accounting major and the Business Computers and Information Systems (BCIS) major. Students choosing the AIS emphasis also need to take the same seven required accounting courses listed above (21 credits). And, included in that list are two AIS courses that all accounting majors must complete¹. However, the difference in coursework between the traditional major and the AIS emphasis is in the elective courses. Students choosing the AIS emphasis must take the following elective courses:

Systems Analysis and Design	3 credits
Database Modeling with Database Implement	3 credits
One upper level BCIS course (including E-Commerce, Telecommunications & Network, and Decision Support Systems)	3 credits
Two accounting elective courses	6 credits
One basic programming course	<u>3 credits</u>
Total elective credits	18 credits

In sum, traditional accounting majors and students choosing the AIS emphasis take primarily the same courses, except the electives for an AIS student focus more on IT.

PURPOSE OF THE STUDY

Research into the post graduation benefits of AIS programs is nonexistent in the accounting literature. Therefore, whether or not AIS accounting majors are better prepared for entry-level jobs, more marketable, and are overall better off for having AIS grounded curriculum remains an untested assumption. With no AIS program success studies in the literature, it is not surprising that some basic and very important questions regarding career outcomes have yet to be addressed. For example, are AIS graduates more satisfied with their educational experiences? Do graduates perceive the AIS emphasis prepared them better for the job market and if so, to what degree? Do AIS

graduates have greater job satisfaction or different career paths? This study offers a first look into the AIS emphasis at one university by comparing, through an exploratory analysis, any differences between students choosing an AIS emphasis and students choosing a traditional accounting program.

High speed information processing has become indispensable to business activities. In their final report, "The Impact of Information Technology on the Accountancy Profession," the International Federation of Accountants acknowledged the need for better college level education to address growing IT control concern and issues. Organizations rely on information technology to execute and control business processes. Due to the rapid infusion of IT and the ease of information accessibility, knowledgeable and well educated accounting majors with IT backgrounds are needed.

If organizations demand IT skills, then accounting majors with an emphasis in AIS in theory should be expected to be better prepared for the current business environment and thus, may be more satisfied with their education (because they were better prepared) and could have higher job satisfaction. Two other areas of interest in this study are career paths and CPA exam success. We examine whether our AIS graduates follow an IT related career path. We expect that AIS graduates would since they emphasized these skills in their undergraduate education. We also were interested to see if there was any differences in CPA exam pass rates between the two groups. Since AIS graduates complete more course work in technology related courses, they may forgo the opportunity to take other advanced accounting courses more directly related to the CPA exam. Consequently, we expect AIS students may not perform as well as traditional accounting majors on the CPA exam.

RESEARCH METHODOLOGY

Data was collected using a web-based survey that was administered to our accounting majors who graduated from our accounting program between 1995 and 2002. The purpose of the survey was to explore the differences between our traditional accounting majors and the students who graduated with an AIS emphasis. To notify our alumni of the survey, we mailed a letter to 531 alumni asking them to participate in our survey sometime within the next ten days. There were 82 letters returned to us because of incorrect addresses, giving us a total sample of 449 alumni. Included in the letter were directions for completing the survey and a web address where they could access and complete the survey. Participants were told the purpose of the survey was to determine their perceptions about their accounting education received at our university, find out what they have done professionally since graduating from college, and explore how their education has impacted their success as a professional. We followed the original letter request with a second postcard mailing to all 449 alumni reminding them to participate in the survey and provided them once again with the web address. Of the 449 alumni in our sample, 92 alumni participated in the survey giving us a response rate of 20%.

SUMMARY OF RESULTS

General Demographics

Of the 92 respondents, 34 (37%) were male and 58 (63%) were female. The age breakdown was as follows: 25% were between the ages of 22 and 25, 45% were between the ages of 26 and 30, 16% were between the ages of 31 and 35, 8% were between the ages of 36 and 40 and 7% were over 40. We asked respondents about their cumulative G.P.A. at graduation and 83% of respondents had a G.P.A. of 3.00 or better. See Table 1².

All respondents earned their B.S. degree in accounting from our university and graduated between the years of 1995 and 2002. Three respondents out of the 92 earned double majors (one in business and two in a non-business area) and nine earned minors (eight in business and one in a non-business area). After graduating with a B.S. degree in accounting, 3% went on to earn a M.S. in accounting and 7% completed an M.B.A. Interestingly, 67% of the students completing a master's degree came back to our institution to complete their degree. 42% of our respondents graduated with at least 150 credit hours, which is noteworthy given our 150-hour requirement takes effect July 1, 2006. Finally, 95% of the respondents are currently employed.

Table 1: General Demographic Data

GENDER	AIS		Traditional		Total	
	<i>Freq</i>	<i>Per</i>	<i>Freq</i>	<i>Per</i>	<i>Freq</i>	<i>Per</i>
Male	9	47%	25	34%	34	37%
Female	10	53%	48	66%	58	63%
Total	19		73		92	

GPA	AIS		Traditional		Total	
	<i>Freq</i>	<i>Per</i>	<i>Freq</i>	<i>Per</i>	<i>Freq</i>	<i>Per</i>
2.01 – 2.50	2	11%	0	0%	2	2%
2.51 – 3.00	5	26%	8	11%	13	14%
3.01 – 3.50	3	16%	35	48%	38	41%
3.51 – 4.00	9	47%	30	41%	39	42%
Total	19		73		92	

AIS Emphasis

In our sample, 19 of 92 alumni, or 20%, chose an AIS emphasis. This is consistent with our overall population where about 20% of all our accounting majors elect the AIS emphasis. We provided a list of five reasons why they might have elected the AIS emphasis and asked them to respond to all that apply. The respondent's selections were as follows: 90% chose an AIS emphasis to gain more marketable skills, 58% had an interest in technology, 47% believed they would have more employment opportunities, 42% thought an emphasis would increase job satisfaction, and 37% thought there was higher earnings potential. Two alumni added that the AIS path assisted them in getting to 150 credit hours.

On a Likert scale between 1 and 5, with 5 equal to strongly agree and 1 equal to strongly disagree, we asked them about their decision to pursue an AIS emphasis. When asked if an AIS emphasis positively impacted their career, the mean response was 3.53. When asked if it helped them to advance faster, the mean response was 2.95. When asked if it provided new opportunities for them, the mean response was 3.00. Finally, when asked if they were satisfied overall with their decision, the mean response was 4.00. Given their responses, it appears that they are pleased with their choice to focus on AIS but may not be able to directly identify any resulting pay-offs for doing so.

Comparison of Satisfaction with Education between AIS and Non-AIS Groups

Among other comparisons, we explore if there are differences in satisfaction with their education between the traditional accounting majors and the students with an AIS emphasis. We are interested to find if our AIS graduates were any more satisfied with their education than non-AIS graduates. In response to their overall satisfaction with their accounting education, the traditional accounting majors had a mean response of 4.22 (with 5.00 being very satisfied) and the AIS graduates had a mean response of 4.38. The difference was not significant ($p = .40$).

We also asked them about specific skills they acquired during their education and compared the traditional group to the AIS group. They responded to the question, "My education prepared me exceptionally well in terms of my _____ skills" (with being 5 strongly agree and 1 being strongly disagree). There was a statistically significant mean difference ($p = .03$) between the two groups for analytical skills where the AIS group had a mean response of 3.67 compared to a mean response of 4.08 for the traditional group. The AIS group had fewer core accounting courses, so perhaps those classes contained valuable teaching of analytical skills.

The only other marginally significant difference (at the .10 level) was for written communication skills where the AIS group had a mean response of 3.67 and the traditional group had a mean response of 4.04. Surprisingly there was no difference between the two groups for computer application and technology skills ($p = .28$) as we might have expected. Perhaps both groups have felt generally prepared for the technology expertise asked of them in their respective jobs or they may be receiving the necessary technology training on the job. Overall, the differences in

satisfaction with acquired skill sets between the two groups were primarily not significant. See Table 2 for complete results.

Table 2: Satisfaction With Education

EDUCATION SATISFACTION My education prepared me exceptionally well in terms of my _____ (5= Strongly Agree; 1=Strongly Disagree)	MEAN RESPONSES		MEAN DIFF	SIGNIFICANCE
	AIS (n=19)	Traditional (n=73)		
Analytical Skills	3.67	4.08	.42	p = .03
Computer App & Technology Skills	3.94	3.70	.24	p = .28
Creative Thinking Skills	3.56	3.85	.29	p = .11
Problem Solving Skills	3.94	4.11	.17	p = .27
Job Interviewing Skills	3.39	3.73	.34	p = .19
Job Networking Skills	3.33	3.39	.06	p = .82
Resume Writing Skills	3.67	3.86	.19	p = .43
Leadership Skills	3.83	3.90	.07	p = .75
Teamwork Skills	4.22	4.18	.04	p = .83
Oral Presentation Skills	3.78	3.89	.11	p = .54
Written Communication Skills	3.67	4.04	.38	p = .09

We further investigated their satisfaction with their education in regards to specific computer and technology skills; 5 being very satisfied with their training and 1 being very dissatisfied with their training. The only significant result was in response to their training on general ledger software. The AIS group was more satisfied with their training on general ledger software than the non-AIS group. This result is puzzling since most of the training on general ledger software takes place in the first AIS course, which both groups are required to take. However, perhaps the AIS group has used that training more on the job. Further results are presented in Table 3.

Table3: Satisfaction with Technology Training

TECHNOLOGY TRAINING How satisfied are you with your training in the following areas? (5=Very Satisfied; 1=Very Dissatisfied)	MEAN RESPONSES		MEAN DIFF	SIGNIF
	AIS (n=19)	Traditional (n=73)		
Overall Technology Skills	3.61	3.91	.30	p = .15
Spreadsheet Skills (i.e. Excel)	4.28	4.01	.27	p = .25
General Ledger Software (i.e. Great Plains)	3.17	2.68	.49	p = .05
Word Processing Skills (i.e. Microsoft Word)	4.06	3.86	.20	p = .41
Presentation Software Skills (i.e. PowerPoint)	3.72	3.38	.34	p = .22
Database Skills (i.e. Microsoft Access)	3.39	3.13	.26	p = .36
Web page Design Skills	2.56	2.59	.03	p = .89
Internet Usage (i.e. research, WebCT)	3.39	3.21	.18	p = .52

Finally, we surveyed our alumni to see what types of courses they found most useful and what areas would they have liked more coursework. All 92 respondents clearly thought their financial accounting courses were the most useful with 59% ranking financial accounting as their number one most useful course and 96% including financial accounting as one of their top five most useful courses. Auditing, followed by tax, business law, and communications were ranked as the next most important courses. Only 4% ranked AIS as their most important course and only 28% included AIS in their top five most important courses. Nobody ranked BCIS as their most important course and only 19% ranked BCIS as one of their top five most important courses (see Table 4).

In terms of additional coursework, 38% of the alumni wished they would have had more tax classes, 33% would have liked more courses in financial accounting, and 32% would have liked additional AIS courses. Only one in five of our graduates wish they would have liked additional BCIS classes. Remember, additional coursework in

BCIS is the foundation of our AIS emphasis. This result could imply one of two things; most students do not perceive additional coursework in BCIS is necessary or they felt well prepared in this area.

Table 4: Evaluation of Usefulness of Coursework

EVALUATION OF COURSEWORK	Percent of respondents that ranked course as one of top five courses (n=92)			Percent of respondents that would have liked more courses in this area (n=92)		
	TOTAL	AIS	Traditional	TOTAL	AIS	Traditional
Financial Accounting	96%	89%	97%	33%	53%	27%
Auditing	66%	58%	68%	26%	32%	25%
Tax	59%	58%	59%	38%	47%	36%
Business Law	54%	21%	63%	13%	5%	15%
Speech & Communications	54%	58%	53%	19%	26%	16%
Managerial Accounting	45%	42%	45%	12%	16%	11%
Finance	37%	37%	37%	26%	26%	26%
AIS	28%	63%	11%	32%	37%	30%
Management	21%	21%	21%	15%	11%	16%
BCIS	19%	32%	16%	20%	16%	21%
General Education	10%	0%	12%	1%	0%	1%
Marketing	8%	5%	10%	2%	5%	1%

We separated the AIS and non-AIS group and found both groups were generally comparable in ranking the most important courses and identifying areas where additional coursework would have been useful. In the AIS group, 89% rank financial accounting as one of their five most important courses compared to 97% of the non-AIS group. 47% of the AIS group wishes they would have had more financial accounting courses compared to 27% in the non-AIS group. 63% of the AIS group ranked AIS as one of their five most important classes whereas only 11% of the non-AIS group considered their AIS courses as one of their five most important; a notable difference. About a third of both the AIS and non-AIS groups wish they would have had more AIS coursework. Finally a few more of the AIS group found the BICS courses important; 32% of the AIS group ranked BCIS in their top five compared to only 15% of the non-AIS group. Further results are presented in Table 4. Overall, we did not find any significant differences in education satisfaction between the two groups.

Comparison Of Job Satisfaction Between The AIS And Non-AIS Groups

To explore what happens to our AIS students after graduation in comparison to our traditional majors, we investigate whether there are any differences in job satisfaction between the two groups. As we discussed earlier, we believe that AIS graduates could be more satisfied with their jobs since theoretically they are better prepared for the IT environment present in businesses today.

To begin, we asked our alumni how satisfied they were/are in both their first job out of college and their current job. If they are still in their first job out of college, we included their responses in both the “first job” and “current job” results. There were no significant differences between AIS and non-AIS graduates in regards to overall job satisfaction, or satisfaction with advancement opportunities in job, pay raises, job security, or increased job responsibilities for either first jobs or current jobs. Results are presented in Table 5.

Table 5: Comparison of Job Satisfaction First Job Position and Current Job Position

FIRST JOB POSITION: JOB SATISFACTION (n=87*) (5=Very Satisfied; 1=Very Dissatisfied)	MEAN RESPONSES		MEAN DIFF	SIGNIF
	AIS (n=18)	Traditional (n=69)		
Overall Job Satisfaction	3.53	3.84	.31	p = .28
Advancement Opportunities	3.47	3.73	.26	p = .42
Pay Raises	3.24	3.64	.41	p = .18
Job Security	4.24	4.07	.16	p = .52
Increased Job Responsibilities	4.29	4.20	.09	p = .67
CURRENT JOB POSITION: JOB SATISFACTION (n=86**) (5=Very Satisfied; 1=Very Dissatisfied)	MEAN RESPONSES		MEAN DIFF	SIGNIF
	AIS (n=17)	Traditional (n=69)		
Overall Job Satisfaction	4.47	4.20	.27	p = .16
Advancement Opportunities	4.06	4.09	.03	p = .92
Pay Raises	4.00	3.74	.26	p = .35
Job Security	4.00	4.13	.13	p = .55
Increased Job Responsibilities	4.50	4.38	.12	p = .47

*Our sample had 92 respondents. However, 5 are recent graduates and not currently employed. Therefore, n=87 (92-5).

**One respondent did not answer the job satisfaction questions for “Current Job” even though they indicated that they are currently employed in a position different from than first job out of college. Therefore, n=86 for “Current Job Position”.

To further address job satisfaction, we also compared several other job factors between our two types of students including salary comparisons, comparisons of length of time in jobs, and comparisons of number of companies employed by and number of positions held since graduation. We compared a total of eight factors (see Table 6) and found no significant differences between our two groups. Given the insignificant results, it is difficult to draw any conclusions from our data other than the AIS emphasis does not appear to make any difference in terms of job satisfaction or other job factors such as salary or length of time in a position.

Table 6: Comparison Of Other Job Factors

VARIOUS JOB FACTORS:FIRST JOB POSITION AND CURRENT JOB POSITION (n=87)	MEAN RESPONSES		MEAN DIFF	SIGNIF
	AIS (n=18)	Traditional (n=69)		
1. Average Starting Salary in First Job	\$29,206	\$30,588	\$1,382	p = .37
2. % Change in Salary between start and end of first job	28%	31%	3%	p = .78
3. Current Salary	\$49,735	\$57,674	\$973	p = .81
4. Amount of Time until First Job Offer (in years)	.11	.10	.01	p = .79
5. Length of Time in First Job (in years)	2.18	2.25	.07	p = .90
6. Length of Time in Current Job (in years)	2.56	2.66	.10	p = .86
7. Total # of Companies Employed By (since graduation)	2.56	2.67	.12	p = .62
8. Total # of Positions Held (since graduation)	3.84	3.65	.19	p = .58

Comparison Of Career Paths Between The AIS And Non-AIS Groups

Next, we look for any differences in career paths between the two groups. We compare the types of companies our graduates are employed by and the types of positions our graduates are holding, specifically looking for differences between our AIS and non-AIS groups. We did not have any preconceived expectations related to the types of companies are graduates work for. Over half of both our AIS and non-AIS graduates start in public accounting after graduation, either at a Big 4 firm or a non-Big 4 public accounting firm³. However, 58% of the AIS group currently works in private accounting and only 17% still work in public accounting. In contrast, 47% of the traditional accounting majors still work in public accounting and 43% work in private accounting. Few of our students end up in governmental accounting positions. See Table 7 for further results.

As explained earlier in the expectation section of the paper, we expect a larger portion of the AIS graduates to take jobs and continue working in IT, such as IT auditing and consulting. Table 7 shows that a majority of both our

AIS and non-AIS graduates start their careers in external auditing, tax and general accounting. Results show 17 % (3 of 18) of the AIS students started in IT audit or consulting, whereas, 7% (4 of 69) of non-AIS students started in IT audit or consulting. When considering current position, there are 16% (3 of 18) of the AIS graduates and 7% (4 of 69) non-AIS graduates working in IT audit or consulting. The results also show that the majority of both the AIS and non-AIS students stay in external auditing, tax and general accounting. Overall, we did not find any significant differences in career paths between the two groups. See Table 7 for further results.

Table 7: Type Of Companies And Types Of Job Positions First Job And Current Job

FIRST JOB POSITION (n = 87)

TYPE OF COMPANY			
	AIS	Traditional	Total
Big 4	2 (11%)	6 (9%)	8 (9%)
Other Public	7 (39%)	35 (51%)	42 (49%)
Private	8 (44%)	20 (29%)	28 (32%)
Governmental	0 (0%)	2 (3%)	2 (2%)
Other	1 (6%)	6 (8%)	7 (8%)
Total	18	69	87
TYPE OF POSITION			
	AIS	Traditional	Total
External Audit	6 (33%)	18 (26%)	24 (28%)
Tax	0	15 (23%)	15 (17%)
IT Audit	0	1 (1%)	1 (1%)
Payroll	0	1 (1%)	1 (1%)
Mgmt Consult	0	2 (3%)	2 (2%)
IT Consulting	3 (17%)	3 (4%)	6 (7%)
Governmental	0	3 (4%)	3 (3%)
General Acct	5 (27%)	18 (26%)	23 (26%)
Internal Audit	1 (6%)	3 (4%)	4 (5%)
Finance	0	4 (7%)	4 (5%)
Other	3 (17%)	1 (1%)	4 (5%)
Total	18	69	87

CURRENT JOB POSITION (n = 87)

TYPE OF COMPANY			
	AIS	Traditional	Total
Big 4	0 (0%)	2 (2%)	2 (2%)
Other Public	6 (17%)	33 (45%)	39 (39%)
Private	9 (58%)	25 (43%)	34 (45%)
Governmental	1 (8%)	5 (6%)	6 (7%)
Other	2 (17%)	4 (4%)	6 (7%)
Total	18	69	87
TYPE OF POSITION			
	AIS	Traditional	Total
External Audit	2 (11%)	18 (26%)	20 (23%)
Tax	1 (6%)	15 (23%)	16 (19%)
IT Audit	1 (6%)	1 (1%)	2 (2%)
Payroll	0	1 (1%)	1 (1%)
Mgmt Consult	0	2 (3%)	2 (2%)
IT Consulting	2 (11%)	3 (4%)	5 (6%)
Governmental	0	3 (4%)	3 (3%)
General Acct	7 (39%)	18 (26%)	25 (29%)
Internal Audit	0	3 (4%)	3 (3%)
Finance	3 (16%)	1 (1%)	4 (5%)
Other	2 (11%)	4 (7%)	6 (7%)
Total	18	69	87

CPA Exam

Finally, we explore any possible differences in sitting for or passing the CPA exam between AIS and non-AIS graduates. Since AIS students complete more coursework in technology related courses, and they typically forgo the opportunity to take advanced accounting courses, such as, advanced accounting, governmental accounting, and business law classes related to the CPA exam. We expect the AIS students may not do as well as the traditional accounting majors on the CPA exam. However, we did not find any significant difference between the two groups.

Table 8: CPA Exam Comparisons

CPA EXAM (n=87)	AIS	TRADITIONAL	PEARSON CHI-SQUARE	SIGNIF
Sat for CPA Exam and Passed	8 (73%)	34 (76%)	.250	.617
Sat for CPA Exam and Did Not Pass	4 (27%)	12 (24%)		
Did not Sit For the CPA Exam	6(42%)	23 (37%)		
How Many Times did you Sit for the Exam?	MEAN RESPONSES		MEAN DIFF	SIGNIF
	3.08	2.91	.17	p = .67

SUMMARY AND IMPLICATIONS

In general our study did not find large differences between AIS and traditional accounting graduates. Their education satisfaction, job satisfaction, career paths, and CPA exam success rates are similar. We believe that there are two primary causes for this result. One, our program was a very early provider of AIS education. Our observation is that many employers were interested in the skills of these individuals, but did not have a specific career path for these majors within their organizations. Thus, the skills set of the AIS major was not utilized as fully expected. In retrospect, the AIS emphasis was “ahead of it’s time.” However, in the wake of Sarbanes-Oxley we now feel that the AIS graduate has a specific role and career path within both public and private accounting organizations.

The second reason for our insignificant results relate to our data collection. Our sample size is small. Additionally, there are confounding effects from the external business environment. The graduates in our survey were accounting majors (either AIS or traditional) during the dot.com boom, but they were surveyed at the end (hopefully) of the dot.com bust. Thus, some of the benefits (i.e., job satisfaction, career advancement) of the AIS emphasis were greatly reduced for the time period in which the data was collected and conversely the benefits of the traditional accounting major were, relative to the AIS emphasis, increased.

The results also highlight a risk of structuring an AIS emphasis curriculum with courses which are in very high demand. The dot.com boom was in full swing at the time that these graduates took their AIS courses from the BCIS department. AIS graduates did not rank BCIS courses highly important. They also had lower rankings for the quality of their analytical, creative thinking and writing skills. The BCIS classes were overburdened and BCIS faculty had a heavy teaching load during the dot.com boom. It is reasonable to assume that teaching analytical, creative thinking and writing skills suffered due to the large enrollments and demand for these courses.

As technology and controls in an IT environment become ever more critical to business processes within organizations, we expect the job satisfaction and career advancement for AIS graduates will be more pronounced. Future research should continue to examine differences between AIS and traditional accounting graduates and look for ways to measure the benefit of having accounting students obtain a broader knowledge base in IT. Research should examine and measure these differences from the perspective of the employer. Specifically, do employers see a difference in these graduates? In what situations do they prefer one type of graduate over another?

In sum, technology has clearly changed the accounting profession. Accounting programs undoubtedly need to react because the demand for accounting graduates with sound IT backgrounds is rapidly increasing. Sarbanes-Oxley has contributed to this renewed demand for accounting graduates with IT skills. What may not be quite clear

yet, however, is the most effective way to structure our AIS programs. Additional research on the value of AIS is needed to guide us on future curriculum decisions.

FUTURE RESEARCH

The research presented in this paper opens up several issues that can be studied in the future. For example, does the Sarbanes Oxley Act of 2002 have any impact on the demand for AIS graduates or did it change the attitude of AIS graduates in terms of the variables studied in this paper (i.e. satisfaction with education, satisfaction with jobs etc...). Another potential area of research is to compare the AIS programs and Post AIS graduates of different colleges and universities to see if there are differences. The results of this type of research may help college and universities develop better AIS programs.

END NOTES

¹ Our first AIS course is an introduction to AIS and covers the accounting system, business processes, data modeling, and internal controls all within an IT environment. This course also requires several projects including the Systems Understanding Aid (a manual practice accounting set), a repeat of the Systems Understanding Aid using Microsoft Great Plains (a computerized accounting software package), and several Microsoft Access database projects. Our second AIS course focuses more on IT Audit and Computer Security.

² We compared our sample to our population of accounting graduates during the years 1995 to 2002. Overall, 53% of graduates are female and 47% are male. The average G.P.A. for all accounting graduates during those years is 3.21.

³ Although our data reflects that most our graduates from our institution do not go to Big 4 firms, that might be due to the time period in which the data was collected. Prior to 1995, the Big 5 firms recruited heavily on our campus. And, currently all Big 4 firms once again actively recruit our students.

REFERENCES

1. Bryant, Stephanie M., Judy K. Weishar, and David R. Fordham (1999). A Survey of Accounting Information Systems Programs in U.S. Colleges and Universities. *The Review of Accounting Information Systems*, 3, 1-11.
2. Elliot, Robert K, The Third Wave Breaks on the Shores of Accounting (1992). *Accounting Horizons*, 6, 61-85.
3. International Federation of Accountants (1995). The Impact of Information Technology on the Accountancy Profession, *IFAC*.
4. Seigel, Gary, and James E. Sorensen (1999). *Counting More, Counting Less: The Transformations in the Management Accounting Profession*. The Institute of Management Accountants: Montvale, NJ.

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