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The Impact of Fraud Education on Fraud Detection

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The Impact of Fraud Education on Fraud Detection

An honors thesis presented to the
Department of Accounting and Law,
University at Albany, State University of New York
in partial fulfillment of the requirements
for graduation with Honors in Accounting
and
graduation from The Honors College.

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Abstract

The value of a forensic education is becoming more important as the accounting world moves past the scandals that have caused set backs and distrust in recent years. Exclusively looking at the education aspect is something that has not been explored compared to the previous studies completed valuing experience. As part of an auditor's duty to serve the public and report material misstatements in companies' financial statements, having the knowledge needed to properly assess risk and identify fraud is very important. Forensic degrees are at the forefront of accounting education and have become more widespread in programs, courses, and certificates. To gain a better understanding of forensic education, studying two groups of masters' students, one being in the Forensic Accounting major and the other being in the Professional Accounting major, the ability of the trained versus the untrained is compared. The results showed a strong influence of education on their ability to detect fraud in a given company's financial statements. The average grade of the forensic students was a total of 5.04 points out of ten higher than the professional accounting students. The benefit of fraud knowledge on a student's ability to detect fraud implies the strong relationship between the two. With an increased forensic understanding, auditors could better detect fraud and help better serve the people. This heightened awareness to fraud and its detection could lead to a change in the course requirements with earning an accounting degree.

Acknowledgements

I would like to thank my research advisor, Dr. Fisher, for all of her time and effort spent this past year guiding me with this thesis. Without her, I would not have been able to complete this experiment and further the knowledge in the accounting field. Her support and care about this project, as well as outside of the academic world, has helped me on my journey here at Albany.

A special thank you to my parents and sister is also due for always believing in me and pushing me to reach my full potential. I would certainly not be where I am today without them, and I will be forever grateful for all of their support.

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Introduction

Fraud. This simple, five letter word has become world renown and pushed into the spotlight by the most recent accounting scandals. With Enron and WorldCom failures, the public has increasingly been insisting on increased detection of fraudulent activity. People want to make sure that there is someone being held responsible for their fraudulent activities. The public is not the only one pushing harder on auditors and companies, but the regulatory boards are as well. This increase in oversight resulted in additions to the Public Company Accounting Oversight Board (PCAOB) Auditing Standards, Sarbanes Oxley Act, and more standards added to American Institute of CPAs (AICPA) Statement on Auditing Standards. Auditors are now required to receive the proper training and experience, and CEOs are being held responsible for their financial statements and actions. The accounting profession has evolved from mainly being self-regulated to one that is restricted by laws and government regulation.

The costs to comply with the new legislation have led to increases in clients' billings. Clients are expecting to pay the same amount of money to their auditing firms, but have seen increased costs due to this legislation. There is more pressure now than ever on the accounting firms to perform and assure the public they can be trusted with their investments. This new era requires auditors to have a better ability to detect fraud earlier on. The field of forensic accounting has emerged as a solution to detecting fraud.

There have been studies conducted concerning the role an auditor's experience plays in better detecting fraud, but there is less focus on the education aspect. Experience is one of the main ways that auditors gain skills to discover fraudulent activities, and usually it's the manager setting the fraud risk level. But is experience the only tool that will help auditors recognize fraud in a set of financial statements? Does knowledge of fraud detection play any role to better

prepare an auditor to find fraud? How much education is required to make an impact on the detection skills? What classes and skills should be learned to prepare for working in the field? What is the impact of such skills and how long after will those set of talents be useful and retained? At what point does experience override education? What is valued more by employers: knowledge or experience, or a mixture of both? All of these questions should be raised for further research and development.

I focused my research on the educational aspect of fraud detection and training. I am interested in the relationship between students' different knowledge levels and their ability to detect fraud. In this study, graduate level professional accounting and forensic accounting students are compared. Based on the test results, an analysis of the rates of detection for fraud between the two groups was completed. My hypothesis for this study is that the forensic students will have a better ability to detect fraud compared to the professional accounting students. I attribute this to their increased training in the subject matter. I believe the professional accounting students will have some ability to detect the fraud, however their recognition of fraud will be lower than that of the forensic students. I organized my thesis in the following manner: A literary background section is followed by an explanation of my research, and then the results of the study. To conclude, there will be a discussion of limitations and ideas for future research in this topic.

Literary Background

Auditors assess the company's financial statements and certify that there are no material weaknesses, but forensic auditors are responsible for more. As Singleton and Singleton (2007) said, fraud auditors examine the authenticity of the events and activities behind the documents.

Since they are searching for red flags, there is a different mindset of the two groups. (Singleton, Singleton 2007) This mindset has been created through their course work and training in fraud. The PCAOB has been implementing newer standards to ensure auditors are prepared to serve the public. Revisions of previous standards such as AU Section 210.03, indicate the need of an auditor to obtain formal education and experience, to enhance their understanding proficiency. (PCAOB, 2010a) Another standard includes Auditing Standard Number 12, which focuses on the process of identifying and assessing fraud risks in the financial statements. This states that the auditors have a responsibility to perform a risk assessment to analyze the possibility of material misstatements. To achieve this, there is a need for forensic knowledge. (PCAOB, 2010b) Auditors are required to be able to look at financial statements and indicate possible fraud situations through their own risk assessment procedures.

There has been a change in the skills an auditor needs in order to meet the requirements of current legislation. The idea that “today’s standards are deficient” is brought up in Ferguson, Richardson, and Wines study on the effect of work experience and formal education. In this study, education is seen as a way to “move students’ attitudes toward the academically ideal position and away from the current attitudes of auditors”. (Ferguson, Richardson, Wines, 2000) The value of a forensic accounting course has increased. This research took a different approach to finding the value of education. They looked at the viewpoints of practicing auditors, co-op students, and nonco-op students on several accounting topics. Experience in this study is shown as having a higher initial value for co-op students. The results of the nonco-op students before and after training show movement towards the views of expert auditors. In this case, by learning more about fraud, students began thinking more like expert auditors. Also, students could bring the academic viewpoint into the standards to fix the perceived deficiency.

Carpenter, Durtschi, and Gaynor conducted similar research but focused on finding changes throughout the learning process. Researching the value of a forensic accounting degree will determine if learning more will bring accountants “closer to the level of skill demanded” by the public, firms, and regulating boards. Through their study, untrained, pre-learning, and post learning student results were measured against experts’ ability to detect fraud. Analysis of learning and experience could then be completed. There is a comparison between fraud training provided by courses and the training that comes from experience in the field. The outcome of this helps determine if education could improve the auditor’s ability to detect fraud similarly to experience. Their results concluded that forensic accounting courses did increase the students’ ability to detect fraud compared to students who didn’t complete the course. They also found students who completed a forensic accounting course had similar results to that of the panel of experts. The true effect of their study is found when looking at the pre-trained students and the untrained students to the results of the post-trained students. The higher detection rate for the trained students shows the positive result of completing extra courses in forensic accounting on detecting fraud. (Carpenter, Durtschi, Gaynor, 2011)

Another aspect of forensic education research involves the material and method of teaching. As seen in Brickner, Mahoney, and Moore, an applied learning approach that engages students in case studies improves learning fraud detection skills. With this, an IRS criminal investigation case study called the *Adrian Project* is used. This case study aids detection, but also collects and evaluates the information and interviewing skills. (Brickner, Mahoney, Moore 2010) Obtaining fraud detection instruction has also been seen as beneficial in Knapp and Knapp’s (2001) experiment. During their study of 119 auditors, the auditors’ ability to detect fraud increased when there was instruction given beforehand. In this study, the outcome was

independent of experience because both senior auditors and managers ability increased at the same rate. (Knapp, Knapp 2001)

Getting a degree in forensic accounting or auditing is very different from taking a course. The differences in courses offered and the classes taken will effect the students ability to detect fraud. A study conducted by members of the Auditing Section Education Committee examined the courses taken by students attending 188 colleges and universities. The results showed that over 90 percent of undergraduate programs required an introductory auditing course. A review of these introductory auditing courses found less than 50 percent included fraud as a topic. When looking at advanced courses, fraud becomes more dominant as a focus. (ACEC, 2003) The variety of degrees earned creates differences in the specific training and knowledge of each auditor. By looking at the effect of the number of forensic accounting classes and the topics included, we are better able to determine the influence of the education.

Research

My research focused on the importance of discovering the value of a forensic degree and its impact on students ability to better detect fraud. The best way to evaluate the value of educational experience is to test students with different levels of knowledge about fraud. The two groups of students involved in this study include the Masters of Professional Accountancy class and the Forensic Accounting Masters class at the University at Albany. Evaluating the effect on a group of students with equal years of educational experience was important, as opposed to comparing first and fourth year undergraduates. Both groups obtained an undergraduate degree and now are furthering their accounting knowledge in a masters program. The two groups also had prior knowledge about common-size financial statements, (vertical

analysis), and trend analysis (horizontal analysis). The professional accountancy students had no prior fraud training course whereas the forensic accounting students completed a course in Fraud Examination the prior semester. The study began by reaching out to the professors teaching Financial Statement Fraud and Corporate Governance (a required course in both programs) in the two programs. Thirty forensic accounting majors comprised one group and 31 professional accountancy students comprised the other group. This is a good measure since the classes are very close in size. Controlling for size and prior education, isolates the variability of fraud training.

The question was selected from the Association of Certified Fraud Examiners “How to Detect and Prevent Financial Statement Fraud”. This is a manual for a continuing professional education course. The selected question (see the Appendix) is of a moderate level of difficulty. The students were given a company’s consolidated income statement and balance sheet for three years, and were first asked to analyze the statements and identify abnormal account fluctuations. Then were then asked to describe what fraud schemes were most plausible to explain those changes. (Association of Certified Fraud Examiners, 2010) This demonstrated their ability to detect fraud from financial information, and to know what caused the fraud. The selected financial statements and questions given to the two groups can be found in the Appendix.

To have the students take this seriously, the question was provided to them in an examination; a regularly scheduled exam where the question was incorporated into each group’s test. The question was worth ten points. Thus the students should be motivated to answer the question to the best of their ability. The forensic accounting group had previous experience completing similar questions since their Fraud Examination course included coverage of the

fraud schemes and analysis of statements for fraud. On the other hand, the professional accountancy students had no previous experience answering such questions.

The exams were blindly graded by an experienced forensic accounting instructor, Dr. Fisher, to maintain proper experiment validity. Since I am not an expert, the best way to value student responses was to have a forensic accounting professor grade them. The instructors of the two courses copied the student responses, without including names or other identifying features, placed them in an envelope, and gave it to the Department secretary. The envelopes were marked by the secretary with the letters A or B. The secretary noted which envelope represented which instructor. The marked envelopes were then given to Dr. Fisher to grade. By keeping the grading blind, there should be no bias in grading the question. It was not until after the grading was complete that Dr. Fisher became aware of which major belonged to which envelope.

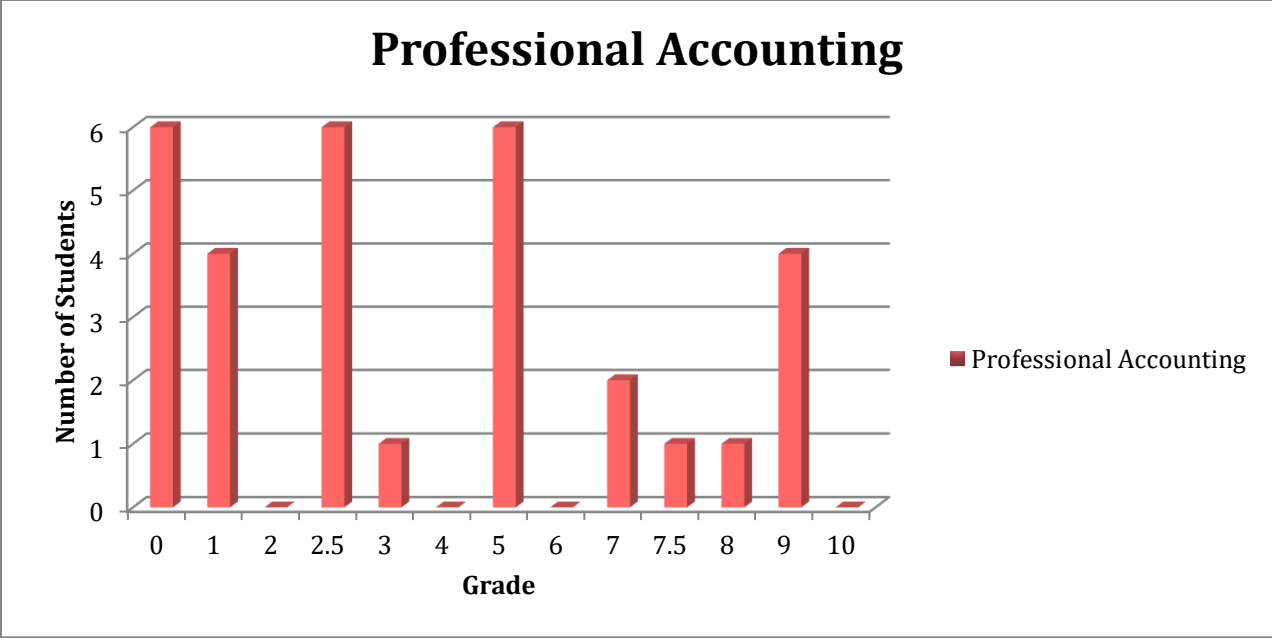
Since the question was worth ten points, students could receive grades from zero to ten, with half points also being awarded. The manual used provided suggested responses, which guided the grading of the exams. There were three accounts that should have been identified by the students as having unusual fluctuations and therefore three possible explanations for the fraud scheme. Based on Dr. Fisher's expectations of the students identifying two out of the three accounts, the grading was as follows: 2.5 points for each account identified and 2.5 points for each explanation. This brought the total to ten, and partial credit was given. After the grading was completed the identity of each group was disclosed to Dr. Fisher and then she informed me of the results.

Results

The results of this experiment illustrate the impact knowledge of forensic accounting has on improving fraud detection. My hypothesis that the forensic accounting students would out

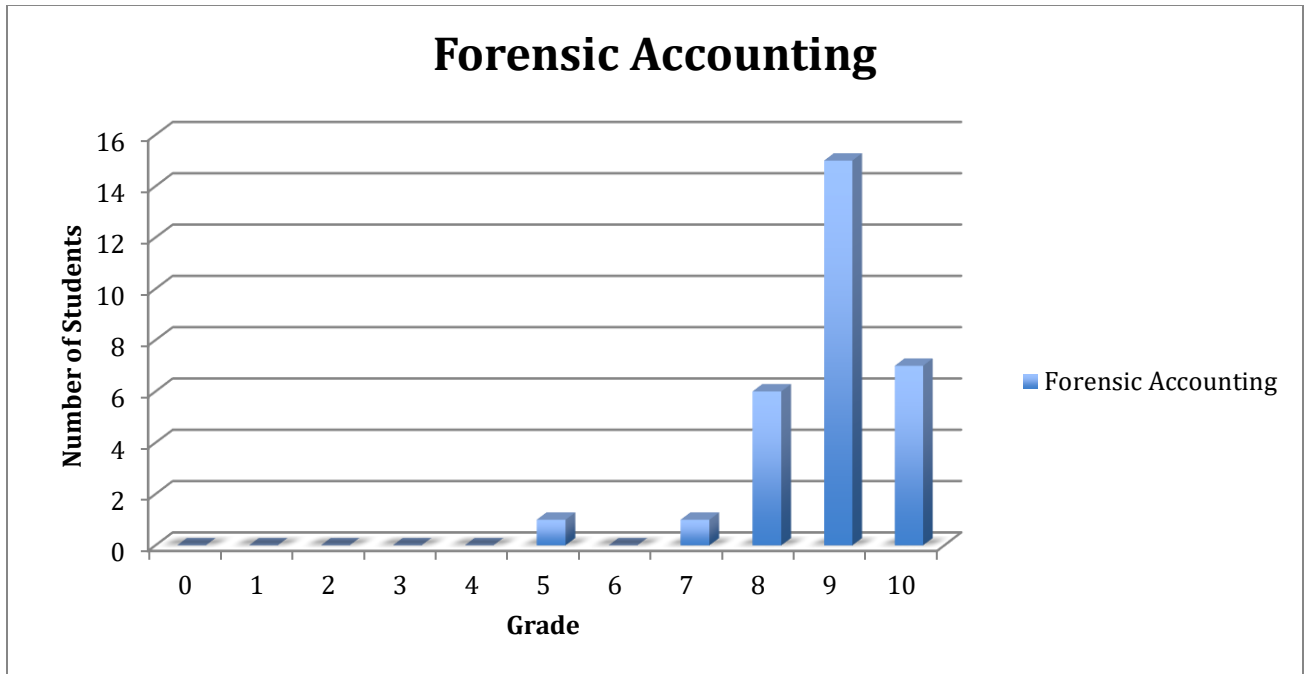
perform the professional accounting students was supported by this study. When looking at all of the students combined, the average for this question was a 6.27 out of ten. This is just above half and as a group the detection and explanation of fraud is slightly above average. This is not the true depiction of how each of the students performed though. The forensic accounting students achieved significantly higher scores in comparison to the professional accounting students. The average for the professional accounting students was only a 3.79 out of ten. Having a low score illustrates a significant failure to answer the questions correctly. In comparison, the forensic students obtained an average of 8.83 out of ten which is outstanding. It is important to look at the average overall performance, but individual scores are a better measure.

One of the reasons for the low average overall in the professional accountancy major was caused by the fact that six students received a score of zero. Having almost 20 percent of the class obtain a zero is not a good sign and brings down the average significantly. On top of that, 4 students received a score of one and 17 students did not receive above a three. There were no perfect scores in this class, but there were four students that did receive a nine and one student who received an eight. In sum almost 55 percent of the professional accountancy students poorly identified the fraud or did not even detect it at all. The graph illustrates the inconsistent performance of these students.



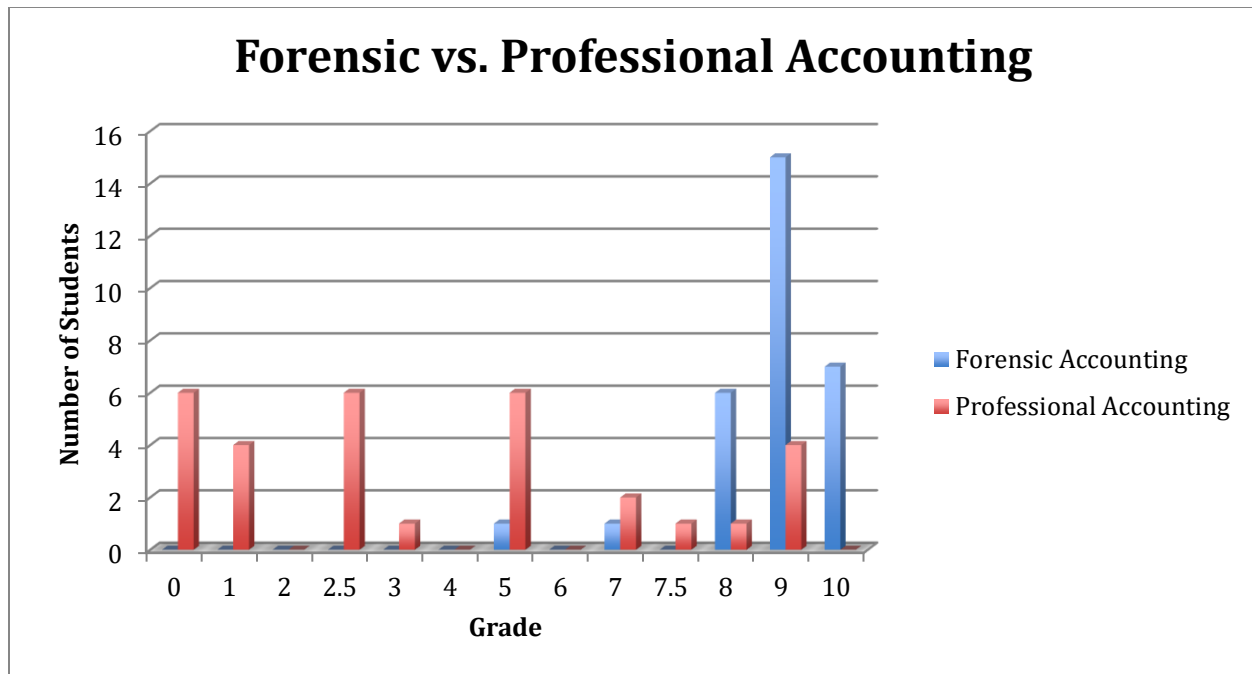
The professional accounting students have an uneven distribution of knowledge on fraud as well as their ability to detect it. Already knowing the analysis aspect of the question, the students inability to correctly answer the question is caused by a lack of forensic training. Normal distribution of students would have between a score of three and seven, but that is not the case for this group. A total of nine students received scores within that range, which is only 29 percent of the class. These results indicate a large gap in knowledge for the professional accounting students, even within the major.

With an average of 8.83 out of ten, the forensic students performed very well on this question. There were seven students that received perfect scores and fifteen that had near perfect scores of nine. This equates to over 73 percent of the class obtaining either a score of nine or ten. As one can see, the results are opposite when compared to the professional accounting major. The lowest grade of five was received by only one student. With test results such as this, the forensic students knowledge of fraud and fraud detection is evident. The graph below clearly demonstrates how well the forensic accounting students performed.



The distribution for this group is significantly skewed to the high side. With the exception of one score of five, all of the other scores were a seven or greater. This means that almost all of the students were able to identify fraud and explain it in a way that demonstrates an acceptable level of understanding. The normal distribution also does describe this group of students, but they performed in a more uniform, collective manner. Their behavior demonstrates proficiency in fraud detection.

Combining both graphs highlights the extreme difference in fraud detection ability between the two majors. The graph below illustrates each group's performance and highlights the impact of a forensic education.



The bar chart clearly illustrates the support for this study’s hypothesis. The majority of the grades for the two groups are segregated on the two sides of the x axis, with only a few of the students overlapping. This study suggest that the inferior performance of the professional accounting students when compared to that of the forensic accounting students is a direct result of the level of prior fraud training.

Discussion

The results of the experiment show a strong correlation between the effect of fraud training and a students performance on detecting fraud. The hypothesis that the forensic students would be able to better detect fraud in comparison to the professional accounting students was supported. With a higher overall average as well as higher individual scores, the knowledge obtained in having taken forensic classes benefited the students skills in identifying fraud. This study’s structure points out that the results occurred because the forensic students had more fraud training and education over any other plausible factor. This is a postive addition to the studies

about fraud education because it illustrates the benefits derived from additional forensic accounting knowledge.

In a unique experiment such as this, comparing the results of students receiving fraud training versus no fraud training, indicates the impact fraud knowledge has on an individual's ability to detect fraud. As discussed earlier, other studies focused on work experience as well as education, or comparisons of students and experts, but my study of the impact of fraud education on fraud detection has never been published. Another current work in progress is Kathryn Enget's doctoral dissertation entitled "Indicators of Fraud Detection Proficiency and Their Impact on Auditor Judgments in Fraud Risk Assessments and Audit Plan Modifications". That study not only focuses on fraud training but also fraud education, certificates, fraud related experiences, and professional skepticism. The work incorporates a pre-test to determine the improvement of a student over the entire course of their fraud education and training. (Enget, 2013) With more studies such as these, the value and importance of forensic education can be verified and communicated across universities.

The public looks to auditors to ensure that a company's financial information can be trusted. If they are unable to analyze information correctly and detect fraud when it is present, they are failing the people. As a protector of the public, the auditors opinions are valued and increases the importances of forensic accounting. Based on this study's results, incorporating more forensic course work for auditors will only increase their skills and better serve the public. Whether it is through a standard for obtaining a forensic degree, incorporating the material on the CPA Exam, or as part of auditor's continuing education courses, including forensic education is a must for the future of accounting and auditing.

Limitations

As with any experiment, there are limitations due to the design of the study. As masters students, their background knowledge in accounting and fraud may be slightly different due to differences in undergraduate university curriculums. This means that their education on topics is marginally altered since different programs may place different emphasis on certain topics in their required courses . Some students may have been exposed to more fraud training in work related experiences than others. This would lead them to perform better compared to those students who have no fraud work experiences. The relevant work experience of the students was not considered at any point in this experiment. Also, the study was limited to a total of only 61 students. Conducting a study with more students would strengthen the results. Another limitation was the selection of only two tracks of accounting masters degrees. By diversifying the students included, a better understanding of what courses and topics have the most impact on fraud detection might be obtained. Lastly, all of the students were masters students. Though this is important for this study in comparison of results, the group of students as a whole are similar in their motivation and drive to learn accounting. With this, they are more inclined to have previous knowledge from courses taken. Looking at undergraduate students and the impact of fraud training on this group could lead to different results.

Future Research

This study opens up many future projects related to this topic, since the results were so conclusive showing the positive effect of fraud training on detecting fraud. Now that it is evident that forensic education aides fraud detection, researching courses or topics specifically that are most useful in achieving detection is next. Also, whether it is better to start learning this material at the undergraduate level or the graduate level is an unknown. Future research could

also try gaining a better overall value of education. There has been more research on the value of experience, but education might have an even larger impact on detection than experience. Using this study as a benchmark, other research could be completed to continue the investigation of fraud training benefits in lieu of experience.

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Appendix

The following encompasses the financial statements and questions given to the two groups of students to complete as part of our study.

Consolidated income statements and balance sheets for ABC plastics are presented below:

ABC PLASTICS, INC.			
CONSOLIDATED INCOME STATEMENT			
FOR THE YEARS ENDED DECEMBER 31, 2005, 2004 AND 2003			
(IN THOUSANDS)			
		12/31/2005	12/31/2004
		12/31/2003	
Net sales	\$	127,285	\$ 111,406
Cost of goods sold		97,322	87,719
Gross margin		29,963	23,687
Selling, general & administrative expense		21,320	19,194
Operating income		8,643	4,493
Other income		706	594
Interest expense		522	450
Income before pension contribution and income taxes		8,827	4,637
Pension contribution		2,202	2,507
Income taxes		1,982	1,235
Net income	\$	4,643	\$ 895
			\$ 473

ABC PLASTICS, INC.					
CONSOLIDATED BALANCE SHEET					
DECEMBER 31, 2005, 2004 AND 2003					
(IN THOUSANDS)					
			12/31/2005	12/31/2004	12/31/2003
ASSETS					
Current Assets:					
Cash			\$ 1,539	\$ 2,350	\$ 3,084
Accounts receivable			2,603	1,201	1,871
Inventories			31,213	15,305	12,557
Prepaid expenses			350	94	170
Total current assets			35,705	18,950	17,682
Due from affiliates			3,739	2,885	1,163
Property, Plant and Equipment, net			2,344	1,829	1,662
Security Deposits			371	135	175
Loans receivable			548	424	370
Other			730	486	383
Total Assets			<u>\$ 43,437</u>	<u>\$ 24,709</u>	<u>\$ 21,435</u>
LIABILITIES AND STOCKHOLDERS' EQUITY					
Current Liabilities:					
Accounts payable			\$ 24,227	\$ 14,908	\$ 11,582
Accrued expenses			7,048	4,680	2,649
Loans payable			-	1,968	-
Current maturities of long-term liabilities			124	130	89
Notes payable			4,396	-	4,950
Total current liabilities			35,795	21,686	19,270
Long-term liabilities			46	70	107
Stockholders' Equity:					
Common Stock-par value \$.01 per share, authorized 15,000,000 shares;					
5,000,000 outstanding			50	50	50
Additional paid-in capital			575	575	575
Retained earnings			6,971	2,328	1,433
Total stockholders' equity			7,596	2,953	2,058
Total Liabilities and Stockholders' Equity			<u>\$ 43,437</u>	<u>\$ 24,709</u>	<u>\$ 21,435</u>

1. Use horizontal and vertical analysis to identify (a) accounts where changes appear out of alignment with prior years and (b) the magnitude of the change (amount, increase/decrease)
2. Based on your analysis in #1 (above) please describe what financial statement fraud scheme(s) could provide the most plausible explanation for the changes.