

Accounting Students' Perspectives on Fraud and Forensic Topics in the Accounting Curriculum: A Comparison with Professionals

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Forensic accounting is a growing field, especially given the increasing threat of fraud in businesses today. This study examines accounting students' perspectives on fraud and forensic topics that they believe should be included in the accounting curriculum. This study also compares students' perspectives with those of professionals. A survey of sophomores and seniors at a liberal arts undergraduate college in the Northeast United States was conducted. It asked students about the importance of certain qualities they perceive a forensic accountant should possess and topics they should be familiar with. In addition, students' responses were compared with the results of Daniels et al.'s (2013) study regarding professionals' responses. The results showed that sophomores and seniors significantly differed in their perceptions of internal control and fraud risk factors. In addition, students and professionals had significantly different perceptions of what the most critical forensic accounting topics should be included in the accounting curriculum. These differences are presented and discussed in the paper.

INTRODUCTION

Forensic accounting is a growing field and is only expected to become more prominent worldwide each year. Forensic accounting detects and uncovers fraudulent financial reporting and identifies asset misappropriation. Therefore, forensic accounting is useful for auditors as well as forensic accountants. Knowledge of forensic accounting could assist auditors in detecting fraud during their audit of a company. Forensic accountants use it to uncover fraud and find hidden money. Specifically, in a divorce case, forensic accountants are sometimes hired to find any assets that may be hidden.

Forensic accountants and auditors must possess specific qualities and should be familiar with a variety of topics. These qualities include, among others, interpersonal communication, attention to detail, objectivity, and independence. This study evaluates students' perceptions since they will be future auditors and forensic accountants. In addition, this study compares the students' results with a study performed by Daniels et al. (2013), where they used the perceptions of accounting educators and practitioners to determine what accounting topics are the most important for a forensic accountant to be familiar with.

The purpose of this study is to examine differences between sophomore and senior accounting students regarding what topics, qualities, and skills they perceived to be the most important in forensic accounting and to a forensic accountant. In addition, it compares students' responses with those of professionals to find differences between these two groups regarding topics and skills needed for forensic accounting. A survey was administered to sophomore and senior accounting students at a liberal arts college in the Northeast of the United States. To compare students' responses with those of professionals, this study uses Daniels et al.'s (2013) study, in which they surveyed 500 faculty members and 500 accounting practitioners and asked

them similar questions as this study used. Prior studies, including Daniels et al.'s (2013) study, have limitations since they did not incorporate other topics and skills that may be needed in a forensic accounting course. The website of the Association of Certified Fraud Examiners (n.d.) lists other topics and skills that may be needed in a forensic accounting course or program. Therefore, this study extends Daniels et al.'s (2013) study by examining additional topics and skills that should be included in a forensic accounting course and the responsibilities of forensic accountants.

The results of this study showed that seniors and sophomores had similar perceptions regarding the most important fraud and forensic topics, specifically fraudulent financial statements, fraud detection, and fraud elements. Seniors rated statistically significantly internal control higher than sophomores, and sophomores rated statistically significantly fraud risk factors higher than seniors as topics that need to be covered in a fraud and forensic accounting curriculum. Furthermore, professionals and students had statistically significant differences on what topics must be included in a forensic and fraud accounting curriculum.

The remainder of this paper is organized as follows. The next section presents the literature review, followed by the research methodology and results sections. The last section will present conclusions, limitations, and possible future research directions on fraud and forensic topics to be included in the accounting curriculum.

LITERATURE REVIEW

Background

Forensic accounting is a differentiated area of accounting, and it deals with incidents of fraud, money laundering, embezzlement, and bribery by analyzing financial statements and records as well as transactions, tracing assets, and other documents. Some focus areas for forensic accounting are money laundering, asset misappropriation, securities fraud, identity theft, hiding assets in a divorce case, compensation disputes, and trademark and patent infringements. According to the Association of Certified Fraud Examiners (2020), "a single case of occupational fraud costs the victim organization an average of more than \$1.5 million, and Certified Fraud Examiners (CFEs) estimate that organizations lose 5% of their revenues each year to fraud." Based on 2110 cases from 113 countries, the losses are estimated at 3.6 billion (Association of Certified Fraud Examiners, 2022). In 2013, the cost of fraud, if applied to the 2013 estimated GDP, was estimated to be nearly \$3.7 trillion (Association of Certified Fraud Examiners, 2022). The 2020 and 2022 reports by the Association of Certified Fraud Examiners (2020, 2022) show that worldwide fraud losses have been estimated to be 4.5 and 4.7 trillion, respectively.

Fraud can arise for a multitude of reasons. The fraud triangle is a helpful presentation of some common reasons fraud is committed. It consists of pressure to meet financial goals, the opportunities to commit fraud, and rationalizing one's decision to engage in these illegal activities. Pressure to meet financial goals can result from problems in the external environment, such as sudden and fluctuating changes in stock prices or a general decline in the economy. Opportunities can consist of weak internal controls and ineffective antifraud programs or management (Dorminey et al., 2010). Rationalization occurs before the fraud is committed and is any self-justification that gives the perpetrator the "go ahead" to commit the fraud (Dorminey et al., 2010). Accountants also look to other resources besides the fraud triangle, including the fraud diamond and the MICE Model.

The fraud diamond, created by Wolfe and Hermanson (2004), offers more insight into the perpetrator's personality traits. These researchers argued that fraud is unlikely to happen unless the fourth element, which they called capacity, is present. That is, the fraud perpetrator must have the ability and skills to commit fraud. The MICE model, suggested by Professor Jason Thomas and presented by Kranacher, Reily, and Wells (2011), suggests four different motivations for committing fraud: Money, Ideology, Coercion, and Ego (MICE). Coercion is often found in fraud schemes, as employees may be reluctantly forced to involve themselves in the middle of a fraud. For example, Donegan, Ganon, and Johnson (2017) discuss research performed by Colvin, Cullen, and Ven (2002), in which it is found that individuals are much more likely to engage in fraudulent activities if coerced by upper-level management. Most of the time, this can come from

pressure to meet financial expectations. Betty Vinson, one of the accountants found guilty of creating fictitious entries in the WorldCom scandal, succumbed to coercion and pressure from the CFO, among other superiors, and was eventually convicted and sent to prison (Donegan et al., 2017). Ideology relates to tax evasion, in which the offender believes the government is not entitled to that money, or terrorist financing, in which further rationalization and justification are used to finance certain activities (Donegan et al., 2017). The MICE model is another avenue that professionals can use to help describe fraudsters' motivations beyond the fraud triangle.

Fraud and Forensic Accounting Education

Forensic accountants and auditors must possess a certain skill set to efficiently detect fraud, including written and oral communication, interpersonal, interviewing techniques, and investigative methods (Dorminey et al., 2012; Forbes Insight, 2018). Prior research has reported the importance of forensic accounting skills and topics. One study by DiGabriele (2008) surveyed forensic accounting practitioners and users of forensic accounting services to deduce what skills were perceived to be the most important for a forensic accountant. The most essential skills proved to be critical thinking and written communication (DiGabriele, 2008). He performed this survey to guide accounting educators to modify the accounting curriculum by adding more essential topics relevant to forensic accountants in the field. Skills such as teamwork and interpersonal communication are critical in this field since forensic accountants must be able to work together, brainstorm, and interview possible fraudsters. Research shows that recent accounting graduates have analytical skills but need to improve their communication skills (Tiwari and Debnath, 2017). Kranacher et al. (2008) present a model curriculum that would best prepare future forensic accountants for the fraud that will inevitably need to be prevented in the business world.

As forensic accounting becomes more prevalent, accounting programs are considering whether to offer separate courses or programs on fraud and forensic accounting that best suit students who will choose an auditing or forensic career. While some business schools have started to adopt courses and programs in fraud and forensic accounting, others just incorporate them within their regular accounting courses, such as auditing. The rationale for incorporating fraud and forensic accounting in current accounting courses by the accounting departments is the cost associated with creating a separate program for fraud and forensic accounting. For example, Fleming et al. (2008) note the challenges West Virginia University encountered with its multi-course fraud and forensic accounting program despite the school receiving \$614,000 from the National Institute of Justice to build the program. Therefore, many business schools and accounting departments are reluctant to create a fraud and forensic accounting program. Instead, they either create a course in forensic accounting or incorporate fraud education into current accounting courses.

Rezaei and Burton (1997) used a survey to investigate the opinions of academicians and certified fraud examiner (CFE) practitioners regarding the inclusion of forensic accounting courses in the accounting curriculum. They found that academicians preferred to include forensic accounting topics in the existing accounting courses, whereas CEFs favored offering a separate program of forensic accounting courses.

The fraud and forensic accounting education in schools that incorporate it into their current courses is generally done in auditing courses that accounting students take in their senior year. Therefore, senior students should be more familiar with fraud and forensic accounting topics, and skills, abilities, and qualities an auditor or a forensic accountant should possess as well as the responsibilities of a forensic accountant. Therefore, senior accounting students may view these factors differently than sophomore accounting students. This leads to the first hypothesis, stated in null form.

H1a: There is no difference between sophomore and senior accounting students regarding forensic accounting topics to be included in a forensic accounting course.

H1b: There is no difference between sophomore and senior accounting students regarding the skills, abilities, and qualities an auditor or a forensic accountant should possess.

H1c: *There is no difference between sophomore and senior accounting students regarding the responsibilities of a forensic accountant.*

Daniels et al. (2013) surveyed 500 accounting educators and 500 practitioners, asking about similar topics to DiGabriele's (2008) study. They included 21 different accounting topics to be ranked on a Likert scale from 1 to 5 (1 being the least important and 5 being the most important). The topic that was perceived to be the most important was internal control (Daniels et al., 2013). However, the two topics ranked the lowest on the list were civil and forensic litigation. Daniels et al. (2013) also discovered some statistically significant differences between the two groups. Specifically, accounting faculty scored higher for fraud, ethical issues, and legal environment, while accounting practitioners scored higher for computer schemes, report writing, and forensic litigation. They suggested these differences could result from the groups' different job experiences (Daniels et al., 2013).

This study examines if there is a difference between professionals and accounting students on their perspectives of topics needed in a forensic accounting course. This is important because accounting students who do not go through a formal fraud and forensic accounting program may have different opinions than professionals on what topics should be included in a forensic accounting course. If that is the case, they may take courses that would not benefit them in their future career. In addition, in such a case, accounting programs may need to mentor students about what professionals consider important topics to be included in a forensic accounting course. Therefore, this study compares accounting students' and professionals' responses to topics that should be included in a forensic accounting course¹. The related hypothesis, stated in null form, is:

H2: *There is no difference between accounting students and professionals regarding topics to be included in a forensic accounting course.*

METHODOLOGY

The subjects of this study were students in a liberal arts undergraduate college in the Northeast United States during 2019. The college is selective, with an average SAT score of 1300 (critical reading and math only) for entering first-year students. The number of accounting graduates each year is between 50 to 70 students. A survey (Appendix B) was distributed to 40 sophomores and 45 seniors, resulting in 74 responses. Table 1 shows the respondents' demographic, and Table 2 presents response rates.

TABLE 1
DEMOGRAPHICS OF RESPONDENTS

	Male	Female	Total
Sophomores	25	15	40
Seniors	18	16	34
Total	43	31	74

TABLE 2
RESPONSE RATE

	Sophomores	Seniors	Total
Total mail outs	40	45	85
Responses	40	34	74
Response rate	100%	75%	87%

In total, 58% of participants were male, and 42% were female. The total number of surveyed responses amounted to 74, while 85 were handed out in total, yielding an 87% response rate.² It should be noted that seniors who participated in this study were in their accounting capstone class in the spring and, therefore, have taken all required accounting classes. On the other hand, sophomores have only taken two fundamental accounting courses. The first section of the survey asked the students to rate on a scale of 1 to 5 (1 being the least important and 5 being extremely important) what topics they believe should be included in a forensic accounting course. There was a total of 21 topics, which came from Daniels et al.'s (2013) research. Daniels et al.'s questionnaire was used for fraud and forensic topics to compare students' responses with those of professionals (accounting practitioners and academicians) in their study. To compare students' responses with those of professionals, the two participating groups in Daniels et al.'s (2013) study, accounting practitioners and educators, were combined into one group labeled as professionals. Daniels et al. (2013) did not provide standard deviation separately for educators and practitioners³. Since standard deviations are needed to statistically compare groups using t-test, this study could not compare educators and practitioners individually with students. Therefore, the procedures explained in Appendix A were used to estimate means and standard deviations for the total professionals included in Daniels et al.'s study.

In addition, the website of the Association of Certified Fraud Examiners (n.d.) lists other topics and skills that may be needed in a forensic accounting course or program. Therefore, this study extends Daniels et al.'s (2013) study by examining additional topics to be included in a forensic accounting course, including skills, abilities, and qualities that an auditor or a forensic accountant should possess and the responsibilities of forensic accountants. These additional items included in the survey were obtained from the Association of Certified Fraud Examiners website. Students rated these items on a Likert-type scale, with 1 being unimportant and 7 being extremely important.

RESULTS

Tables 3 and 4 present the mean scores as well as a ranking of the 21 topics for sophomores and seniors.

TABLE 3
SOPHOMORE'S MEAN SCORES AND RANKS OF TOPICS TO BE INCLUDED IN A
FORENSIC ACCOUNTING COURSE (N=40)

Topics	Rank	Mean
Fraud risk factors	1	4.92
Fraudulent financial statements	2	4.86
Elements of fraud	3	4.75
Fraud detection	4	4.61
Fraud schemes	5	4.59
Investigative methods	6	4.54
Fraud symptoms	7	4.51
Computer/Internet schemes	8	4.34
Fraud remediation	9	4.31
Forensic litigation services	10	4.27
Prevention/deterrence	11	4.23
Criminology	12	4.23
Asset misappropriation	13	4.19
Internal control	14	4.17

Case studies	15	4.14
Corruption	16	4.09
Ethical issues	17	4.03
Legal environment	18	3.99
Civil litigation services	19	3.93
Report writing	20	3.93
Interviewing skills	21	3.19

TABLE 4
SENIORS MEAN SCORES AND RANKS OF TOPICS TO BE INCLUDED IN A FORENSIC ACCOUNTING COURSE (N=34)

Topics	Rank	Mean
Elements of fraud	1	4.85
Fraudulent financial statements	2	4.8
Fraud detection	3	4.67
Fraud risk factors	4	4.65
Fraud schemes	5	4.62
Internal control	6	4.52
Fraud symptoms	7	4.5
Computer/Internet schemes	8	4.38
Ethical issues	9	4.38
Prevention/deterrence	10	4.32
Corruption	11	4.3
Investigative methods	12	4.29
Case studies	13	4.14
Fraud remediation	14	4.14
Asset misappropriation	15	4.13
Forensic litigation services	16	4.07
Criminology	17	4.04
Legal environment	18	3.95
Civil litigation services	19	3.69
Report writing	20	3.63
Interviewing skills	21	3.31

Table 3 shows that accounting sophomore students ranked “fraud risk factors” as the most important topic and “interviewing skills as the least important topic. Table 4 shows that accounting senior students ranked “elements of fraud” as the most important topic and, similar to sophomore students, “interviewing skills” as the least important topic. Both sophomore and senior students included fraud risk factors, elements of fraud, fraudulent financial statements, fraud detection, and fraud schemes among the first five topics that should be included in a forensic accounting course.

There is no difference between sophomore and senior accounting students regarding forensic accounting topics to be included in a forensic accounting course.

To test H1a, which states there is no difference between sophomore and senior accounting students regarding forensic accounting topics to be included in a forensic accounting course, a t-test on each topic was run. The results are presented in Table 5.

TABLE 5
T-TEST RESULTS BETWEEN SOPHOMORE AND SENIOR STUDENTS ON TOPICS TO BE INCLUDED IN A FORENSIC ACCOUNTING COURSE

Topics	Seniors		Sophomores		t-test	P-value
	Mean	SD	Mean	SD		
Internal control*	4.53	0.6622	4.20	0.6869	2.09	0.040
Elements of fraud	4.85	0.4357	4.72	0.6385	1.03	0.306
Fraudulent financial statements	4.79	0.4786	4.85	0.4824	-0.46	0.648
Fraud risk factors*	4.65	0.6912	4.89	0.3039	-2.05	0.044
Ethical issues	4.38	0.6970	4.08	0.7970	1.75	0.084
Prevention/deterrence	4.32	0.7675	4.20	0.8829	0.64	0.526
Fraud symptoms	4.50	0.7487	4.48	0.8469	0.13	0.894
Fraud detection	4.68	0.5888	4.58	0.7808	0.62	0.536
Fraud schemes	4.62	0.5513	4.55	0.6775	0.47	0.643
Case Studies	4.15	0.9255	4.13	0.9109	0.09	0.931
Asset misappropriation	4.12	0.9775	4.18	0.8439	-0.27	0.787
Computer/Internet schemes	4.38	0.7791	4.28	0.8469	0.56	0.575
Investigative methods	4.29	0.8359	4.53	0.5986	-1.38	0.172
Legal environment	3.94	1.0133	4.00	0.9871	-0.25	0.801
Interviewing skills	3.30	1.0867	3.25	1.1712	0.20	0.844
Corruption	4.29	0.7190	4.08	0.8883	1.15	0.253
Criminology	4.03	1.0296	4.23	0.9464	-0.85	0.399
Fraud remediation	4.12	0.9775	4.30	0.7910	-0.89	0.378
Report writing	3.62	1.2313	3.93	0.8590	-1.26	0.212
Forensic litigation services	4.06	1.0428	4.28	0.7506	-1.03	0.305
Civil litigation services	3.68	1.0652	3.95	0.8758	-1.19	0.237

*Statistically significant at p-value < 0.05 level

n= 34 for seniors, 40 for sophomores

As shown in Table 5, there were two statistically significant differences between the means of these two groups. Both fraud risk factors and internal control were statistically significant ($p < .05$). This means that the seniors and sophomores had significantly different opinions on the importance of these two topics. Sophomores rated fraud risk factors higher and internal control lower than seniors. There were no statistically significant differences between the accounting sophomores and seniors on the remaining 19 topics.

Table 6 presents the findings of other fraud and forensic topics that need to be included in the accounting curriculum.

Table 6 shows that except for money laundering, white-collar crime, computer application design, and regression analysis that senior accounting students rated marginally higher than sophomore accounting

students ($p < .10$), there were no other differences between the two groups on the remaining 14 topics. Overall, these findings indicate no difference between sophomore and senior accounting students regarding fraud and forensic accounting topics to be included in a forensic accounting course; therefore, H1a cannot be rejected.

H1b states there is no difference between sophomore and senior accounting students regarding skills, abilities, and qualities an auditor or a forensic accountant should possess. The results in Table 6 indicate that except for analytical abilities ($t=2.87$, $p < 0.01$) and independence ($t=2.39$, $p < 0.05$), which were statistically significant between sophomore and senior accounting students, there were no differences on such items as interpersonal communication, and verbal and written communications. The reason for these differences is that senior accounting students learn about independence in their auditing courses and analytics in other courses they take after sophomore year. Overall, these findings indicate no difference between sophomore and senior accounting students regarding skills, abilities, and qualities an auditor or a forensic accountant should possess; therefore, H1b cannot be rejected.

H1c states that there is no difference between sophomore and senior accounting students regarding the responsibilities of a forensic accountant. The results in Table 6 indicate that except for “writing forensic reports to be used in courts,” which was marginally significant ($p < .10$) between sophomore and senior accounting students, there were no differences on such items as carrying out forensic investigation and attending courts. Overall, these findings indicate no difference between sophomore and senior accounting students regarding the responsibilities of a forensic accountant; therefore, H1c cannot be rejected.

TABLE 6
T-TEST RESULTS BETWEEN SENIORS AND SOPHOMORES ON ABILITIES AND
QUALITIES, KNOWLEDGE, AND RESPONSIBILITIES NEEDED IN
FORENSIC ACCOUNTING

	Senior		Sophomore		t	p
	Mean	SD	Mean	SD		
Abilities and qualities an auditor or a forensic accountant should possess						
Interpersonal communication	6.00	1.2792	5.90	1.1940	0.35	0.729
Analytical***	6.85	0.4357	6.45	0.7494	2.87	0.005
Attention to detail	6.76	0.4960	6.65	0.6998	0.82	0.414
Integrity	6.79	0.5918	6.65	0.6622	0.98	0.331
Objectivity	6.53	0.7876	6.23	0.9997	1.44	0.155
Independence**	6.47	0.7481	5.95	1.0990	2.39	0.019
Credibility	6.38	0.8170	6.64	0.6277	1.53	0.131
Verbal communication	6.26	0.8637	6.23	0.8317	0.20	0.841
Written communication	6.18	0.9035	6.35	0.8022	0.88	0.384
Fraud and forensic topics that need to be included in the accounting curriculum						
Money laundering*	6.79	0.4786	6.50	0.8165	1.92	0.059
White-collar crime*	6.76	0.5537	6.43	0.9842	1.86	0.067
Insurance claims	6.24	1.1297	6.00	1.2195	0.86	0.395
GAAP or GAAS violations	6.39	0.7475	6.40	1.2362	0.03	0.979
Asset misappropriation	6.41	0.7831	6.13	1.4533	1.08	0.285
Security fraud	6.38	0.7791	6.00	1.1983	1.65	0.104
Financial statement fraud	6.71	0.5239	6.58	0.9306	0.76	0.451
Bankruptcy fraud	6.32	0.8780	6.30	1.0427	0.10	0.918
Credit card fraud	6.18	0.9828	6.20	0.9923	0.08	0.938
Embezzlement	6.65	0.5971	6.48	0.7841	1.05	0.299
Financial data analysis	6.32	0.8428	6.31	1.1506	0.07	0.947
Evidence integrity analysis	6.18	0.8694	5.90	1.1191	1.18	0.243
Computer application design*	5.68	1.2962	5.15	1.3311	1.72	0.090
Damage assesment	5.65	1.1516	5.60	1.2362	0.17	0.867
Tracing illicit funds	6.47	0.7481	6.30	1.0670	0.80	0.424
Locating hidden assets	6.18	1.1927	6.25	1.0316	0.28	0.777
Regression analysis*	5.97	1.0294	5.48	1.2192	1.90	0.062
Legal system and its procedures	6.00	1.2060	5.83	1.1959	0.62	0.534
Responsibilities of a forensic accountant						
Examining the company's accounts and financial data	6.33	1.1365	6.40	1.1503	0.25	0.805
Documenting financial reports	5.85	1.2530	5.85	1.5616	0.00	0.996
Managing financial records, systems, and budgets	5.58	1.4797	5.87	1.4175	0.87	0.390
Running financial audits and performing interviews to verify info	6.38	0.9539	6.30	1.0427	0.35	0.726
Carrying out forensic investigations	6.68	0.7270	6.68	0.8286	0.01	0.994
Analyzing data from financial records, systems, and budgets	6.28	0.8884	6.48	0.8469	0.94	0.349
Writing forensic reports to be used in courts*	5.91	1.0834	6.35	0.9487	1.86	0.068
Preventing possible fraud cases by balancing a company's books	5.62	1.4145	6.08	1.3055	1.44	0.154
Attending court	5.26	1.6933	5.78	1.3105	1.46	0.149

***Statistically significant at p-value < 0.01 level

**Statistically significant at p-value < 0.05 level

*Statistically significant at p-value < 0.10 level

n= 34 for seniors, 40 for sophomore

In Daniels et al.'s (2013) study, internal control was deemed the #1 important topic. For sophomores, internal control was surprisingly ranked #14 out of the 21 topics, as shown in Table 3. For seniors, it was ranked higher at #6 (Table 4). This difference can be attributed to the range of classes these two groups take. The seniors that were surveyed had taken AIS and Audit courses, in which internal control is described further as the backbone of accounting and auditing as well as detecting fraud. If a company has weak internal controls, it is much easier for fraudulent activities to take place. Therefore, it makes sense that this topic should be one of the most essential subjects known to all auditors and forensic accountants. Additionally, many seniors may have completed an audit internship, where these topics may have been explained further. According to a KPMG (2016) survey, weak internal controls contribute to at least 75% of fraud cases, which has increased in recent years. This proves that internal control is an extremely important factor to be paid attention to in order to fight fraud effectively. Another interesting finding was that, on average, both groups gave "interviewing skills" the lowest score. However, the ability to interview effectively is important for auditors and forensic accountants, as it can potentially lead to the discovery of fraudulent activities.

H2 examines if there is a difference between accounting students and professionals regarding forensic accountant topics to be included in a forensic accounting course. The t-test results are presented in Table 7.

TABLE 7
T-TEST RESULTS BETWEEN PROFESSIONALS AND STUDENTS ON TOPICS TO BE INCLUDED IN A FORENSIC ACCOUNTING COURSE

Topics	Professionals		Students		t-test	P-value
	Means	SD	Means	SD		
Internal control***	4.60	0.6072	4.35	0.6911	3.05	0.002
Elements of fraud***	4.49	0.6746	4.78	0.5551	-3.45	0.001
Fraudulent financial statements***	4.44	0.7200	4.82	0.4781	-4.30	0.000
Fraud risk factors***	4.42	0.7115	4.78	0.5298	-4.05	0.000
Ethical issues	4.37	0.8977	4.22	0.7634	1.36	0.176
Prevention/deterrence	4.32	0.7346	4.26	0.8286	0.62	0.538
Fraud symptoms*	4.29	0.7827	4.49	0.7980	-1.94	0.053
Fraud detection***	4.25	0.7773	4.62	0.6964	-3.75	0.000
Fraud schemes***	4.19	0.6389	4.58	0.6195	-4.80	0.000
Case Studies	4.15	0.9347	4.14	0.9113	0.08	0.933
Asset misappropriation	4.13	0.4769	4.15	0.9018	-0.30	0.762
Computer/Internet schemes**	4.08	0.8481	4.32	0.8127	-2.28	0.023
Investigative methods***	3.92	0.8792	4.42	0.7216	-4.54	0.000
Legal environment	3.85	0.9201	3.97	0.9928	-0.98	0.328
Interviewing skills**	3.64	1.1538	3.27	1.1258	2.46	0.014
Corruption***	3.49	1.0313	4.18	0.8169	-5.29	0.000
Criminology***	3.44	1.1064	4.14	0.9835	-4.99	0.000
Fraud remediation***	3.34	1.0412	4.22	0.8801	-6.69	0.000
Report writing***	3.31	1.1221	3.78	1.0504	-3.30	0.001
Forensic litigation services***	3.00	1.0175	4.18	0.8968	-9.14	0.000
Civil litigation services***	2.67	1.0216	3.82	0.9700	-8.76	0.000

***Statistically significant at p-value < 0.01 level

**Statistically significant at p-value < 0.05 level

*Statistically significant at p-value < 0.10 level

n= 303 for professionals, 74 for students

The findings in Table 7 indicate that there are significant differences between professionals and accounting students on the topics that should be covered in a forensic accounting course. Specifically, 15 out of 21 topics resulted in a statistically significant difference ($p < .05$) between professionals and students. This difference can be attributed to the students' lack of job experience and having a course in forensic accounting. Therefore, H2 can be rejected, and we can conclude that there are differences between accounting students and professionals regarding forensic accountant topics to be included in a forensic accounting course.

Since sophomores do not have much exposure to accounting and business courses, professionals were compared with senior students, whose answers may be more similar to the professionals, given that seniors have completed all required accounting courses. The results are presented in Table 8.

TABLE 8
T-TEST RESULTS BETWEEN PROFESSIONALS AND SENIOR STUDENTS ON TOPICS TO BE INCLUDED IN A FORENSIC ACCOUNTING COURSE

Topics	Professionals		Seniors Mean		t-test	P-value
	Mean	SD	Mean	SD		
Internal control	4.60	0.6072	4.53	0.6622	0.62	0.533
Elements of fraud***	4.49	0.6746	4.85	0.4357	-3.08	0.002
Fraudulent financial statements***	4.44	0.7200	4.79	0.4786	-2.77	0.006
Fraud risk factors*	4.42	0.7115	4.65	0.6912	-1.74	0.083
Ethical issues	4.37	0.8977	4.38	0.6970	-0.08	0.938
Prevention/deterrence	4.32	0.7346	4.32	0.7675	-0.05	0.961
Fraud symptoms	4.29	0.7827	4.50	0.7487	-1.50	0.134
Fraud detection***	4.25	0.7773	4.68	0.5888	-3.09	0.002
Fraud schemes***	4.19	0.6389	4.62	0.5513	-3.79	0.000
Case Studies	4.15	0.9347	4.15	0.9255	0.00	1.000
Asset misappropriation	4.13	0.4769	4.12	0.9775	0.08	0.935
Computer/Internet schemes**	4.08	0.8481	4.38	0.7791	-2.01	0.045
Investigative methods**	3.92	0.8792	4.29	0.8359	-2.37	0.018
Legal environment	3.85	0.9201	3.94	1.0133	-0.52	0.605
Interviewing skills	3.64	1.1538	3.30	1.0867	1.63	0.104
Corruption***	3.49	1.0313	4.29	0.7190	-4.40	0.000
Criminology***	3.44	1.1064	4.03	1.0296	-3.00	0.003
Fraud remediation***	3.34	1.0412	4.12	0.9775	-4.16	0.000
Report writing	3.31	1.1221	3.62	1.2313	-1.50	0.135
Forensic litigation services***	3.00	1.0175	4.06	1.0428	-5.76	0.000
Civil litigation services***	2.67	1.0216	3.68	1.0652	-5.41	0.000

***Statistically significant at p-value < 0.01 level

**Statistically significant at p-value < 0.05 level

*Statistically significant at p-value < 0.10 level

n= 303 for professionals, 74 for students

The findings in Table 8 showed that 11 out of 21 topics had a statistically significant difference between professionals and seniors. These results are similar to the previous comparison with all students, but slightly less on the topics to be covered in a forensic accounting course. Overall, these findings support H2.

CONCLUSIONS, LIMITATIONS, AND FUTURE DIRECTIONS

Forensic accounting remains an extremely important topic in today's climate. With technology constantly on the rise, auditors and forensic accountants can use advanced technology to detect fraud. However, fraudsters can also conduct wrongdoings through the use of technology. For example, according to the Federal Trade Commission (FTC) report (Fletcher 2022), more than 46,000 people lost over \$1 billion in crypto to scams since the start of 2021. The worldwide crypto scams are reported to be \$14 billion in 2021 (Sigalos, 2022). According to a KPMG (2016) survey of 750 fraudsters, cyber fraud is a growing concern for companies, and 25% of fraudsters rely on technology. Additionally, weak internal controls accounted for 61% of the fraudsters surveyed. Thus, strong internal controls should be a top priority for businesses today, especially with the rise of technology, which can be used to help combat fraudulent activities. The future of forensic accounting will include more technology and data analytics in order to detect fraud. Computer forensics can be used to help fight the increasing cyber frauds occurring in many companies today (Smith, 2015).

This study surveyed the accounting sophomore and senior students about topics that should be included in a forensic accounting course, as well as skills, abilities, and qualities auditors and forensic accountants should possess, and the responsibilities of forensic accountants. The results of students' responses were also compared with professionals, as reported by Daniels et al.'s study (2013) findings. Overall, the study found differences between professionals (educators and practitioners) and students on what topics should be included in a forensic accounting course. In addition, except for a few minor differences, this study did not find differences between sophomores and senior accounting students on topics that should be included in a forensic accounting course. In addition, the study's findings indicated that seniors believed a forensic accountant should have higher analytical abilities and independence qualities than sophomores.

This study is subject to several limitations. First, this study examined a sample from a single institution. Therefore, the results may not be generalizable to other institutions. Students in this study were all full-time students in a four-year college and the college does not offer a forensic accounting course as part of getting an accounting bachelor's degree. Other four-year institutions with part-time students or offering forensic accounting courses and programs may find different results. Future studies can examine if the findings of this study apply to other four-year colleges different than the one in this study. Second, this study only surveyed accounting students regarding additional topics to be included in a forensic curriculum, skills, abilities, and qualities auditors and forensic accountants should possess as well as the responsibilities of forensic accountants. Students' responses could be different from educators and accounting practitioners. Future studies can extend this study by surveying professionals regarding these characteristics. Third, the sample size in this study is limited to 74 responses in total. Targeting a larger sample size may provide more accurate results. Being able to broaden the number of students reached, such as reaching out to different schools, would also be beneficial. Since this research only applies to students in one school, it would be helpful for future research to see whether results vary among more students in other schools. In addition, it would be interesting to gather opinions from non-accounting students. This would give an interesting comparison for further research, as criminology or business students may take similar classes or become interested in becoming forensic accountants or auditors. Therefore, it might be interesting for further research to compare accounting students' answers with non-accounting students.

Despite these limitations, the findings of this study suggest that there should be a stronger emphasis on forensic accounting programs in the accounting curriculums. The need for at least a forensic accounting course will only grow, and those future accountants need to be knowledgeable on the necessary subjects that will allow them to do their jobs efficiently. This study found that most accounting students seem to have the same ideas of what topics they perceive a forensic accountant should be proficient in. However, this can only be learned through education and experience. Fraud has detrimental effects on businesses and the economy as a whole. Therefore, it will be necessary to provide future forensic accountants with a forensic course or a forensic accounting program that will give them the knowledge they need to detect and prevent fraud. Based on partitioners' and students' responses, Appendix C provides a sample of topics that

should be covered, at a minimum, in a forensic accounting course to benefit both graduating students who choose an auditing or a forensic career.

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APPENDIX A

As mentioned in the manuscript, Daniels et al. (2013) did not provide standard deviations for their Table 4. I contacted the author and asked for the standard deviations, and I was informed the data no longer existed. Since standard deviations are needed to compare groups, I could not compare educators and practitioners individually with students. Therefore, I used the following procedures to examine differences between a combination of accounting faculty and practitioners with students on the topics of forensic accounting.

Daniels et al. (2013) provided probability values for 21 topics they examined. I used probability values to calculate t-statistics for each of the 21 topics, using the Excel formula “=T.INV.2T”, assuming Daniels et al. (2013) study employed equal variances and a 2-tailed t-test. Next, I estimated the pooled standard deviation by the following formula:

$$S_p = \frac{\bar{X}_1 - \bar{X}_2}{t \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

I then used procedures explained in Nouri and Greenberg (1995) to estimate the pooled mean for accounting faculty and practitioners as well as standard deviations for their pooled means. The following formulas were used:

$$\bar{X}_p = \frac{(n_1\bar{X}_1 + n_2\bar{X}_2)}{(n_1 + n_2)}$$

$$SD_p = \sqrt{\frac{(n_1 + n_2 - 2)S_p^2 + n_1(\bar{X}_1 - \bar{X}_p)^2 + n_2(\bar{X}_2 - \bar{X}_p)^2}{n_1 + n_2 - 1}}$$

Next, I employed a *t-test* formula using the pooled means and standard deviations for accounting faculty and practitioners as well as means and standard deviations for students to compare these two groups. The formulas used were:

$$t = \frac{\bar{X}_p - \bar{X}_s}{S_{ps} \sqrt{\frac{1}{n_p} + \frac{1}{n_s}}}$$

$$SD_{ps} = \sqrt{\frac{(n_p - 1)SD_p^2 + (n_s - 1)SD_s^2}{n_p + n_s - 2}}$$

where:

\bar{X}_p = Mean of faculty and CPAs

\bar{X}_s = Mean for students

SD_{ps} = Pooled standard deviation for accounting faculty and practitioners, and students

SD_p = Standard deviation for accounting faculty and practitioners

SD_s = Standard deviation for students

n_p = pooled faculty and CPAs sample size

n_s = Students sample size

APPENDIX B: SURVEY USED IN THIS STUDY

What topics do you think are important to be included in a forensic accounting course? Please rate each of the following topics ranging from a score of 1 indicating "unimportant" to a score of 5 indicating "very important".

Internal control	1	2	3	4	5
Elements of fraud	1	2	3	4	5
Fraudulent financial statements	1	2	3	4	5
Fraud risk factors	1	2	3	4	5
Ethical issues	1	2	3	4	5
Prevention/deterrence	1	2	3	4	5
Fraud symptoms	1	2	3	4	5
Fraud detection	1	2	3	4	5
Fraud schemes	1	2	3	4	5
Case Studies	1	2	3	4	5
Asset misappropriation	1	2	3	4	5
Computer/Internet schemes	1	2	3	4	5
Investigative methods	1	2	3	4	5
Legal environment	1	2	3	4	5

Interviewing skills	1	2	3	4	5
Corruption	1	2	3	4	5
Criminology	1	2	3	4	5
Fraud remediation	1	2	3	4	5
Report writing	1	2	3	4	5
Forensic litigation services	1	2	3	4	5
Civil litigation services	1	2	3	4	5

Based on your perception, rate on a scale of 1 to 7 (1 being unimportant and 7 being very important) the skills, abilities, and qualities an auditor or a forensic accountant should possess:

Interpersonal communication	1	2	3	4	5	6	7
Analytical	1	2	3	4	5	6	7
Attention to detail	1	2	3	4	5	6	7
Integrity	1	2	3	4	5	6	7
Objectivity	1	2	3	4	5	6	7
Independence	1	2	3	4	5	6	7
Credibility	1	2	3	4	5	6	7
Verbal Communication	1	2	3	4	5	6	7
Written Communication	1	2	3	4	5	6	7

Based on your perception, rate on a scale of 1 to 7 (1 being unimportant and 7 being very important) fraud and forensic topics that need to be included in the accounting curriculum:

Money laundering	1	2	3	4	5	6	7
White-collar crime	1	2	3	4	5	6	7
Insurance claims	1	2	3	4	5	6	7
GAAP or GAAS Violations	1	2	3	4	5	6	7
Asset misappropriation	1	2	3	4	5	6	7
Security fraud	1	2	3	4	5	6	7
Financial statement fraud	1	2	3	4	5	6	7
Bankruptcy fraud	1	2	3	4	5	6	7
Credit card fraud	1	2	3	4	5	6	7
Embezzlement	1	2	3	4	5	6	7
Financial data analysis	1	2	3	4	5	6	7
Evidence integrity analysis	1	2	3	4	5	6	7
Computer application design	1	2	3	4	5	6	7
Damage assessment	1	2	3	4	5	6	7
Tracing illicit funds	1	2	3	4	5	6	7
Locating hidden assets	1	2	3	4	5	6	7

Regression analysis	1	2	3	4	5	6	7
Legal system and its procedures	1	2	3	4	5	6	7

Based on your perception, rate on a scale of 1 to 7 (1 being unimportant and 7 being extremely important) the responsibilities of a forensic accountant:

Examining the company's accounts and financial data	1	2	3	4	5	6	7
Documenting financial reports	1	2	3	4	5	6	7
Managing financial records, systems, and budgets	1	2	3	4	5	6	7
Running financial audits and performing interviews to verify information	1	2	3	4	5	6	7
Carrying out forensic investigations	1	2	3	4	5	6	7
Analyzing data from financial records, systems, and budgets	1	2	3	4	5	6	7
Writing forensic reports to be used in court	1	2	3	4	5	6	7
Preventing possible fraud cases by balancing a company's books	1	2	3	4	5	6	7
Attending court	1	2	3	4	5	6	7

Demographics (please check one):

Male: _____ Female: _____

Freshman: _____ Sophomore: _____ Junior: _____ Senior: _____

APPENDIX C: SAMPLE TOPICS AND CASES THAT SHOULD BE COVERED IN A FORENSIC ACCOUNTING COURSE

Topics

Internal control
Elements of fraud
Fraudulent financial statements
Fraud risk factors
Ethical issues
Prevention/deterrence
Fraud symptoms
Fraud detection
Fraud schemes
Case Studies
Asset misappropriation
Computer/Internet schemes
Investigative methods
Legal environment
Money laundering
White-collar crime
Insurance claims
GAAP or GAAS violations
Asset misappropriation
Security fraud
Bankruptcy fraud
Credit card fraud
Embezzlement
Financial data analysis
Tracing illicit funds
Locating hidden assets
Interpersonal Communication
Analytical
Attention to detail
Integrity
Objectivity
Independence
Verbal communication
Written communication
Examining the company's accounts and financial data
Running financial audits and performing interviews to verify info
Carrying out forensic investigations
Analyzing data from financial records, systems, and budgets
Preventing possible fraud cases by balancing a company's books

These topics can be taught through lectures, cases, and projects.