

Fraud Detection: Forensic Accounting Education and CFE Designation Impact on Auditor's Confidence Levels

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This study will examine the effects of the forensic accounting curriculum and certified fraud examiner knowledge on auditor's confidence level to assess fraud. The research will use statistical methods to analyze survey questionnaires from members of the Wisconsin Institute of Certified Public Accountants (WICPA) and the Association of Certified Fraud Examiners (ACFE) using a Likert 5-point scale. This study extends previous literature on the value of forensic accounting curriculum couple with forensic certification to affect independent auditor's confidence level in detecting fraud. It should be informative to regulators, academic researchers, and audit practitioners. It can serve as a shift in how accounting educators and industry professionals prepare auditors to effectively evaluate unstructured fraud cues to reduce fraud losses and save investors hundreds of dollars in economic value.

Keywords: fraud, fraud certification, fraud risk assessment, fraud designation, fraud detection, fraud prevention, accounting certification, auditing certification

INTRODUCTION

The world economies are paying attention to the effects of fraud after the devastating accounting scandals of Enron, World Com, and a host of other Fortune 500 companies in 2002. These companies used accounting schemes to inflate earnings on their financial statements (Ramaswamy, 2007). Inflated profits drove increases in the stock price of these companies. As a result, investors lost billions of dollars in economic value, after the SEC required restatement of earnings for these companies.

Confidence in market efficiency was shaken because investors could not rely on the accuracy of financial statements due to accounting fraud. Therefore, Congress passed the Sarbanes-Oxley Act (SOX) of 2002 that places legal mandates on the Chief Executive Officers and Chief Financial Officers of publicly held companies to certify the accuracy of financial statements. Nonetheless, economic dollars lost by fraud continue to increase after the passage of SOX legislation. In June 2018, the U.S. Department of Justice (DOJ) indicted over 600 people, including 165 medical professionals, for the illegal prescription or distribution of opioids (Gee 2019). The fraudsters accounted for more than \$2 billion in fraud losses.

In 2014, the Association of Certified Fraud Examiners (ACFE), "Report to the Nations," conveyed that \$3.7 trillion of fraud dollars were lost. This number has further escalated to \$5.127 trillion lost by fraud in 2018, according to a 2019 Financial Cost of Fraud report jointly published by U.K. accounting firm, Crowe International, and the University of Portsmouth. Furthermore, this amount represents 6.05% of the world's gross domestic product (GDP) and is 80% greater than the entire GDP of the United

Kingdom, which held the Financial Cost of Fraud study. Given the economic magnitude of losses caused by fraud from 2014 to 2018, an independent auditor failed to detect fraud.

According to generally accepted accounting principles, the independent auditor's role is to assert the reliability and fairness in financial statements (GAAP). The auditing profession has maintained that it is not the auditor's responsibility to detect fraud (Ramaswamy, 2007). Due to the significant losses caused by fraud, investors forced the accounting profession into greater accountability. Subsequently, the American Institute of Certified Public Accountants (AICPA) issued Statements on Auditing Standards (SAS), Number 99 – Consideration of Fraud in a Financial Statement Audit in 2002.

The new standard (SAS 99) provides auditors with guidance on fraud assessment in financial statement audits (Casabona & Grego, 2003).

Specifically, SAS 99 encourages auditors to:

- Discuss all possibilities of fraud that could take place within an organization to design an appropriate audit program
- Discuss with management and employees about the risk of fraud within the organization
- Develop unpredictable fraud tests to uncover schemes and misappropriations
- Pay special attention to any management overrides of the existing internal control system

SAS 99 is a significant step in fraud detection for auditors. However, the Public Company Accounting Oversight Board (PCAOB) has reported finding that auditors experience difficulty with high fraud risk. Accounting educators recognize that a traditional auditing program, which focuses an examination on determining fairness and accuracy is insufficient training for fraud detection (Adebisi, 2011). The audit system's failure has prompted the need for forensics in accounting education programs.

This study aims to determine that auditors who possess Certified Fraud Examiner (CFE) credential will detect more quality fraud issues through greater confidence in auditors. The research is of interest to regulators, academic researchers, and auditing practitioners because auditor's confidence plays a significant role in detecting fraud (Hunton et al., 2004). Popoola et al. (2014) concluded that a greater confidence level allows auditors to assess higher fraud risk better when they receive material weakness information and develop higher-quality audit programs. Moeckel and Plumlee (1989; 656) define auditor's confidence as "a well-calibrated state when accuracy has a direct, positive relationship with confidence." For this study, the researcher explains the auditor's confidence as the feeling of self-assurance that an auditor can complete any auditing task due to competence in domain knowledge.

Although research documents that auditors' confidence directly correlates with fraud detection, auditors still come up short when looking for fraud. Smith et al. (2016) demonstrated that auditors have difficulty responding when fraud risk is high and detect relatively few frauds (Dyck et al. 2010, Asare and Wright 2018). According to the Public Company Accounting Oversight Board (PCAOB), audit failure rates among inspected audits are "in a range of around 35 to 40%" (Chasan, 2014; Pike and Smith, 2015). The majority of fraud cases were detected by whistleblowers rather than fraud investigations (Pike and Smith, 2014). The anti-fraud training and education of CFE designation reduces uncertainty in auditors and allows them to identify fraudulent behavior patterns, increasing fraud detection. This research provides empirical evidence that the forensic accounting curriculum and attainment of CFE designation will enable auditors to detect more fraud through higher confidence levels.

Research Question and Possible Contributions

The main research focus of this study can be summarized in the following question: Do auditors who have attained their CFE's have a more significant impact on fraud detection? This fundamental question is further subdivided into specific research questions:

1. Do auditors who have achieved the Certified Fraud Examiner (CFE) designation have higher confidence levels than non-CFE auditors?
2. Do auditors who completed at least one forensic accounting course have higher confidence levels?
3. Does greater confidence levels in auditors produce higher levels of fraud detection?

Research Contributions

This study aims to determine whether there is a positive impact on the forensic accounting curriculum and the certified fraud examiner designation for the independent auditor's confidence to detect fraud. As indicated in Popoola, Che-Ahmad, and Fig share (2015), forensics occur in accounting every day; therefore, auditors would be provided with a foundation to combat fraudsters on a global scale.

This study adds to the literature in two ways: First, the study investigates the impact of integrating forensic accounting education and the Certified Fraud Examiner (CFE) designation on independent auditor's confidence levels.

With the ever-changing business environment and increasing fraud losses, this study advances the forensic education curriculum on the auditor's confidence level to detect fraud. Previous research provides evidence of an improvement in student's abilities to determine fraud risk factors (Carpenter et al., 2011; Lee et al., 2015). Previous research provides evidence of an improvement in student's abilities to determine fraud risk factors (Carpenter et al., 2011; Lee et al., 2015). Auditors' judgment confidence has essential implications for audit effectiveness and efficiency (Waller and Felix 1987; Moeckel and Plumlee 1989; Kennedy and Peecher 1997). The auditing literature provides evidence of the critical role of judgment confidence in developing the audit plan and the formation of an audit opinion. Additionally, confidence also affects auditor behavior: auditors who are more confident in their judgments are more likely to be consistent with their decisions (Libby 1981). For example, an auditor who is more confident in evaluating a high likelihood of inventory obsolescence is more likely to require a write-down than one who is less confident in that judgment (Libby 1981).

Second, this study extends previous literature on the value of forensic accounting curriculum couples with forensic certification to affect independent auditor's confidence in detecting fraud. Fraud education literature is sparse because fraud education may not be included in many accounting curricula due to (1) a lack of awareness regarding the extent of fraud educators and (2) limited room for an additional course in undergraduate accounting curriculum (Peterson, 2003). Hogan et al. (2008) called for more research on auditor training to improve auditors' fraud judgments (see also Curtis and Payne 2008; Fleming et al. 2008). Bazerman et al. (2002, 102) note, "What's needed is education that helps auditors understand the unconscious errors they make and their reasons. That knowledge alone will not solve the problem, but once members of the auditing profession understand the role of bias in their work, honest and visionary leaders can help change the conduct of accounting to prevent the conflicts of interest that promote bias."

Also, any forensic accounting curriculum's goal is to enhance students' ability to think from a fraudster's point of view. It requires a creative problem-solving approach to deciphering fraud cases. The purpose of this study is to determine whether a forensic accounting curriculum can boost auditor's confidence levels, thereby they enhance their domain knowledge, in turn, that can increase their ability to detect fraud.

The remainder of this paper is organized as follows; Section II provides a literature review and background information on Certified Fraud Examiners. Section III provides the conceptual model and hypothesis development. Section IV outlines the methodology. Section V contains the results, and Section VI presents a summary of the research and conclusions.

LITERATURE REVIEW

The corporate scandals of Enron and World Com took a sled hammer to the integrity and reliability of the accounting profession. With the demise of Arthur Andersen and the collapse of several investment banks, the passing of the Sarbanes-Oxley Act of 2002 contributed to a growing vigilance of fraud and fraudulent financial reporting (Matson 2016; McMullen and Sanchez, 2010). Surveys conducted internationally on fraud have determined it's a problem that touches all kinds of companies regardless of size, industry, or jurisdiction (ACFE,2014; E&Y,2014; PwC,2014; KPMG,2013).

In 2018, Montesdora et al. conducted a meta-analysis of all the 156 articles written on fraud topics between 2000-2018. The authors classified these articles in five categories are shown in the table below:

company organization, the role of Auditors, triangle of fraud, information technology, and psychological aspects.

TABLE 1
META-ANALYSIS OF FRAUD ARTICLES WRITTEN BETWEEN 2014-2018

Company organization	Includes: corporate governance, management incentives, rotation of managers, collusion, and reporting irregularities and investors	72	45%
Role of Auditors	Responsible for examining publicly-held companies' financial statements and are on the front line of protecting investors from managers' fraudulent behavior	51	32%
Triangle of Fraud	Causal relationships between fraudsters and their crimes	15	10%
Information Technology	Includes artificial intelligence whereby costs and benefits are examined in the prevention and detection of fraud	11	7%
Psychological Aspects	Psychological behaviors of fraudsters	7	5%
Total		156	100%

The meta-analysis identifies 51 articles on the Role of the Auditors. However, none of these articles have concentrated on the relationship between auditor's forensic accounting education and CFE designation on the auditor's confidence level in detecting fraud.

This study draws from the following three types of literature: forensic accounting curriculum literature, Forensic accountants as fraud specialists' literature, and Certified Fraud Examiner literature. Forensic accounting education literature adds forensic courses to accounting curriculums to counter escalating financial fraud globally. Forensic accountants as fraud specialists' research focus on using forensics as specialists to aid auditors in assessing fraud when conducting financial statement audits. Certified Fraud Examiner literature emphasizes the psychology traits accountants need to become a competent fraud examiner.

Forensic Accounting Education

Seda and Kramer (2015) noted that an initial survey of three-fourths of chief financial officers (CFO's) thought forensics should be incorporated into conventional accounting curricula. Industry leaders view 21st-century issues such as cybercrime and security, digital forensics, and money laundering as the main reasons educators must incorporate forensic accounting changes into their accounting programs (Kramer et al. .2014). A competent forensic accounting curriculum's mission is to enhance the student's ability to think from a fraudster's point of view and detect fraud cases (Trompeter et al. 2013). Scholars and Practitioners view forensic accounting education as the key to fraud detection.

Although the accounting profession views forensics as the next evolution in accounting education, there has been little action to integrate forensics into AACSB accounting accredited programs. Meier et al. (2010) investigate AACSB programs and determine that only approximately 3% of them incorporated forensics, which is a low percentage considering the lack of competency of auditing professionals that can detect fraud and the enormous amounts of money lost annually by acts of fraudsters. Despite the small percentage of forensic accounting programs, this study is vital to investigate the impact of forensic education on auditor's confidence in identifying fraud.

Forensic Accountants as Fraud Specialists' Literature

Research has determined that auditors lack the skills and training to detect financial fraud accurately. This conclusion has led researchers into indirectly evaluating ways in which forensic accounting can contribute to fraud reduction. Asare and Wright (2018) conducted a study that proves that overall audited effectiveness when investigating the matters of fraud forensic accountants act as consultants in financial statement engagements. Outcomes were enhanced when forensic accountants were included in the planning stages of the audit engagement. Hammersley et al. (2011) confirmed the use of forensic specialists needed in audits because Audit Seniors were not able to assess fraud risk. The audit seniors were not able to identify fraud detection even when they provided material weakness information. Auditing standards direct auditors to consider consulting with forensic specialists on specific audit engagements to enhance the exposure of substantial fraudulent financial reporting (fraud) (Asare and Wright 2018).

Certified Fraud Examiner Literature

Research on Certified Fraud Examiners is scarce. Articles produced to date either talk the skill set needed to acquire to become a successful fraud examiner, and most CFE experimental literature to date involves the testing of undergraduate participants. Carpenter et al. (2011) provided evidence that fraud knowledge improves a student's abilities to determine fraud risk factors. Brickner et al. (2010) proved that student auditors who participate in the anti-fraud training and development of the CFE designation program could significantly improved their fraud-detection skills, leading to better fraud detection.

Studies are limited because the CFE credential is a relevantly new discipline within the accounting profession. It officially begins in 1988, when Joseph P. Wells, a former auditor, and FBI agent created CFE designation after a discussion with Dr. Donald Cressey, the renowned criminologist, and father of fraud triangle theory. Wells created the credential because he felt that auditors who perform compliance examinations concerning the accuracy of financial statements were ill-prepared to detect fraud and needed a unique skill set and forensic techniques developed for the sole purpose of identifying the evidence of fraud (Davia,2000). Wells contends that "[a]s a group, CPAs are neither stupid nor crooked. But the majority are still ignorant about fraud; for the last 80 years, untrained accounting graduates have been drafted to wage war against sophisticated liars and thieves" (Wells, 2005b).

Frauds are complicated, and revealing one requires an auditor to think like fraudsters to incorporate a creative problem-solving approach to decipher fraud cases (Bolt-Lee et al.,2015). With that in mind, researchers have begun to investigate how a Certified Fraud Examiner preparation can augment an auditor's cognitive skill set to improve their fraud detection abilities. Auditors who have attained the Certified Fraud Examiner (CFE) designation should possess the most anti-fraud domain knowledge. CFEs are trained in criminal law and investigation, fraud prevention, detection, and deterrence. Additionally, they possess skills in critical thinking, unstructured problem-solving, investigative flexibility, analytical proficiency, oral and written communication, and deductive analysis (DiGabriele, 2008. This knowledge and training make them the most capable auditors to recognize the warning signs and red flags that denote evidence of fraud and fraud risk (ACFE, 2020). The skill sets obtained in CFE training and development will heighten the skepticism traits that will develop deeper critical thinking and investigative skills to solve unstructured fraud cues, thus providing a boost for effectiveness and efficiency in evaluating financial items for material misstatement. SAS No. 99 acknowledges CFEs as individuals who "may assist the audit committee and board of directors with aspects of the oversight process" (AICPA 2002, 76).

According to the Association of certified fraud examiners (ACFE), three main categories of fraud affect organizations and institutions (ACFE, 2008). These categories include asset misappropriation, corruption, and fraudulent statements. Two types of misstatements are relevant to the auditor, (1) distortions resulting from fraudulent financial reporting and (2) misstatements arising from misappropriation of assets. Skilled fraud prevention professionals can assess internal controls (Peterson and Zikmund 2004; Ramaswamy 2005), help management develops detection procedures (Wilks and Zimbelman 2004), and deliver a specific recommendation to management and boards of directors related

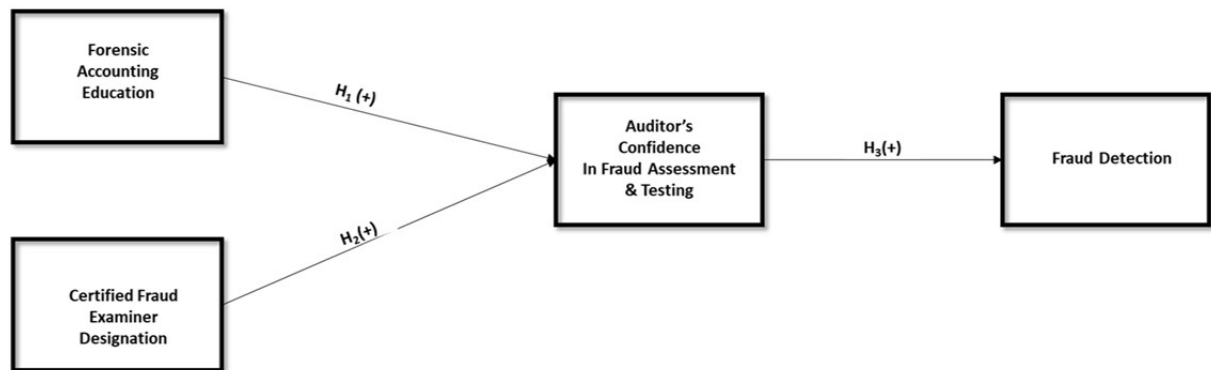
to corporate governance (AICPA 2002) that can alleviate fraudulent financial reporting and misappropriation of assets (Morgan et al. 2014).

There has been no direct empirical evidence that confirms improvement in audit detection of fraud upon obtainment of the CFE credential. Enget (2015) uses Tobit and ordered logit regression models on a sample of 40 auditors and ten forensic professionals to moderately prove how an individual's level of fraud detection proficiency impacts their performance on fraud risk assessments and modification of audit plans. Enget includes merging the CFE designation with others such as Certified in Financial Forensics (CFF), Investigative Forensic Accountant (IFA), and Certified Forensic Accountant (Cr. FA) along with other CPE and fraud task-specific experience. Meservy et al. (2006) document a survey to 725 CFEs, outlining the skills and knowledge the training provides and the potential career paths that the designation offers. As the researcher is aware, there have been no studies to date have quantitatively measured the relationship between obtainment Certified Fraud Examiner knowledge and fraud detection.

THEORETICAL FRAMEWORK

Research Model

FIGURE 1
KNOWLEDGE FACTORS IN ENHANCING AUDITOR'S CONFIDENCE AND FRAUD DETECTION



The research model (figure 1) postulates that forensic accounting education and Certified Fraud Examiner designation will positively impact the overall confidence in fraud assessment and testing for auditors conducting financial statement audits. Besides, the research model postulates that auditor's confidence in fraud assessment and testing will have a positive impact on fraud detection.

A conceptual and operational definition of variables include:

- Fraud detection (F.D.) – Number of frauds detected in the fraud, no-fraud cases.
- Certified Fraud Examiner Designation (CFE) - Auditor who has attained CFE credential. 1 = Yes, 0 = No
- Auditor's Confidence (A.C.) – Auditor who feels confident or his or her ability to detect fraud. Auditor's confidence was measured by a questionnaire using a Likert 5-point scale with "5," indicating very confident, "4" indicating confident, "3" indicating neutral, "2" indicating not confident, and "1" really not confident. Forensic Accounting Curriculum (FAC) – An auditor who has completed at the least one undergraduate course in forensic accounting or fraud examination.

Fraud Detection

Albrecht (2003) defines fraud as a representation of a material fact that is false and intentional or recklessly so, which is believed and acted upon by the victim, to the victim's damage. The Cambridge Dictionary defines detection as the act of noticing or discovering something. Therefore, it can be surmised that fraud detection is the act of finding an intentional misrepresentation that prevents a loss of company funds or economic value.

“Fraud is an ever-present threat to the effective utilization of resources and hence will always be an important concern of management (Brink and Witt, 1982; Vanasco, 1998, pp 349)”. Fraud accounts for approximately \$% trillion in lost global resources annually. Fraud detection is the only line of defense against diminishing marginal utility. There’s an inverse relationship between fraud detection and fraud dollars lost. However, research shows the inability of auditors to design useful tests that detect fraud (Asare and Wright, 2018).

Forensic Accounting Education

Bologna and Eindquist (in *Fraud Auditing and Forensic Accounting*, 1995) defined forensic accounting as "the application of financial skills, and an investigative mentality to unresolved issues, conducted within the context of rules of evidence (Ramaswamy, 2005). Forensic accounting curriculum is defined as a multi-disciplinary curriculum in improving critical thinking, unstructured problem solving, and oral and written communication. Forensic accounting curriculum includes investigative flexibility, analytical proficiency, legal knowledge, and deductive analysis to increase the probability of detecting fraud (Seda & Kramer, 2009). The Treadway Commission, a joint initiative of five private sector organizations; the Institute of Management Accountants (IMA), the American Accounting Association (AAA), the American Institute of Certified Public Accountants (AICPA), the Institute of Internal Auditors (IIA) and Financial Executives International (FEI) create to combat corporate fraud noted in their initial 1987 report that a rigorous and thorough accounting curriculum should expose students to the knowledge, skill, and ethical values they will need as professionals to prevent, detect, and deter fraudulent financial reporting (Dennis et al. 2013). Forensic accounting curriculum accessibility provides the basic functionality for auditors to complete risk management tasks. For the past quarter-century, accounting programs around the world have been modifying curriculum to include courses in fraud and forensic accounting.

An initial review of forensic accounting courses indicates there are conflicting approaches to development (Van Akkeren et al., 2013; Smith and Crumbley, 2009). Despite differences in forensic accounting course development, forensic programs have valued this detecting fraud. Franken (2007) notes that students who enter into forensic programs engage in case studies, problem stimulation, and practical experience to foster investigative and creative problem-solving skills (Matson, 2016). These skills are valuable to auditors when assessing fraud because fraud is arduous, given the means through which fraudsters camouflage the crime.

***Hypothesis #1:** Auditors who completed at least one-course education will demonstrate higher levels of fraud detection.*

Certified Fraud Examiner Designation

Certified Fraud Examiner (CFE) is the equivalent to a financial detective. A CFE is responsible for resolving allegations of fraud, obtaining evidence, taking statements, writing reports, testifying to findings, and assisting in the prevention and detection of fraud and white-collar crime. The CFE designation signifies competence in fraud prevention, detection, and deterrence (Wells, 2003). To obtain certification, candidates must pass a four-part exam: 1) Financial Transactions and Fraud Schemes, 2) Law, 3) Investigation & Fraud Prevention, and 4) Deterrence.

While there is no government requirement to obtain the CFE designation, the CFE is administered by the Association of Certified Fraud Examiners. This professional body governs fraud investigators and examiners. CFE is the most reliable indicator of proficiency in post-secondary fraud training (ACFE,

2019). Due to the significant amounts and types of financial fraud occurring today, auditors who possess CFE designation have the skills and training to defer fraudulent crimes (Houck et al., 2006) since they have developed core competencies in fraud prevention (Carpenter et al. (2011)).

Hypothesis 2: Auditors who attain the Certified Fraud Examiner (CFE) designation will demonstrate higher levels of fraud detection.

Auditor's Confidence Level in Fraud Assessment & Testing

Auditors' confidence has essential consequences for audit efficacy and usefulness (Smith et al., 2016). Prior research shows that they have difficulties designing useful fraud tests (Zimbelman 1997; Houston, Peters, and Pratt 1999; Asare and Wright 2004; Mock and Turner 2005; Hammersley, Johnstone, and Kadous 2011; Beasley, Carcello, Hermanson, and Neal 2010, 2013) due to lack of skills and training. Previous literature gives scholars insight into auditor's confidence in developing audit plans and procedures (Smith et al., 2016). For example, a previous study measures the impact of confidence on audit effectiveness (Kinney 1975; Beck, Solomon, and Tomassini 1985).

Asare and Wright (2018) investigated the use of forensic specialists in financial statement audits. The study determines that forensic accountants generally enhance audit quality by customizing audit procedures for fraud. Additionally, these procedures increase the auditor's confidence level in fraud examination. Further studies in psychology have determined that increase information quantity leads to higher confidence (Peterson and Pitz 1988; Smith 2010), and auditors who exhibit confidence take firm action with their judgments. For example, an auditor who is confident is more likely to write down inventory obsolescence than an auditor who is less confident (Libby 1981).

According to Psychology Today, confidence can be described as a belief in oneself. Confidence manifests itself in humans as the ability to meet and succeed. Popoola et al., 2014, successfully proved that auditors with a positive mindset have a positive direct relationship with Task performance in fraud risk assessment (TPFRA). Popoola concludes that confidence allows auditors to better assess higher fraud risk when they receive material weakness information and develop higher-quality audit programs. Better audit programs lead to more excellent fraud prevention.

Hypothesis #3: Auditors who display higher confidence levels will have higher levels of fraud detection.

METHODS

Pilot Study

Interview three-to-five partners will conduct a pilot study in forensic accounting and litigation practices from regional or national accounting and consulting firms. The purpose of these interviews is to obtain a thematic analysis for the richness of study and questionnaire development.

Research Design

The rationale of this research study is to distinguish the confidence level between auditors who receive at least one forensic accounting class in their accounting curriculum versus auditors who have not received any forensic accounting in their education experience. The study will also differentiate the confidence level of auditors who have obtain a CFE designation as opposed to those auditors who did not receive CFE designation. Create a research survey questionnaire will be developed using a Likert 5-point scale.

The Survey consist of 20 questions covering four areas of focus:

- Five general issues related to forensic accounting education.
- Five questions relating to Certified Fraud Examiner designation
- Five questions about confidence examining the highest Areas of Fraud (Money laundering, Revenue Cycle, Misappropriation of Assets, Cyber Security, misstatements of financial statements (accounting fraud)

- Five questions regarding forensic skills (problem-solving, verbal communication, interviewing, data mining & investigation)

DATA COLLECTION

The questionnaire will be used to gather data from two groups.

WICPA Members – A non-random sample of accountants who are members of the Wisconsin Institute of Certified Public Accountants (WICPA). WICPA is a professional association representing the certified public accountant (CPA) profession in Wisconsin. WICPA members work in public accounting, business, and industry, not-for-profit, government, and education. They also represent accountants from all organizations (associates, senior auditors, supervisors, managers, and partners). The participant group is approximately 8,000 members. The response rate is estimated to be between 5-10%. Sampling bias is expected due to the randomness.

CFE Designates – A non-random sample will be distributed to Certified Fraud Examiners, who are members of the Association of Certified Fraud Examiners (ACFE). ACFE is a professional organization of fraud examiners and denotes proven expertise in fraud prevention, detection, and deterrence. CFE's members are specialists who work in public accounting, business, and government. The participant group is approximately 85,000 members worldwide. The response rate is estimated to be between 1-3%. Sampling bias is expected due to the randomness.

MEASUREMENT

The study will measure by multivariate regression analysis in SPSS where the program will test with the various dependent variables as explained below:

$$FD = b_0 + b_1 * CFE + b_2 * FAC + b_3 * AC + \epsilon_i$$

where:

- FD = fraud detection (dependent)
- CFE = CFE designation (independent)
- FAC = Forensic Accounting Curriculum, (independent)
- AC = Auditor's confidence (independent)
- ϵ_i = error (error term)

A one-way ANOVA will be measured to compare the means from Forensic Accounting Education and Certified Fraud Examination designation variables for statistical significance.

LIMITATIONS

There are several potential limitations to this study. First, the sample contains a small number of observations, which causes the following issues of low statistical power, inflated false discovery rate, inflated effect size estimation, and low reproducibility. Second, the ANOVA test can give inconclusive results if the dataset is not uniformly distributed, and the variance and standard deviation of each sub-set data group are not equal. Third, the study results are based on a survey questionnaire's responses, which may be limited by the subjectivity of the academicians and accounting practitioners who complete the questionnaire. Finally, the researcher's design may not capture the causal links among Forensic Accounting Education, Certified Fraud Examination, and Fraud Detection.

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APPENDIX A

FRAUD QUESTIONNAIRE AND INSTRUCTIONS FOR ADMINISTRATION

This survey aims to gather data relating to the use of fraud detection and prevention techniques. It should take approximately 20 minutes to complete. Thank you in advance for your voluntary participation. It indicates your willingness to contribute to the enhancement of our profession. All responses you provide are confidential and will be published only in summary, statistical form. You or your firm will not be identified in any way. Accordingly, there are no foreseeable risks to you or your firm any one statement.

Respondent profile

Job Title: _____

Gender _____ Age _____

Highest educational level obtained: Bachelors__ Masters__ Beyond Masters _____

Years of accounting experience _____

Circle of Certification attained: CIA CPA CISA CMA CFE CFP Other.

Number of Auditors in Department: _____

Primary Industry _____

Revenue for 2002: < 250 mm _____ > 250 mm-1 billion _____ > billion _____

Operations: Local _____ National _____ International _____

Is your company publicly held? Yes _____ No _____

If yes, which of the following exchanges is your company listed on? NYSE__ AMEX__ NASDAQ__ OTC__ Other__ (please identify__).

Fraud questions: Please answer the questions below to the best of your ability. All answers will be held in confidence.

		Strongly Disagree				Strongly Agree
1	I expect fraud to increase in the future	1	2	3	4	5
2	At least one of my clients been a victim of fraud	1	2	3	4	5
3	My clients have an Internal Audit who reports only to the Audit Committee of the Board of Directors	1	2	3	4	5
4	I wait to decide on audit judgment until I can get enough information	1	2	3	4	5
5	Have you completed at least one forensic accounting course	1	2	3	4	5
6	I feel that I must render an unqualified opinion no matter what information I discovered during an audit	1	2	3	4	5
7	I must stay on budget no matter what information I discover during an audit	1	2	3	4	5
8	I like to ensure that I've considered most available information before I decide what opinion to issue	1	2	3	4	5
9	All my clients are ethical	1	2	3	4	5
10	My organization has the appropriate technology to assist in detecting fraud	1	2	3	4	5
11	I consider brainstorming to be effective in helping determine in the appropriate areas to test for fraud	1	2	3	4	5
12	I often accept my client's explanations without further thought *	1	2	3	4	5
13	I usually notice inconsistencies in explanations	1	2	3	4	5
14	My organization has CPE training for fraud	1	2	3	4	5
15	I have confidence in myself to search for inconsistencies financial statement information even if it causes conflict with the client	1	2	3	4	5
16	The funding for fraud training has decreased over the past three years*	1	2	3	4	5
17	My organization has a code of conduct/ethics policy	1	2	3	4	5
18	I ignore fraud cues so I can always make budget *	1	2	3	4	5
19	I tend to immediately accept what my client's people tell me so they can say positive things about me to my manager*	1	2	3	4	5
20	I will always conduct substantive if I get the proper fraud cues	1	2	3	4	5

The asterisk means these questions were reverse coded.

Questions were adapted from Bierstaker, Brody, and Pacini: Accountants' perceptions regarding fraud detection and prevention methods, 2006.