

EXAMINING THE GROWING NEED FOR TRAINED FORENSIC ACCOUNTANTS  
IN PUERTO RICO: A CASE STUDY

Dissertation

Submitted to Northcentral University

Graduate Faculty of the School of Business and Technology Management

in Partial Fulfillment of the

Requirements for the Degree of

DOCTOR OF PHILOSOPHY

by

DAVID MARTINEZ-FIGUEROA

Prescott Valley, Arizona

December 2015

ProQuest Number: 10003792

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



ProQuest 10003792

Published by ProQuest LLC (2016). Copyright of the Dissertation is held by the Author.

All rights reserved.

This work is protected against unauthorized copying under Title 17, United States Code  
Microform Edition © ProQuest LLC.

ProQuest LLC.  
789 East Eisenhower Parkway  
P.O. Box 1346  
Ann Arbor, MI 48106 - 1346

Approval Page

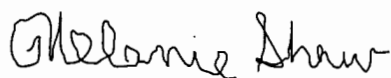
Examining the Growing Need for Trained Forensic Accountants in Puerto Rico: A Case

Study

by

DAVID MARTINEZ-FIGUEROA

Approved by:



Chair: Dr. Melanie Shaw, Ph.D.

1/20/16

Date

Committee Members:

Dr. Peter Bradley

Certified by:



Dean of School: Dr. Peter Bemski, Ph.D.

1/20/16

Date

## Abstract

In recent years, financial collapses, white collar crimes, and occupational fraud have multiplied in Puerto Rico (Davis et al., 2010), increasing the demand for forensic accountants. Many accounting graduates lack the traits, skills, and knowledge they need in order to function in the contemporary workplace, and the marketplace is in need of more university or college trained forensic accountants. Thus, the purpose of this qualitative, multiple case study was to identify the traits, skills, and knowledge that accounting faculty, practitioners, and lawyers view as necessary for forensic accounting programs in Puerto Rican universities to prepare graduates to be able to meet the demands of the contemporary workplace. Ten accounting professors, 10 forensic accounting practitioners, and 10 lawyers were given a survey questionnaire to fill out on SurveyMonkey and were interviewed using open-ended questions regarding what they perceive are the traits, skills, and knowledge that graduates from forensic accounting programs need in order to perform their jobs effectively in light of current market conditions in Puerto Rico. The findings on the survey questionnaire showed that only four items were agreed upon by the three participant groups at the mean level of  $M = 5$ : (a) function well under pressure and time constraints, (b) think like a wrongdoer, (c) ethical behavior, and (d) knowledge of audit evidence. The interviews helped explain in detail the differences and agreements among the three groups of participants. Like in the survey, every group thought ethical behavior and integrity were important traits for forensic accountants. The lawyer group, however, argued that the most important trait for a forensic accountant was good communication skills. The findings of this study may add to the literature on what traits, skills, and knowledge are necessary for a forensic accountant to have and thereby help educators and practitioners more easily define what curriculum would best prepare students.

## Acknowledgments

I want to dedicate this dissertation to my sister in law, Professor Grisel García Camacho, who passed away in June 2010 after fighting two years and a half with melanoma cancer. Grisel was a true warrior who inspired me to never give up on this important project.

I also want to acknowledge my parents, Frank Martínez Cuevas and Clemencia Figueroa Morales. I would like to thank my mother for her moral support during the dissertation research sequence. I would also like to recognize my brother, Frank Martínez Figueroa, for his support and prayers in this process.

I also want to mention my two best mates in the whole world, David Gonzalez Lopez and Wilfredo Marin Murphy. I also want to thank my two lovely friends since high school Myriam Rivera and Nilsa Roman for their words of encouragement during this process.

I want to give a special recognition to Zabi Rezaee who was an inspiration for the development of my topic. Zabi is a very down to earth person who made me aware that the most important thing in life is family.

I also have one important comrade on this dissertation process, Suzanne M. you are the most brilliant human being I have ever collaborated with in my life. I also would like to thank my Dissertation Chair, Melanie Shaw, for her patience during this process. Finally all the knowledge came from God, and he is the number one on this countdown.

## Table of Contents

List of Tables .....	vi
List of Figures .....	vii
Chapter 1: Introduction .....	1
Background .....	2
Defining forensic accounting .....	3
Differences between fraud accountants and forensic accountants .....	4
Statement of the Problem .....	5
Purpose of the Study .....	7
Theoretical Framework .....	8
Research Questions .....	11
Nature of the Study .....	11
Significance of the Study .....	13
Definition of Key Terms .....	15
Summary .....	21
Chapter 2: Literature Review .....	22
Introduction to the Chapter .....	22
Forensic Accounting Curriculum in the United States.....	22
Evolution of Accounting Education (brief history).....	22
Obstacles Facing Forensic Accounting and Fraud Examination Education .....	41
Auditing: A Foundation for Fraud or Forensic Curriculum Revisions .....	42
Forensic Accounting Curriculum in Puerto Rico .....	46
Recent Research on the Need forForensic Accounting and the Gap in the Literature.....	50
Previous findings on needed competencies in forensic accounting courses .....	52
Knowledge, skills, and characteristic needed in forensic accounting.....	55
Summary .....	57
Chapter 3: Research Method.....	60
Research Methods and Design .....	62
Population .....	65
Sample.....	65
Instruments.....	67
Data Collection, Processing, and Analysis.....	70
Data collection .....	70
Data processing .....	71
Data analysis.....	72
Assumptions.....	73
Limitations and Delimitations.....	73
Limitations .....	73
Delimitations.....	74
Ethical Assurances .....	74
Summary .....	75

Chapter 4: Findings.....	76
Introduction.....	76
Methodology and Sampling .....	78
Methodology.....	78
Sampling .....	78
Quantitative Findings .....	80
Qualitative Findings .....	89
Accounting Professors' Interview Responses .....	89
What's missing in accounting curriculum in Puerto Rico? .....	89
Characteristics needed for forensic accountants.....	91
Computer technology and forensic accounting .....	93
Most valuable skill, trait, or knowledge for forensic accountants .....	99
Lawyers' Interview Responses .....	100
 Chapter 5: Implications, Recommendations, and Conclusions .....	104
Implications.....	104
Findings for Question 1.....	104
Limitations .....	109
Recommendations for Practical Applications .....	112
Recommendations for Future Research .....	112
Conclusions.....	113
 References.....	114
 Appendix A: Informed Consent Form—English and Spanish Versions .....	125
Appendix B: Site Permissions to Survey Professors .....	131
Appendix C: Permission From Puerto Rico Society of CPAs .....	135
Appendix D: Permission to Use Skills Survey .....	136
Appendix E: Survey for Accounting Professors, Forensic Accountants and Lawyers... ..	137
Appendix F: Interview Questions for Accounting Professors .....	139
Appendix G: Interview Questions for Accounting Practitioners.....	141
Appendix H: Interview Questions for Lawyers .....	142
Appendix I: Permission to Use Figure 3 .....	143
Appendix J: Confidentiality Agreement Transcription Services.....	144

## List of Tables

Table 1 <i>Composite Profile of Capabilities Needed by Accounting Graduates</i> .....	27
Table 2 <i>The Model Curriculum and Needed Knowledge of Fraudulent Behavior</i> .....	38
Table 3 <i>Demographic Information for Participants</i> .....	79
Table 4 <i>Composite Standard Mean for Each Survey Item for Three Participant Groups</i> .....	82
Table 5 <i>Standard Mean for Each Survey Item for Accountants Professors</i> .....	84
Table 6 <i>Standard Mean for Each Survey Item for Forensic Accountants</i> .....	85
Table 7 <i>Standard Mean for Each Survey Item for Lawyers</i> .....	86
Table 8 <i>The Top 10 Traits, Skills, and Knowledge by Participant Group</i> .....	88
Table 9 <i>One-Word Description of Forensic Accountant</i> .....	93
Table 10 <i>Forensic Accountants' Degrees Held</i> .....	97
Table 11 <i>One-Word Responses From Forensic Accountants on Most Important Trait, Skill of Knowledge</i> .....	100



## List of Figures

<i>Figure 1.</i> AICPA's CFF core focus wheel.....	51
--	----

## Chapter 1: Introduction

The growing complexity of business and increasing number of government and business-related fraud investigations in the twenty-first century have created a need for forensic accountants on the island of Puerto Rico (Armitage & Poyzer, 2010; Kahan, 2006; McGaw, 2006; National Institute of Justice, 2005; Patil, 2011; Peterson & Reider, 2001; Pei, Byrnes, & Pinsker, 2012\_. According to Paletta (2013), fraud is rampant in Puerto Rico in virtually every aspect of society. The banking crisis that occurred in Puerto Rico during the twenty-first century put the financial system on the island at risk for collapse (Huber, 2013). That event showed the need for more forensic accountants on the island. Additionally, Puerto Rico also ranks in the top five of all states and possessions in the United States for number of identity fraud cases (Paletta, 2013). Thus, accounting organizations in Puerto Rico are in need of graduates who have the problem-solving, communication, and accounting skills, and practical field experience necessary to meet the growing demands of the industry (Glass & Oakley, 2003); however, no Puerto Rican university or college presently offers a degree in forensic accounting although most of the higher education institutes offer a basic course in forensic accounting in their business curriculum (Patil, 2011)

Traditionally, students who graduated and then passed the exam for Certified Public Accountant (CPA) were thought to be competent enough to handle any forensic accounting needs for their clients (Edelman & Nicholson, 2007). However, at the start of the twenty-first century, CPAs found themselves confronting many cases of fraud that they were not prepared to face (Edelman & Nicholson, 2007; Wells, 2003). Fraud became so rampant that even the largest and most trusted accounting firm in the United States, Arthur Anderson LLP, was accused of covering up or ignoring accounting irregularities

at Enron, a large Texas corporation (Edelman & Nicholson, 2007). The accounting irregularities at Enron not only brought down the corporation, but their accounting firm, Arthur Anderson, as well (Edelman & Nicholson, 2007). Top executives at Arthur Anderson were found guilty of obstruction of justice by destroying documents that the Security and Exchange Commission (SEC) needed to prosecute Enron executives (Armitage & Poyzer, 2010). The failure of Enron and other large corporations pointed to the need for more academically trained forensic accountants who possess the type of skills to investigate the growing crime of fraud (Armitage & Poyzer, 2010; Edelman & Nicholson, 2007).

According to the American Institute of Certified Public Accountants (AICPA), forensic accountants are required to apply “specialized knowledge and investigative skills possessed by CPAs, [by] collecting, analyzing and evaluating evidential matter, and interpreting and communicating findings in the courtroom, boardroom or other legal/administrative venue” (Davis, Farrell, & Ogilby, 2010, p. 3). Sustaining the growth of forensic accounting and fraud examination depends on the ability to test (using scientific methodologies) those tools and techniques currently used in the field, as well as the ability to research new innovative ideas to address fraud and forensic-accounting issues (Kahan, 2006). The need for trained forensic accountants continues to grow, creating an opportunity and challenge for educators to prepare professionals, in practice and in academia, who share similar values, goals, and objectives (Fleming, Pearson, & Riley, 2008).

## **Background**

Until the twenty-first century and the rapid increase in white-collar crime, educators, practitioners, and lawyers assumed that a CPA had the type of accounting

training needed to handle any type of fraud (Fleming et al., 2008; Huber, 2013; Patil, 2011). As technology became more sophisticated, white-collar criminals found more creative ways to steal and cover up the crime (Patil, 2011). The financial collapse of both Enron and WorldCom proved the need for a more intensive method of investigating suspicious accounting activity (Davis et al., 2010), as in both cases audits failed to show the magnitude of the accounting irregularities occurring (Davis et al., 2010). Although forensic accounting can be an important tool in combating the growing issue of fraud, a lack of forensic accounting traits, skills, and knowledge by trained CPAs has made it less likely these crimes can be detected.

**Defining forensic accounting.** Until 10 years ago, most traditional accounting curriculums had only one course that introduced forensic accounting (Crumbley, Heitger & Smith, 2009; Curtis, 2008a, 2008b; Davis et al., 2010; Drnevich & Stuebs, 2013). The interest in forensic accounting grew with the advent of advances in technology that allowed criminals to access financial and identity records that previously had not been readily available (Drnevich & Stuebs, 2013). However, there has been some disagreement among researchers and academics about what forensic accounting really is.

In defining *forensic accounting*, researchers have sought to distinguish the differences between fraud accountants and forensic accountants (Crumbley, Heitger, & Smith, 2008; Hopwood et al., 2008; Singleton & Singleton, 2010; Stanbury & Paley-Menzies, 2010). Singleton and Singleton (2010) defined forensic accounting “[as] the comprehensive view of fraud investigation. It includes preventing frauds and analyzing antifraud controls. . . .It also includes the gathering of nonfinancial information” (p. 12). Crumbley, Heitger, and Smith (2009) reported that a fraud auditor differs from an accountant who is skilled in auditing but who also uses “other accounting, consulting,

and legal skills in broader engagements” (p. 1001). Stanbury and Paley-Menzies (2010) agreed that forensic accounting requires the gathering and presenting of information that can be used in a court of law against those who are charged with economic crimes. Hopwood et al. (2008) best summed up what others had termed *forensic accounting*. They suggested forensic accounting requires more than knowledge of fraudulent activities; instead, forensic accountants have to have investigative and analytical skills to solve crimes of fraud and understand how to present the evidence in a court of law (Hopwood et al., 2008).

**Differences between fraud accountants and forensic accountants.** The above definitions show a clear difference between fraud accountants and forensic accountants. Forensic accountants operate within a legal system that involves more than just uncovering fraud. Forensic accounting requires specialized knowledge that is beyond the scope of CPA knowledge. Singleton and Singleton (2006) pointed to the Forensic CPA Society (FCPAS), which issues a certification in forensic accounting. There is no specific education requirement, but a valid CPA license is required. There is no stated code of ethics. There are other agencies involved in certifying forensic accountants, but there is no required forensic examination as yet (Armitage & Poyzer, 2010; Huber, 2012). According to Wells (2003),

Forensic accounting and fraud examination are different but related. Forensic accounting work is done by accountants in anticipation of litigation and can include fraud, valuation, bankruptcy and a host of other professional services. Fraud examinations can be conducted by either accountants or nonaccountants and refer only to antifraud matters. (para. 12)

Many U.S. colleges now offer a course in fraud examination. In 2000, only 19

colleges out of 900 had a fraud examination course in the accounting curriculum (Wells, 2003). Wells reported that by 2003 that number had increased to 150 colleges out of 900, with more colleges planning to add a fraud examination course. As Wells pointed out, fraud examiners do not have to be accountants; most fraud examiners learn their job through real-world work experience. Forensic accountants must have an accounting degree; they have to combine accounting and investigative skills to prepare reports for possible litigation. According to Wells, forensic accountants are most often employed by public accounting firms, by consulting firms that focus on forensic accounting services, or by law firms, law enforcement, or other firms engaged in financial matters. Some of the most important skills needed by a forensic accountant include performing forensic research to trace funds and identify assets for recovery, conducting forensic analysis of financial data, and preparing forensic accounting reports from financial findings and analytical data for litigation and testifying as needed (Wells, 2003). As Armitage and Poyzer (2010) reported, the growth in financially motivated nonviolent crime that is committed by individuals in business or government necessitates preparing enough forensic accountants to counter the growing rank of white-collar criminals. This lack of prepared forensic accountants has left one of the U.S.'s possessions, Puerto Rico, a home base for fraud-related crime, especially in the areas of banking, identity, and health care.

### **Statement of the Problem**

In recent years, financial collapses, white-collar crimes, and occupational fraud have multiplied in the United States and its territories like Puerto Rico (Davis et al., 2010), creating an increasing demand for trained forensic accountants (Smith & Crumbley, 2009). Many accounting graduates lack the traits, skills, and knowledge they need in order to function as a forensic accountant in the contemporary workplace

(McMullen & Sanchez, 2010; Paletta, 2013), and the forensic practitioners are demanding improvements in university programs so that accounting graduates have had more than one introductory forensic accounting course (Davis et al., 2011; DiGabriele, 2008; Pope & Ong, 2007; Regan & Ebersbacher, 2008; Smith & Crumbley, 2009; Stanbury, & Paley-Menzies, 2010). Recent research, most of which has used a quantitative methodology, has attempted to identify what traits, skills, and knowledge are needed for a person who wants to be a forensic accountant (McMullen & Sanchez, 2010; Paletta, 2013). However, that research has not offered any definitive list. Very little research on the problem has involved a qualitative methodology where accounting professors, forensic practitioner, and lawyers all have had the opportunity to explain their forced-choice quantitative answer (Peterson, 2015).

Empirical studies, predominantly, focus on investigating firms that have a past history of fraud (Peterson, 2015). The knowledge that firms committed fraud tend to drive a potential researcher to employ several statistical tests to support his expectation for the existence of fraud in his or her analysis. This practice in forensic research is not helpful to regulators. Regulators are more interested in detecting ongoing fraudulent activities in firms while academic research focuses on past fraud events. Academic research will inform policy when forensic accounting research shifts their focus from firms with previous fraud history to firms that have no fraud history (Peterson, 2015).

The need for forensic accountants is particularly crucial in Puerto Rico for two reasons. First, few universities offer forensic accounting programs, despite the growing problem of fraud and white-collar crime (Davis et al., 2010). Second, the rapid rise in fraud and white-collar crime and the use of technology on the island has made Puerto Rico a fertile haven for the creative and technologically sophisticated criminal (Allen,

Seaman & Garrett, 2007; Huang & Lau, 2004). Previous research has shown the need to incorporate more case studies, depositions, mock trials, and active participation in accounting classes because analytical skills and communication were identified as the two most important characteristics for a forensic accountant to possess. However, no research has been conducted that gives professors, practitioner, and lawyers a chance to offer an elaboration on the market need, academic preparedness, and relevant learning experiences for needed in forensic accounting. Supported by Kolb's experiential learning theory and Knowles's andragogy, the focus of this study is on adding the perceptions of the three groups involved in the study: accounting professors, forensic practitioners, and lawyers in order to identify the traits, skills, and knowledge that the study's participant sees as necessary for forensic accounting programs in Puerto Rican universities. Additionally, because funding for higher education has been cut, more research is needed in order to justify either reworking the present accounting curriculum to include needed forensic accounting courses or developing a new curriculum for a degree in forensic accounting.

### **Purpose of the Study**

The purpose of this qualitative, multiple case study was to identify the traits, skills, and knowledge that accounting faculty, practitioners, and lawyers viewed as necessary for forensic accounting programs in Puerto Rican universities in order to prepare graduates to be able to meet the demands of the contemporary workplace. This study also filled the gap in the present research literature that has attempted to develop a definite list of courses using a quantitative methodology that needs to be added to higher education programs (Davis et al., 2010; Pope & Ong, 2007; Regan & Ebersbacher, 2008).

The study added to the existing research on forensic accounting in Puerto Rico by



identifying the traits, skills, and knowledge, as well as university programs should incorporate in their forensic accounting degree programs in Puerto Rico. Hence, the findings in this present study were expected to help justify the cost of developing additional forensic accounting courses or for creating a new program leading to a degree in forensic accounting.

Accounting professors, forensic accounting practitioners, and lawyers were interviewed regarding what they perceived were the needed traits, skills, and knowledge that graduates from forensic accounting programs need in order to perform their jobs effectively in light of current market conditions in Puerto Rico. Currently, there are no forensic accounting programs in Puerto Rico's institutions of higher education, although in the United States, there has been an increase in forensic accounting courses and degrees as the profession of forensic accounting grows in importance. The growing use of technology, along with the increasing desire of criminals *to beat the system*, has increased the opportunity for a wide range of fraud to occur on the island (Fleming, Pearson, & Riley, 2008). Professionally trained forensic accountants are needed in Puerto Rico to address these recent issues of fraud, and there is a strong need to identify the skills required in this growing profession in order to justify the increased financial costs to develop new courses that will meet the marketplace need for more trained forensic accountants.

### **Theoretical Framework**

There are two theories that served as a foundation for the study. The first theory is experiential learning theory coined by Kolb (1984). The second theory is andragogy, which was proposed by Knowles in 1950. Both theories played an intricate role in supporting the study.

Experiential learning theory (ELT) was first introduced by Kolb in 1984 and outlines learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (p. 41). In other words, new knowledge is created when what is being learned is understood so that it can be used to alter a person's experiences. ELT has its origins in the works of Dewey, Lewin, and Piaget. Whereas, cognitive learning theories tend to emphasize cognition over affect, behavioral learning theories stress experience as the central role in ELT. Thus, Kolb (1984) intended ELT to be a holistic, adaptive process that merges experience, perception, cognition, and behavior.

McCarthy (2010) reported that there is much interest in ELT among accounting researchers. Twenty-two studies in accounting have been performed using ELT as the theoretical framework (Kolb & Kolb, 2005), with seven studies conducted between 1971 and 1984 and 15 studies between 1985 and 1999. The focus has been on the learning styles of accounting majors and any changes in learning style that occur over the course of a career. Focus has also been placed on using ELT to design instruction strategies in accounting and for studying relationships between learning styles and performance in accounting courses (Kolb & Kolb, 2005).

Over the last decade, accounting researchers have conducted several studies using ELT as a framework. Brent and Harvey (2005) offered 10 ways to engage students mentally and physically. These suggestions included structuring discussion sessions that involved input, activity, reflection and planning. Brent and Harvey also suggested the instructor change activities every 20 minutes and use individual, paired, or group activities to maintain the attention span of students. Webb (2006) developed methods to create an active learning environment in accounting classes, which included the use of

case studies, management, soft skills activities, and role-playing.

In 2008, Healy and McCutcheon used qualitative methods to investigate accounting students' experiences of active learning approaches. The findings from their study suggested that students benefitted from teamwork as it built their level of confidence and self-direction in the learning process. Additionally, Brickner and Etter (2008) provided both in-class and out-of-class activities to promote active learning in an accounting classroom. They gave students guided notes before class, which students had to print off and bring to class and complete during lecture. The instructors divided the classroom time into 15-minute segments in order to maintain student interest and attention. Savage, Norman, and Lancaster (2008) showed the movie, *Rogue Trader*, to teach the accounting concept from the wholesale buyers' club Costco's internal control framework. Students found this lesson interesting and fun, and the instructors made the accounting material more relevant by showing this movie. Even though ELT has been the focus of research in the accounting field, more research is needed on the topic as the profession continues to evolve and respond to the growing forensic area.

The term *andragogy* was originally used by a German educator, Alexander Kapp, in 1833. Later the term was extended and developed into a theory of adult education and popularized by Knowles in the 1850s (Knowles, 1950; Knowles, Holton, & Swanson, 2005). Knowles' theory of adult learning focuses on six assumptions that are related to motivation of adult learning. First, adults need to know why learning something new is important and need to be given the opportunity to learn through trial and error. Adults need to be involved in their education by planning and evaluating their instruction and most interested in learning subjects that are relevant to their work or personal life. Adult learning is problem-centered rather than being content-oriented. Therefore, adults are

more likely to respond better to internal motivators (Knowles et al., 2005). Thus, adults are self-directed learners. Adult learning theory is used in the present study to show why undergraduates of accounting might be motivated to continue their studies in accounting in the area of forensics. The study was focused on some of the assumptions about adult learning to help develop the skills, general knowledge and traits needed to do well as a forensic accounting. The field of adult learning has grown significantly in the last 2 decades as more adults return to school to enhance workplace skills.

### **Research Questions**

The purpose of this qualitative, multiple case study was to identify the traits, skills, and knowledge that accounting faculty, practitioners, and lawyers view as necessary for forensic accounting programs in Puerto Rican universities to prepare graduates to be able to meet the demands of the contemporary workplace. Based on that stated purpose, the following three research questions are posed:

**Q1:** How do college instructors, accounting practitioners, and lawyers perceive the need for forensic accounting in Puerto Rico?

**Q2:** What traits, skills, and knowledge do college faculty, accounting practitioners and lawyers view forensic accounting programs should incorporate in order to prepare graduates for the contemporary workplace?

**Q3:** What instructional strategies do college faculty and accounting practitioners view forensic accounting programs should incorporate in order to prepare graduates for the contemporary workplace?

### **Nature of the Study**

This qualitative multiple case study was used to identify the traits, skills, and knowledge that accounting faculty, practitioners, and lawyers view as necessary for

forensic accounting programs in Puerto Rican universities to prepare graduates to be able to meet the demands of the contemporary workplace. In selecting the methodology to be used to answer the three research questions, two methods were considered: quantitative and qualitative (Stanbury, & Paley-Menzies, 2010). Qualitative research relies mainly on the collection of qualitative data, which is nonnumeric data such as words and pictures (Yin, 2009). Qualitative data are most often collected through the use of interviews with individuals or groups. In contrast, quantitative research relies on the collection of numeric data and is usually analyzed using statistical methods. In quantitative research, the data are most often collected through surveys, using forced choices (Stanbury, & Paley-Menzies, 2010). To meet the purpose of this study, a qualitative design was chosen (Yin, 2009). There are quite a few quantitative studies on forensic accounting available, but only a few qualitative studies were found. A qualitative method allowed the researcher to explore the topic more thoroughly than could be done with quantitative research.

After choosing the methodology, the researcher considered the type of qualitative design that would best address the problem of the study (Stanbury, & Paley-Menzies, 2010; Yin, 2009). After careful thought, a descriptive multiple case study design was chosen because it best suited the purposes of the study. According to Yin (2009), a case study design should be used when the researcher is not interested in manipulating the behavior of the study's participants, when the researcher wants to cover the contextual conditions that the researcher thinks are relevant to the issue under study, and when the boundaries between the context and the phenomenon. A descriptive case study is used when the researcher wants to describe a phenomenon and the real-life context in which it occurs (Yin, 2009). For the purposes of this study, approximately 10 college accounting faculty, 10 forensic accounting practitioners, and 10 lawyers in Puerto Rico were

interviewed and completed one modified questionnaire from Rezaee, Crumbley, and Elmore (2006), which was designed to glean their perspectives of the skills, knowledge, and traits needed by forensic accountants in the unique context of Puerto Rico.

Additionally, the researcher also completed field notes during interviews to document the nonverbal responses of participants during the individual interviews. Finally, document reviews in the form of program outcomes were evaluated to determine what skills and traits that programs in the United States offer.

The data were analyzed using Atlas.ti, a qualitative software program that allows for interview tapes and notes to be entered and sorted. Common words and phrases are coded so that themes can be developed for the reporting of the data. Atlas.ti helps the researcher group the coded words and phrases, organizing them in thematic groups so that themes can be developed for reporting on the findings. Each of the questionnaires was reported through means of percentages showing what skills each group of participants believe to be most important for a forensic accountant to possess. Additionally, a review was done on U.S. programs in forensic accounting to see what skills, and knowledge are emphasized. Data analysis is described in more detail in Chapter 3.

### **Significance of the Study**

As the use and importance of technology increase in the twenty-first century, so do the opportunities to commit identity theft and fraud. Law enforcement often has to play *catch-up* with criminals who have perfected ways to use technology to steal money, services like healthcare, and identities (Davis et al., 2010; Pope & Ong, 2007; Regan & Ebersbacher, 2008). There are too few trained forensic accountants with the appropriate traits, skills, and knowledge needed to outwit the criminals. Thus, this study's purpose is to identify the traits, skills, and knowledge most needed by forensic accountants,

especially on the island of Puerto Rico, where fraud and identity thief has spiraled out of control (McCarthy, 2010).

In recent years, industry and business operations have become more intricate in Puerto Rico, causing an increase in fraud investigations and a resultant need for forensic accountants (Kahan, 2006; McGaw, 2006; National Institute of Justice, 2005; Peterson & Reider, 2001). According to Paletta (2013), fraud is rampant in Puerto Rico in virtually every aspect of society. To illustrate, one of the biggest targets is disability payments from Social Security. In 2006, only 37% of first-time applicants for disability received benefits in Puerto Rico. By late 2010, that number had risen to 69%. In 2011, nine of the top 10 U.S. zip codes for workers receiving disability benefits were on the island of Puerto Rico (Paletta, 2013). Federal data showed that 33% of Puerto Rico's beneficiaries were qualified because of *mood disorders*, which was at least 10% higher than the rate that any U.S. state has (Paletta, 2013).

Additionally, Puerto Rico's legislature was forced to pass a new birth certificate law that invalidated all birth certificates issued before July 1, 2010 (*Puerto Rico Birth Certificates Law 191 of 2009*, 2010). In 2010, the Department of Homeland Security informed the Puerto Rican government that 40% of the 8,000 fraudulent passport cases reviewed by U.S. State Department came from the island's birth documents (*Puerto Rico Birth Certificates Law 191 of 2009*, 2010). In Puerto Rico, many official and unofficial transactions require that the individual present his or her original birth certificate, which are then retained and stored. The stored original documents often are not adequately protected and end up getting stolen and sold on the black market for as much as \$10,000 per birth certificate (Paletta, 2013). These stolen birth certificates are used to obtain passports, licenses, and government benefits and documentation (*Puerto Rico Birth*

*Certificates Law 191 of 2009, 2010*). Accounting organizations and governmental entities in Puerto Rico are in need of graduates to meet the growing demands of the industry, (Glass & Oakley, 2003), but no universities offer forensic accounting programs.

The significance of this study is twofold. First, the findings may inform law enforcement agents, legislators, and higher education leadership about how to develop specific training programs that will educate forensic accountants to address the growth of fraud in the United States and its territories like Puerto Rico. Second, giving a voice to three important stakeholders (i.e., accounting professors, forensic practitioners, and lawyers) will help to show the need for specially trained forensic accountants and to justify to administrators in higher education and legislators the need to fund these changes in order to meet the present marketplace conditions. Because higher education institutions have faced many cuts in educational funding during the twenty-first century, any needed increase in revenue for these colleges and universities must be supported by a clear need for those funds (Nisrin, 2011). Allowing accounting professors, forensic practitioner, and lawyers the opportunity to elaborate on the traits, skills, and knowledge that they consider to be vital for a forensic accountant to possess will strengthen the argument for increased funding to make those changes.

### **Definition of Key Terms**

The purpose of this section is to define unique terms critical to an understanding of the topic.

**Accounting.** Accounting is defined as the recording, classifying, and summarizing of economic events in a logical manner for the purpose of providing financial information for decision making. Traditional accounting involves using financial language to communicate results of transactions and make decisions based on



that communication. Accounting can be divided into several different areas, including financial accounting, managerial accounting, information systems, tax, consulting, auditing (Hopwood, Leiner, & Young, 2008).

**American Institute of Certified Public Accountants (AICPA).** AICPA is a voluntary organization of CPAs that sets professional requirements, conducts research, and publishes materials relevant to accounting, auditing, management consulting services and taxes (Arens et al., 2008).

**Auditing.** Auditing is the accumulation and evaluation of evidence about information to determine and report on the degree of correspondence between the information and established criteria. Auditing should be done by an independent, competent person (Arens et al., 2008).

**Benchmark admission.** A benchmark admission is an answer that implies guilt. This is an answer to a question that implies admission on the part of the interviewee (Albrecht et al., 2006).

**Business valuations.** Business valuation is the discipline that deals with the appraisal of various types of financial assets (Hopwood et al., 2008).

**Certified fraud examiner (CFE).** CFEs are professionals who are trained to conduct complex fraud examination from inception to conclusion. CFEs have training in all aspects of fraud examination, including identifying fraudulent transactions, obtaining evidence, and interviewing witnesses (Kranacher, Morris, Pearson, & Riley, 2011).

**Certified Public Accountant (CPA).** A CPA is a person who has met state regulatory requirements, including passing the Uniform CPA examination, and has thus been certified; a CPA may have as his or her primary responsibility the performance of the audit function on published historical financial statements

of commercial and noncommercial financial entities (Arens et al., 2008).

**Corporate governance and organizational oversight.** Corporate governance and organizational oversight is the most effective way to prevent financial statement fraud, which achieved by monitoring from six groups: management, board of directors, audit committee, internal auditors, external auditors, and public oversight groups (Hopwood et al., 2008).

**Evidence.** Evidence is anything perceivable by the five senses, and any proof such as testimony of witnesses, records, documents, facts, data, or tangible objects legally presented at trial to prove a contention and induce a belief in the minds of a jury (Kranacher et al., 2011).

**Expert witness.** Expert witnesses are people qualified to be permitted to give opinions in court (Hopwood et al., 2008).

**External auditor.** External auditors are accountants who conduct an audit of financial statements to determine whether they fairly state assets, liabilities, owner's equity, revenues, gains, expenses, losses, and cash flows in accordance with generally accepted accounting principles (GAAP; Hopwood et al., 2008).

**Financial statement fraud.** Financial statement fraud is a type of fraud where an individual or individuals purposefully misreport financial information about an organization in order to mislead those who read it (Kranacher et al., 2011).

**Forensic accountant.** A forensic accountant performs investigative and valuation services, the result of which could be used in a court of law. Forensic accountants apply special skills in accounting, auditing, finance, quantitative methods, certain areas of law, research, and investigative skills to collect, analyze, and evaluate evidential matter and to interpret and communicate findings (Hopwood et al., 2008).

**Forensic accounting.** Forensic accounting is the application of investigative skills and analytical skills for the purpose of resolving financial issues in a manner that meets standards required by courts of law. Forensic is an adjective that means used in (or pertaining to), courts of law.

**Fraud.** Fraud is a generic term that embraces all the multifarious means that human ingenuity can devise, which are resorted to by an individual, to gain an advantage over another by false representations. No definite and invariable rule can be laid down as a general proposition in defining fraud, as it includes surprise, trickery, cunning and unfair ways by which another is cheated (Albrecht, Albrecht & Albrecht, 2006).

**Fraud detection.** Fraud detection is the activity of searching for or finding indicators that suggest that fraud may be occurring; finding predication of fraud (Albrecht et al., 2006).

**Fraud deterrence.** Fraud deterrence means discouraging fraudulent activities through the threat of negative sanctions (Kranacher et al., 2011).

**Fraud examination.** Fraud examination is the process of resolving allegations of fraud that occurred from inception to disposition. It involves not only financial analysis, but also taking statements, interviewing witnesses, writing reports, testifying to findings, and assisting in the detection and prevention of fraud (Kranacher et al., 2011).

**Fraud investigation.** Fraud investigation is the procedure for following up on fraud predication to determine if fraud has occurred and, if so, by whom, for how much, in what ways, and where the process of gathering evidence to either confirm or reject the fraud predication (Albrecht et al., 2006).

**Fraud prevention.** In fraud prevention, all efforts and means are extended to deter fraud from occurring; involves eliminating perceived pressures, perceived

opportunities and/ or rationalizations; any action that discourages or diminishes the likelihood that fraud will occur (Albrecht et al., 2006).

**Fraud risk.** Fraud risk means that there is a risk that material misstatements are in a given financial statement, which have arisen from fraudulent financial reporting and misappropriation of assets (Kranacher et al., 2011).

**Generally accepted auditing standards.** Generally accepted auditing standards are the 10 auditing standards developed by the AICPA, consisting of general standards, standards of field work, and standards of reporting, along with interpretations; often called auditing standards (Arens et al., 2008).

**Inter-American University of Puerto Rico.** Inter-American University of Puerto Rico is a private nonprofit, co-ed institution of higher education. Originally founded in 1912 as the Polytechnic Institute of Puerto Rico, Inter American University is the largest private university in Puerto Rico. Enrollment in recent years has been maintained at approximately 43,000 students. At the present time of the study, about 21% of all the Island's college students and 35% of the students who go to the Island's private colleges attended Inter American University (Inter American University, 2009).

**Internal auditor.** An internal auditor is the employee who verifies information produced by other employees or processes in the organization and who may also work on special projects such as analyzing whether the company should make or buy a particular product (Hopwood et al., 2008).

**Litigation services.** Litigation service is the function of a valuation and investigation service (including testifying as an expert witness) performed to assist the court in the determination of an equitable judgment (Hopwood et al.,

2008).

**Mediation.** Mediation is the act of assisting parties with differing perspectives to arrive at a compromise (Hopwood et al., 2008).

**Ponzi scheme.** Ponzi scheme occurs when investors are promised a huge return on funds invested in the scheme. The scheme works by using new investors' money to pay off old investors when they cash their investments in. Ponzi schemes eventually unravel as the economy shifts and fewer new investors come forward. The money owed to old investors cannot be repaid, and the Ponzi scheme collapses. The scheme is named after Charles Ponzi "who duped thousands of New England residents into investing in postage stamp speculation back in the 1920s. He promised his investors a 50% return in just 90 days at a time when the annual interest rate at banks was just 5%" (Dutta, 2013, p. 1).

**Predication.** Predication is the circumstance that, taken as a whole, would lead a reasonable, prudent professional to believe that a fraud has occurred, is occurring, or will occur (Albrecht et al., 2006).

**Public Company Accounting Oversight Board (PCAOB).** PCAOB is a SOX-created organization that oversees auditors of public companies (Hopwood et al., 2008).

**Sarbanes-Oxley (SOX) Act.** SOX act is an important U.S. Congressional legislation passed in 2002 that added and changed many laws aimed mainly at preventing and punishing various types of financial statement fraud among public companies (Hopwood et al., 2008).

**Securities and Exchange Commission (SEC).** The SEC is a federal agency that oversees the orderly conduct of the securities markets; the SEC helps

provide investors in public corporations with reliable information with which to make investment decisions (Arens, Elder & Beasley, 2008).

**Statement on Auditing Standards (SAS).** SASs are pronouncements issued by the AICPA to interpret generally accepted auditing standards (Arens et al., 2008).

**White-collar crime.** Originally, white-collar crime included criminal acts only of corporations and individuals acting in their corporate capacity (e.g., management fraud or crime); however, the term is now used to define almost any financial or economic crime (Kranacher et al., 2011).

### **Summary**

Chapter 1 introduces the problem to be addressed by this research study. The goal of this study, supported with Kolb's experiential learning theory and Knowles's andragogy is to identify the traits, skills, and knowledge that accounting professors, forensic accounting practitioners, and lawyers see as necessary for forensic accounting programs in Puerto Rican universities to prepare graduates to be able to meet the demands of the job. A background of the fraud problem in Puerto Rico is given. The purpose and problem in the study is discussed as well as the two theoretical supports used in this study. The purpose and problem is followed by the nature of the study, which includes a discussion of how the case study was conducted, what instrument was used, and how the collected data were analyzed through the use of Atlas.ti, a quantitative software program that enables the researcher to create and enter codes for the analysis of the data. The chapter closes with a list of important terms used in this study.

## **Chapter 2: Literature Review**

### **Introduction to the Chapter**

The literature reviews offer information and results of research to establish the context for this research study. The following review of the literature is divided into several sections. The first section includes a brief history of accounting education followed by a review of some important accounting studies, and closes with a discussion of accounting education. Nine sections cover the following topics: (a) The Objectives of Accounting Education. (b) How Forensic Accounting Differs From Traditional Accounting, (c) Forensic Accounting Curriculum in the United States, (d) Accounting Programs in Higher Education, (e) Accounting Programs in Higher Education, (f) The Growth of the Profession of Forensic Accounting, (g) Fraud Investigation Initiatives, (h) Obstacles Facing Forensic Accounting and Fraud Examination Education (i) Auditing: A Foundation for Fraud or Forensic Curriculum Revisions, (j) Forensic Accounting Curriculum in Puerto Rico, and (k) Studies on the Growing Need for Forensic Accounting. The review ends with a summary.

### **State of Accounting Education**

According to Ivanovic (2011), accountancy is defined as the method used to communicate financial information about a business to its stakeholders, such as managers and shareholders. The information is presented in financial statements “that show in money terms the economic resources under the control of management; the art lies in selecting the information that is relevant to the user and is reliable” (Ivanovic, 2011, para. 1). There are three divisions of accountancy: accounting, bookkeeping, and auditing. However, over recent years, financial collapses, white collar crimes, and occupational fraud have multiplied across the United States and in Puerto Rico (Davis et al., 2010),

increasing the demand for forensic accountants, creating need for a relatively new focus and need in accounting education (Smith & Crumbley, 2009).

Until 10 years ago, most traditional accounting curriculums had only one course that introduced forensic accounting (Crumbley, Heitger & Smith, 2009; Curtis, 2008a, 2008b; Davis et al., 2010; Drnevich & Stuebs, 2013). In Puerto Rico at the time of the study, no university or college offered a degree in forensic accounting although most of the higher education institutes offer a basic course in forensic accounting in their business curriculum (Patil, 2011). Furthermore, researchers and practitioners are still working to outline clearly a definitive list of skills a forensic accountant must have. Thus, an apparent gap exists between market need, academic preparedness, and relevant learning experiences for forensic accounting. The need for trained forensic accountants continues to grow, creating an opportunity and challenge for educators to prepare professionals, in practice and in academia, who share similar values, goals, and objectives (Fleming, Pearson, & Riley, 2008).

While enrollment in accounting programs has increased (Allen, Seaman & Garrett, 2007), many universities and professors still use traditional, dated curriculums, and instructional strategies (Huang & Lau, 2004). Organizations need accounting graduates who have problem-solving, communication capabilities, accounting skills, and practical field experience necessary to meet the growing demands of the industry (Glass & Oakley, 2003). In a study conducted by the AICPA (2010), participants stated accounting programs should incorporate more case studies, depositions, mock trials, and active participation in classes. Analytical skills and communication were identified as the two most important characteristics for a forensic accountant to possess. In the last decade of the twentieth century and the first decade of the twenty-first century, case studies were



used as an approach to teaching skills to accounting students.

Another area of interest in accounting education research has focused on what the researchers call *soft skills* in combination with the needed discipline-specific skills (Boyce, Williams, Kelly, & Yee, 2001). Boyce et al. supported the use of case studies as a method to promote appropriate learning styles that would encourage the development of these soft skills. Boyce et al. argued the soft or generic skills are “analytical and problem-solving skills, judgment and synthesis skills, personal and interpersonal communication skills, management, negotiation and organizational skills, and the ability to apply these skills in a range of unique situations” (p. 39). Often, soft skills are better learned through a case study.

Another focus of accounting education has been on teaching ethics in the classroom (Graya, Bibbington, & McPhala, 1994). Graya et al.’s study was the one that started the discussion on whether ethics and morality could or should be incorporated into accounting classes. The researchers noted that there is considerable evidence of ethical and intellectual failure among accounting practitioners. Graya et al. reported that some of the responsibility for these failures can be attributed to accounting education, where there is a failure to develop students’ intellectual and ethical maturity. This has been a moral failure on the part of accounting educators. Graya et al. that core accounting knowledge has “characteristics which can be associated with both superficial learning strategies and ethically immature moral positions” (p. 56). Graya et al. proposed that one possible, and partial, solution may lie with social and environmental accounting, which challenges much of the traditional approach to accounting education in universities, offers a vehicle within which many of the implicit assumptions of accounting and accounting education can be explored and

provides a potential opportunity to enhance the ethical and intellectual development of accounting students. (p. 58)

Therefore, more research is needed to identify the traits, skills, and knowledge needed by forensic accountants in order to have successful practices.

**Accounting skills.** In 1990, the American Accounting Association (AAA) issued a Position Statement that laid out the objectives that should be used in accounting education. The skills that need to be developed in order to be a competent accountant were classified into eight areas: general knowledge, intellectual skills, interpersonal skills, communication skills, organizational and business knowledge, accounting knowledge, and accounting skills. Table 1 displays the skills needed in each of the eight categories. The AAA (1990) also outlined the personal traits and attitudes that an accountant must possess to perform well in the job. These personal characteristics include “creative thinking, integrity, energy, motivation, persistence, empathy, leadership, sensitivity to social responsibilities, and commitment to lifelong learning” (AAA, 1990, para. 11).

General accounting focuses on adhering to the rules and procedures of traditional accounting principles. In 1989, the eight largest international accounting firms at that time issued a White Paper that discussed the core competencies needed by entry level accountants in the United States. The paper called for significant changes in the university level curriculum to address perceived deficiencies in accounting education. In 1990, the Accounting Education Change Commission (AECC) published its first Position Statement (Johnson et al., 2003). The statement discussed the objectives of accounting education, including the skills and knowledge required to become successful accountants, and how accounting education must change to address the new demands of the

accounting profession. Core competencies mentioned included analytical skills, critical thinking and decision-making skills, teamwork skills, and communication skills (Johnson et al., 2003; see Table 1).

**University accounting programs.** Accounting programs in higher education are built around the Certified Public Accountant (CPA) exam content guidelines (AICPA, 2014). The National Association of State Board of Accountancy (NASBA) determines what constitutes the common body of knowledge necessary for persons entering the public accounting profession (AICPA, 2014). Furthermore, the CPA profession drives the content of traditional accounting curriculum and naturally focuses on the financial statement audit and its related standards (AICPA, 2014).

Most colleges require the same basic courses for accounting students, albeit the titles they give those courses may differ slightly. The courses needed to obtain an undergraduate degree include accounting principles, intermediate accounting, advanced accounting, accounting information systems, auditing, tax, cost accounting, and governmental or not-for-profit accounting (Peterson, 2003). Intermediate accounting comprises two or three courses, and tax and auditing may be two terms each. These required accounting classes, in addition to the other required business and nonbusiness courses needed to maintain accreditation, leave little room for a separate course on fraud (Peterson, 2003).

To prepare students to succeed requires an accounting curriculum that is relevant; students should be exposed to during their university education (Seda & Pwrweson, 2008). The responsibility of maintaining the health of accounting curricula falls on professors at colleges and universities, but feedback from practicing accountants is useful. Professors must maintain currency with changes in the accounting profession and

incorporate those changes into the curriculum in order to prepare students to have successful accounting careers. Additionally, practicing accountants provide an excellent source of information regarding the knowledge necessary to succeed in the profession (Armitage & Poyzer, 2010).

To prepare students to succeed requires an accounting curriculum that is relevant and includes the topics students should be exposed to during their university education (Seda & Pwrweson, 2008). The responsibility to maintain the health of accounting curricula falls on professors at colleges and universities, but feedback from practicing accountants is useful. Professors must maintain currency with changes in the accounting profession and incorporate those changes into the curriculum in order to prepare students to enter successful accounting careers. Additionally, practicing accountants provide an excellent source of information regarding the knowledge necessary to succeed in the profession (Armitage & Poyzer, 2010). Table 1 presents a set of skills and capabilities needed by accounting graduates.

Table 1

*Composite Profile of Capabilities Needed by Accounting Graduates*

Category	Skills
General knowledge	An understanding of the flow of ideas and events in history and the different cultures in today's world. Basic knowledge of psychology, economics, mathematics through calculus, and statistics. A sense of the breadth of ideas, issues, and contrasting economic, political and social forces in the world as well as an awareness of personal and social values and of the process of inquiry and judgment. An appreciation of art, literature, and science.
Intellectual skills	Capacities for inquiry, abstract logical thinking, inductive and deductive reasoning, and critical analysis. Ability to identify and solve unstructured problems in unfamiliar settings and to apply problem-solving skills in a consultative process, Ability to identify ethical issues and apply a value-based reasoning system to ethical questions, to understand the determining forces in a given situation and to predict their effects, and ability to manage sources of stress by selecting and assigning priorities within restricted

resources and to organize work to meet tight deadlines.  
 Interpersonal skills Ability to work with others, particularly in groups, to influence them, to lead them.

Table 1 (*continued*)

Communication skills	Ability to present, discuss, and defend views effectively through formal and informal, written and spoken language, to listen effectively, and to locate, obtain, organize, report, and use information from human, print, and electronic sources.
Organizational and business knowledge	Knowledge of the activities of business, government, and nonprofit organizations, and of the environments in which they operate, including the major economic, legal, political, social, and cultural forces and their influences. Knowledge of finance, including financial statement analysis, financial instruments, and capital markets, both domestic and international.
Accounting knowledge	History of the accounting profession and accounting thought. Content, concepts, structure, and meaning of reporting for organizational operations, both for internal and external use, including the information needs of financial decision makers and the role of accounting information in satisfying those needs. Ethical and professional responsibilities of an accountant. An understanding of the role of information systems. The concepts, methods, and processes of control that provide for the accuracy and integrity of financial data and safeguarding of business assets, and taxation and its impact on financial and managerial decisions. In-depth knowledge in one or more specialized areas, such as financial accounting, management accounting, taxation, information systems, auditing, nonprofit, government, and international accounting.
Accounting skills	Ability to apply accounting knowledge to solve real-world problems

*Note.* Adapted from Appendix B in American Accounting Association's (1990) Position Statement Number 1 Objectives of education for accountants with permission.

Forensic accounting is a fast-developing field in the accounting profession in the United States and has added new dimensions to accounting education and practices. Factors contributing to the demand for forensic-accounting practices are today's litigious business environment and the growing incidence of fraudulent activities. Forensic accountants can practice as fraud examiners, expert witnesses, or litigation consultants.

Although more forensic-accounting programs are emerging in higher education, a gap still exists between the demand for forensic accountants and the supply provided through university education. Additionally, according to forensic accounting practitioners, there is a gap between what is being taught and what forensic accountants

need to know in the field. Forensic accounting is viewed as one of the fastest growing careers, yet there are only a limited number of accounting programs offering accounting programs. As far back as 1996, *The Wall Street Journal* called forensic accountants the accounting profession's new glamour *kids* and reported that not only did the FBI double its forensic-accountant agent force between 1982 and 1996, but several large public accounting firms doubled or quintupled their forensic ranks during the same period (Seda & Peterson, 2008).

The AICPA (2014) listed forensic accounting as one of eight accounting specialty areas. The antifraud resource center on the AICPA website reports that there is expected to be a shortfall of 50,000-75,000 forensic-accounting professionals in the United States alone in the next few years (AICPA, 2014). In 2008, *SmartMoney* magazine also listed forensic accounting as one of the 10 hottest jobs with a salary potential in excess of \$100,000 (Seda & Peterson, 2008). With the growing awareness of heightened awareness of fraudulent activity, there has been an increasing demand for trained and certified forensic accountants (AICPA, 2014). Courses in accounting principles, intermediate accounting, advanced accounting, accounting information systems, auditing, tax, cost accounting, and governmental or not-for-profit accounting are needed. Intermediate accounting comprises two or three courses, and tax and auditing may be two terms each. These required accounting classes, in addition to the other required business and nonbusiness courses needed to maintain accreditation, leave little room for a separate course on fraud (Peterson, 2003).

Development of educational and training programs for forensic accountants has received increased attention by academics and practitioners in the United States (Rezaee, Lander & Gavin, 1992). As commerce has expanded throughout the world, the need to

track money and financial information has grown. There has been a corresponding increase in illegal financial activity, according to separate surveys by the U.S.

Department of Justice, Pricewaterhouse-Coopers, and the Association of Certified Fraud Examiners (ACFE; Houck et al., 2006). An understanding of effective fraud and forensic-accounting techniques may help forensic accountants in identifying illegal activity and discovering and preserving evidence (Houck et al., 2006).

Leaders at West Virginia University argued that the long-term sustainability of the specialized field of fraud and forensic accounting will depend on the ability to test (using scientific methodologies) those tools and techniques currently used in the field, as well as the ability to research new innovative ideas regarding fraud and forensic-accounting issues (Kranacher et al., 2008). Issues associated with law, sociology, psychology, criminal justice, intelligence, computer forensics, and technology application also need to be included in forensic sciences. The need for trained fraud and forensic experts continues to grow, creating an opportunity for colleges and universities to be committed to assisting both practitioners and academics who share similar values, goals, and objectives (Fleming et al., 2008; Pearson & Riley, 2008).

Because fraud is a global phenomenon that extends far beyond the borders of the United States, future business professionals, and especially accounting majors, must have a keen understanding of the new twenty-first century era of governance and accountability, created by the post-Enron/Worldcom environment. Leaders at colleges and universities have to encourage businesspeople, criminologists, and law faculty to carry out much-needed research in this important area and teach courses in fraud and forensic accounting. Behavioral sciences-psychology, sociology, criminology, and anthropology are needed to support the interdisciplinary field of fraud examination and

forensic accounting in theory development and in practice, and in fraud prevention, deterrence, and detection (Ramamoorti, 2008).

**Forensic accounting skills.** Students with aspirations of becoming forensic-accounting litigation support specialists must possess a solid foundation in the broad spectrum of accounting knowledge. Additionally, the successful practitioner must command a comprehensive set of communication skills and must function well in the heat of battle in the adversarial environment of the world of litigation (Heitger & Heitger, 2008). Students must learn how to identify and respond to the risk of fraud by providing better fraud training will help students identify and apply appropriate responses to fraud-risk cases. In order to accomplish this, students must first understand client business risks, and then identify whether those business risks result in a risk of fraud.

Forensic accounting requires problem solving that entails more of an improvised approach rather than a structured plan (DiGabriele, 2009). This skill type is contradictory to traditional accounting skills. DiGabriele conducted a survey across the nation with a random sample of 1,500 academics, and results indicated that practitioners and academics both agreed on the importance of a forensic accountant moving from a narrow approach to a more holistic technique.

Knowledge and application of technology is increasingly necessary in effective forensic accounting, antifraud programs, and fraud investigations. Therefore, forensic accounting students need to be familiar with the role of Information Technology (IT) and the digital environment (Pearson & Singleton, 2008). Students must be familiar with a wide variety of financial and economic crimes that are facilitated by the use of digital data or technologies. Accounting students should have an appreciation for the need to use specialists to support the work of the accountant in auditing or investigating computer-



based fraud and forensic-accounting issues (Pearson & Singleton, 2008).

Because of terror activities and corruption and racketeering, the Department of Justice, the Department of Homeland Security, and law enforcement agencies have focused greater attention on combating white collar crimes, money laundering, and terrorist financing (Kranacher et al., 2008). Thus, there is an increasing need for entry-level professionals who are armed with greater fraud awareness and formal education in white-collar crime, fraud, and forensic accounting. The quality of a fraud examination or forensic-accounting investigation may determine whether perpetrators avoid detection of their illegal activities or they are brought to justice. Successful investigations are directly and primarily dependent upon the knowledge, skills, and abilities of the professionals performing the work. Academic institutions and stakeholder organizations that provide education in these fields are faced with a number of issues regarding the nature, extent, and format of a relevant and comprehensive curriculum (Kranacher et al., 2008).

Raising awareness of fraud prevention measures and assisting in remediation procedures are important in addressing this growing problem. Additionally, a growing demand for accountants in the area of forensic and litigation advisory services to calculate estimate of losses or damages, locate hidden assets in divorce settlements, or compute business valuations exists. As a result of these trends, individuals who seek to enter the specialized field of fraud and forensic accounting as well as employers hiring these entry-level professionals, have urged educational institutions to enhance coverage of fraud and forensic accounting in their academic programs. The Technical Working Group for Education in Fraud and Forensic Accounting (TWGED-FFA) guidelines serve the academic and professional communities' need to better understand the knowledge and skills required of those entering this field and to assist them in developing appropriate

course content and programs (Kranacher et al., 2008)

Faculty can provide an effective learning environment for students by carefully fashioning forensic or other accounting courses that address the knowledge base and many diverse skills that provide the necessary foundations for practicing forensic-accounting litigation support specialists. As early as 1993, The National Commission on Fraudulent Financial Reporting (the Treadway Commission) discussed the need for coverage in the education curriculum of causal factors and strategies to prevent fraudulent financial reporting. The Treadway Commission recommended that business and accounting curricula should help the students develop stronger analytical, problem solving, and judgment skills. Additionally, students need to be taught prevent, detect, and deter fraudulent financial reporting when they become participants in the financial reporting process (Bayes, Berg, & Morgan, 1993).

In order for auditing classes to remain relevant and to provide the students who will become tomorrow's successful auditing practitioners, auditing professors must continue to reevaluate their auditing courses in light of the changing business environment, requirements placed upon auditors by society, changes in professional auditing standards, current research in auditing, and practitioners' needs (Armitage, 2008). Furthermore, Larson (2006) urged colleges to incorporate antifraud concepts into their accounting curriculum if students are to be trained in fraud detection. This training may be established either by establishing a full course in forensic accounting or by incorporating fraud prevention and detection concepts into one or more existing accounting courses.

Throughout the business and accounting curricula, educators should foster knowledge and understanding of the factors that may cause fraudulent financial reporting

when they become participants in the financial reporting process. The business and accounting curricula should promote a better understanding of the function and the importance of internal controls, including the control of the environment, in preventing, detecting, and deterring fraudulent financial reporting. Business schools should encourage business and accounting faculty to develop their own personal competence as well as classroom materials for conveying information, skills, and ethical values that can help prevent, detect, and deter fraudulent financial reporting. Faculty reward systems should recognize and reward the contribution of faculty who develop personal competence and classroom material (Bayes et al., 1993).

Courses in financial accounting and auditing often do not provide the type of training that accounting students need in order to understand fraud and its deterrence. Offering a specific course on fraud for accounting students is an important step forward in the effort to educate future accountants so that they might be better equipped to prevent and detect fraud, but many universities have recognized the need to provide students with more fraud-related education beyond a specific course and are now offering programs in forensic accounting. This development is consistent with what was predicted in recent research, which found that academicians and practitioners saw the need for more specialized training in this area. This need may have arisen, in part, because a multidisciplinary investigative team trained as specialists in fraud examination and forensic accounting is needed to complement the traditional audit process by proactively assisting in identifying problematic areas where fraud could exist or in investigating any allegation of fraud (Seda & Peterson, 2008).

Academicians and CFE practitioners agree that forensic-accounting education in the United States should be integrated into accounting curricula. However, there is a

difference of opinion between these two groups as to the preferred methods of delivery of such education. Razaee and Burton (1997) conducted a study of accounting academicians and forensic-accounting practitioners from 259 business schools. The results indicated that CFE practitioners favored offering a separate forensic-accounting course, while academicians preferred integration of forensic-accounting topics throughout all accounting and auditing courses. Both groups of respondents agreed that present accounting curricula should include forensic-accounting and fraud or forensic training (Rezaee & Burton, 1997).

**Model forensic accounting programs.** Academic institutions need to be guided when incorporating fraud education in the classroom. In 2002, the ACFE established an educational support program at the grassroots level that provided free pedagogical materials to help enable instructors at colleges and universities to develop forensic-accounting courses and programs. This program was awarded the American Accounting Association's annual Innovation in Accounting Education award that year. Before that program was initiated, only 19 universities offered a separate fraud course. As of 2008, there were approximately 300 universities listed on the ACFE website as participating in the antifraud education partnership program now (Seda & Peterson, 2008).

A few schools, such as Georgia Southern University, Florida Atlantic University, the University of West Florida, Carlow University, and Edinboro University in Pennsylvania, Franklin University and Tiffin University in Ohio, Rider University in New Jersey, the University of Wollongong in Australia, and Villa Julie College in Maryland, have created a separate forensic-accounting undergraduate- or graduate-degree programs. These degrees require several fraud-specific courses, the number and content of which depend upon the type of degree offered (e.g., minor vs. major) and the level of

degree (undergraduate vs. graduate).

Still other colleges offer another approach to forensic accounting. For instance, the Criminal Justice program at New York's Utica College offers a multidisciplinary approach with a separate certificate in financial crimes investigation as well as a separate degree in economic crime investigation with a concentration in financial investigation (Seda & Peterson, 2008). Utica's program is unique because it approaches the topic of forensic accounting and related topics of crime, fraud management, financial investigation, cyber security, and information assurance services from the perspectives of not only the accounting discipline but also from economics, finance, law, criminal justice, sociology, psychology, management information systems, international relations, communications, and ethics (Seda & Peterson, 2008). Villa Julie College offers a master's of science degree in forensic studies and also takes a multidisciplinary approach with separate tracks in the areas of accounting, computer forensics, legal issues, and investigations. In addition, students have the option to select an interdisciplinary track that requires taking six credits of courses from each track (Seda & Peterson, 2008).

In 2000, Georgia Southern College was pressured to make changes in its accounting program. The final event that led to their decision to create a forensic-accounting program was the hiring of a new business dean in the summer of 2002. The new dean began to immediately implement a strategy designed to help the college gain national distinction. The dean encouraged each department to identify a niche area in which a new program or emphasis could be developed that had the potential of achieving national distinction within a decade. The school's strategy was placing a new emphasis that involved five steps: (a) identifying the emphasis area, (b) assessing its feasibility and level of stakeholder support, (c) strengthening faculty qualifications, (d) developing the

curriculum and related activities, and (e) promoting the emphasis (Fletcher, Higgins, Mooney & Buckhoff, 2008).

The Model Curriculum project was not planned to replace existing accounting, but with input from the experts in the fields of education and practice, it was designed to help build a holistic education model for use by other educators considering incorporating fraud and forensic-accounting education in their programs (Kranacher et al., 2008). Accounting graduates entering traditional roles in the profession, such as positions in corporate accounting and internal or external auditing, are expected to have a greater understanding of fraud and forensic accounting (Kranacher et al., 2008). West Virginia University (2007) created a panel, chaired by Kranacher, to develop a Model Curriculum. The panel, called the Technical Working Group on Education in Fraud and Forensic Accounting (TWG), was a diverse group of content area experts: “professionals working across the broad spectrum of activities that constitute fraud prevention, deterrence, detection, investigation, and remediation. . . and forensic accounting” (West Virginia University, 2007, p. 2). The objective for the Model Curriculum was to develop an educational program in fraud and forensic accounting to help “academic institutions, public and private organizations, practitioners, faculty, and prospective students interested in developing professionals with the skills and abilities necessary to excel in these emerging fields” (West Virginia University, 2007, p. 5). The following list shows the components of the model equipment that were developed.

1. Criminology, specifically oriented to the nature, dynamics, and scope of fraud and financial crimes; the legal environment; and ethical issues.
2. Fraud prevention, deterrence, detection, investigation, and remediation such as asset misappropriation, corruption, and false representations; financial statement fraud; and fraud and forensic accounting in a digital environment.
3. Forensic and litigation advisory services, including research and analysis, valuation of losses and damages, dispute investigation, and conflict resolution

(including arbitration and mediation; see Table 2 for the Model Curriculum ;West Virginia University, 2007, p. 7).

Table 2

*The Model Curriculum and Needed Knowledge of Fraudulent Behavior*

Curriculum topic	Fraudulent behavior
Asset misappropriation	<ul style="list-style-type: none"> <li>Cash <ul style="list-style-type: none"> <li>Larceny (theft)</li> <li>Skimming (removal of cash before it hits books): sales, AIR, refunds, and other</li> </ul> </li> <li>Fraudulent disbursement <ul style="list-style-type: none"> <li>Billing schemes -including shell companies, fictitious vendors, and personal purchases</li> <li>Payroll Schemes -ghost employees, commission schemes, workers compensation, and false hours and wages, expense reimbursement schemes -including overstated expenses, fictitious expenses, and multiple reimbursements</li> <li>Check tampering</li> <li>Register disbursements -including false voids and refunds</li> </ul> </li> <li>Inventory and Other Assets</li> <li>Inappropriate Use</li> <li>Larceny (theft)</li> </ul>
Corruption	<ul style="list-style-type: none"> <li>Conflicts of interest (unreported or undisclosed)</li> <li>Bribery</li> <li>Illegal gratuities</li> <li>Economic extortion</li> </ul>
False statements	<ul style="list-style-type: none"> <li>Fraudulent financial statements</li> <li>False representations (e.g., employment credentials, contracts, identification)</li> </ul>
Specific fraud contexts	<ul style="list-style-type: none"> <li>Bankruptcy fraud</li> <li>Contract and procurement fraud</li> <li>Money laundering</li> <li>Tax fraud</li> <li>Investment scams</li> <li>Terrorist financing</li> <li>Consumer fraud <ul style="list-style-type: none"> <li>Identity theft</li> <li>Check and credit card fraud</li> <li>Computer and Internet fraud</li> </ul> </li> <li>Divorce fraud (including hidden assets)</li> <li>Intellectual property</li> <li>Business valuation fraud</li> </ul>
Noteworthy industry-specific fraud	<ul style="list-style-type: none"> <li>Financial institutions; insurance fraud; health care fraud; securities fraud; public sector fraud</li> </ul>

*Note.* Table adapted with permission from West Virginia University. (2007, March). *Education and training in fraud and forensic accounting: A guide for educational institutions, stakeholder organizations, faculty, and students.* Retrieved from <https://www.ncjrs.gov/pdffiles1/nij/grants/217589.pdf> (see Appendix B).

The development of a model curriculum has led to other training programs; professional credentialing has also grown, including continuing education courses at New York University (NYU) and the Certified Fraud Examiner designation created by the Association of Certified Fraud Examiners (ACFE) that filled a need for education, training, and credentialing of forensic accountants (Kranacher et al., 2008). Forensic-accounting certificate programs typically require only two to five specialized courses. As of 2008, the AICPA partnered with the ACFE in an effort to create a Forensic Accounting Specialist Designation, with a related continuing professional education program (Seda & Peterson, 2008).

**Forensic accounting teaching strategies.** Research has been conducted on what methodology is the best strategy for use in the accounting classroom (Arens & Elder, 2006; Drnevich & Stuebs, 2013; Heitger & Heitger, 2008). Most researcher report that teaching through case studies makes for a more interesting class that is filled with discussion among classmates. The following three sections discuss three strategies used to teach accounting students.

**Case studies.** Accounting professors often include case studies in their courses to expose students to various fraud techniques, including calling upon students to detect the fraud (Arens & Elder, 2006). Fraud case books are available from major textbook publishers, and a number of accounting professional publications, including the *Journal of Accountancy*, *Strategic Finance*, and *The CPA Journal*, have published articles on fraud prevention case studies that can be used in the classroom. Drnevich and Stuebs (2013) used case studies wherein students were presented with three different scenarios: lease classification, contingent liability, and revenue recognition. Students were asked to



examine how applying accounting standards requires judgment and how cultural differences can influence accountants' judgments and the resulting financial reporting outcomes (Drnevich & Stuebs, 2013). The findings of the discussions about the scenarios revealed that differences among cultures influenced the international financial reporting practices of individuals, that culture influenced individuals make when they apply accounting standards and that culture also impacts the consistency an individual's financial reporting practices (Drnevich & Stuebs, 2013).

***Experiential learning.*** An excellent pedagogy for creating effective forensic-accounting courses is to provide students with as many experiences as possible that parallel forensic-accounting practice, including an accounting capstone experience (Heitger & Heitger, 2008). Current auditors have a wealth of possibilities available to learn about fraud detection and deterrence. Improving the auditor's ability to detect fraud will lend technical competence and credibility to the financial reporting process. Greater educational background will help auditors recognize and assess the pressures that can lead to fraud, obtain the necessary information, organize, and evaluate the data, and report conclusions of fraud investigations (Kranacher & Stern, 2004). Additionally, national CPA firms have created multidisciplinary forensic investigative teams with the help of specialized forensic training consultants. For example, individuals who possess skills in electronic evidence gathering and preservation, interviewing techniques, or investigative report writing may be needed to assist in a fraud investigation.

***Forensic accounting curriculum.*** Another fraud or forensic curriculum is available from the Association of Certified Fraud Examiners (ACFE) that includes topics such as cash larceny, payroll schemes, expense reimbursement schemes, inventory theft, and fraudulent financial statement schemes. The ACFE's support with freely distributed

classroom materials has led to the introduction of many new accounting courses with a fraud perspective (Smith & Crumbley, 2009).

### **Obstacles Facing Forensic Accounting and Fraud Examination Education**

The primary problem of implementing forensic-accounting education is institutional in nature (i.e., faculty, administration, curriculum structure) and not because of a lack of demand by employers and students. The perception by academics that there is not enough room in the accounting curriculum has persisted for years, even with the 150-semester hour requirement to sit for the Certified Public Accountant exam now adopted by nearly every state. Seda and Peterson (2008) in their survey of professors indicated that some currently do not cover any forensic accounting in their curriculum (25%), and half planned to offer a specific course by 2011. Offering a course is often the first step to eventually providing more forensic-accounting education, such as a certificate, minor, or master's program (Seda & Peterson, 2008).

The perception that the greatest obstacle is a lack of room in the accounting curriculum for another course, whether required or elective, can perhaps be overcome by allowing forensic-accounting courses to be used as general electives for all students, not only those in accounting. This approach is followed by West Chester University of Pennsylvania. Employees are often the first to notice symptoms of fraud, but they must be educated as to the red flags that may indicate potential fraud is occurring. Very little, if any, accounting is required to be included in a fraud course. As fraud is considered to be a problem for business and society in general, so a general elective model is logical (Seda & Peterson, 2008).

At the 2007 Fraud and Forensic Accounting Conference in Savannah, Georgia, sponsored by Georgia Southern University, a keynote speaker from the ACFE predicted

that the Public Company Accounting Oversight Board (PCAOB) will soon require a multidisciplinary forensic-accounting team to accompany every audit of a public company. The Big Four public accounting firms, along with Grant Thornton and Binder Dijker Otte (BDO) International, also recommend a forensic audit on a regular basis for all public companies. If such a requirement is passed, a sense of urgency for administrators and faculty of accounting programs to create multidisciplinary fraud examination and forensic accounting tracks to meet the demand for training future forensic accountants may occur (Seda & Peterson, 2008).

### **Auditing: A Foundation for Fraud or Forensic Curriculum Revisions**

For accounting programs, no scientific answers identifying the best pedagogical approach to use in developing a fraud or forensic curriculum exists yet, but there are philosophical beliefs about a best approach. Traditional auditing courses have presented fraud instruction within the accounting curriculum in the past, and as such auditing serves as the starting point in developing a fraud or forensic curriculum. A revision from traditional audit-based content to either a fraud or forensic approach changes the scope of analytical techniques used as well as the understanding in the revised curriculum (Smith & Crumbley, 2009).

Auditing students are introduced to the procedures for testing internal company controls. The results of evaluating a company's internal controls determine the extent of necessary transaction sampling needed to provide assurances of properly financial statements. Financial auditing procedures are performed in a well-structured and documented fashion to evaluate management's financial statement representations (Smith & Crumbley, 2009).

Teaching approaches toward the study of fraud or forensics require the student to

adopt a more suspect mindset toward his/her studies than is used in an auditing course (Smith & Crumbley, 2009). Fraud or forensic perspectives do not assume that a client will honestly follow any of the detailed rules of GAAP or that audit check-off lists will identify financial fraud's anomalies (Smith & Crumbley, 2009). Presently, the quantity of material in traditional auditing courses restricts the time available for the introduction of new material. Adding new fraud and forensic topics to auditing instruction is not considered a viable alternative. This issue has been recognized by course developers as recent program revisions have introduced completely new fraud-examination or forensic-accounting courses into the accounting curricula (Smith & Crumbley, 2009).

If auditing courses place limits on developing a fraud or forensic curriculum, course developers are left with the choice of using a fraud examination or a forensic-accounting approach. Fraud or forensic courses cover topics such as fraudulent payment schemes, internal control analysis, cash theft, payroll fraud, and flowcharting (for internal control). There is similar content found in auditing courses; however, the fraud content and topic depth is more expansive in a fraud or forensic course (Smith & Crumbley, 2009).

A curriculum based on fraud examination was developed by the accounting department at West Virginia University under a grant from the Department of Justice (DOJ). In 2007, the DOJ issued a model curriculum report, *Education and Training in Fraud and Forensic Accounting: A Guide for Educational Institutions, Stakeholder Organizations, Faculty and Students* (U.S. Department of Justice 2007). The report presented an outline and argument, including course descriptions, for a model fraud and forensic-accounting program, culture reviews, and interview techniques (Smith & Crumbley, 2009; see Table 2).

Basic accounting and financial understandings are foundational skills students develop as they advance through their undergraduate university accounting courses. This basic skills set allows students to enter a fraud or forensic curriculum. The next skill set is investigative auditing. Fraud examination is a part of investigative auditing along with the traditional investigative auditing areas centered on transaction analysis applied within inventory fraud or cash theft (Smith & Crumbley, 2009).

A forensics approach is broader than a fraud or forensic approach with intersecting discipline areas and skills set. The discipline basis for forensic accounting is found in criminology, accounting, investigative auditing, litigation services, and an understanding of accounting-computer forensics. The study of criminology deals with theories that cause crime to develop, such as conflict theory, natural choice theory, and social control theories. The subjects covered are corporate crime, corporate fraud, and litigation. Litigation includes the ability to understand the discovery process; rules of evidence at the Federal and state levels; the difference between civil and criminal proceedings; differences between being an attorney in the courtroom and an accountant acting as expert witness; valuation services; and preparing electronic data for trial. Finally, accounting-computer forensic skills surround the other skill set. These skills include working with electronic data without destroying the data needed for an investigation (Smith & Crumbley, 2009). Thus, a forensic accountant needs to know how to use technology in order to uncover fraud in business.

Several accounting programs have adopted broader-based forensic curricula revisions, but there is no professional group (such as the ACFE) or model curriculum (such as the WVU model) to provide guidance. Accounting programs around the world have been revising their curricula to include courses in fraud or forensic accounting.

Two accounting programs that have implemented such programs are Seneca College in Canada and the University of Wollongong in Australia (Smith & Crumbley, 2009).

Seneca College in Canada offers a graduate certificate program in Fraud Examination and Forensic Accounting. The intense two-semester program is made up of the 12-course fraud or forensic sequence (Smith & Crumbley, 2009). The program of Seneca College in Canada offers a range of courses including Business Valuation as well as Criminology and Ethics. Business Valuation covers the valuation of business entities as well as the valuation of financial damages incurred by these businesses. Criminology and Ethics deals with the basic theories related to criminology, crime causation, behavior patterns, morality, and codes of ethics. Courses also include money laundering and asset tracing across international borders, computer forensics and data mining, litigation support, and serving as an expert witness (Smith & Crumbley, 2009).

The University of Wollongong in Australia offers a Master of Forensic Accounting degree. Courses in this program are introductory forensic accounting, forensic and litigation framework, fraud and failure, investigative processes, and advanced investigative techniques. In addition, there are two independent research courses. The forensic and litigation framework course analyzes business risk profiles and provides the student with an understanding of the judicial system, including knowledge of how to act as an expert witness in the courtroom. Investigative processes outline the steps in combining no quantitative data with financial information to identify suspicious events. Other program topics include irregularity predictions, document fraud analysis, statistical modeling for risk assessment, and evaluating key organizational operating and financial indicators (Smith & Crumbley, 2009). An initial review of these courses indicated there may be divergent approaches to their development. One model of

fraud/forensics curriculum is not being advocated over the other as funding and faculty backgrounds are different in every program. Course developers must understand the direction in which they are leading their programs as they make their fraud or forensic choices (Smith & Crumbly, 2009).

Audit educators must do a better job of teaching students how to identify and respond to the risk of fraud (Arena & Elder, 2006). Providing better fraud training requires cases that help students identify fraud risks and the appropriate responses to risks. Students must first understand client business risks, and then identify whether those business risks results in a risk of fraud. Students need experiential learning to be able to respond to fraud risk. Accounting professors include fraud discussion cases in their courses to expose students to various fraud techniques. It is even more beneficial for students to engage in activities that call upon them to detect the fraud (Arena & Elder, 2006).

Forensic accounting is a rapidly growing segment of accounting practice and, thus, presents an exciting career opportunity for properly prepared students (Heater & Heater, 2008). Students with aspirations of becoming forensic accounting litigation support specialists must possess a solid foundation in the broad spectrum of accounting knowledge. Additionally, the successful practitioner must command a comprehensive set of communication skills and must function well in the heat of battle in the adversarial environment of the world of litigation.

### **Forensic Accounting Curriculum in Puerto Rico**

Although fraud is a growing problem on Puerto Rico, only a few of the universities and colleges on the island offer a course in fraud detection or forensic accounting (Paletta, 2013). Most forensic accounting practitioners on the island have

an accounting degree, but no specialized forensic accounting knowledge (Resale et al., 2006). Most forensic accounting practitioners are self-taught or call themselves forensic accountants without having the knowledge of a wide range of subjects, which is required in forensic accounting (Davis et al., 2010). During the first decade of the twenty-first century fraud became rampant on the island; there has been a steadily increasing demand for more training in forensic accounting on the island (Kahan , 2006; McGaw, 2006; National Institute of Justice, 2005; Peterson & Reider, 2001).

Fraud and forensic-accounting issues are widespread on Puerto Rico because forensic accountants are few in number compared to the number of crimes committed (Davis et al., 2010). Forensic accounting, which is different from traditional accounting work, requires problem solving and becomes more of an improvised approach rather than a structured plan (Pope & Ong, 2007). This skill type is a direct contradiction to traditional accounting skills; one shortcoming of auditors is the narrow approach they take in conducting an audit (Pope & Ong, 2007)

GlaxoSmithKline is one company that used Puerto Rico and the increase in fraud on the island to make drugs at an old Cidra, Puerto Rico drug manufacturing plant (Lane, 2013). There were 900 people working at the plant making 20 drugs for patients in the U.S., “among them such blockbusters as Avandia for diabetes, Paxil antidepressants, Tagamet antacids, and the antibacterial ointment Bactroban...it was an FDA inspection that first revealed problems at Cidra...That's why Glaxo sent Eckard's team in to resolve those FDA concerns” (Lane, 2013, para. 3). Lane argued that GlaxoSmithKline was marketing Tagamet as Avandia, and Avandia as Paxil. Inspectors from the Federal Drug Administration (FDA) uncovered the fraud after a whistleblower from Eckerd’s



Pharmacy reported the drug mix up. GlaxoSmithKline was charged with fraud and gross negligence and was ordered to pay a \$750,000,000 fine. GlaxoSmithKline was just one health care fraud incident that happened on the island.

Puerto Rico is in the top 10 places in America where Social Security Disability Insurance fraud is rampant (*Social Security Disability Insurance Fraud Conspiracy in Puerto Rico*, 2013). In fact, nine of the top 10 zip codes known for Social Security fraud are located in Puerto Rico. The Federal Bureau of Investigation (FBI), in connection with the Inspector General's Office (IGO), opened new offices on the island in order to stem the rise in disability fraud on Puerto Rico (Paletta, 2013). In 2009, it became clear that Puerto Rico's disability claims were escalating and were mostly generated from one particular doctor's office (*Social Security Disability Insurance Fraud Conspiracy in Puerto Rico*, 2013). In November of 2009, a man, his wife, and three children were found to be defrauding Social Security Administration (SSA) by receiving disability funds based on the father's supposed mood disorder that kept him from working (*Social Security Disability Insurance Fraud Conspiracy in Puerto Rico*, 2013). However, the man was found to be working at a supermarket and being paid cash so as to conceal his earnings from the SSA. That man was just the one of the many who participated in defrauding SSA.

In 2012, a Guaynabo woman was charged with misrepresenting her nephew as her son so that she could receive additional benefits for him on her deceased husband's Social Security record. She agreed to repay the \$93,000 that she wrongly collected. Another woman in the same year was charged with continuing to receive her father's benefits by concealing his death. It took the FBI and IGA 3 years to establish an office that could handle all the tips they received on fraudulent schemes to obtain Social

Security benefits (Social Security Disability Insurance Fraud Conspiracy in Puerto Rico, 2013).

As a Commonwealth possession of the United States, all citizens of Puerto Rico are given Social Security numbers; however, they are not required to pay income tax unless they are employed by a U.S. company. Thus, criminals have found it profitable to steal the Social Security numbers of Puerto Rico citizens and file false tax returns claiming large refunds. Criminals know that they are unlikely to be caught because the individual's number they have stolen is not likely to be used to file a real tax refund. Thieves profit most in Puerto Rico by selling what is called the *tripleta*. The word comes from a popular Island sandwich which has three types of meat. For criminals, the *tripleta* refers to selling a person's birth certificate, Social Security card, and a driver's license. In 2012, Government officials in Puerto Rico had residents reapply for birth certificates with better security features to try and slow the growth of identity theft on the Island, but such measures have done little to deter identity theft crimes on Puerto Rico. In 2014, a man in Houston, Texas, was arrested by the Internal Revenue Services and other federal agents for stealing the identities of Puerto Rico adults and children (Krause, 2014). The arrested man, Montes, had been running a tax fraud scheme in Dallas and Houston that involved millions of dollars. Montes had traveled to Puerto Rico to buy stolen identities. Later he hired a Puerto Rican woman to pretend to sell life insurance door-to-door on the Island. She would send Montes the personal information that she gathered while posing as an insurance agent. Montes and his co-conspirators used that information to fill out more tax returns for refunds (Krause, 2014).

Even with new safeguards in place for protecting personal identities, gangs of thieves have been breaking into government offices and schools in Puerto Rico where

Social Security numbers are usually stored (Krause, 2014). The stolen numbers are used to file fraudulent tax returns carrying addresses known to refund thieves. Despite the best efforts of many Federal agencies, fraud of all types continues to increase on Puerto Rico. None of the Island's universities and colleges offers any certificate or degrees in forensic accounting, leaving the Island short of the type of fraud investigators needed to stem the tide of fraud on the Island. According to Krause (2014), even Federal agencies are in need of more forensic investigators to handle fraud investigation on the Island.

### **Recent Research on the Need for Forensic Accounting and the Gap in the Literature**

In 2008, the AICPA developed a model for a certificate program (Certified in Financial Forensics [CFF]) in forensic accounting. The goal for the new certification program was to award 900 certificates in forensic accounting. The AICPA recognized that forensic accounting was growing in popularity as fraud crimes increased. Davis et al. (2010) quoted a director of forensic accounting who said that the popularity of forensic accountants has increased the number of accountants getting involved in fraud detection who should not be involved. The director argued that accountants “don't understand the ins and outs of the niche. . . . Many accountants think it is simply fraud investigation, and it's not. It is really much more than dealing with the numbers. It's no longer just basic fraud work” (Davis et al., 2010, p. 3). Figure 1 displays the skills and characteristics a forensic accountant should possess, according to the AICPA (Davis et al., 2010).

Many researchers have explored the traits, skills, and knowledge needed to be a forensic accountant (McIntosh, 2014; McMullen & Sanchez, 2010; Patil, 2011; Pei et al., 2012; Pope & Ong, 2007; Ramamoorti 2008; Regan & Ebersbacher, 2008; Singh & Sakshi, 2014; Smith & Crumbley, 2009; Stanbury & Paley-Menzies, 2010). The studies reviewed here have been mostly quantitative in methodology, with only one qualitative

study found (Kahan, 2006). DiGabriele (2008) reported that there is a gap in the literature regarding the significant skill set outcome that should accompany forensic accounting education (see Figure 1).

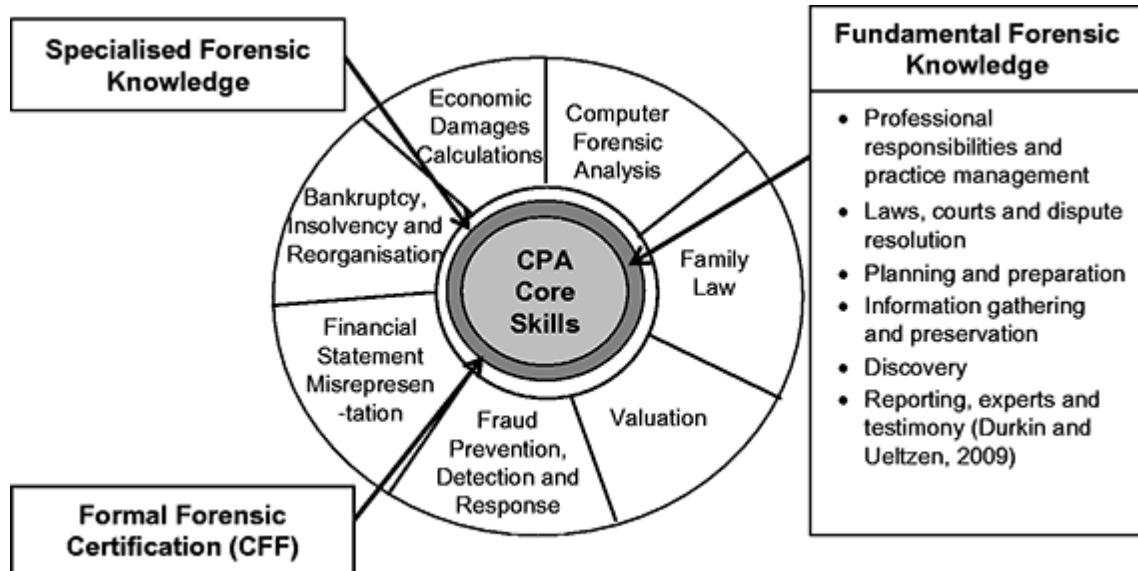


Figure 1. AICPA’s CFF core focus wheel. Source: C. Davis, R. M. Farrell, & S. Ogilby. (2010). *Characteristics and skills of the forensic accountant*. Retrieved from <http://www.aicpa.org/interestareas/forensicandvaluation/resources/practaidsguidance/downloadabledocuments/forensicaccountingresearchwhitepaper.pdf> Used with permission.

Researchers have agreed in general that there are certain traits and characteristics as well as core and enhanced skills that need to be possessed by anyone in forensic accounting; however, the lists created in these studies have varied in what is considered important (McIntosh, 2014). As Davis et al. (2010) argued, the market place expects forensic accountants to have certain characteristics, core skills, and relevant credentials. The research conducted on these needed traits has been mostly quantitative in methodology and have had certain limitations that could be eliminated by adding qualitative studies focused on the skills, knowledge, and characteristics of successful forensic accountants.

Previous quantitative research has been limited by such factors as sample sizes that have been small relative to the available population, the inability to generalize the findings beyond the participants in the study, nonresponse bias, and survey forced-choice lists that may not be comprehensive and thus may bias the findings (Davis et al., 2010). In most of the quantitative studies, participants are asked to rank specific questions from 1 (*strongly agree*) to 5 (*strongly disagree*). This ranking may affect the interpretation of the results and the conclusion (McIntosh, 2014; McMullen & Sanchez, 2010; Patil, 2011; Pei et al., 2012; Pope & Ong, 2007; Ramamoorti 2008; Regan & Ebersbacher, 2008; Singh & Sakshi, 2014; Smith & Crumbley, 2009; Stanbury & Paley-Menzies, 2010). Having a qualitative study may add to what has already been learned. Asking participants why they chose a certain ranking for one question over another may help clarify previous studies' findings. In the descriptive case study, the researcher collected both quantitative and qualitative data. The participants were first asked to rank some specific skills, knowledge, and characteristics that forensic accountants should have. The list used in the case study is an adapted version of Rezaee et al.'s (2006) questionnaire that the researchers distributed to academics and practitioners. The data from the quantitative part of the study were analyzed and used to supplement the data collected from the participants during their open-ended interviews. The interview data helped fill the present gap in the literature and provided a needed consensus for the skills, knowledge, and traits that the participants have rated as the most important for forensic accountants to have.

#### **Previous findings on needed competencies in forensic accounting courses.**

Since the 1990s, researchers have focused on two specific areas in forensic accounting: (a) the type of curriculum that should be included into an accounting program to prepare those who wish to become forensic accounting and (b) specific skills, knowledge and

characteristics needed in the forensic accounting profession (DiGabriele, 2008, 2009, 2011). The following section reviews specific studies on the core competencies needed in forensic accounting courses.

Rezaee et al. (2006) surveyed accounting professors and forensic accounting practitioners to determine the core competencies that should be taught in a forensic accounting course. Academics and practitioners disagreed on what the most important core competencies were needed in the delivery of forensic accounting courses. Rezaee et al. found, however, that academics and practitioners did agree on 13 competencies that should be included in any forensic accounting course. According to Rezaee et al.'s findings, forensic accounting courses should include

fundamentals of fraud, financial statement fraud, types of fraud (e.g., employees, management), cooking the books and problems in accounting, elements of fraud (pressure, opportunity and rationalization), anti-fraud controls, internal control evaluation, theory and methodology of fraud examination, principles of ethics and corporate code of conduct, fraud detection and deterrence programs, anti-fraud auditing standards, analytical review procedures, and effective report writing. (p. 17)

Smith and Crumbley (2009) surveyed 111 faculty members at 4-year institutions who were identified as academics who teach a course in either fraud or forensic accounting. Each of the potential sample was sent an e-mail asking if he or she would send a syllabus for the forensic course they taught. If the professor was willing to send a syllabus by e-mail or regular postal mail, they were sent another e-mail, which contained a link at the bottom of the e-mail, which led to a 21-question survey for participants to answer. A total of 40 faculty members sent a syllabus and filled out the survey. An analysis of survey responses resulted in the following core competencies that should be included in a forensic accounting course:

(a) fraudulent financial reporting analysis, (b) the psychology of criminology, (c)

examination of changes in records, (d) corporate culture reviews, (e) investigating electronic evidence, (f) net worth analysis, (g) damage/loss valuation analysis, (h) litigation consulting, (i) flowcharting internal controls, and (j) applying 2009 Benford's law. (Smith & Crumbley, 2009, p. 180)<sup>1</sup>

A limitation of Smith and Crumbley's study was the small sample size, which made generalizing the findings to the larger population of forensic accounting professors impossible. The small sample size may have been due to the fact that some universities have yet to supplement accounting curriculum with a course or courses in forensic accounting.

Ramaswamy (2005) argued that forensic accountants are needed to uncover the financial deceptions that have increased during the twenty-first century. Thus, Ramaswamy posited that the most significant skills that should be included in a forensic accounting course are "an in-depth knowledge of financial statements, the ability to analyze them critically, and a thorough understanding of fraud schemes" (Ramaswamy, 2005, p. 3). Ramaswamy also suggested that forensic accountants should possess the ability to understand a corporation's internal control systems and should be capable of assessing the possible risks. Additionally, future forensic accountants must be taught to

---

<sup>1</sup> Singleton (2011) provided an explanation of how Benford's Law works:

A recent example is Mark Nigrini's research, which showed that Benford's Law could be used as an indicator of accounting and expenses fraud. One fraudster wrote numerous checks to himself just below US \$100,000 (a policy and procedure threshold), causing digits 7, 8 and 9 to have aberrant percentages of actual occurrence in a Benford's Law analysis. Digital analysis using Benford's Law was also used as evidence of voter fraud in the 2009 Iranian election. In fact, Benford's Law is legally admissible as evidence in the United States in criminal cases at the federal, state and local levels. This fact alone substantiates the potential usefulness of using Benford's Law. (p. 2)

recognize the psychological patterns of criminal behavior; interpersonal and communication skills are also traits needed by forensic accountants, especially when dealing with criminal or civil court proceedings or other legal systems (Ramaswamy, 2005).

In the previous research on core competencies to be taught in a forensic accounting course, the findings show that what is considered important varies by the participant group surveyed. Although there is some consensus on what needs to be included in a forensic accounting course, for example financial reporting analysis, there is also some disagreement over exactly what should be included. The present literature offers no definitive core competencies that a forensic course should include.

**Knowledge, skills, and characteristic needed in forensic accounting.** A gap exists in the literature on what traits, skills, and knowledge should be taught in the forensic accounting curriculum. The studies reviewed in this section show the variety of skills, knowledge, and traits that have been researched and reported as necessary for a forensic accountant to possess. Again, the findings in this present study vary by which participant group was used.

Kahan (2006) reported that there is a critical need for forensic accountants as there is a strong demand for companies to account for financial activities, especially for shareholders and government agencies. According to Kahan, “The Federal Bureau of Investigation estimated that white collar crime costs the United States more than \$300 billion annually” (p. 34). Twenty-first century crime has proven to be difficult to identify as the criminals have hidden their activities through the series of complex transactions. Forensic accountants have to possess strong investigative skills in order recognize the criminals’ schemes to defraud individuals, companies, and governments. Kahan (2006)



suggested that more research needs to be conducted in order to compile a more definitive list of the traits, skills, and knowledge needed by forensic accountants.

DiGabriele (2007, 2008, 2009, 2011) used a question survey to determine which traits, skills, and knowledge were most needed in the forensic accounting profession and how those skills may be translated into forensic accounting course objectives.

DiGabriele has surveyed accounting professors (2007, 2008, 2009, 2011), practitioners (2007, 2008, 2009, 2011), users of forensic accounting services (i.e., lawyers; 2007, 2008), and auditors (2011). The findings in DiGabriele's studies have produced varying results. In the 2007 study, the items rated as most important by the three groups of participants were critical thinking, deductive analysis, and written communication. The lowest rated items were specific legal knowledge, composure, and unstructured problem solving. In 2008, DiGabriele extended his 2007 study in order to apply the results of his previous study to necessary objectives for forensic accounting courses. The findings from responses from accounting professors and practitioners indicated critical thinking, unstructured problem solving, investigative flexibility, analytical proficiency, and legal knowledge as important skills forensic accountants needed. Users of accounting services agreed with the other two groups only in the area of oral communication, written communication, and composure. DiGabriele (2008) suggested that future research should continue to examine the objectives that needed to be taught in forensic accounting courses as the skills identified in his study are important and relevant to learning outcomes of forensic accounting courses.

DiGabriele suggested in 2008 that future research be conducted on what skills, knowledge, and traits should be translated into achievable outcomes in a forensic accounting curriculum (DiGabriele, 2009). In 2011, DiGabriele expanded his study to

include auditors as well as accounting professors and forensic accounting practitioners in his study. He used the same questionnaire that he had used in the 2007, 2008, 2009 studies. The latest findings from DiGabriele (2011) showed that auditors need to incorporate the investigative interviewing skills of forensic accountants into their audits. The Statement on Auditing Standards No. 99 (SAS 99) requires the following:

[Standard 99] establishes standards and provides guidance to auditors in fulfilling the responsibility to plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement (AU section 110) as it relates to fraud in an audit of financial statements conducted in accordance with generally accepted auditing standards. (AICPA, 2014, Standard 99 section)

This standard requires auditors at a minimum to prove that financial statements are correct and free of any misrepresentations. As DiGabriele (2011) said, "SAS 99 is a noteworthy start toward a framework for detecting fraud in financial statements. The addition of standards for forensic services in audits would be a more complete step in the detection of fraud in financial statements" (p. 73).

### **Summary**

Fraud is a growing problem that requires oversight, specialization, and training to identify and counter, especially in Puerto Rico (Coto, 2013; Krause, 2014; Mahoney, 2015). Fraud and forensic accounting is a growing area of specialization for professional accountants and other professionals in related fields such as law, criminology, sociology, psychology, intelligence, and computer forensics. Academic institutions need expert guidance on how to incorporate fraud education in the classroom. Accounting graduates entering traditional roles in the profession, such as positions in corporate accounting and internal or external auditing, are expected to have a greater understanding of fraud and forensic accounting. With the threat of terror activities, corruption, and racketeering, the

Department of Justice, the Department of Homeland Security, and law enforcement agencies have focused greater attention on white collar crime, money laundering, and terrorist financing (U.S. Patriot Act). The demand for entry-level professionals with greater fraud awareness and formal education in white collar crime, fraud, and forensic accounting has grown (Kranacher et al., 2008).

The Sarbanes-Oxley Act and the events preceding its enactment have several implications for auditing education (Arens & Elder, 2006). First, students must have a better understanding of business and audit risks. Students will need enhanced forensic-accounting skills. Of course, they will need to be able to understand and document controls, especially corporate governance and other top-level-management controls. It is also important that students understand the implications of the changed regulatory and audit standard-setting environment. Audit educators must do a better job of teaching students how to identify and respond to the risk of fraud (Arens & Elder, 2006).

Fraud is a global phenomenon that extends far beyond the borders of the United States. Future business professionals, and specially accounting majors, must have a keen understanding of the new twenty-first century era of governance and accountability caused by the post-Enron and WorldCom environment. Colleges and universities have to do their part by encouraging business, criminology, and law faculty to carry out much-needed research in this important area and teach courses in fraud and forensic accounting (Ramamoorti, 2008).

The academic literature identifies forensic-accounting courses and content, whereas the practitioner literature suggests skills necessary in practice. However, the literature has not yet empirically identified the views of three major stakeholders—accounting academics, forensic-accounting practitioners, and users of forensic-

accounting services—regarding which skills are important for forensic accountants. The three aforementioned stakeholders are significant in shaping the future of forensic accounting. Accounting academics will educate future students who will become forensic accountants; the practitioners must be competent in their practice; and the users (attorneys) have the potential to structure changes in forensic accounting as the market for these services are dictated through case law (DiGabriele, 2008).

### Chapter 3: Research Method

In recent years, financial collapses, white collar crimes, and occupational fraud have multiplied in Puerto Rico (Davis et al., 2010), increasing the demand for forensic accountants (Smith & Crumbley, 2009). Many accounting graduates lack the skills, knowledge, and traits they need in order to function in the contemporary workplace, (McMullen & Sanchez, 2010; Paletta, 2013), and accounting practitioners are demanding improvements in university programs (Davis et al., 2011; DiGabriele, 2008; Pope & Ong, 2007; Regan & Ebersbacher, 2008; Smith & Crumbley, 2009; Stanbury, & Paley-Menzies, 2010). However, researchers and practitioners are still working to clearly outline a definitive list of skills a forensic accountant must have. In Puerto Rico, few universities offer forensic accounting programs, despite (Davis et al., 2010). In recent years, enrollment in accounting programs has increased (Allen, Seaman & Garrett, 2007), but many courses still use traditional, dated curriculums, and instructional strategies (Huang & Lau, 2004).

Organizations need accounting graduates who have problem-solving, communication capabilities, accounting skills, and practical field experience necessary to meet the growing demands of the industry (Glass & Oakley, 2003). In a recent study conducted by the AICPA (2010), participants stated accounting programs should incorporate more case studies, depositions, mock trials and active participation in classes. Analytical skills and communication were identified as the two most important characteristics for a forensic accountant to possess. Thus, an apparent gap exists between market need, academic preparedness, and relevant learning experiences for forensic accounting. More research is needed to identify the current status and perceptions of academicians regarding how well their programs are situated to meet these demands. The

goal of this study, supported with Kolb's experiential learning theory and Knowles's andragogy is to identify the knowledge, skills, and attitudes that accounting faculty and practitioners see as necessary for forensic accounting programs in Puerto Rican universities to prepare graduates to be able to meet the demands of the job.

The purpose of this qualitative, multiple case study was to identify the traits, skills, and knowledge that accounting faculty, practitioners, and lawyers viewed as necessary for forensic accounting programs in Puerto Rican universities to prepare graduates to be able to meet the demands of the contemporary workplace. Previously, scant attention was paid to these so-called *victimless crimes* (Davis et al., 2010; Pope & Ong, 2007; Regan & Ebersbacher, 2008). However, while violent crime has decreased by 8% from 2005 to 2010, White-collar crime increased 12% over the same time period, causing researchers to turn their attention to nonviolent crime (Nisrin, 2011). Three research questions were posed in the study. Research Question 1 focused on how college instructors, accounting practitioners, and lawyers perceive the need for forensic accounting in Puerto Rico. Research Question 2 focused on the traits, skills, and knowledge college faculty, accounting practitioners and lawyers need and accounting programs should incorporate in order to prepare graduates for the contemporary workplace. Research Question 3 focused on the instructional strategies college faculty and accounting practitioners view forensic accounting programs should incorporate in order to prepare graduates for the contemporary workplace.

Accounting professors, forensic accounting practitioners, and lawyers were interviewed and complete questionnaires regarding what they perceive are the needed traits, skills, and knowledge that graduates from forensic accounting programs need in order to perform their jobs effectively in light of current market conditions in Puerto

Rico. Currently, there are no forensic accounting programs in Puerto Rico's institutions of higher education, but there are some in the United States. The growing use of technology has increased the opportunity for a wide range of fraud to occur (Fleming, Pearson, & Riley, 2008). Professionally trained forensic accountants are needed in the territory to address these recent issues of fraud, and there is a need to identify the skills required in this growing profession.

As stated earlier, the recent rise in fraud-related and white-collar crime on the Island has increased the need to have more forensic accountants (Patil, 2011). Additionally, the banking crisis that occurred in Puerto Rico during the twenty-first century put the financial system on the island at risk for collapse (Huber, 2013). That event as well as other fraudulent activity has increased the need for more forensic accountants on the island; however, only a few colleges or universities offer enough courses in forensic accounting to support the growth of the specialty in accounting. This study was expected to provide information for practitioners and academicians in Puerto Rico to use as they build programs to meet that need. This chapter includes a discussion of the research method and design, the population, sample and instruments that were used to gather data. Additionally, the data collection and analysis plans were presented, along with limitations and delimitations of the study. The chapter concludes with a summary.

### **Research Method and Design**

A qualitative methodology with a descriptive multiple case study design was used for this study. Merriam (2009) argued that there are four characteristics to describe qualitative research. The first characteristic is found in the purpose of qualitative research, which is to understand the meaning that individuals attribute to their experiences. The emphasis is on the process, rather than the outcome. The second

characteristic common to qualitative research is the primary instrument that is used for data collection and analysis and that is the researcher themselves (Merriam, 2009). When the researcher is the primary instrument, there is a possibility that biases might occur. According to Merriam, “Qualitative research operates on the belief that biases presented by the researcher must be considered, accounted for, and monitored to determine their impact on data collection and analysis” (p. 23). The third characteristic is the inductive process often used by researchers. Qualitative studies collect evidence in order to establish theories and hypotheses that have been neglected in previous research. The fourth and final characteristic associated with qualitative research is the product of the study. As Merriam (2009) suggested, “Qualitative research provides highly descriptive data in the form of words and pictures rather than the numbers produced by other types of research” (p. 26). For the purposes of the study, the researcher was the data collection instrument and entered the field to gather data from lawyers, practitioners and professors to determine their understanding and the meaning they ascribe to the need for forensic accounting programs in Puerto Rico. While a data collection plan was used, the process was inductive as the perspectives of the participants were ascertained, as well as the knowledge, skills, traits and instructional strategies they believe should be used in these programs. Multiple sources of evidence were used to provide plentiful data to answer the research questions. The researcher is an accounting professor, so he adopted strategies to minimize bias so as to focus on the perspectives of the sample rather than his own.

A multiple descriptive case study design was used to allow the researcher to gather data in this study. According to Yin (2009), a case study design should be used when the researcher is not interested in manipulating the behavior of the study’s participants, when the researcher wants to cover the contextual conditions that the



researcher thinks are relevant to the issue under study, and when the boundaries exist between the context and the phenomenon. The three units of analysis for the case study were college accounting faculty, forensic accounting practitioners, and lawyers in Puerto Rico (Yin, 2009). Specifically, the case study was a holistic descriptive one. A descriptive case study is used when the researcher wants to describe a phenomenon and the real-life context in which it occurs. This case study was bounded by definition and context (Yin, 2009). The case is defined as forensic accounting skills and the context is within the need for forensic accountants on Puerto Rico. Yin (2009) reported that it is important to bind a research study to keep it from exploding into areas that were not originally planned. A case study design was chosen for this study because the goal of the study is to develop a list of skills, knowledge, and traits and instructional strategies that the sample believes are needed to meet the unique needs of a real life situation, to provide trained forensic practitioners with the skills to decrease fraud in Puerto Rico.

A quantitative methodology was not chosen as most research previously conducted on forensic accounting has used a quantitative approach (Rezaee et al., 2006). Quantitative surveys only give participants the possibility of selecting a forced choice and leave no room for explanation or elaboration. First, the participants were recruited and presented with an informed consent form as well as a description of the purpose of the study. After consenting to participate in the study, the sample completed the Questionnaire for Accounting Professors, Forensic Accountants, and Lawyers by Rezaee et al. (2006) who have granted permission to the researcher for the questionnaire to be used in full for this study. The participants completed the questionnaire online via SurveyMonkey. The last question of that questionnaire was used to ask the participants if they are willing to participate in an individual interview designed to glean further

perspectives related to the instructional strategies and traits, skills, and knowledge practitioners in Puerto Rico should possess. The researcher designed the interview guides based on the questionnaire to be used and research on the topic. Such possibilities may mean that more knowledge is gained by way of explanations given.

### **Population**

The population for the study consisted of accounting professors, lawyers, and forensic accountants in Puerto Rico. There are 161 universities, college, and junior colleges in Puerto Rico, of which 51 offer an accounting program. The researcher randomly picked two universities that belong to Puerto Rico's system of higher education and received permission to conduct this study with their professors. The researcher had access to the CPA Association in Puerto Rico and contacted the Association and sought permission to invite their members to be part of this study. For lawyers, the researcher asked two lawyers that he knew personally to send him a list of lawyers who deal with cases of fraud, either civilly or criminally.

### **Sample**

Participants in the case study were accounting professors presently employed in one of the college or universities in Puerto Rico, forensic accounting practitioners in Puerto Rico, and lawyers who practice in Puerto Rico and have used forensic accountants. The participants in this research study were selected using a convenience sampling strategy. Convenience sampling involves the researcher selecting participants who are available and are willing to complete the data collection instruments (Gravetter, & Forzano, 2012). Participants were recruited who are particularly knowledgeable about the research issue (Onwuegbuzie & Leech, 2010; Sedgwick, 2013; Yin, 2009). Thus, 30 participants were selected for the study, divided in three case study units of 10 accounting

professors, 10 forensic accounting practitioners, and 10 lawyers.

The researcher has obtained site authorization from two universities to collect data (see Appendix A). The universities have agreed to e-mail accounting professors with contact information of the researcher and a description of the study. The Puerto Rican Society of Certified Public Accountants was contacted for a list of forensic accountants and the invitation to participate was sent to those accountants who do forensic accounting jobs. The lawyers for this study were selected based on those who regularly engage the services of a forensic accountant for court cases. The researcher knew two lawyers who use forensic accountants and asked them for recommendations of who might participate. The researcher personally contacted the lawyers via e-mail or phone to participate in the study.

All potential participants were e-mailed an invitation to participate in the study. The e-mail invitation included a description of the study as well as an informed consent form along with a link to the Questionnaire for Accounting Professors, Forensic Accountants, and Lawyers by DiGabriele (2009). Clicking on the link to access the questionnaire served as informed consent (see Appendix A and B). The e-mail, informed consent form, and questionnaires were all posted in both English and Spanish. At the end of the questionnaire, the participants were asked if they were willing to participate in interviews designed to glean further detail on the topic. If they were interested, they provided their name, e-mail address, and phone number to the researcher, who followed up. Participants were also asked to sign another Letter of Consent when they came to their scheduled interviews. This Letter of Consent asked the participants to agree to allow their interviews to be audio-taped. Twenty-seven participants assented to the audio-taping of their interviews; three participants did not want to be interviewed.

Initially, 30 participants were recruited to complete the questionnaire and to participate in interviews. Mason (2010) reported that qualitative studies should have no fewer than 15 participants, but noted that having experts involved as participants in the study can reduce the number of participants needed in the study. More participants would have been interviewed if data saturation had not been achieved at the end of interviewing and surveying 30 participants. Data saturation refers to the point in data collection where the information being given by the participants is being repeated and no new information is being given. Twenty-seven participants also followed up the survey with a sit-down interview with the researcher. Three lawyers declined to sit through the interview process.

### **Instruments**

There were two instruments used in the study: one is the Survey on Accountants' Knowledge, Skills, and Traits, based on an adaptation of Rezaee et al.'s survey (2006) and used with permission (see Appendix D and E). Additionally, the survey was also based on DiGabriele's (2008, 2009, 2011). The questionnaire consists of 30 descriptors of the traits, skills, and knowledge that forensic accountants need. The respondents rank these items based on a Likert scale on importance where 1 = *least important* and 5 = *most important* in each of the three categories. The questionnaire asked participants to rate the level of importance from a list of forensic accounting skills and knowledge, and traits or character traits most likely to be needed by someone who wants to practice forensic accounting. Previous research has used quantitative methods to determine what skills, knowledge, and disposition are needed in forensic accounting (DiGabriele, 2008, 2009, 2011). The questionnaire used in this study is based on the questionnaires that DiGabriele used in his research on the topic.

An additional measure consisting of open-ended interviews was used to glean further detail on the topic. The perspectives of the three stakeholder groups were triangulated. The researcher interviewed 10 professors, 10 practitioners, and 7 lawyers about the skills, knowledge, and traits needed by forensic accountants in general and specifically on the island. Three of the lawyers who took the survey reported that their present work schedule left no time for interviews. Interviewing participants in this study allowed for elaboration on each trait or skill the participant feels is necessary for a forensic accountant (DiGabiele, 2009).

Ten interview questions were developed by the researcher for each participant group (i.e., accounting professors, forensic accountants, and lawyers; see Appendices F, G, and H). The researcher created the questions based on two things: (a) first, a list created from the skills, knowledge, and traits that have been used in previous quantitative studies and which were counted by the frequency these traits have appeared in the previous literature, and (b) second, based on recommendations for further study in previous literature, questions were created to address those suggested areas of research. As Huber (2012) noted, some forensic accountants have taken no forensic accounting courses in college, and some have learned forensics accounting through experience. Thus, the interview questions helped to account for differences in training that may exist. The interview questions are located in Appendices F, G and H of this document. Forensic accountants and lawyers ended up with 10 questions each, while accounting professors were asked 16 questions.

Professors were asked such questions as

1. What courses do you feel should be offered in the future to better meet the needs of forensic accounting better?

2. Can you describe the most important personality traits and characteristics you believe a forensic accountant should possess?
3. Can you describe the most important skills that you believe a forensic accountant should possess?
4. What enhanced knowledge do you believe a forensic accountant should possess in order to meet the specific requirements of this job role?

Forensic accounting practitioners were asked such questions as

1. How and by whom were you trained in forensic accounting?
2. What specific courses did you take in college or beyond that prepared you for the work of a forensic accountant?
3. What courses do you think colleges and universities should offer in forensic accounting to meet the needs of the field?
4. What special skills do forensic accountants need in order to perform their jobs?

Lawyers were asked such question as

1. What skills do you think are most important for a forensic accountant to possess?
2. What special knowledge areas do you think forensic accountants need to have to be effective in the job?
3. In what specialized knowledge areas have you needed the help of a forensic accountant before?
4. Cite two cases where using the skills of a forensic accountant have helped ensure a win for your clients?

The researcher coded and marked transcripts from interviews and triangulated the

perspective of each stakeholder group (Yin, 2012).

### **Data Collection, Processing, and Analysis**

**Data collection.** Invitations were sent out to accounting professors, forensic accounting practitioners, and lawyers who employ the services of forensic accountants in Puerto Rico. The researcher selected two universities that belong to Puerto Rico's system of higher education and has received permission to conduct this study with their professors. Invitations to participate in the study were sent to accounting professors in those two universities. The universities sent the e-mail of recruitment to the professors on behalf of the researcher. Additionally, the researcher has access to the CPA Association in Puerto Rico and contacted the Association and sought permission to invite their members to be part of this study. The researcher asked two lawyers who are professional acquaintances to send him a list of lawyers who deal with cases of fraud, either civilly or criminally. An e-mail that explains the study and asks for participants was sent to all participants.

The e-mail invitation included a description of the study as well as an informed consent form along with a link to the Questionnaire for Accounting Professors, Forensic Accountants, and Lawyers by DiGabriele (2009). Clicking on the link to access the questionnaire served as informed consent (see Appendix A and B). The e-mail, informed consent form, and questionnaires were all posted in both English and Spanish. At the end of the questionnaire, the participants were asked if they were willing to participate in interviews designed to glean further detail on the topic. If they were interested, they provided their name, e-mail address, and phone number to the researcher, who followed up. Participants were also asked to sign another Letter of Consent when they came to their scheduled interviews.

The interviews, which were centered on the unique skills these graduates have, were audio-recorded if participants allow for the recording, and lasted approximately 1 hour. Additionally, the interviews were either conducted in English or Spanish. Each participant was given the choice of language as the researcher is fluent in both languages. Many people speak both languages in Puerto Rico because the local court system is conducted in Spanish, but all federal business and federal courts use English as the official business language. The interviews occurred at a location that was mutually agreeable to participant and researcher. Where there were scheduling conflicts for the interviews, the researcher conducted the interview by phone with the participant.

After the interviews were conducted the researcher had the tapes transcribed and then sent a copy of each participant's interview script back to the participant so that the transcripts can be verified as accurate. Additionally, the data from the questionnaire were combined in the data analysis. The data were triangulated by combining different sources of information (Guion, Diehl, & McDonald, 2011). The sources of data in this study were the questionnaire responses from each of the three case studies, the interview data from each of the three case studies, and the researcher's observation notes taken during the interviews. According to Thurmond (2001), the benefits of triangulation are "increasing confidence in research data, creating innovative ways of understanding a phenomenon, revealing unique findings, challenging or integrating theories, and providing a clearer understanding of the problem" (p. 254). Triangulating data ensures the diversity and quantity of data that can be used for analysis. The downside of triangulating data is that it is time-consuming and requires greater planning (Thurmond, 2001).

**Data processing.** The questionnaires were downloaded from SurveyMonkey and transported into an Excel spreadsheet in order to be further analyzed in SPSS. The



researcher transcribed the Spanish interviews into English and prepared a Word document to upload to Atlas.ti for further processing. After all transcriptions were completed, a copy of each interview transcription was return to each interviewee so that the participant could sign his or her name on the transcription showing that the transcript accurately reflected what was stated in the interview.

**Data analysis.** The researcher analyzed what was reported by professors, practitioners, and lawyers on the questionnaires and in the interviews. The questionnaire data were collected from SurveyMonkey and analyzed using the Statistical Package for Social Science (SPSS) so that the mean, median, and standard deviation could be reported. The qualitative data were analyzed using the qualitative software Atlas.ti. The software helps a researcher sort through the data and to label words that are repeated, phrases and similar sentences in order to develop the themes for reporting the data. According to Woolf (2012), Atlas ti 7.0 is a “concept database,” whereby a researcher creates and enters names of concepts or what the software terms *codes* (para.3). These codes are used by the program to organize these concepts to support the researcher’s analysis. Atlas.ti does not predetermine what concepts are used—the researcher must enter those codes into the program for the analysis to begin (Woolf, 2012). Codes are words such as the concept *skills* and are considered first level codes.

In order to organize the codes, the researcher needed to make use of the four building blocks that the program has. Those four blocks included code prefixes, families, networks, and supercodes, all four of which bring together groups of related codes (Woolf, 2012). The codes entered were related to the study’s research questions. Secondly, the codes are related based on the purpose for the study. For instance, the code *skills* had some secondary terms grouped with it to create an Atlas *family* that can be

selected with one click as a group for analysis. Both code prefixes and families are used for the purpose of organizing the data. Families offer the researcher a short cut to work on one group together all at once (Woolf, 2012).

For the qualitative data, after determining the codes to be used, the researcher entered the transcribed interview scripts into Atlas ti as a Word document. The program then sifted through the data, matching words, phrases, and quotes to those code prefixes. The families developed were used to create themes for the reporting of data (Woolf, 2012). The data were coded, analyzed, and reported in chapter 4.

### **Assumptions**

It was assumed in this study that the three participant groups are knowledgeable in forensic accounting such that they can add to the current body of knowledge. It was also assumed that the researcher was able to generate enough interest in his study that it was possible to add to the present body of knowledge in forensic accounting. It was also assumed that there is a need for academics and practitioners to get together to develop new curriculums that teaches potential candidates what theory they need to understand in order to work as a forensic accountants. The third and last assumption involved participants truthfully responding to the questionnaire and interview questions. It is assumed that participants answered the interview questions truthfully and to the fullest extent that their knowledge and experience in forensic accounting allowed.

### **Limitations and Delimitations**

**Limitations.** As in all studies, the study had several limitations. First, the findings were based on the opinions of three groups of participants who are knowledgeable about the skills necessary for a forensic accountant to have. The findings, thus, may be limited by the knowledge base that the participants have about the skills, knowledge, and traits

needed by forensic accountants. Another limitation was the need for participants to answer the questionnaire and interview questions as honestly as possible so as to have the findings accurately reflect what is needed in this new and growing field in accounting. A third limitation was that because the definition of forensic accounting is still being debated by researchers it may be impossible to create a list of skills, knowledge, and traits needed by forensic accountants. The field of forensic investigation has grown so rapidly in the twenty-first century that forensic investigation is being used outside the field of accounting and has become a necessary tool in law and psychology (Owojori, & Asaolu, 2009; Patil, 2011; Pei et al., 2012).

**Delimitations.** The study was delimited to accounting professors, forensic practitioners, and lawyers who are knowledgeable about the skills, knowledge, and traits needed by forensic accountants. The study was also delimited to only those participants working on the island of Puerto Rico as the goal of this study is to examine the growing need for forensic accountants on the island. The methodology used for this research was delimited to a descriptive multiple case study design, and as such the researcher is not interested in pursuing the lived experiences of the participants or in developing new theory for the forensic accounting field.

### **Ethical Assurances**

The researcher submitted his proposal to the Northcentral Internal Review Board (IRB) to seek approval to conduct the study. Additionally, the researcher informed all potential participants about the purpose of the study. The researcher ensured the participants are told about the purpose of the study and what the expectations are for their participation in the study should they elect to volunteer for the research. Each potential participant received a letter of consent, which had the telephone number and e-mail

address of the researcher and his mentor so participants could contact the researcher if they had any questions or concerns about the study. Before any volunteer became a participant in this study, he or she agreed to sign the letter of consent. All participants were assured that their identity and business or school affiliation would be kept confidential, and that no names or identifying information were released during the reporting of the data. All data were reported in a fair and accurate manner in chapter 4. The researcher assured all participants that they face only minimal or no risk by volunteering to be in this study. All data collected in the study were secured in the researcher's college office and remained locked up for 3 years. After 3 years the researcher will destroy the tapes from the interviews, and the paper questionnaires were shredded.

### **Summary**

The purpose of this multiple case study was to identify courses and skills accounting faculty, practitioners and lawyers perceive as necessary for forensic accountants, and to develop a forensic accounting curriculum to be used in Puerto Rico's colleges and universities based on the data collected from two groups of professionals. Thirty participants, 10 professors, 10 forensic accounting practitioners, and 10 lawyers took an online questionnaire on SurveyMonkey and were interviewed about what they perceived are the needed skills, knowledge, and traits in a forensic accounting. The data collected were gathered from one Likert survey posted online at SurveyMonkey and the responses collected in the interviews from the three case studies: accounting professors, forensic accountants, and lawyers. The data were compared to the curricula in forensic accounting in universities in the United States.

## Chapter 4: Findings

The purpose of this study was to identify the traits, skills, and knowledge that accounting professors, forensic accounting practitioners, and lawyers viewed as necessary for forensic accounting programs in Puerto Rican universities to prepare graduates to be able to meet the demands of forensic accounting on the Island. White-collar crime and fraud has grown immensely on Puerto Rico in the last 10 years as a direct outcome of the widespread use of the Internet (McGaw, 2006; McIntosh, 2014). The World Wide Web has allowed criminals to steal people's financial information and to set up all types of fraudulent schemes designed to separate people from their money without being discovered (Fogarty & Parker, 2010; Kranacher et al., 2011). This growth in fraud crimes in all areas on Puerto Rico has greatly increased the need for trained forensic accountants because the criminals outnumber the forensic accountants and are more skilled at perpetrating crime than the fraud and forensic accountants have been at detecting these scams (McGaw, 2006; McIntosh, 2014).

Ten accounting professors, 10 practicing forensic accountants, and 10 lawyers who have used the service of a forensic accountant participated in this multiple descriptive case study. A descriptive case study requires articulation of what is already known about the phenomenon (McIntosh, 2014). What is known about this multiple case study is that white-collar crime, especially fraud, has grown dramatically in the twenty-first century in Puerto Rico (Coto, 2013; Krause, 2014; Mahoney, 2015). The problem is that there are not enough trained forensic accountants on the Island to counter all the criminal activity. Research on the topic has looked at how best to train forensic accountants to fill the need to fight crime (McIntosh, 2014; McMullen & Sanchez, 2010; Patil, 2011; Pei et al., 2012; Pope & Ong, 2007; Ramamoorti 2008; Regan &

Ebersbacher, 2008; Singh & Sakshi, 2014; Smith & Crumbley, 2009; Stanbury & Paley-Menzies, 2010). This multiple case study was bound by the need to discover how to train qualified people to become forensic accountants who have the traits, skills, and knowledge needed to stop the fraudulent activity on the Island.

Both quantitative and qualitative data were collected in this study. Quantitative data included responses from a three-part survey consisting of 10 statements each for traits, skills, and knowledge for a total of 30 items that were rated using a Likert scale. Participants indicated the importance of a forensic accountant having these traits, skills, and knowledge by circling the appropriate number where 1 = *least important* and 5 = *most important* in each of the three categories. The qualitative part of the study included interview questions and notes taken by the researcher during interviews. The data collected in this study may help determine what courses need to be developed for Puerto Rico where fraud and white-collar crime is a continuing problem on the island (Coot, 2013; Krause, 2014; Mahoney, 2015). Presently, as of 2015, there are no forensic accounting courses in higher education in Puerto Rico outside of an introductory course or brief mention in other accounting courses.

The chapter is divided into four sections. The first section includes an explanation of the methodology and some demographic information on the study's population and sampling. Section 2 includes the results of the survey from the quantitative part of the study, which was administered to the three groups of participants. Section 3 details the results from the qualitative part of the study, which included the data collected during individual interviews with each of the 27 participants who agreed to be interviewed. Three lawyers did not wish to be part of the interview process. The last section, Section 4, includes a summary of the results and a preview of chapter 5.

## **Methodology and Sampling**

The purpose of this qualitative, descriptive, multiple-case study was to identify the traits, skills, and knowledge that accounting faculty, practitioners, and lawyers viewed as necessary for forensic accounting programs in Puerto Rican universities to prepare graduates to be able to meet the demands of the contemporary workplace. A qualitative case study was used because the researcher was not interested in conducting an experiment or quasi-experimental quantitative study. A descriptive case study was used because the researcher wanted to describe a phenomenon and the real-life context in which it occurs; hence a multiple case study was the appropriate methodology to use (Yin, 2012).

Participants in the case study were accounting professors presently employed in one of the college or universities in Puerto Rico, forensic accounting practitioners in Puerto Rico, and lawyers who practice in Puerto Rico and have used forensic accountants for litigation support. The participants were selected using a convenience sampling strategy. Table 3 shows the demographic information on all 30 participants. There were 24 (80%) males and 6 (20%) females who participated in the study. Women were represented in each group, with more women in the professor group (3) than in the lawyer (2) and accountant (1) groups. There were more participants in the 36-45 (40%) age group in the study, followed by the 25-35 (30%) age group; the lowest groups were the 46-55 (23%) year olds and the 56+ (7%), respectively. For accounting professors, the average number of years teaching was 10.5. For forensic accountants, the average years of experience on the job was 6. The lawyers had an average of 10.9 years of experience, making that group the most experienced profession (see Table 3). All accountant participants had either a PhD or an EdD. Eight of the forensic accountants were CPAs,

with one forensic accountant having only a B.S. degree and one having a PhD. Two accountants were not CPAs, but did possess a master's degree. All lawyers possessed a J.D. degree. Table 3 includes the demographic data collected from the participants.

Table 3

*Demographic Information for Participants*

Participants	Degree	Years		Gender
		teaching/practicing	Age group	
Professor 1	B.S./M.S./PhD	15	46-55	Female
Professor 2	B.S./M.S./MBA	12	36-45	Male
Professor 3	B.S./M.S./PhD	8	36-45	Male
Professor 4	B.S./M.S./EdD	11	46-55	Male
Professor 5	B.S./M.S./PhD	15	36-45	Male
Professor 6	B.S./M.S./PhD	6	36-45	Female
Professor 7	B.S./M.S./EdD	5	36-45	Male
Professor 8	B.S./M.S./PhD	5	25-35	Male
Professor 9	B.S./M.S./MBA	21	56+	Male
Professor 10	B.S./M.S./MBA	12	46-55	Female
Forensic Accountant 1	B.S./M.S./CPA	6	36-45	Male
Forensic Accountant 2	B.S./M.S./CPA	7	25-35	Female

*Note.* B.S. = Bachelor of Science; M.S. = Master's of Science; B.A./J.D.- Bachelor of Arts/ Juris Doctor; CPA = Certified Public Accountant.

Table 3 (continues)



Table 3 (continued)

Participants	Degree	Years		
		teaching/practicing	Age group	Gender
Forensic Accountant 3	B.S./M.S./CPA	5	25-35	Male
Forensic Accountant 4	B.S./M.S.	11	36-45	Male
Forensic Accountant 5	B.S./M.S./CPA	4	25-35	Male
Forensic Accountant 6	B.S./CPA	6	36-45	Male
Forensic Accountant 7	B.S./M.S./ CPA/PhD	5	36-45	Male
Forensic Accountant 8	B.S./M.S.	9	25-35	Male
Forensic Accountant 9	B.S./M.S./CPA	4	36-45	Male
Forensic Accountant 10	B.S./M.S./CPA	3	25-35	Female
Lawyer 1	B.A/J.D.	18	46-55	Female
Lawyer 2	B.S/J.D.	10	56+	Female
Lawyer 3	B.S/J.D.	6	25-35	Male
Lawyer 4	B.S/J.D.	17	56+	Male
Lawyer 5	B.S/J.D.	22	56+	Male
Lawyer 6	B.S/J.D.	6	25-35	Male
Lawyer 7	B.S/J.D.	7	36-45	Male
Lawyer 8	B.SS/J.D.	5	25-35	Male
Lawyer 9	B.S/J.D.	13	46-55	Male
Lawyer 10	B.S/J.D.	5	36-45	Male

*Note.* B.S. = Bachelor of Science; M.S. = Master's of Science; B.A/J.D.- Bachelor of Arts/ Juris Doctor; CPA = Certified Public Accountant.

### Quantitative Findings

The 30 participants in the study were all sent a link to the survey that was posted on SurveyMonkey. Each participant completed the survey prior to being interviewed. The

participants followed the link to the survey on SurveyMonkey and were taken to a *directions sheet* where the letter of consent was posted. The first thing each participant did was read the consent form and either hit the accept button indicating that they acknowledged reading the consent letter and were agreeing to voluntarily be part of the study or the participant exited the survey, refusing to participate. The survey was then presented to the participant. However, if the participant failed to hit the accept button, he or she was closed off from the survey pages and could not get into the survey pages at that time.

After the surveys were completed by all 30 participants, the data were collected from SurveyMonkey and coded. SurveyMonkey allows the data to be exported so that it can be downloaded to various programs. The SurveyMonkey data for all three participants groups were downloaded to an offline Excel workbook. Using the analytical tools available in Excel, descriptive statistics (e.g., mean, variance, and standard deviation) were used to analyze the findings from the survey. Tables 4 shows the mean, variance, and standard deviation composite scores for the combined scores from the three groups of participants in the quantitative part of the study. Two traits, one skill, and one knowledge factor received the highest mean ( $M = 5.0$ ,  $SD = 0.0$ ). Those factors were (a) function well under pressure (trait), (b) ethical (trait), (c) think like the wrong doer (skill), and (d) knowledge of audit evidence (knowledge). The lowest scores ( $M = 3.8$ ,  $SD = 1.1352$ ;  $M = 3.7$ ,  $SD = 0.8232$ ) were given to two traits, two skills, and three knowledge factors: (a) detail-oriented (trait), (b) evaluative (trait), (c) synthesize results of discovery and analysis (skill), (d) effective written communication, (skill), (e) knowledge of law enforcement (knowledge), (f) knowledge of interviewing skills (knowledge), and (g) possesses a wide area of general knowledge outside accounting.

*Composite Standard Mean for Each Survey Item for Three Participant Groups*

Traits	<i>M</i>	Variance	<i>SD</i>
a. Makes people feel at ease	4.0	0.1	0.3162
b. Confident	4.6	0.9333	0.9660
c. Function well under pressure and time constraints	5.0	0.0	0.0
d. Skepticism	4.3	0.45556	0.6749
e. Intuitive	4.4	0.2666	0.5164
f. Persistent	4.2	0.4	0.63246
g. Inquisitive	4.0	0.1	0.3162
h. Ethical	5.0	0.0	0.0
i. Detail-oriented	3.7	0.6777	0.8232
j. Evaluative	3.8	1.2888	1.1352
<b>Skills</b>			
k. Effective in oral communication	4.3	0.45556	0.6749
l. Strategic thinker	4.8	0.17778	0.4216
m. Research skills	4.7	0.23333	0.4830
n. See the big picture	4.6	0.9333	0.9660
o. Understand the goals of a case	4.3	0.45556	0.6749
p. Think like the wrongdoer	5.0	0.0	0.0
q. Synthesize results of discovery and analysis	3.7	0.6777	0.8232
r. Effective in written communications	3.8	1.2888	1.1352
s. Possess auditing skills	4.0	0.1	0.3162
t. Investigative abilities	4.75	0.29167	0.5400
<b>Knowledge</b>			
u. General knowledge of rules of evidence, and civil procedure	4.0	0.8888	0.9428
v. Knowledge of law enforcement	3.8	1.2888	1.1352
w. Knowledge of electronic discovery	4.3	0.45556	0.5164
x. Knowledge of interpreting financial evidence	4.3	0.45556	0.5164
y. Knowledge of specialized technical skills	4.3	0.45556	0.5164
z. Knowledge of audit evidence	5.0	0	0
aa. Knowledge of relevant professional standards	4.2	0.4	0.6324
bb. Knowledge of interviewing skills	3.7	0.6777	0.8232
cc. Knowledge of fraud detection	4.4	0.2666	0.5164
dd. Possesses a wide area of general knowledge outside accounting	3.8	1.2888	1.1352

In comparing the individual groups, differences were found among the three groups for the strongest traits, skills, or knowledge needed by forensic accountants (see

Table 5). Accounting professors found (a) ethical traits, (b) functioning well under pressure and time constraints, (c) thinking like a wrongdoer, and (d) knowledge of audit evidence ( $M = 5, SD = 0.0$ ) to be the top traits, skills, and knowledge needed in a forensic accountant. On the other hand, forensic accountants reported (see Table 6) that the most important traits, skills, and knowledge were the following: (a) research skills, (b) thinking like the wrongdoer, and (c) investigative abilities ( $M = 5, SD = 0.0$ ). Lawyers (see Table 7) determined that the most important traits, skills, and knowledge were the following: (a) thinking like a wrong doer, (b) general knowledge of rules of evidence and civil procedure, and (c) possession of a wide area of general knowledge outside accounting ( $M = 5, SD = 0.0$ ). The only skill that all three groups reported as most important was *thinking as a wrongdoer* ( $M = 5, SD = 0.0$ ).

There was some agreement on what traits, skills, and knowledge the three groups thought were least necessary for a forensic account to possess. Accounting professors gave the following traits, skills, and knowledge the lowest ranking: (a) skepticism, (b) evaluative skills, and (c) knowledge of specialized technical skills ( $M = 2.9, SD = 0.3162$ ). Forensic accountants gave the lowest rating to (a) evaluative and (b) understand the goals of a case ( $M = 2.9, SD = 0.3162$ ). For lawyers, the lowest rankings were given to the following traits, skills, and knowledge: (a) evaluative, (b) possess auditing skills, and (c) knowledge of auditing skills ( $M = 2.9, SD = 0.3162$ ). There was one trait that was the same among the three participant groups and that was the evaluative trait (see Tables 4, 5, and 6).

Table 5

*Standard Mean for Each Survey Item for Accountants Professors*

	Traits	<i>M</i>	Variance	<i>SD</i>
a.	Makes people feel at ease	3.1	0.32222	0.5676
b.	Confident	3.6	0.4888	0.6992
c.	Function well under pressure and time constraints	5.0	0.00	0.00
d.	Skepticism	2.9	0.54444	0.73782.9
e.	Intuitive	3.1	0.32222	0.5676
f.	Persistent	4.3	0.45556	0.6749
g.	Inquisitive	3.2	0.1777	0.4216
h.	Ethical	5.0	0.00	0.00
i.	Detail-oriented	3.1	1.2111	1.1005
j.	Evaluative	2.9	0.1	0.3162
Skills				
k.	Effective in oral communication	3.5	0.7222	0.5270
l.	Strategic thinker	4.3	0.45556	0.6749
m.	Research skills	3.1	0.32222	0.5676
n.	See the big picture	4.8	0.17778	0.4216
o.	Understand the goals of a case	4.3	0.45556	0.6749
p.	Think like the wrongdoer	5.0	0.0	0.0
q.	Synthesize results of discovery and analysis	4.0	0.1	0.3162
r.	Effective in written communications	3.1	0.32222	0.5385
s.	Possess auditing skills	3.1	0.32222	0.5385
t.	Investigative abilities	3.7	0.6777	0.8232
Knowledge				
u.	Knowledge of rules of evidence, and civil procedure	5.0	0.0	0.0
v.	Knowledge of law enforcement	4.6	0.9333	0.9660
w.	Knowledge of electronic discovery	2.9	0.5444	0.7378
x.	Knowledge of interpreting financial evidence	3.5	0.7222	0.5270
y.	Knowledge of specialized technical skills	2.9	0.5444	0.7378
z.	Knowledge of audit evidence	5.0	0.00	0.00
aa.	Knowledge of relevant professional standards	3.7	0.6777	0.8232
bb.	Knowledge of interviewing skills	3.5	0.7222	0.8498
cc.	Knowledge of fraud detection	4.3	0.45556	0.6749
dd.	Possesses a wide area of general knowledge outside accounting	5.0	0.0	0.0

Table 6

*Standard Mean for Each Survey Item for Forensic Accountants*

Traits	<i>M</i>	Variance	<i>SD</i>
a. Makes people feel at ease	3.8	0.8444	0.9189
b. Confident	3.3	0.2333	0.4830
c. Function well under pressure and time constraints	4.0	0.1	0.3162
d. Skepticism	3.7	0.6777	0.8232
e. Intuitive	4.6	0.9333	0.9660
f. Persistent	3.2	0.1777	0.42164
g. Inquisitive	3.1	0.32222	0.5385
h. Ethical	4.6	0.9333	0.9660
i. Detail-oriented	4.3	0.45556	0.6749
j. Evaluative	2.9	0.5444	0.7378
Skills			
k. Effective in oral communication	3.3	0.4555	0.6749
l. Strategic thinker	4.4	0.2666	0.5164
m. Research skills	5.0	0.0	0.0
n. See the big picture	4.4	0.2666	0.5164
o. Understand the goals of a case	2.9	0.5444	0.7378
p. Think like the wrongdoer	5.0	0	0
q. Synthesize results of discovery and analysis	4.2	0.4	0.63246
r. Effective in written communications	3.1	0.32222	0.5385
s. Possess auditing skills	4.3	0.45556	0.6749
t. Investigative abilities	5.0	0.	0.0
Knowledge			
u. General knowledge of rules of evidence and civil procedure	3.8	1.2888	1.1352
v. Knowledge of law enforcement	4.4	0.2666	0.5164
w. Knowledge of electronic discovery	4.0	1.1111	1.0540
x. Knowledge of interpreting financial evidence	3.8	1.2888	1.1352
y. Knowledge of specialized technical skills	4.4	0.2666	0.5164
z. Knowledge of audit evidence	4.2	0.4	0.6324
aa. Knowledge of relevant professional standards	3.1	0.3222	0.5385
bb. Knowledge of interviewing skills	4.2	0.4	.63248
cc. Knowledge of fraud detection	3.7	0.6777	0.8232
dd. Possesses a wide area of general knowledge outside accounting	4.0	0.1	0.9428

Table 7

*Standard Mean for Each Survey Item for Lawyers*

Traits	<i>M</i>	Variance	<i>SD</i>
a. Makes people feel at ease	4.3	0.45455	0.6732
b. Confident	3.6	0.4888	0.6992
c. Function well under pressure and time constraints	4.7	0.23333	0.4830
d. Skepticism	2.9	0.54444	0.7378
e. Intuitive	3.2	0.6992	0.7888
f. Persistent	4.3	0.45556	0.6749
g. Inquisitive	3.2	0.1777	0.4216
h. Ethical	4.75	0.29167	0.5400
i. Detail-oriented	3.1	1.2111	1.1005
j. Evaluative	2.9	0.1	0.3162
Skills			
k. Effective in oral communication	3.5	0.7222	0.5270
l. Strategic thinker	3.4	0.71111	0.8432
m. Research skills	3.1	0.32222	0.5676
n. See the big picture	4.8	0.17778	0.4216
o. Understand the goals of a case	3.1	0.32222	0.56765
p. Think like the wrongdoer	5.0	0.0	0.0
q. Synthesize results of discovery and analysis	4.0	0.1	0.3162
r. Effective in written communications	3.1	0.32222	0.5385
s. Possess auditing skills	2.9	0.5444	0.7378
t. Investigative abilities	3.7	0.6777	0.8232
Knowledge			
u. General knowledge of rules of evidence and civil procedure	5.0	0.0	0.0
v. Knowledge of law enforcement	4.6	0.9333	0.9660
w. Knowledge of electronic discovery	3.7	0.6777	0.8232
x. Knowledge of interpreting financial evidence	3.5	0.7222	0.5270
y. Knowledge of specialized technical skills	3.5	0.7222	0.8498
z. Knowledge of audit evidence	2.9	0.5444	0.7378
aa. Knowledge of relevant professional Standards	4.0	0.1	0.3162
bb. Knowledge of interviewing skills	3.1	1.2111	1.1005
cc. Knowledge of fraud detection	4.3	0.45556	0.6749
dd. Possesses a wide area of general knowledge outside accounting	5.0	0.0	0.0

Table 8 shows the top 10 traits, skills, and knowledge according to accounting professors, forensic accountants, and lawyers who have used forensic accountants in their law practice. The only trait in common at  $M = 5.0$  was thinking like a wrongdoer. There was limited agreement when looking at what traits, skills, and knowledge were in each group's top 10 characteristics. Besides thinking like a wrongdoer (skill), there was agreement on the importance of ethical behavior (trait) and seeing the big picture (skill). Those were the only traits and skills that were seen as necessary for a forensic accountant.



Table 8

*The Top 10 Traits, Skills, and Knowledge by Participant Group*

Participant group	<i>M</i>	Variance	<i>SD</i>
<b>Accounting professors</b>			
Function under pressure and time constraints	5.0	0.0	0.0
Ethical	5.0	0.0	0.0
Think like a wrongdoer	5.0	0.0	0.0
Knowledge of audit evidence	5.0	0.0	0.0
Strategic thinker	4.8	0.17778	0.42616
Investigative abilities	4.75	0.29167	0.5400
Research skills	4.7	.23333	0.4830
Confident	4.6	0.9333	0.9660
See the big picture	4.6	0.9333	0.9660
Intuitive	4.4	0.2666	0.5164
Knowledge of fraud detection	0.2666	0.2666	0.5164
<b>Forensic accounting</b>			
Research skills	5.0	0.0	0.0
Investigative abilities	5.0	0.0	0.0
Think like the wrongdoer	5.0	0.0	0.0
Intuitive	4.6	0.9333	0.9660
Ethical	4.6	0.9333	0.9660
Strategic thinker	4.4	0.2666	0.5164
See the big picture	4.4	0.2666	0.5164
Knowledge of law enforcement			
Knowledge of specialized technical skills	4.4	0.2666	0.5164
Detail-oriented	4.3	0.45556	0.6749
Possess auditing skills	4.3	0.45556	0.6749
<b>Lawyers</b>			
Possesses a wide area of general knowledge outside accounting	5.0	0.0	0.0
General knowledge of rules of evidence and civil procedure	5.0	0.0	0.0
Think like the wrongdoer	5.0	0.0	0.0
See the big picture	4.8	0.17778	0.4216
Ethical	4.75	0.29167	0.5400
Function well under pressure and time constraints	4.7	0.23333	0.4830
Knowledge of law enforcement	4.6	0.9333	0.9660
Persistent	4.3	0.45556	0.6749
Makes people feel at ease	4.3	0.45556	0.6749
Knowledge of relevant professional standards	4.0	0.1	0.3162

## **Qualitative Findings**

After the first round was completed and all permission slips and responses to the survey were collected and entered into an Excel spreadsheet. An analysis was conducted and then the findings were put in tables. The second part of the multiple case study took place immediately following the analysis of quantitative data. It was important to know what the quantitative data findings were before conducting the interviews. Of the 30 participants in the study, only 27 were interviewed. The three participants were all lawyers, and they cited heavy caseloads for the reason they could not continue to be in the study. The 27 participants who agreed to be interviewed were scheduled at an agreeable location and time. All interviews were recorded with permission of the participants. To make the data analysis easier to do, the three groups were interviewed by group. Accounting professors were interviewed first, followed by forensic accountants, and ending with the lawyers' interviews.

### **Accounting Professors' Interview Responses**

Accounting professors were asked 16 questions that covered the accounting curriculum, the characteristics needed for forensic accounting, and the need for new curriculum in the wake of technology and more ways for fraud to be committed. The responses were entered into qualitative software and the three main areas of interest were used to code words or analysis. Participants were labeled by number and group, so that accounting professors were AP1, AP2, AP3 and so on. Forensic accountants were labeled as FA1, FA2, and FA3 and so on, and lawyers were identified as L1, L2, and L3 and so on. Three themes were developed and are discussed below.

**What's missing in accounting curriculum in Puerto Rico?** Responses to Interview Questions 1, 2, 3, 4, 10 resulted in the participants' discussion of the present

curriculum in Puerto Rico (PR). AP8 reported that few changes had been made in the accounting curriculum in his tenure at the college:

We are basically following an accounting curriculum that would prepare our accounting students for taking their CPA exam. I was invited to an accounting seminar in the United States at a college in Florida, and I was amazed at how the curriculum at that college used technology to teach aspects of fraud. The curriculum they share was far ahead of our accounting curriculum.

AP10 also noted that there was much room for improvement in how accounting was taught at her university. “There’s much we are not including in the curriculum that must be updated. PR has a whole layer of criminality that needs to be met by tough fraud investigators.” AP8 agreed that the curriculums for accounting in PR universities have not kept up with those curriculums in the United States. AP2 wasn’t sure that he thought they needed to do the curriculum all over. AP2 said,

Changing a curriculum or adding in a new major requires many hours of work by a curriculum committee then you have to present it to the faculty and then to the administration. And we have to have a cost justification. Will there be a great interest in forensic accounting? Will our university be the only one offering such a major? All of this requires many hours and weeks of planning. I think that we should probably start with an introductory forensic course and see what that leads us to.

AP3 said that his university already had an introductory forensic course:

There is a course in Detecting Fraud being developed, and we expect to have that offered this fall if we get an okay from the administration. From there our goal is to have enough forensic accounting courses to offer a minor in forensic accounting by 2018. Our accounting professors have set a goal for 2020. We hope by that time to be able to have a forensic accounting major.

AP6 as well as AP2, AP4, AP5, and AP7 all came from the same university, and even though they were not interviewed together, it was clear that they were in agreement about incorporating more forensic courses into the accounting curriculum. AP9 thought it was important to know that some accounting professor only had a master’s degree or their CPA. At this particular college there were only two members who had a doctorate.

AP12 thought there were few faculty members who had any real training in forensics beyond what they might learn in an accounting course on fraud and that was the problem in emphasizing that new major or minor.

AP8 said he had looked into advanced degrees possible in forensic accounting, thinking he would get a master's in forensic accounting and enhance his knowledge to match the market need.

The courses are only offered at American universities, but there are some online degrees in master's level forensic accounting. On the Island, there are the occasional seminars offered by a forensic accounting professional group. I don't know how much use I could make of that type of seminar. And I don't know if I need to join the association in order to attend their seminar. (AP4)

In analyzing the responses from accounting professors, several points became clear:

- The majority of the accounting professors (8) recognized the need to upgrade the accounting curriculum.
- More than half (6) of the professors felt they needed training in forensic accounting as well.
- A minority of professors (4) strongly suggested that any forensic accounting courses should remain as electives in an accounting degree major.
- A little more than half (6) of the professors believed that technology has not been put to good use in the accounting classroom and that technology can help in the detection of criminal behavior.
- All professors believed it was time to change the accounting curriculum to better meet the changing needs of the modern world.

**Characteristics needed for forensic accountants.** The responses to Questions 2,

3, 4, 6, and 14 opened the discussion with the professors about what traits, skills, and

knowledge. Question 2, 3, and 4 basically asked what had been asked in the survey except that the survey offered forced choices only. The interviews gave the AP an opportunity to choose the way they wanted to respond. As AP4 said,

I tell my students that one trait they need cannot be, and that trait is ethical behavior. Sure I can teach you about ethics, lay out the consequences for an accountant who chooses to perform illegal acts, but that doesn't necessarily translate into ethical behavior. Take Enron and their relationship with the accounting firm Arthur Anderson. It took Anderson's help to carry out that fraud for so long.

Bernie Madoff is another example of unethical behavior with the Ponzi scheme he had set up. When you are dealing with the public's money, it is a great temptation not to alter the accounting measures so that you have extra money for your own personal gain. A person so inclined like Madoff will eventually fall in his own scheme but you may get away with it for a while, and a lot of people will suffer financially. (AP2)

AP9 reported having taught fraud investigation before. She used a case study approach in that class. She set up a fictional corporation and divided the class into investigative groups. She told her students to think like a white-collar criminal. AP9 said that the ability to think like a criminal was the single most important trait for a forensic accountant to have. The forensic accountant had to be curious and able to ask the right questions, but most of all, "the forensic accountant needs to put him or herself in the criminal's place. What would the criminal do to hide his or her actions. Where and how would the criminal hide the crime" (AP9).

The APs were asked during the interview to give a one-word characteristic or skill that they felt was one any practicing forensic accountant had to have in order to perform the job. This was a further expansion of Question 7 because participants had difficulty narrowing down their answers to the question and in an attempt to elicit a more definitive answer, the researcher followed up Question 7 with a more specific question. The word chosen was different for each of the 10 participant, but some of the answers were

synonyms of each other. For example, AP 2, 4, 5, and 10 all used terms that were synonyms: moral, ethical, honest, and incorruptible. AP 1 and 9 offered synonyms such as tenacious and persistent. AP3 suggested a forensic accountant needed to be intelligent, AP 6, 7, 8 all had different words that would be considered unrelated: Table 9 displays the one-word adjective given.

Table 9

*One-Word Description of Forensic Accountant*

Participant number	Descriptive word
AP1	tenacious
AP2	moral
AP3	intelligent
AP4	ethical
AP5	honest
AP6	auditor
AP7	communicator
AP8	skeptic
AP9	persistent
AP 10	incorruptible

To elicit a one-word characteristics in Table 9 were difficult for participants who found themselves wanting to give more description but the expansion of Question 7 helped to get to more specific about what was important without relying on the forced choices in the quantitative survey.

**Computer technology and forensic accounting.** This theme was developed to answer Research Questions 13, 15, 16. These questions were designed for a twofold purpose: (a) to discover how important computer skills are for forensic accounting and (b) to determine the professors' beliefs about the growing need for forensic accounting. Nine of the professors said that having computer skills that were more than general

bookkeeping or recordkeeping are important for accountants, but especially so for forensic accountants who need to be good investigative researchers. AP6 reported that when she teaches fraud in her class, she does a special section on researching on the Internet.

My students know how to find the games to play, the social media sites, and the news sites. But do they know where to find a corporation's annual report from 15 years ago, or is there a site that would have information about a certain corporation's audit for the last 5 years. Where can they keep up with the latest criminal fraud? I like to show my students that the Internet is a virtual tool of information. (AP6)

AP10 agrees that computer skills are a necessity for the job. AP10 says that a forensic accounting "needs to be a jack of all trades, and what the forensic accounting doesn't know can be found on the Internet." AP 4, 5, and 9 agreed that forensic accountants do need a wide base of knowledge on many things. For example, those APs who work in the judicial system need to know what the law requires. They have to know how marital property is divided, or they have to know what elements of the law might have been broken by a greedy corporate officer. Forensic accountants need to look at the situation in a skeptical manner.

Forensic accountants must keep up with the changing technological world, as the pace of crime on Puerto Rico increases yearly. As AP1 said, "Forensic accountants are our line of defense against criminals who find the weaknesses in our system and take advantage of others." AP10 reported that "it is clear that the market demand for accountants is rising, especially here on Puerto Rico, where we daily read more news stories about another identity fraud case."

AP2 felt that there were great opportunities in the field of accounting, especially in light of the changing role of technology. As AP2 argued,

We're in a second wave of technology innovation, and who knows what we will be able to do with the newest technology. The downside to that is that the criminals always seem to be ahead of the good guys. Most of time criminals are the early adopters of technology and have already found a way to hack into a database and steal people's personal data so they can use Social Security numbers before their plans can be covered. I took criminals only a short time to figure out how easy it was to steal the Social Security numbers.

AP5 and AP8 discussed how identity fraud had really overtaken Puerto Rico, and that there seemed to be too few law enforcement officers to handle fraud crimes on the Island.

That's why our job is to meet the market need for accountants who are armed with skills they need to fight the fraud on the Island. We have to rethink accounting curriculum and prepare our students for working in a changing workplace. I don't think we are doing that so well now. It's hard to change the old dogs of academia. (AP 6)

During the interviews, it was clear that changing the accounting curriculum was supported by the majority of participants (8 or 80%). Two participants strongly suggested that there was no need, however, to have a separate forensic accounting major; what was needed was at most a minor in forensic accounting. These two participants were concerned that a forensic accounting degree would have a much greater appeal than accounting. AP 10 said,

We need to encompass forensic accounting within the umbrella of accounting. Forensic accounting is an extension of auditing and requires a broad knowledge of several subject areas. The future of forensic accounting depends heavily on how we build a new curriculum and how that curriculum is developed. We need to take the lead in developing the right programs to meet marketplace needs. Any change needed has to begin with academia.



## **Forensic Accountants' Interview Responses**

Ten forensic accounting practitioners (nine men and one woman) were interviewed at the time and place that was most convenient for participants. After the interviews, the recorded tapes were transcribed. Participants were coded by profession (forensic accountant FA and a number FA1, FA2, FA3, and so on). Before the Microsoft Word interview transcripts were entered into Atlas ti, words pertaining to the 10 interview questions were coded and entered into the software. The interview data as well as the researcher's notes and observations were then entered into Atlas ti for analysis. Two themes were developed from the interview data and researcher's notes and observations: Training to be a Forensic Accountant, and Most Valuable Skill, Trait, or Knowledge for Forensic Accountants.

**Training to be a forensic accountant.** Of the 10 forensic accountants (FA) interviewed, only two did not have a CPA. Three of the participants had PhDs in business. All participants had accounting backgrounds before they entered forensic accounting. Only one of the participants had a degree in forensic accounting; that participant had received his degree from an American university that offered master's in forensic accounting. The other nine participants reported either having no forensic accounting courses in college/university (2) or at least one forensic accounting course during their accounting studies (8). See Table 9 for specific degrees held by forensic accountants.

Table 10

*Forensic Accountants' Degrees Held*

Participants	Degree
Forensic Accountant 1	B.S./M.S./PhD
Forensic Accountant 2	B.S./M.S./PhD
Forensic Accountant 3	B.S./M.S./CPA
Forensic Accountant 4	B.S./M.S.
Forensic Accountant 5	B.S./M.S./CPA
Forensic Accountant 6	B.S./CPA
Forensic Accountant 7	B.S./M.S./CPA/PhD
Forensic Accountant 8	B.S./M.S.
Forensic Accountant 9	B.S./M.S./CPA
Forensic Accountant 10	B.S./M.S./CPA

Only one participant reported being specifically trained to be a forensic accountant in his college career, and that FA received his degree from an American university. Seven of the participants had been mentored by another FA in their accounting firm, and what they learned was what they learned on the job. As FA7 stated,

I was in a firm where there were two forensic accountants, and the number of jobs that needed some forensic knowledge increased, and I asked if I could work with the FAs on this specific project. Their job was to see if this very rich man was hiding any assets from his wife he was divorcing. The wife seemed to believe that their net worth was more than 14 million, which is what the husband declared. To me this seemed the perfect case for me. I am a very inquisitive person, and I will follow through until I find the evidence. I really learned how to follow a paper trail to get to the truth. We were able to discover that the man had overseas bank accounts to the tune of \$125 million hidden by placing his mother's name on the account. The mother had passed away several years before the divorce, but he had not reported that death and left those bank accounts in his mother's name with the accounts to go to him in the event of her death. The case took over 6 months of

work, but we were able to ensure that the wife got her share of marital assets.  
(FA7)

FA5 also told how he had been mentored into the profession:

About 5 years ago, the director of our firm went to several workshops on FA. He came back energized, talking about the marketplace need for more FAs in light of the growth in fraud in the country—especially computer fraud. He sent one accountant to the United States to take course in forensic accounting, and that guy came back and taught those who were interested. In the last 2 years, several of us have gone to specific forensic workshops on the mainland. Together we have developed a forensics division in our firm, and we have primarily taken on fraud cases where some criminals have used computer technology to scam people out of their assets. We've been working with two of the largest law firms on the Island and for the government. We stay busy, and it is always a task because the criminals are always thinking of more ways to part people from their assets.

Only one participant (FA1) who was in practice by himself reported that he had studied fraud investigation, and he had just by happenstance been given the opportunity to work on a disability fraud case by an insurance agency. The agency was trying to prove that this husband and wife team were not really permanently disabled by a car accident. The couple claimed to have earned 110,000 a year as freelance writers, and they now were too disabled to sit at their desks to write anymore due to nerve damage caused by the accident. The insurance agency thought the couple were lying about their income in order to get more than they really earned.

I was hired as a forensic accountant to check the couple's finances. It was in that exploration that I discovered that this couple had a sizeable trust that had been left to them. I found in fact that they had not earned \$110,000 last year. They had barely earned \$32,000, but they had put in money from the trust fund so that it looked like they had made a large sum of money based on a big job that would last for at least 5 more years, and they were suing the insurance company for one million dollars based on their last year's income.

I learned so much working on that case. It was hard work, but I used my fraud training to help me, and I picked up on an important skill in forensics and that was tenaciousness. I never accepted anything at face value and looked for proof everywhere.

The outcome for the couple—they won't be getting \$110,000 a year.

All participants thought it was time for higher education to recognize the marketplace need for forensic accountants and that these institutions should model the forensic accounting curriculums now being developed in the United States. The FAs interviewed also believed if a person has the right personality and an accounting background, they can learn the skills needed to work as a forensic accountant.

**Most valuable skill, trait, or knowledge for forensic accountants.** Several of the interview questions asked FAs to report on what skill, trait, or knowledge they thought was most important for a forensic accountant to have, and they were then asked what was their strongest trait, skill or knowledge. This group was asked to try and limit their response to one word. Table 10 displays the participants' response to the strongest trait, skill, or knowledge need in forensic accounting. Also in the table is a one-word description of their own strongest trait, skill, or knowledge.

The FA participants also had a hard time limiting their description to one word and there was little consensus the participants for what was the most important trait, skill, or knowledge. FA5, 6 and 1 stated that ethical or moral behavior and integrity were the most needed in forensic accounting while FA2, 7 and 9 thought that a forensic accountant needed to be a learner with a great knowledge background. FA4 and 8 suggested that persistence was the most necessary trait for forensic accountants. The remaining participants chose different terms: communicator (FA3) and skeptic (FA10).

Interesting enough, many FA participants chose the same trait, skill, or knowledge that they had used in the one-word description for all forensic accountants. FA 1, 5, 6, and 7 used the same skill or trait (ethical) in their response to the question of which was their strongest trait, skill, or knowledge as a forensic accountant. Other FAs used a different term. FA1, 3, 5, and 6 all used a term that expressed that the participant was

ethical or had integrity. The other terms suggested were thinker (FA4), curious (FA9), and questioning (FA10). Participants' responses seemed to indicate the need for forensic accountants to have strong ethical and moral behavior and deal with their investigations with integrity. It seemed that being persistent, sticking to the job at hand was very important for a forensic accountant to have (see Table 10).

Table 11

*One-Word Responses From Forensic Accountants on Most Important Trait, Skill or Knowledge*

Participants' <i>N</i>	Trait, skill, or knowledge needed most by forensic accountants	Trait, skill, or knowledge most possessed by forensic accountant participants
1	Ethical	Ethical
2	Learner	Persistent
3	Communicator	Ethical
4	Persistent	Thinker
5	Moral	Moral
6	Integrity	Integrity
7	Inquisitive	Ethical
8	Persistent	Persistent
9	Knowledgeable	Curious
10	Skeptic	Questioning

**Lawyers' Interview Responses**

Of the 10 lawyers (L) who took the survey, only seven decided to participate in the interview. Three of the lawyers cited a very busy schedule as a reason not to participate in the interviews. Seven lawyers did agree to answer 10 questions. The responses were entered into Atlas ti and resulted in one theme: What traits, skills, or knowledge make for a good forensic accountant. The participants selected for the interview had all used the services of a forensic accountant in their law practice. Four had

used an FA during a divorce in order to help disclose any hidden marital assets, and three regularly used a forensic accountant in their criminal law practice.

The lawyers were asked what the most important trait, skill or, knowledge was for a forensic accountant to possess. Six of the lawyers said that a good forensic accountant needed to possess a wide base of knowledge. As L7 stated,

It's been my experience that forensic accountants who are successful have a wide knowledge base. I can call the forensic accountant I use and give him an indication of what he will be doing for me this time. I usually don't have to explain the case to him. I say, "We're going after hidden assets in this business partnership. Our client is convinced his two other partners are hiding money from him." The next week I asked him to help me prove that my client who is charged with stealing money from his neighbor really did not steal the amount he was charged with stealing. The forensic accountant I hired did a great job on both jobs, and he actually saved me a lot of research myself.

L3 felt that a forensic accountant had to hold himself to high ethical standards.

The woman he used to do some forensic accounting work made him aware of the importance of hiring a forensic accountant who couldn't be paid off. Until L3 had a difficult divorce case where the husband was very wealthy, he had not thought about anyone trying to bribe his forensic accountant. As L3 related,

A woman came to me to help her with her divorce. Her husband was divorcing her, and he was claiming he had to file bankruptcy and that essentially there were would be no marital assets to be shared. He had told his wife, he would borrow a million dollars for her, but that was all he was willing to give up in the divorce. My forensic accountant discovered that it was the man's company that was put into bankruptcy, not is personal fortune. He had hidden over a 100 million dollars in cash and assets, mainly from his business which he had bled dry, necessitating the bankruptcy. He sent his secretary to Rosa, the forensic accountant, offering her a job in his business if she would "find" nothing hidden away. She said, "No," and promptly reported the offer to me. He approached Rosa himself a week later and offered to give her \$500,000. She ignored his offer, and again reported him to me.

When we went to court, the wife was able to get one half of those hidden assets, and the husband was charged with trying to bribe a witness. None of that may have been possible if Rosa did not set high standards for herself. That's why I think the most important thing is for forensic accountants to be moral people who operate under ethical guidelines. (L3)

Most of the lawyers said they thought forensic accounting was a subject that a person had to learn through experience. L2 argued that “book learning” did not always create competent forensic accountants. Four participants (L1, 4, 5, and 6) argued that a good forensic accountant was born with the type of personality traits that lent themselves to the arduous task of searching for hidden assets. For example, these lawyers cited that an FA had to be tenacious and persistent in his or her job. When one avenue of questioning closed down, the FA had to take a different path, and he or she had to be willing to continue the investigation until reasonable answers had been found.

Thus, lawyers interviewed felt no urgency for higher education to create a forensic accounting degree. All but one lawyer (L4) thought practical experience was more important than the theory that we taught in higher education. L4 stated that if case-study methodology was used in forensic accounting courses or if a year of internship in forensic accounting was required then those who wanted to be forensic accountants would be better prepared for the job.

All lawyers interviewed expressed strongly that a forensic accountant needed to be a good communicator. An FA who could not communicate his findings clearly in court such that the judge and jury could understand the meaning behind those findings was a useless witness. An excellent communicator has the ability to convey knowledge to various audiences, so that the experts as well as the novices were able to understand the information the forensic accountant was conveying. Neither accounting professor nor forensic accountants had placed the same emphasis on forensic accountants’ communication skills as the lawyers had.

In the next chapter, chapter 5, the findings will be discussed and how these findings fit with previous research on the topic. This discussion will be followed by some recommendations, and will close with conclusions



## Chapter 5: Implications, Recommendations, and Conclusions

### Implications

The purpose of this qualitative, multiple case study was to identify the traits, skills, and knowledge that accounting faculty, practitioners, and lawyers viewed as necessary for forensic accounting programs in Puerto Rican universities in order to prepare graduates to be able to meet the demands of the contemporary workplace. There were three research questions posed in this study. In this section, each research question will be discussed as it applies to previous research and how the findings fill the gap in the present body of literature. The next two sections deal with practical recommendations and recommendations for further study. The chapter closes with a conclusion by the limitations in the study.

**Findings for Question 1.** Research Question 1 focused on how college instructors, accounting practitioners, and lawyers perceive the need for forensic accounting in Puerto Rico. Accounting professors (8 or 80%) thought there was a real need to develop more forensic accounting courses because of the increase in white collar and computer fraud on the Island. Two of the accounting professors did not want to see a separate program for forensic accounting, but thought that it would be a good idea to increase courses in forensic accounting so that they accounting students who wanted to specialize in forensic accounting or auditing could do so.

The forensic accountants who were interviewed were generally split (6 to 4) over whether a forensic accountant needed college courses to gain the skills needed in forensic accounting. Only one forensic accountant had a degree in forensic accounting from the University of West Florida on the mainland. The other participants all had degrees in accounting and most (8 or 80%) were CPAs. The forensic accountants told about being

successfully mentor by other forensic accountants in their firms and found that thus mentoring provided them with guidance as they developed the necessary skills to do the job as a forensic accountant.

Lawyers were not as concerned about a forensic accountant college training as they were about the personality of the person and that person's ability to communicate his or her findings in an investigation to the judge, the jury, and the people attending the trial. They found the trait of being a good communicator was one of the most significant traits needed.

These findings are supported by previous research that has suggested that the marketplace expects for forensic accountants to have relevant credentials (DiGabriele, 2008). As Davis et al. (2010) argued, the research conducted on the need for more forensic accountants has been mostly quantitative in methodology and have had certain limitations that could be eliminated by adding qualitative studies focused on the need to have more trained forensic accountants in order to help stem the crime of fraud on the Island. The present multiple case study used both quantitative and qualitative methods to answer Research Question 1, and the findings showed that there was some agreement among all three groups that there was an urgent need for forensic accountants.

According to Davis et al., (2010), most forensic accounting practitioners are self-taught or call themselves forensic accountants without having the knowledge of a wide range of subjects, which is required in forensic accounting (Davis et al., 2010). This findings of Davis et al. support what was found in the present study Forensic accountants reported in this study that most of them were either self-taught or mentored by another forensic accountant. The lawyers in this study also reported

that forensic accountants improved in their work performance as more practical experience was gained.

**Findings for Question 2.** Research Question 2 focused on the traits, skills, and knowledge college faculty, accounting practitioners, and lawyers suggest should be incorporated into the program in order to prepare graduates for the contemporary workplace. In the survey questionnaire, there was some limited agreement among the three groups on traits, skills, and knowledge that were necessary for a forensic accountant to possess. The composite scores for the three groups showed that there was agreement at the  $M = 5$  level for ethical behavior, think like the wrongdoer, have knowledge of audit evidence, and functions well under pressure and time constraints. The participants also suggested that being a strategic thinker ( $M = 4.8$ ) was an important trait for forensic accountants to possess.

During the interview process, the participants elaborated on the traits, skills, and knowledge that they felt were most needed in forensic accounting. The words that they used were similar to the words on Davis' (2010) list. For example, ethical behavior was also cited as moral behavior or integrity. Perseverance was interchangeable with tenaciousness. Lawyers as well as one accounting professor suggested that being a good communicator was at the top of the list of skills, traits, and knowledge needed by forensic accountants.

The traits, skills, and knowledge have been studied in previous research by Davis et al. (2010) and DiGabriele (2008). As Davis et al. argued, the market place expects forensic accountants to have certain characteristics, core skills, and relevant credentials. DiGabriele (2008) reported that there is a gap in the literature regarding the significant skill set outcome that should accompany forensic accounting education. Researchers have

been looking to develop a definitive list that can be used to help develop a curriculum for forensic accounting. Moreover, this is the first study to look at accounting professors, forensic accountants, and lawyers' perceptions of the traits, skills, and knowledge needed to train forensic accountants. The traits, skills and knowledge chosen in this study are different from those found in previous research.

DiGabriele (2007, 2008, 2009, 2011) studied the perceptions of accounting professors, forensic practitioners, and users of forensic services over a series of four studies. Unlike the findings in this study, DiGabriele found that the items rated most important by his three groups were critical thinking, deductive analysis, and written communication in 2007. In 2008, DiGabriele extended his study so that he could extend his 2007 study in order to apply his results to the necessary objectives for forensic accounting courses. In his 2008 study, responses from accounting professors and practitioners indicated critical thinking, unstructured problem solving, investigative flexibility, analytical proficiency, and legal knowledge as important skills forensic accountants needed. The users of accounting services agreed with the other two groups only in the area of oral communication, written communication, and composure.

DiGabriele's (2008) findings for the users of accounting services are supported by what lawyers reported in the present study. Lawyers said that the most important skill for a forensic accountant was to be a good communicator so that he or she could clearly explain the findings of any investigation he or she conducted. Good communicator received  $M = 4.3$  on a composite score for the three groups; however, good communicator was not a trait that appeared in the top 10 list of traits, skills, and knowledge from each group. Based on the findings in previous research and the present study, there is still no definitive list of traits, skills, and knowledge that can be used to

develop a curriculum for forensic accounting.

**Findings for Question 3.** Research Question 3 focused on the instructional strategies college faculty and accounting practitioners view forensic accounting programs should incorporate in order to prepare graduates for the contemporary workplace. The findings in this study showed that accounting professors, forensic accountants, and lawyers acknowledged that the increasing crime of fraud on Puerto Rico necessitated a change in the accounting curriculum. At the time of the present study, no university or college offered more than an introductory course in forensic accounting. While most accounting professors supported the development of a separate curriculum for forensics, a little less than half of the accounting professors wanted only to add a few courses in forensics.

Forensic accountants in the study had little college training in forensics except for one participant who had attended an American university. The other participants either learned forensic accounting on the job or they had had a mentor in their firm who guided them through the learning process. Lawyers in the study said that not only should they have training in forensics, but they should also be required to do an internship in forensic.

The findings in this study support previous research which has shown the need to develop a forensic curriculum. Rezaee et al. (2006) surveyed accounting professors and forensic accounting practitioners to determine traits, skills, and knowledge that should be taught in a forensic accounting course. Academics and practitioners disagreed on what the most important core competencies were needed in the delivery of forensic accounting courses. Rezaee et al. found, however, that academics and practitioners did agree on 13 competencies that should be included in any forensic accounting course.

Smith and Crumbley (2009) surveyed 111 faculty members at 4-year institutions

who were identified as accounting professors who teach a course in either fraud or forensic accounting. The participants reported that the following competencies needed to be included in a forensic accounting course:

- (a) fraudulent financial reporting analysis, (b) the psychology of criminology, (c) examination of changes in records, (d) corporate culture reviews, (e) investigating electronic evidence, (f) net worth analysis, (g) damage/loss valuation analysis, (h) litigation consulting, (i) flowcharting internal controls, and (j) applying 2009 Benford's law. (Smith & Crumbley, 2009, p. 180)

The findings from the multiple case study fills the gap in the literature on traits, skills, and knowledge most needed for forensic accountants. The findings from the quantitative data in the present study were expanded by open-ended interview questions. The responses to interview questions helped fill the present gap in the literature

The data from the quantitative part of the study were analyzed and used to supplement the data collected from the participants during their open-ended interviews. The interview data helped fill the present gap in the literature and provided a needed consensus for the skills, knowledge, and traits that the participants have rated as the most important for forensic accountants to have.

### **Limitations**

As is the case in all studies, the present study had several limitations. First, the number of participants was limited. The study's findings may have been clearer if there had been double the number of participants for the survey questionnaire. With only 30 surveys distributed, it was impossible to achieve any statistical significance. The findings for the interviews with the lawyer group was limited as well since only seven of the 10 lawyers agreed to sit for the interview.

Second, the use of singular terms such as ethical, inquisitive, and skepticism on the survey questionnaire needed further defining as some participants stated in the

interviews that they wondered in what respect was skepticism considered a good trait. It might have been clearer to write, “Be skeptical about any document presented for analysis” or “Act ethically in all aspects of your life.”

Third, the findings may be limited by how truthful the participants were. Additionally, the findings may be limited by the knowledge base that the participants have about the skills, knowledge, and traits needed by forensic accountants. It was assumed in the study that all participants had knowledge of forensic accounting and could narrow down the traits, skills, and knowledge most needed by a forensic accountant. Fourth, it may be possible that there are other more descriptive traits, skills, and knowledge areas that are important for forensic accountants to have. Limiting the terms used in the study may have limited the findings. In the interview on traits, skills, and knowledge, the participants often used different terms from the list on the survey questionnaire but offered synonyms for some of those terms.

The limitations in this study may have affected the interpretation of the results in the lawyer group because there were only seven lawyers willing to be interviewed. If the other three had participated, the interpretation of the findings might have been different. Additionally, although saturation was achieved before the interviewing ended, the researcher continued to collect data so as to ensure that the perceptions of the accounting professors, forensic accountants, and lawyers were accurately reflected in the findings.

The final limitation was the list of traits, skills, and knowledge used in the survey questionnaire. The list was adapted from Davis et al.’s list and the core competencies developed in Rezaee et al.’s (2006) study. Because the list of traits, skills, and knowledge is not definitive, it was difficult to match the findings in other studies. A better list needs

to be created and used in future research.

### **Recommendations for Practical Applications**

It is recommended that the core competencies discussed in this study and in previous studies (Rezaee et al., 2006) be used to create a definitive list that can be used in research studies. That list could be used with larger groups of that have an interest in developing curricula for forensic and fraud accounting. Additionally, another recommendation would be to do more qualitative studies like the present one in which participants' perceptions of what core competencies for forensic accounting courses are discussed with participants.

One of the ways that the present study adds to the gap in the literature is by helping to discover that one word descriptions of traits, skills, or knowledge may not be clear to the participant. For example, ethical was selected by all participants as an important core competency for forensic accountants. Some participants in the interview part of the study did not use the word ethical but instead used moral, integrity, honorable, or incorruptibility. All these words can be considered synonyms of the word ethical, but may also be used in different ways. During the interview process in this study, it became clear that there is more than one word that means following accepted rules of behavior. Rather than creating a list of one-word competencies, it is recommended that the one term be followed by a definition; for example, *integrity*, the quality of being fair and honest in all areas of life.



It is also recommended that case study methodology be used in the teaching of forensic accounting. Researchers (Rezaee et al., 2006; Smith & Crumbley, 2009) have suggested that using case study methods in forensic accounting courses helps students understand how to investigate a case, teaching them some necessary skills, such as clear communication of the findings of the investigation. Practicing doing a forensic accounting investigation helps students become familiar with forensic accounting procedures.

### **Recommendations for Future Research**

Since the findings in this study were supported in part by previous research, it is suggested that researchers conduct more qualitative studies with larger group of accounting professors and forensic practitioners. Giving a voice to important stakeholders helps clarify what should be included in a forensic accounting curriculum. Future research should be continued on what skills, knowledge, and traits can be translated into achievable outcomes in a forensic accounting curriculum.

Additionally, a study that included analysis of several curricula for forensic accounting from universities in the States would be beneficial. Those curricula could serve as models for what could be done in Puerto Rico to meet the marketplace need for more forensic accountants. Since Puerto Rico has a much larger problem with all types of fraud than does the mainland, it would be important to deconstruct various forensic accounting curricula used throughout the United States to determine what would best suit marketplace needs on the Island.

Fifth, it has been suggested by previous researchers that future research should continue to examine the objectives that need to be taught in forensic accounting courses. The skills identified in studies like the present one and DiGabriele's (2007,

2008, 2009) studies are important and relevant to learning outcomes in forensic accounting courses and should be supported by continuing research that can be used to narrow the objectives needed for an appropriate forensic accounting curriculum.

Sixth, research should be conducted on how best to implement technology into the forensic accounting curriculum. Researchers (DiGabriele, 2008; Smith & Crumbley, 2009) have noted that the use of a case-study methodology with the use of technology can better simulate the conditions under which a forensic accountant works when investigating a certain case.

### **Conclusions**

The present study like previous studies on whether forensic accounting should be separate degree or just an expansion of the regular accounting curriculum. This study's findings have suggested that much more research needs to be conducted on the traits, skills, and knowledge that are needed by a forensic accountant. The methodology of the present study should be replicated by interviewing more stakeholder and having them articulate the core competencies they see as necessary for forensic accounting.

That interview data then can be reduced to a list of competencies and that list can be used to research with larger groups of stakeholder so that statistical significance can be achieved, giving accounting professionals the core competency needed to develop new curriculum. As more fraud and white collar crime, especially crime aided by technology. Today, forensic accountants are trying to keep up with the proliferation, it is important to train forensic accountants who can help “out think the wrongdoer” and fight the growth of crime on the Island.

## References

- Accounting and finance schools in Puerto Rico*. (2013). Retrieved from <http://www.american-school-search.com/colleges/accounting-finance/puerto-rico>
- Albrecht, W.S., Albrecht, C. S., & Albrecht, C. O. (2006). *Fraud examination* (2nd Ed.). Cleveland, OH: Mason Thomson-South Western.
- Allen, I. E. & Reaman, J., R. (2007). *Online nation: Five years of growth in online learning*. Retrieved from <http://www.sloan-c.org/publications/view/index.asp>.
- American Accounting Association. (1990). *Position statement number one: Objectives of education for accountants*. Retrieved from <https://aaahq.org/AECC/PositionsandIssues/pos1.htm#specacct>
- American Institute of Certified Public Accountants (AICPA). (2012). *Core competency*. New York, NY: Author.
- American Institute of Certified Public Accountants (AICPA). (2014). *Statements on auditing standards*. New York, NY: Author.
- Arens, A. A. & Elder, R. J. (2006). Perspectives on auditing education after Sarbanes-Oxley. *Issues in Accounting Education*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=1182161911&sid=7&Fmt=4&clientId=52110&RQT=309&VName=PQD>
- Arens, A. A., Elder, R.J., & Beasley, M. S. (2008). *Auditing and assurance services: An integrated approach* (12th ed.). Reading, MA: Pearson Addison Wesley.
- Armitage, J. (2008). Changes in the importance of topics in auditing education: 2000-2005. *Managerial Auditing Journal*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=1582844561&sid=1&Fmt=3&clientId=52110&RQT=309&VName=PQD>
- Armitage, J., & Poyzer, J. K. (2010). Academicians and practitioners' views on the importance of the topical content in the first auditing course. *American Journal of Business Education*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=1963670141&sid=3&Fmt=4&clientId=52110&RQT=309&VName=PQD>
- Arokiasamy, L., & Cristal-Lee. S. (2009). Forensic accounting: Public acceptance towards occurrence of fraud detection. *International Journal of Business and Management*. 145-160. <http://dx.doi.org/10.5539/ijbm.v4n11p145>

- Association of Certified Fraud Examiners (AICPA; 2014). *Forensic accountant*. Retrieved from <http://www.acfe.com/career-path-forensic-accountant.aspx>
- Baker, S. E., & Edwards, R. (2012). *How many qualitative interviews is enough*. Discussion Paper. NCRM. (Unpublished)
- Baxter, P. & McMaster, S. J. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report* 13, 544-559. Retrieved from <http://www.nova.edu/ssss/QR/QR13-4/baxter.pdf>
- Bayes, P.E., Berg, G. G., & Morgan R. G. (1993). Fraudulent financial reporting: Education's response to a national problem. *Journal of Education for Business*. Retrieved from <Http://Proxy1.Ncu.Edu/Login?Url=Http://Search.Ebscohost.Com/Login.Asp?Direct=True&Db=Buh&AN=9309130028&Site=Ehost-Live>
- Bloom, R. (2002). Accounting education: Charting the course through a perilous future. *The Journal of Government Financial Management*, 51(1), 58-59.
- Booth, P., Luckett, P., & Mladenovic, R. (1999). The quality of learning in accounting education: The impact of approaches to learning on academic performance. *Accounting Education: An International Journal*, 8, 277-300. doi:10.1080/096392899330801
- Bowen, G. A. (2008). Naturalistic inquiry and the saturation concept: A research note. *Qualitative Research*, 8(1), 137-152
- Boyce, G., Williams, S., Kelly, A., & Yee, H. (2001). Fostering deep and elaborative learning and generic (soft) skill development: The strategic use of case studies in accounting education. *Accounting Education: An International Journal*, 10(1), 37-60. doi:10.1080/09639280121889
- Brent L. & Harvey, T. (2005, August). 10 ways to make training active. *Training Journal*, 48.
- Brickner, D. R. & Etter E. R.. (2008). Strategies for promoting active learning in a principles of accounting course. *Academy of Education Leadership Journal*, 12(2), 87- 93.
- Buckoff, T. A., & Schrader, R. A. (2000). The teaching of forensic accounting in the United States. *Journal of Forensic Accounting*, 1, 135–146.
- Carnes, K. C., & Gierlasinski, R. J. (2001). Forensic accounting skills: will supply finally catch up to demand? *Managerial auditing journal*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=268155271&sid=2&Fmt=3&clientId=52110&RQT=309&V>

Name=PQD

- Coglitore, F. J., & Matson, D. M. (2007). the use of computer assisted auditing techniques in the audit course: Further evidence. *Journal of Forensic Accounting*, 8, 201-226.
- Coto, D. (2013, August 21). *Massive social security fraud case in Puerto Rico*. Retrieved from [http://www.huffingtonpost.com/2013/08/21/social-security-fraud-puerto-rico\\_n\\_3791910.html](http://www.huffingtonpost.com/2013/08/21/social-security-fraud-puerto-rico_n_3791910.html)
- Crumbley, D. L., Heitger, L. E., & Smith, G. S. (2009). *Forensic and investigative accounting*. Chicago, IL: Commerce Clearing House.
- Curtis, G. E. (2008a). Legal and regulatory environments and ethics: Essential components of a fraud and forensic accounting curriculum. *Issues in Accounting Education*.
- Curtis, G. E. (2008b). The model curriculum in fraud and forensic Accounting and economic crime programs at Utica College. *Issues in Accounting Education*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=1613190671&sid=3&Fmt=4&clientId=52110&RQT=309&VName=PQD>
- Davis, C., Farrell, R, M & Ogilby, S. (2010). *Characteristics and skills of the forensic accountant*. Retrieved from <http://www.aicpa.org/interestareas/forensicandvaluation/resources/practaidsguidance/downloadabledocuments/forensicaccountingresearchwhitepaper.pdf>
- DiGabriele, James A. (2007). Fishbowl the forensic accountant: Are there differences in the views of the relevant skills of a forensic accountant among practitioners, academics and users of forensic accounting services? <http://dx.doi.org/10.2139/ssrn.1522488>
- DiGabriele, J. A. (2008). An empirical investigation of the relevant skills of forensic accountants. *Journal of Education for Business*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=1543163271&sid=6&Fmt=3&clientId=52110&RQT=309&VName=PQD>
- DiGabriele, J. A. (2009). Fishbowl the forensic accountant: A closer look at the skills forensic accounting education should emphasize. *Forensic Examiner*.
- DiGabriele, J. A. (2011). Revisiting the integration of forensic accounting and the auditing paradigm. *The Forensic Examiner*, 20 (2), 70-73. Retrieved from <http://www.forensicexaminer.com/>

- Dixon, P. D. (2005). An overview of computer forensics. *IEEE Potentials*, 24(5), 710-714.
- Drnevich, D. & Stuebs, M. (2013). Cultural differences and judgment in financial reporting standards. *Journal of Accounting Education*, 31, 461–482.  
<http://dx.doi.org/10.1016/j.jaccedu.2013.09.009>
- Durkin, R., & Ueltzen, M. (2009, July/August). The evolution of the CFF credential. *The Practicing CPA*,
- Dutta, R. K. (2013, September 6). Rap for agencies on Ponzi scheme. *Times of India*.
- Eining, M. M., Jones, D. R., & Loebbecke, J. K. (1997). Reliance on decision aids: An examination of auditors' assessment of management fraud. *Auditing: A Journal of Theory and Practice*, 16(2), 12-21.
- Edelman, D., & Nicholson, A. (2007). Arthur Anderson auditors and Enron: What happened to their Texas CPA licenses? *Journal of Finance and Accountancy*. Retrieved from  
<http://www.aabri.com/manuscripts/11899.pdf>
- Ekeigwe, C. (2011, May). *Fraud risk management*, Paper present at the Institute of Chartered Accountants, Nairobi.
- Enofe, A. O., Okpako, P. O., & Atube, E. N. (2013). The Impact of Forensic Accounting on Fraud Detection. *European Journal of Business and Management*, 5(26), 61-72.
- Fleming, A. S., Pearson, T. A., & Riley R. A. (2008). West Virginia University: Forensic accounting and fraud investigation (FAFI). *Issues in Accounting Education*.
- Fletcher, L. B., Higgins, L. N., Mooney, J. L., & Buckhoff, T. A. (2008). Our school's campaign for distinction in forensic accounting, *Southern Business Review*.
- Fogarty, T. J., & Parker, L. M. (2010). Reconsidering specialization in the accounting profession: A model for constructive recognition. *Journal of Theoretical Accounting Research*, 5(2), 1-36.
- Golden, T. W., Clayton, M. M., & Skalak, S. L. (2010). *A guide to forensic accounting investigation*. San Francisco, CA: Wiley.
- Gravetter, F.J. and Forzano, L.B. (2012). *Research methods for the behavioral sciences*. Belmont, CA: Wadsworth-Cengage Learning.
- Graya, R., Bebbingtona, J., & McPhaila, K. (1994). Teaching ethics in accounting and the

ethics of accounting teaching: educating for immorality and a possible case for social and environmental accounting education. *Accounting Education: An International Journal*, 3(1), 51-75. doi:10.1080/09639289400000005

Grippio, F. J., & Ibex, T. (2003). Introduction to forensic accounting. *National Public Accountant*, 4, 4-8.

Grove, H., & Cook, T. (2004). Lessons for auditors: Quantitative and qualitative red flags. *Journal of Forensic Accounting*, 5, 131-146.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59-82.

Guion, L. A., Diehl D. D., & McDonald, D. (2011). Triangulation: Establishing the validity of qualitative studies. Retrieved from <http://edis.ifas.ufl.edu/fy394>

Healy, M., & McCutcheon, M. (2008). Engagement with active learning: Reflections on the experience. *The Irish Accounting Review*, 15(1), 31-49.

Heitger, L. E., & Heitger, D. L. (2008). Forensic accounting and litigation advisory services into the classroom. *Issues in Accounting Education*.

Hopwood, W. S., Leiner, J. J., & Young, G. R. (2008). *Forensic accounting* (1st ed.). Boston, MA: McGraw-Hill Irwin.

Houck, M. M., Kranacher, M. J., Morris, B., & Riley R. A. (2006). Forensic accounting and investigative tool. *The CPA Journal*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=1096659011&sid=6&Fmt=4&clientId=52110&RQT=309&VName=PQD>

Huang, H., & Lau, S. (2004). Guiding distance educators in building web-based instructions. *International Journal of Instructional Media*, 31(2), 125-134.

Huber, W. D. (2012). Is forensic accounting in the United States becoming a profession? *Journal of Forensic & Investigative Accounting*, 4, 256-284

Interamerican University of Puerto Rico. (2009). General catalog, 2009 [Data file.] Retrieved from [http://www.inter.edu/oferta\\_academica/catalogos/2009-2011/GeneralCatalog2009-2011.pdf](http://www.inter.edu/oferta_academica/catalogos/2009-2011/GeneralCatalog2009-2011.pdf)

Ivanovic, J. (2011). *A short history of accounting and accountancy*. Retrieved from <http://www.australianscience.com.au/mathematics/a-short-history-of-accounting-and-accountancy/>

Johnson, E. N., Baird, J., Caster, P., & Dilla W. N. (2003). Challenges to audit

education for the 21<sup>st</sup> century: A survey of curricula, course content, and delivery methods. *Issues in Accounting Education*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=456310581&Fmt=4&clientId=52110&RQT=309&VName=PQD>

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed method research: A research paradigm whose time has come. *Educational Researcher*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=738091191&Fmt=4&clientId=52110&RQT=309&VName=PQD>

Kahan, S. (2006). Sherlock Holmes enters accounting: Dramatic increase in fraud brings more CPA sleuths into the industry. *Accounting Today*, 20(8), 32-43.

Knowles, M. (1950) *Informal adult education*, Chicago, IL: Association Press.

Knowles, M., Holton, E. F., & Swanson, R. A. (2005). *The adult learner: The definitive classic in adult education and human resource development* (6th ed.). Burlington, MA: Elsevier.

Kolb, D.A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.

Kolb, A. & Kolb, D. A. (2005) The Kolb Learning Style Inventory – version 3.1 2005 technical specifications. Retrieved from <http://www.learningfromexperience.com>

Kranacher, M. J., Morris, B. W., Pearson, T. A., & Riley R. A. (2008). A model curriculum for education in fraud and forensic accounting. *Issues in Accounting Education*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=1613190711&sid=7&Fmt=4&clientId=52110&RQT=309&VName=PQD>

Kranacher, M. J. & Stern L. (2004). Enhancing fraud detection through education. *The CPA Journal*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=738260111&Fmt=4&clientId=52110&RQT=309&VName=PQD>

Krause, K. (2014, August 12). Four individuals charged with trafficking identities of Puerto Rican U.S. citizens. Retrieved from <http://www.dallasnews.com/news/crime/headlines/20140309-man-used-stolen-puerto-rican-identities-to-earn-millions-in-tax-refund-scheme.ece>

Kresse, W. J. (2008). The Saint Xavier University graduate program in financial fraud examination and management.

Lane, C. (2013). Bad medicine: GlaxoSmithKline's fraud and gross negligence.



*Psychology Today*. Retrieved from <http://www.psychologytoday.com/blog/side-effects/201101/bad-medicine-glaxosmithklines-fraud-and-gross-negligence>

- Larson, L. L. (2006). Fraud prevention education in the accounting curriculum. *Strategic Finance*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=1179832841&sid=7&Fmt=4&clientId=52110&RQT=309&VName=PQD>
- Mahony, E. H. (2015, February 10). Thieves use stolen Puerto Rico identities to collect millions in phony tax refunds. *Hartford Courant*. Retrieved from <http://www.courant.com/news/connecticut/hc-irs-fraud-0211-20150210-story.html>
- Marshall, B., Cardon, P., Poddar, A., & Fontenot, R. (2013). Does sample size matter in qualitative research?: A review of qualitative interviews in is research. Retrieved from <http://iacis.org/jcis/articles/JCIS54-2.pdf>
- Mason, M. (2010). Sample size and saturation in PhD studies using qualitative studies. *Forum: Qualitative Social Research*, 11(3), 11-12. Retrieved from <http://www.qualitative-research.net/index.php/fqs/article/view/1428/3027>
- McCarthy, M. (2010). Experiential learning theory: From theory to practice. *Journal of Business & Economics Research*, 8(5), 131-139. Retrieved from <http://journals.cluteonline.com/index.php/JBER/article/viewFile/725/710>
- McGaw, Renee. (2006, August). Forensic accounting gaining in numbers. *Denver Business Journal*.
- McIntosh, K. A. (2014). Important qualities of a forensic accountant. *Demand Media*. Retrieved from <http://work.chron.com/important-qualities-forensic-accountant-13591.html>
- McMullen, D. A., & Sanchez, M. H. (2010). A preliminary investigation of the necessary skills, education requirements and training requirements for forensic accountants. *Journal of Forensic & Investigative Accounting* 2(2), 1-29.
- Melancon, B. C. (2002). A new accounting culture. *Journal of Accountancy*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=205772121&Fmt=4&clientId=52110&RQT=309&VName=PQD>
- Merriam, S. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.
- National Institute of Justice. (2005). *Education and training in fraud and forensic*

*accounting: A guide for the educated institutions, stakeholder organizations, faculty and students.*(NCJRS Publication No. NIJ 21-7589). Washington, DC: Government Printing Office.

- Onwuegbuzie, A. J., & Leech, N. L. (2010). Generalization practices in qualitative research: A mixedmethods case study, *Quality and Quantity*, 44, 881–892.
- O'Reilly, M., & Parker, N. (in press) “Unsatisfactory saturation”: A critical exploration of the notion of saturated sample sizes in qualitative research. *Qualitative Research* (in press).
- Owojori, A. A., & Asaolu, T. O. (2009). The role of forensic accounting in solving the vexed problem of corporate world. *European Journal of Scientific Research*, 29(2), 183-187.
- Paletta, D. (2013, August 21). Disability fraud probe leads to arrests in Puerto Rico. *Wall Street Journal*.
- Patil, A. S. (2011). Forensic accounting: A new concept of investigation. *Golden Research Thoughts*, 1(6), 1-3.
- Pavalko, R. M. (1988). *Sociology of occupations and professions* (2nd ed.). Itasca, IL: F.E. Peacock.
- Pearson, T. A., & Singleton, T. W. (2008) Fraud and forensic accounting in the digital environment. *Issues in Accounting Education*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=1613190681&sid=7&Fmt=4&clientId=52110&RQT=309&VName=PQD>
- Pei, L., Byrnes, P., & Pinsker, R. (2012). Forensic analytics: Methods and techniques for forensic accounting investigations. *Journal of Information Systems*, 26, 207-209. doi:10.2308/isys-10247
- Peterson, B. K. (2003). Fraud education for accounting students. *Journal of Education for Business*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=410349121&sid=3&Fmt=3&clientId=52110&RQT=309&VName=PQD>
- Peterson, B. K. (2004). Education as a new approach to fighting financial crime in the USA. *Journal of Financial Crime*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=576744671&Fmt=4&clientId=52110&RQT=309&VName=PQD>
- Peterson, O. K. (2015). Forensic accounting and fraud: A review of literature and policy implications. *International Journal of Accounting and Economics Studies*, 3(1), 63-68. doi: 10.14419/ijaes.v3i1.4541

- Peterson, B., & Reider, B. (2001). An examination of forensic accounting courses: Content and learning activities. *Journal of Forensic Accounting*, 2, 25-29.
- Pope, K., & Ong, B. (2007). Strategies for forming an effective forensic accounting team, *The CPA Journal*, 76, 12-15
- Puerto Rico Birth Certificates Law 191 of 2009 (As Amended) fact sheet.* (2010). Retrieved from <http://www.prfaa.com/docs/prfaafactsheetfaq.pdf?AspxAutoDetectCookieSupport=1>
- Ramamoorti, S. (2008). The psychology and sociology of fraud: Integrating the behavioral sciences component into fraud and forensic accounting curricula. *Issues in Accounting Education*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=1613190661&sid=6&Fmt=4&clientId=52110&RQT=309&VName=PQD>
- Ramaswamy, V. (2005). Corporate governance and the forensic accountant. *The CPA Journal*, 75, 69-70.
- Ramaswamy, V. (2007). New frontiers: Training forensic accountants within the accounting program. *Journal of College Teaching & Learning*, 4(9), 1-5.
- Regan, G., & Ebersbacher, B. (2008, September). Behind closed doors: The new certified in financial forensics credential. *California CPA Magazine*.
- Rezaee, Z., & Burton, E. J. (1997). Forensic accounting education: Insights from academicians and certified fraud examiner. *Managerial Auditing Journal*.
- Rezaee, Z., Crumbely, L. D., & Elmore, R. C. (2006). Forensic accounting education: A survey of academicians and practitioners. *Advances in Accounting Education*.
- Rezaee, Z., Lander, G. H., & Gavin T. A. (1992). Forensic accounting in the curriculum. *Managerial Auditing Journal*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=104777&sid=2&Fmt=3&clientId=52110&RQT=309&VName=PQD>
- Rieker, M. (2010). Puerto Rico Banks in search of buyers. *Dow Jones & Company, Financial Information Services*. Retrieved from <http://search.proquest.com/docview/195489228>
- Savage, A., Strand, C. S. & Lancaster, K. A. S. (2008). Using a movie to study the COSO internal control framework: An instructional case. *Journal of Information Systems*, 22(1), 63-76.
- Seda, M., & Peterson, B. K. (2008). The emergence of forensic accounting in higher education. *Management Accounting*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=1622307231&sid=1>

&Fmt=3&clientId=52110&RQT=309&VName=PQD

- Singh, A. K., & Sakshi, V. (2014). Unethical financial reporting: An empirical analysis of causes and consequences. *MUDRA: Journal of Finance and Accounting*, 1 (1), 1-30. Retrieved from <http://ssrn.com/abstract=2426734>
- Singleton, T. W. (2011). Understanding and applying Benford's Law. *ISACA Journal*, 3, 1-4. Retrieved from <http://www.isaca.org/Journal/Past-Issues/2011/Volume-3/Documents/jpdf11v3-understanding-and-applying.pdf>
- Singleton, T. W., & Singleton, A. J. (2006). *Fraud auditing and forensic accounting* (3rd ed.). New York, NY: John Wiley
- Smith, G., & Crumbley, D. (2009). How divergent are pedagogical views toward the fraud/forensic accounting curriculum? *Global Perspectives on Accounting Education*, 6, 1-24.
- Social Security Disability Insurance fraud conspiracy in Puerto Rico*. (2013). Washington, DC: Office of the Inspector General, Social Security Administration.
- Stanbury, J., & Paley-Menzies, C. (2010). Forensic futurama: Why forensic accounting is evolving. Retrieved from <http://www.aicpa.org/Publications/Newsletters/AICPACPAInsider/2010/jun28/Pages/ForensicFuturamaWhyForensicAccountingIsEvolving.aspx>.
- Webb, L. (2006, March). Learning by doing. *Training Journal*, 36.
- West Virginia University. (2007, March). Education and training in fraud and forensic accounting: A guide for educational institutions, stakeholder organizations, faculty, and students. Retrieved from <https://www.ncjrs.gov/pdffiles1/nij/grants/217589.pdf>
- Wilkin, C. L., & Collier, A. C. (2009). A problem-based approach to accounting education: A pragmatic appraisal of a technologically enabled solution/ *International Journal of Education and Development using Information and Communication Technology*, 5(2), 40-67.
- Williams, J. W. (2002). Playing the corporate shell game: The forensic accounting and investigation industry, law, and the management of organizational appearances. Doctoral Dissertation, Toronto: York University. Dissertation Abstracts International.
- Woolf, N. (2012). *A little structure in your codes will make your research a lot easier*. Retrieved from [http://downloads.atlasti.com/library/Woolf\\_2007-03\\_12.pdf](http://downloads.atlasti.com/library/Woolf_2007-03_12.pdf)

- Xu, Y., & Wang, K. J. (2008). Whither the public accounting as a profession: Historical lessons of auditor independence in the U.S. *Journal of Academy of Business and Economics*, 8(4), 127-136
- Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Thousand Oaks, CA: Sage.
- Yin, R. K. (2012). *Applications of case study research*. Thousand Oaks, CA: Sage.
- Young, G. R. (2008). *Forensic accounting and FAU: An executive graduate program. Issues in accounting education*. Retrieved from <http://proquest.umi.com.proxy1.ncu.edu/pqdweb?did=1613190741&sid=7&Fmt=4&clientId=52110&RQT=309&VName=PQD>

## Appendix A: Informed Consent Form—English and Spanish Versions

Examining the Growing Need for Training Forensic Accountants in Puerto Rico:

A Case Study

David Martinez

Northcentral University

You are invited to participate in a dissertation research study on forensic accounting and how there is a growing need to train more forensic accountants, especially on the island of Puerto Rico. This dissertation study is being conducted to meet the requirements of a Ph.D. at Northcentral University. The study is focus on describing the general knowledge and traits needed to do well as a forensic accountant. You were selected because you are an Accounting Professor, a Forensic Accountant Practitioner, or a Lawyer who has taught accounting courses in college or has used forensic accounting in his or her practice.

You will be asked to do two things: First you will be asked to take a survey posted on SurveyMonkey in which you rate the importance of a forensic accountant having certain traits, skills, and knowledge by circling the appropriate number, where 1 = *least important* and 5 = *most important* in each of the three categories. It is estimated that it will take 15 minutes for you to fill out the questionnaire. Second, you will be asked to sit for some open-ended interview questions with the researcher at a time that is convenient for you. The interview is estimated to last for 45 minutes.

The following people are involved in this research project and may be contacted at any time: David Martinez and Cristie McClendon.

Although there are no known risks in this study, some of the questions might be personally sensitive. However, you may stop the study at any time. You can also choose not to answer any question that you feel uncomfortable answering.

There are no direct benefits to you for participating in this research. No incentives are offered. The results will have educational interest that may eventually be used for developing professional development.

The data collected in this study are confidential. Your name or personal information is not linked to the data. Only the researcher and his mentor in this study will see the data.

You have the right to withdraw from the study at any time without penalty. You can skip any questions on the questionnaire if you do not want to answer them.

If you have questions about your rights as a research participant, any complaints about your participation in the research study, or any problems that occurred in the study, please contact the researchers identified in the consent form. Or if you prefer to talk to someone outside the study team, you can contact Northcentral University's Institutional Review Board at [irb@ncu.edu](mailto:irb@ncu.edu) or 1-888-327-2877 ex 8014.

We would be happy to answer any questions that may arise about the study. Please direct your questions or comments to: David Martinez at [dmartinez31@aol.com](mailto:dmartinez31@aol.com) or 787-215-6608 or Cristie McClendon at [cmmclendon@ncu.edu](mailto:cmmclendon@ncu.edu). Dr. McClendon may also be reached at 972-567-4295.

## Signatures

I have read the above description for *Examining the Growing Need for Training Forensic Accountants in Puerto Rico: A Case Study*. I understand what the study is about and what is being asked of me. My signature indicates that I agree to participate in the study.

Participant's Name: \_\_\_\_\_

Participant's Signature: \_\_\_\_\_

Researcher's Name: \_\_\_\_\_

Researcher's Signature: \_\_\_\_\_

Date: \_\_\_\_\_



## Apéndice A: Hoja de Consentimiento Informado

Examinando la Necesidad Creciente de Adiestrar Contadores Forenses en Puerto Rico:

Un Caso de Estudio

David Martinez

Northcentral University

Se le está invitando a participar en este estudio de investigación de contabilidad forense y por cual hay una necesidad creciente de adiestrar más contadores forenses, especialmente en la isla de Puerto Rico. El estudio se enfoca en describir el conocimiento general y las características que se necesitan para ser un contador forense. Usted fue seleccionado porque es un Profesor de Contabilidad, Un Contador Forense Practicante, o un Abogado que ha ofrecido cursos de contabilidad en la universidad o un Abogado/Abogada que ha utilizado contabilidad forense en su práctica.

A usted se le va a solicitar dos cosas: A usted se le va a solicitar tomar una encuesta donde usted va a clasificar la importancia de que un contador forense tenga ciertas características, destrezas, y conocimiento al circular el numero apropiado, donde 1— menos importante y 5—más importante en cada una de las tres categorías Se estima que va a tomar unos 15 minutos para usted completar la encuesta. Segundo, a usted se le va a pedir que se sienta para una entrevista de algunas preguntas abiertas con el investigador a una hora que sea conveniente para usted. La entrevista se estima que dure unos 45

minutos.

Las siguientes personas están involucradas en este proyecto de investigación y se pueden contactar en cualquier momento: David Martinez y Cristie McClendon.

Por lo tanto no hay riesgos conocidos en este estudio, algunas de las preguntas pueden ser sensitivas personalmente. Sin embargo, usted puede detener el estudio en cualquier momento. Usted puede también escoger no contestar cualquier pregunta que usted sienta que le incomode contestarla.

No hay beneficios directos para usted al participar en esta investigación. No se ofrecerán incentivos. Los resultados van a tener un interés educacional que eventualmente se usara para crear desarrollo profesional.

La data recopilada en este estudio es confidencial. Su nombre o información personal no se entrelazara con la data. Solamente los investigadores en el estudio verán la data.

Usted tiene derecho a retirarse del estudio en cualquier momento sin penalidad. Usted puede saltar cualquier pregunta en el cuestionario, si usted no desea contestarla.

Si usted tiene preguntas sobre su derecho como participante de la investigación, o alguna queja sobre su participación en este estudio de investigación o cualquier problema que ocurrió en el estudio, favor de contactar a los investigadores identificados en la hoja de consentimiento. O si usted prefiere hablar con alguien fuera del equipo de estudio, usted

puede contactar la Junta de Revisión Institucional de Northcentral University a [irb@ncu.edu](mailto:irb@ncu.edu) o 1-888-327-2877 extensión 8014.

Estamos en la mejor disposición de contestar cualquier pregunta que pueda surgir sobre este estudio. Favor de dirigir sus preguntas o comentarios a: David Martinez en [dmartinez31@aol.com](mailto:dmartinez31@aol.com) o 787-215-6608 o Cristie McClendon, [cmmclendon@ncu.edu](mailto:cmmclendon@ncu.edu).

### **Firmas**

Yo he leído la siguiente descripción de Examinar la Necesidad Creciente para Adiestrar Contadores Forenses en Puerto Rico: Un Caso de Estudio. Yo entiendo de qué se trata el estudio y lo que se me está pidiendo. Mi firma indica que estoy de acuerdo a participar en el estudio.

Nombre del Participante: \_\_\_\_\_

Firma del Participante: \_\_\_\_\_

Nombre del Investigador: \_\_\_\_\_

Firma del Investigador: \_\_\_\_\_

Fecha: \_\_\_\_\_

## Appendix B: Site Permissions to Survey Professors

Universidad de  
Puerto Rico  
en Utuado

**From: Departamento de Administración de Empresas**

**Universidad De Puerto Rico Utuado**



Prof. David Martínez Figueroa  
Catedrático Auxiliar de Contabilidad  
Departamento de Administración de Empresas  
Universidad Interamericana  
Recinto de Bayamón

Dear professor Martínez,

I received your letter date August 8, 2014, in which you request authorization and collaboration for your research project, which is a requisite for the doctoral degree you are aspiring.

Therefore, I authorize that you can realize the corresponding research project for your doctoral dissertation titled *Examining the growing need for training forensic accountants in Puerto Rico: A case study*.

I have designated Dr. Luis A. Tapia Maldonado, Interim Director of Business Administration Department and Office Systems, to attend your request, it's necessary that you get in contact with doctor Tapia at his email address [luis.tapia@upr.edu](mailto:luis.tapia@upr.edu) to schedule a meeting.

I wish you success in your research,

Sincerely,

Raquel G. Vargas Gómez, Ph.D.  
Rectora

/md

c Director Depto ADEM/SOFI

Oficina de  
Rectoría

PO Box 2500  
Utuado, Puerto Rico  
00641-2500  
Tel: 787.894.2828  
Ext. 2200, 2201, 2282  
Dir.: 787.894.6050  
[rectoria.utuado@upr.edu](mailto:rectoria.utuado@upr.edu)  
[www.uprutuado.edu](http://www.uprutuado.edu)

Patrono con Igualdad de Oportunidades en el Empleo M/M/V/I

13 de agosto de 2014

Prof. David Martínez Figueroa  
Catedrático Auxiliar de Contabilidad  
Departamento de Administración de Empresas  
Universidad Interamericana  
Recinto de Bayamón



Estimado profesor Martínez:

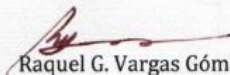
Recibí su carta del 8 de agosto de 2014, en el cual nos solicita la autorización y colaboración para su proyecto de investigación, requisito del grado doctoral al que aspira.

Por lo tanto, autorizo que pueda realizar la investigación correspondiente a su disertación doctoral titulada *Examining the growing need for training forensic accountants in Puerto Rico: A case study*.

He designado al Dr. Luis A. Tapia Maldonado, Director Interino del Departamento de Administración de Empresas y Sistemas de Oficina, para atender su solicitud. Es necesario que se comunique con el doctor Tapia a su correo electrónico [luis.tapia@upr.edu](mailto:luis.tapia@upr.edu) para concertar una cita.

Le deseo éxito en su investigación.

Atentamente,

  
Raquel G. Vargas Gómez, Ph.D.  
Rectora

/md

c Director Depto. ADEM/SOFI

Oficina de  
Rectoría

PO Box 2500  
Utuado, Puerto Rico  
00641-2500  
Tel: 787.894.2828  
Ext. 2200, 2201, 2282  
Dir: 787.894.6050  
[rectoria.utuado@upr.edu](mailto:rectoria.utuado@upr.edu)  
[www.upr.utuado.edu](http://www.upr.utuado.edu)

**From: Department of UPR Ponce**  
Oficina de Rectoría

Apartado 7186  
Ponce, PR 00732  
Teléfono 844-8181, Ext. 2201, 2202, 2203

August 14, 2014

David Martinez Figueroa  
Doctoral Program Student  
Northcentral University, Arizona

Dear student:

We had received your communication in which you request authorization to conduct a research that is titled "Examining the growing need for training forensic accountants in Puerto Rico: A case study". According to the information provided the study will be realized with the professors of the Business Administration Department of UPR Ponce. Your request had been given an initial approval.

The final approval will be subject to the sign of the Research Authorization Contract, before proceeding to realize the study in our Institution.

Cordially,



Leonardo Morales Tomassini, Ph.D.  
Chancellor

yqc



11 de agosto de 2014

Est. David Martínez Figueroa  
Estudiante Programa Doctoral  
Northcentral University, Arizona

Estimado estudiante:

Hemos recibido su comunicación, en la que solicita autorización para realizar una investigación que tiene por título "Examining the growing need for training forensic accountants in Puerto Rico: A case study". Según la información provista, realizará el estudio con los profesores del Departamento de Administración de Empresas de la UPR Ponce. A dicha solicitud, se le ha dado visto bueno.

No obstante, luego de que obtenga la autorización del IRB, deberá tramitar con nosotros la Autorización para Estudio, el cual debe ser firmado por el estudiante y este servidor antes de proceder a realizar el estudio en nuestra Institución, así como debe someter otros documentos relacionados a su investigación.

Saludos cordiales,



Leonardo Morales Tomassini, Ph.D.  
Rector

CAM/yqc



**Appendix C: Permission From Puerto Rico Society of CPAs**



August 18, 2014

**Northcentral Univerity**

**Arizona, USA**

To whom it may concern:

This letter serves to confirm that the Puerto Rico Society of CPAs (Colegio de Contadores Públicos Autorizados de Puerto Rico (CCPA) has authorized Mr. David Martínez Figueroa to process a survey within the members of our Society as part of his doctoral studies. Mr. Martínez will provide an address or link in which our members can access the survey. The CCPA will distribute this link to the members of the Society so that those interested can answer the survey.

Should you have any questions regarding the above, please contact Mrs. Carmencita Román at (787) 622-0950.

Cordially,

  
CPA Edna I. Jiménez  
Executive Director CCPA



COLEGIO DE CONTADORES PÚBLICOS AUTORIZADOS DE PR  
CAPITAL CENTER I, STE. 1401, 239 AVE. ARTERIAL HOSTOS, SAN JUAN, PR 00918-1400  
TEL: 787-754-1950 / 787-622-0900 • FAX: 787 753-0212  
HTTP://WWW.COLEGIOPCA.COM



## Appendix D: Permission to Use Skills Questionnaire

**From:** Zabihollah Rezaee (zrezaee) <[zrezaee@memphis.edu](mailto:zrezaee@memphis.edu)>

**Sent:** Thursday, June 28, 2012 4:24 PM

**To:** DAVID MARTINEZ FIGUEROA

**Subject:** RE: Permission to use Forensic Accounting Questionnaire

Dear David,

I hope all is well and it is always good to hear from you. Congratulations for passing the comprehensive exam. You have my permission to use our questionnaire for your dissertation. Please give my regards to your brother.

All the best,

Zabi

**Appendix E: Questionnaire for Accounting Professors, Forensic  
Accountants, and Lawyers**

**Please indicate the importance of a forensic accountant having these traits,  
skills, and knowledge by circling the appropriate number where 1 = *least*  
*important* and 5 = *most important* in each of the three categories.**

	<b>Traits</b>	Least Important				Most Important
a.	Makes people feel at ease	1	2	3	4	5
b.	Confident	1	2	3	4	5
c.	Function well under pressure and time constraints	1	2	3	4	5
d.	Skepticism	1	2	3	4	5
e.	Intuitive	1	2	3	4	5
f.	Persistent	1	2	3	4	5
g.	Inquisitive	1	2	3	4	5
h.	Ethical	1	2	3	4	5
i.	Detail-oriented	1	2	3	4	5
j.	Evaluative	1	2	3	4	5
	<b>Skills</b>					
k.	Effective in oral communication	1	2	3	4	5
l.	Strategic thinker	1	2	3	4	5
m.	Research skills	1	2	3	4	5
n.	See the big picture	1	2	3	4	5
o.	Understand the goals of a case	1	2	3	4	5
p.	Think like the wrongdoer	1	2	3	4	5
q.	Synthesize results of discovery and analysis	1	2	3	4	5

r.	Effective in written communications	1	2	3	4	5
s.	Possess auditing skills	1	2	3	4	5
t.	Investigative abilities	1	2	3	4	5
	<b>Knowledge</b>					
u.	General knowledge of rules of evidence and civil procedure	1	2	3	4	5
v.	Knowledge of law enforcement	1	2	3	4	5
w.	Knowledge of electronic discovery	1	2	3	4	5
x.	Knowledge of interpreting financial evidence	1	2	3	4	5
y.	Knowledge of specialized technical skills	1	2	3	4	5
z.	Knowledge of audit evidence	1	2	3	4	5
aa.	Knowledge of relevant professional Standards	1	2	3	4	5
bb.	Knowledge of interviewing skills	1	2	3	4	5
cc.	Knowledge of fraud detection	1	2	3	4	5
dd.	Possesses a wide area of general knowledge outside accounting	1	2	3	4	5

## Appendix F: Interview Questions for Accounting Professors

1. What courses do you feel should be offered in the future to better meet the needs of forensic accounting better?
2. Can you describe the most important **personality traits and characteristics** you believe a forensic accountant should possess?
3. Can you describe the most important **skills** that you believe a forensic accountant should possess?
4. What enhanced knowledge do you believe a forensic accountant should possess in order to meet the specific requirements of this job role?
5. Do you think forensic accounting should be a separate curriculum in your department?
6. What reasons would you give for advocating a separate forensic accounting program in your discipline?
7. What **knowledge, skills and traits** do you feel should be taught to prepare an accounting student for a forensic accounting position?
8. What are the best methods to use in teaching an introductory course in forensic accounting?
9. Can you describe how you feel forensic accounting courses or skills could be taught in the online environment?
10. Can you describe some ways in which you have used case studies or have seen them used to effectively teach forensic accounting skills and knowledge?
11. Other than case studies, **what instructional methods** would you recommend be used to teach forensic accounting skills, and knowledge in a realistic and relevant manner?
12. Why or why not is it necessary for all accounting students to have at least one forensic

accounting course?

13. What type of computer skills does a forensic accountant need?
14. Is it possible for a student who passes his or her CPA exam to do the investigative work of a forensic accountant or is more specialized knowledge needed? If yes, why? If no, what additional skills are needed.
15. Why is there a growing need for forensic accountants on Puerto Rico?
16. What do you think is the reason for the need for more forensic accountants in Puerto Rico?

## Appendix G: Interview Questions for Accounting Practitioners

- 1.How and by whom were you trained in forensic accounting?
- 2.What specific courses did you take in college or beyond that prepared you for the work of a forensic accountant?
- 3.What courses do you think colleges and universities should offer in forensic accounting to meet the needs of the field?
- 4.What special skills do forensic accountants need in order to perform their jobs?.
- 5.Please describe two cases that you worked on before, emphasizing what additional forensic accounting skills you used?
- 6.What skills do you as a forensic accountant bring to the job that a CPA might not possess?
- 7.What personal trait do you think is important for a forensic accountant to have?
- 8.Do you think “forensic accounting skills, knowledge, and traits” are best learned in an educational setting or on the job?
- 9.Please describe your own characteristics that help you be successful in the job?
10. What other areas of knowledge besides accounting do forensic accountants need to perform their job?

## Appendix H: Interview Questions for Lawyers

1. When do you seek the services of forensic accountants in your practice?
2. Thinking of forensic accountants you have used before, what were the character traits or traits you found to be most important for the job?
3. Why is there a growing need for forensic accountants on Puerto Rico?
4. What do you think is the reason for the need for more forensic accountants?
5. Can you tell me about two times when the use of a forensic accountant helped you win your case?
6. What skills do you think are most important for a forensic accountant to possess?
7. What special knowledge areas do you think a forensic accountants need to have to be effective in the job?
8. In what specialized knowledge areas have you needed the help of a forensic accountant before?
9. Do you think forensic accounting should be considered a profession outside of accounting?
10. Is there an ideal type of personality needed in forensic accounting?

## Appendix I: Permission to Use Figure 3



American Institute of CPAs

### PERMISSION TO RE-USE AGREEMENT

<b>Applicant:</b> David Martinez Figueroa Urb. Monte Casino #430 Calle Caoba Toa Alta, Puerto Rico 00953-3731 787-215-6608 <a href="mailto:dmartinezf@bayamon.inter.edu">dmartinezf@bayamon.inter.edu</a> <a href="mailto:dmartinez31@aol.com">dmartinez31@aol.com</a>	<b>Date:</b> 17 June 2014 <b>Reference:</b> 201406-0019
---	--

Thank you for your request for permission to incorporate AICPA intellectual property. Please read carefully the conditions contained herein, and if you agree to our terms, return a signed copy to the AICPA contact below.

A countersigned copy will be returned to you with an invoice for the permission fee (if applicable). (If you are meeting an urgent deadline and cannot wait for the countersigned form, you may proceed to publish as soon as you return the signed form to the AICPA.)

Permission is granted for non-exclusive rights (print and electronic) in the English language regarding the following described copyrighted material:

<b>Publication(s):</b>	<i>Characteristic and Skills of the Forensic Accountant</i> , Figure 3. Essential Traits and Characteristics
<b>Authorized Use:</b>	Inclusion in Dissertation "Examining the growing need for training forensic accountants in Puerto Rico: A case study" Northcentral University in Arizona
<b>Form of Credit:</b>	©2013, American Institute for CPAs. Used by permission.
<b>Fee for Permission:</b>	\$0.00

The undersigned Applicant agrees:

1. To include all copyright notices within the publication(s) and the form of credit specified above for excerpts.
2. To pay upon receipt of invoice the fee set (if applicable), if any, with clear indication of serial or book title from which permission was granted. **REMITTANCE MUST BE ACCOMPANIED BY INVOICE TO ASSURE PROPER CREDIT.**
3. That all right and title to the publication(s) resides with AICPA except for the limited permission granted here. That the permission granted herein is nonexclusive and nontransferable, and shall be for one-time use only as specified.
4. That this permission shall terminate without notice, all rights herein granted reverting automatically to the AICPA in the event payment is not made and copyright and acknowledgment notices are not printed as specified herein.

**SIGNATURE OF APPLICANT:**

By: \_\_\_\_\_

Date: 6/17/2014

**AICPA PERMISSION GRANTED ON THE ABOVE TERMS:**

By: \_\_\_\_\_  
 Mary Walter, Senior Manager, Licensing, Rights and Information Services

Date: 17 June 2014

Please return signed copy to: Mary Walter, Email: [mwalter@aicpa.org](mailto:mwalter@aicpa.org), Phone: 919.402.4835; Fax: 919.419.5244  
 220 Leigh Farm Road, Durham, NC 27707-8110



## Appendix J: Confidentiality Agreement Transcription Services

I. **Suzanne Manness**, transcriptionist and/or translator individually and on behalf of \_\_\_\_\_

Manness Editorial, do hereby agree to maintain full confidentiality in regards to any and all audiotapes, videotapes, and oral or written documentation received from **David Martinez**, (Researcher) related to his Northcentral University research study titled, *Examining the Growing Need for Training Forensic Accountants in Puerto Rico: A Case Study*. Furthermore, I agree:

1. To hold in strictest confidence the identification of any individual that may be inadvertently revealed during the transcription of audio-taped or live oral interviews, or in any associated documents;
2. To not disclose any information received for profit, gain, or otherwise;
3. To not make copies of any audiotapes, videotapes, or computerized files of the transcribed interview texts, unless specifically requested to do so by **David Martinez**.
4. To store all study-related audiotapes, videotapes and materials in a safe, secure location as long as they are in my possession;
5. To return all audiotapes, videotapes and study-related documents to **David Martinez** in a complete and timely manner.
6. To delete all electronic files containing study-related documents from my computer hard drive and any backup devices.

7. Please provide the following contact information for the researcher and the transcriber and/or translator:

For Transcriber/Translator:

Address: 115

Emily

Street

\_\_\_\_\_

For Researcher:

Address: Urb. Monte Casino #430 calle caoba

Philadelphia, PA 19148

Toa Alta, Puerto Rico 00953-3731

Telephone: (484) 326-8636

I am aware that I can be held legally liable for any breach of this confidentiality agreement, and for any harm incurred by individuals if I disclose identifiable information contained in the audiotapes, videotapes and/or paper files to which I will have access. I am further aware that if any breach of confidentiality occurs, I will be fully subject to the laws of the Puerto Rico.

Transcriber/ Translator's name Suzanne Manness

Transcriber/Translator's signature *Suzanne Manness*

Transcriber/Translator's Name of Business and Title Manness Editorial

Date: September 27, 2014

## VITA

Education: University of Puerto Rico Bayamon, Campus  
Bachelors of Business Administration, major in accounting  
1994

University of Phoenix, Guaynabo, Campus  
Masters of Business Administration, major in accounting  
2003

Northcentral University, Prescott, AZ  
Doctor of Philosophy in Business Administration major in financial management  
2006- Present

### Professional

Experience: 2003-2008- Inter American University of Puerto Rico Metropolitan, Campus,  
Adjunct professor of accounting

2004-2008- Ana G. Mendez University System, Adjunct professor of accounting

2008-2015- Inter American University of Puerto Rico Bayamon, Campus,  
Assistant professor of accounting