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Electronic Financial Crimes: The Required Skills, Education and Qualifications for Forensic Accountants to Predict and Prevent

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Abstract: The main objective of this study is to explore the essential requirements that are required for accountants to perform their duties as forensic accountants (FAs) from the perspectives of two key stakeholders (professional accountants and lawyers) —including the main skills, level of education, area of specialisation and forensic accounting credentials that FAs should possess to practice forensic accounting services effectively and efficiently. A semi-structured interviews were conducted to the target population who are the user of forensic services. The NVivo software was used to assist the raw data in a systematic method process. The findings identified the master's degree as the appropriate level of education for FAs. The results also indicated the importance of numerous skills that accountants should possess such as communication skills, presentation skills, simplify accounting information, analytical skills and objectivity.

Keywords: Forensic Accounting, Skills, Education, Forensic Accounting Requirements

1 Introduction

The business sector has seen fast transformation over the past 20 years, and this has had a significant effect on forensic accounting. The importance of forensic accounting education has been highlighted by financial scandals involving large corporations (such as Enron, WorldCom, HIH Insurance, and OneTel), organizations' willingness to engage in litigation, the complexity of commercial and financial transactions, an increase in corporate fraud, money laundering crimes, and many other factors [1,2,3,4]. Recently, the demand for qualified candidates and jobs requiring both technical and soft skills has increased due to the growth of investments around the world, new technologies, and the globalization of organizations [5,6,7,8,9,10,11,12].

Consequently, many universities and colleges are currently considering adding forensic accounting courses to their curriculum [13,14]. Determining appropriate forensic accounting skills and identifying key requirements for a forensic accounting profession will aid both academic and professional bodies to integrate these skills into their accounting curriculum [15]. This will help accounting students of tertiary institutions and professional bodies gain appropriate forensic accounting skills and techniques [16].

The objective of this study is to explore the essential requirements that are required for accountants to perform their duties as forensic accountants (FAs) from the perspectives of two key stakeholders (professional accountants and lawyers) including level of education, area of specialisation, forensic accounting credentials, the career pathway of forensic accountants and computer-based forensic techniques. Additionally, the study investigates the main skills that FAs should possess to practice forensic accounting services effectively and efficiently. Furthermore, the research examines how to acquire and improve the forensic accounting skills.

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The findings also showed that the participants agreed on the significance of a number of qualities that accountants should have, including objectivity, communication, presenting, and presentation skills. The respondents disagreed on the significance of other talents, however, such as management, family law expertise, criminology knowledge, confidence, a creative mindset, and public interest. The participants also emphasized the significance of novel skills, such as attention to detail, computer skills, critical thinking, and valuation skills that had not been previously covered by pertinent studies.

2 Literature Review

2.1 *The Education of Forensic Accounting Disciplines*

Forensic accounting differs from other professional disciplines; it is a broad field that integrates accounting, auditing, investigation, law, psychology and other skills [17]. While the demand for forensic accounting services has grown in the past two decades and will continue to do so [18]. In return, this will be reflected in the increased demand for formal education in this profession [19]. Consequently, accounting courses offered by universities, professional accounting bodies and other educational institutions should be regularly revised and modified to include fraud and forensic accounting subjects [20,21]. In addition, the curriculum should be developed to meet the requirements of this broad profession [1].

Several studies have been conducted to discuss the need for forensic accounting education, how to introduce forensic accounting into the curricula and how to build the knowledge and skills required for entry-level competency [18,19]. Rezaee et al. (2004) found in their study that both respondents (academics and practitioners) in the US promoted the inclusion of forensic accounting topics in the accounting curriculum [22]. In 2007, West Virginia University, with the support of the US Department of Justice, established the Technical Working Group (TWG) on education in fraud and forensic accounting to develop curriculum guidelines in fraud and forensic accounting (National Institute of Justice 2007). The TWG comprised 46 members representing diverse stakeholders, such as academics specialising in fraud and forensic accounting, professional accounting bodies, law enforcement, regulators and other government agencies. The curriculum guidelines intend to identify fraud and forensic accounting curriculum choices for educational institutions, stakeholder organisations, faculty and other curriculum providers. The guide also aims to evaluate courses, identify the topic coverage and add multiple courses that allow prospective students to build their knowledge and skills in fraud and forensic accounting.

Seda and Kramer (2008) conducted a survey of 1,000 academics randomly selected from US universities and found that only 7 per cent of respondents were offered a forensic accounting program, 34 per cent provide a discrete course in forensic accounting or fraud examination, 34 per cent declared that forensic accounting is integrated throughout traditional accounting and auditing courses and 25 per cent indicated that there are currently no forensic accounting courses provided [23]. The authors demonstrated that future demand for fraud and forensic accounting education will increase. However, there is no consensus on how to formally offer forensic accounting in the accounting curriculum.

Italia (2012) suggested that educating FAs should include various disciplines, together with accounting, specifically auditing and corporate finance, computer forensics, ethics, law and criminology [24]. The author added that forensic accounting courses are best suited to a postgraduate level, with some work experience in the field and specific skills that an undergraduate student enrolled in a commerce degree majoring in accounting will have instilled. In the business area, the students will obtain a sound knowledge of economics, statistics, ethics and the legal and taxation systems in which the business operates. However, accounting students will acquire the essential skills in management, financial reporting, finance and auditing. The author also recommended that there should be at least four major units that specialised in forensic accounting at the master's level—one unit in forensic accounting, another unit in the study of fraud and criminology, the third unit in litigation support and a unit in forensic information technology. The forensic accounting unit will extend the study of auditing and corporate finance by focusing on the role of internal and external auditors and the role of forensic accounting in fraud investigations. The corporate finance section will concentrate on valuations [24].

2.2 *Forensic Accounting Education in Other World Countries*

There are a limited number of forensic accounting education programs in the rest of the world. In Australia, there was a dearth of forensic accounting education until 2012. According to [21], there were only three universities offering a specialised degree in forensic accounting: The University of Wollongong, Monash University and the University of Melbourne. Recently, a new study reviewed the websites of Australian universities that offer courses and programs in forensic accounting. The results showed that nineteen stand-alone courses of forensic accounting offered by thirteen universities. The results also indicated that four universities deliver twenty-four courses through five programs [1]. The increase in the number of courses and programs offered reflects the growing demand for forensic accounting and an increased awareness of its importance in solving financial disputes and fraud detection.

In the UK, only two universities provide forensic accounting programs at the undergraduate level and five universities at the postgraduate level [17]. Canada has only one official graduate program in forensic accounting education, the Diploma in Investigative and Forensic Accounting and some guidelines and instructions issued by The Canadian Institute of Chartered Accountants (CICA) [16,25]. In developing countries, most educational institutions consider forensic accounting as part of auditing and some education providers include it within auditing courses [26]. In India, there is no official body that offers formal forensic and fraud education, while ACFE provides a diploma in forensic accounting education based on the US version and law [15]. In South Africa, eight universities offer forensic and investigative accounting programs at the undergraduate and postgraduate level [27].

The review of forensic accounting literature in China demonstrated that despite the fact that China has the fastest emerging growth market in the world, it still has a shortage in the field of forensic accounting education and practice [22, 28,29]. The literature also indicated a lack of social awareness of this profession, as well as a lack of transparency and quality of financial information and reporting [30]. In addition, the literature demonstrated the necessity to reform the law and regulations on forensic accounting, such as the Evidence Act and the Investment and Property Act [31]. Rezaee et al. (2014) investigated the education and practice of forensic accounting in China. The results revealed that forensic accounting practice in its current position does not meet the needs of litigation support services to preserve the rights, investments and interests of stakeholders. The findings also indicated that the demand and interest in forensic accounting education will increase and that it is essential to integrate forensic accounting topics in accounting curriculums that can be provided at both undergraduate and graduate levels [22]. The literature showed that nineteen universities in China and three universities in Hong Kong were providing forensic accounting courses and that this trend will continue to increase [13,19,32].

The demand for forensic accounting education will continue to rise, the major topics proposed in forensic accounting curricula are inconsistent, and it is unclear what will be included in forensic accounting curricula in the future. These are the most significant points covered previously in the literature on forensic accounting education. There is also a lack of adequate coverage in the fields of litigation consulting and expert witnesses, and universities and colleges must include forensic accounting instruction into their curricula. The literature also included other relevant subjects including how and when to offer forensic accounting courses as well as what academic fields can help students advance their forensic accounting knowledge and abilities. Since the United States is the top country for forensic accounting education, the previous part covered forensic accounting education there as well as the curriculum, courses, and programs provided by its colleges and institutes. In addition to Australia, the literature discussed forensic accounting education in many other nations from other continents (for example, Canada, China, India, South Africa, and the UK).

In order to perform their duties effectively and efficiently, FAs must meet a number of requirements, including level of education, area of specialization, forensic accounting credentials, career path for forensic accountants, and computer-based forensic techniques. As a result, this research adds to the body of literature by identifying these requirements. Through semi-structured interviews, the research will examine how relevant stakeholders in Australia perceive professional accountants and lawyers. It will take into account how the two groups see the qualifications that FAs need to have. Academic institutions and educational providers who want to include forensic accounting themes in the accounting curricula can benefit from identifying the requisite competencies for FAs [33]. There aren't many studies that look at whether university programs fulfill the knowledge and skills that the forensic accounting profession requires, according to [21]. Given the dearth of research on forensic accounting school curricula and the abilities needed for FAs, this study aims to advance the discipline and fill the gap [33,34].

3 Methodology

3.1 Semi-Structured Interview

This study adopted a qualitative research method in the form of a semi-structured interview technique to collect the primary data for the study. This technique allows the researcher to collect in-depth data about forensic accounting by investigating the perceptions of several professional accountants and lawyers regarding the education of forensic accounting and the necessary skills that FAs should possess, as well as the essential requirements for the profession of forensic accounting [35]. The snowball sampling technique was used to determine the potential participants. As shown in the table 1, the researchers have spread the sample into three levels of participants based on the firm's size of large, medium and small.

Hence, the spread of participants for each group based on the size of the firms is to reduce the influence of uncontrolled factors, to maximise the variation between the samples and to ensure that a broad range of views were captured [36]. In this study, the researcher received referrals from professional accountants and lawyers who were involved in forensic and litigation services. The referral was also based on the respondents' qualifications, experience and position.

Table 1: Participants of Two Stakeholder Groups Based on the Firm's Size

Occupation	Size of Firm			Participants Total
	Large Firms	Medium Firms	Small Firms	
Professional Accountants	2	4	4	10
Lawyers	1	2	4	7
Total	3	6	8	17

3.2 The Initial Contact

The potential participants from the two groups (professional accountants and lawyers) were invited by email randomly to participate in a 20-minute semi-structured interview. The researcher received 13 responses. Then, these 13 respondents were contacted to arrange the interview time. However, only nine interviews were conducted successfully from this initial contact. Therefore, the snowball sampling technique was used to obtain a referral from the nine respondents. As a result, eight additional interviews were successfully completed. The total number of interviews that were recorded and fully transcribed, as illustrated in Table 1, were 17 comprised ten professional accountants and seven lawyers.

For the purposes of this study, an inductive analysis has been used to identify themes from the data collected from semi-structured interviews. This approach enables the researcher to determine key themes by reducing the data to a set of themes and concepts. Accordingly, each transcript has been read carefully to understand the meaning of each sentence and paragraph, make notes and headings in the text and identify keywords, then coded these keywords using the qualitative analysis software (NVivo 11 Pro) to allow thematic analysis. The common themes related to research questions (e.g. skills, specialised knowledge, experience, education, and CPA or CFE credentials for FAs) were coded and grouped into tree nodes through NVivo to reduce the number of categories by combining similar headings into broader categories and to verify the frequency, linkage and relatedness between these themes. The results of these analyses contributed to answering the research questions (RQ1 and RQ2) which will be discussed in detail in the findings section. This was done by classifying and organising the data collected from the interviews by linking related concepts, themes and ideas. The interviews concentrated on some key themes that are derived from the research questions.

RQ1: What are the main requirements for accountants to perform their duties as FAs?

RQ2: What skills should accountants possess to practice forensic accounting services effectively and efficiently?

4 Data Analysis

The NVivo 11 pro software was used to assist in coding the raw data in a systematic method process. As discussed in the previous section, after carefully reading the transcripts and inserting keywords, notes and comments in the text, the transcripts were imported into NVivo in order to prepare a thematic analysis. Then, the documents were created in the document browser, where these documents were grouped into sets based on the demographic data of participants. The demographic variables included the current occupation of respondents, the level of education, specialisation and years of experience. Accordingly, the transcripts of lawyers were distributed in separate groups from the professional accountants, and each group was classified according to the level of education and years of experience. This has enhanced the analysis process, data organisation and concept management processes of specific themes, thus gaining a better understanding of the perception of each group regarding the key requirements and main skills required for FAs to provide forensic accounting services.

Using the Node Explorer feature in NVivo, nodes (codes or concepts) were created based on the keywords, notes and comments made on the transcripts of interviews. The coding of data was guided by themes associated with the questions of the study. The researcher developed and assigned attributes to the nodes by linking them with the related major themes and concepts such as the skills, specialised knowledge, experience, education, and CPA or CFE credentials for FAs. The domain tree nodes were selectively coded and connected to the related nodes for each idea or topic to help the researcher organise, categorise and build ideas around the data. All key skills that are required for FAs that were addressed in the interviews were coded and linked to relevant skills using NVivo. For example, communication skills were connected with two other related skills: 'oral skills' and 'writing skills'. This technique was used for all skills, ideas and other topics that were covered in the interviews. NVivo also assisted in the analysis process by performing frequency analysis to record the number of times the major concepts or their synonyms were indicated.

5 Findings and Discussion

5.1 Minimum Requirements for Accountants to Perform Forensic Accounting Services

The findings of the interviews' analysis showed that there was a difference in views among the respondents regarding the minimum requirements for accountants to perform forensic accounting services. First, there was a group of participants who rejected the idea that there should be minimum requirements or code of entry to be a forensic accountant. They asserted that if the person has any qualifications in accounting, then he or she is already an expert. Further, they added that there are no specific requirements that could be comprised of all aspects of expertise in accounting. For example, one interviewee commented:

The problem is that you never be able adequately to set any entry standard level properly to address the requirements for these kinds of professions. (Professional Accountant)

Second, many interviewees argued that it is difficult for educational institutions to train or qualify people in a specific area of technical expertise. They suggested that the individual should have a degree in accounting first and then he or she could obtain training courses in the field of expertise that he or she is interested in or acquire accreditation's in some technical areas such as business valuation, financial analysis and fraud investigations.

Third, other respondents stressed that there must be minimum requirements for FAs intending to provide forensic and litigation services. Some of them suggested that the basic requirements should be a bachelor's degree in accounting or business, with a major in accounting, in addition to a professional accreditation such as CPA or CA, with work experience of at least five years in related fields such as auditing, due diligence, taxation and valuations. Moreover, a few participants recommended that the person who desires to practice forensic accounting services must obtain a master's degree in accounting or a course in forensic accounting. As one of the interviewees expressed:

The minimum requirements that I think you need to be at least qualified accountant, either CA or CPA, you have to have bachelor's degree and then postgraduate study and then training in your area of expertise. Like, if you are in personal injury and you involved in many cases in this area, this will build up your experience. (Professional Accountant)

Finally, some participants indicated that FAs should obtain some qualifications in law in which he or she can gain good knowledge in family law, civil and criminal law, the rule of evidence and other legal procedures. Accordingly, the conclusions drawn from interviews regarding the minimum requirements for FAs to perform their duties effectively and efficiently will be presented and discussed in next section.

5.2 The Main Skills that Accountants Should Possess to Practice Forensic Accounting Services

The NVivo software was used to assist in coding the raw data in a systematic method process. This was guided by themes associated with the questions of the study. Top-level domain tree nodes were selectively coded, which was done by carefully reading the transcripts of interviews and connecting each sentence/paragraph to their meaning with the main associated nodes and assigning the keywords and their synonyms with the related idea or topic. Figure 1 shows the most frequent words and phrases that were used in the interviews.

From the Figure, it can be observed that 'communication skills' is the most frequent word, and that the main node contains two sub-contracts, 'oral skills' and 'writing skills' of these three keywords, the researcher found many synonyms that discuss the same concept or view, such as 'communicate', 'verbal', 'speaking', 'presentation', 'write', 'communicative' and related expressions like 'presenting the report' and 'express your opinion'. This affirms the importance of communication skills for forensic accounting.

Using NVivo software, frequency analysis was conducted to record the number of times each skill, its synonyms and related words was indicated as an important attribute for FAs across all the interviewees. Table 2 provides an overview of skills that participants from both groups (professional accountants and lawyers) ranked as most important.

The results from frequency analysis showed that communication skills (including oral and written skills), presentation skills, simplifying accounting information, analysing skills and objectivity are the top five competencies that have been selected by respondents. The following are observations made from themes contained within interview responses about the most five important skills required for forensic accountants.



Fig. 1: Frequently Occurring Words in Interviews

5.3 Communication skills

Many respondents considered communication skills as a critical competence for accountants who intending to provide forensic accounting services. The table above illustrates that the term 'communication skills' is the most frequently repeated, with 37 direct repetitions, 12 repetitions of 'writing skills' and 11 repetitions of 'oral skills', which are also part of communication skills. The respondents asserted that, to be successful in this profession, one should have the ability to communicate clearly in writing and orally and to exchange information to lay people. This was emphasised by most respondents, as one interviewee stated:

They should communicate well in reasonable form and in a simple, non-technical way so somebody who is not an accountant can understand. (Professional Accountant)

Other respondents deem that communication skills are a problem that can affect the performance of an FA and that few people are able to communicate clearly. This is consistent with other results in previous studies that found that accounting expert witnesses were having trouble expressing their findings when testifying before the court [37,38,39].

Table 2: Frequency Analysis of Most Important Skills from Respondents' Perceptions

Name	References	Name	References
Communication skills	37	Basic accounting skills	4
- Oral skills	11	Confidence	4
- Written skills	12	Valuation skills	4
Presentation skills	12	Problem solving skills	3
Simplify information	12	Understanding the legal system	3
Analysis skills	11	Analysing financial information	2
Objectivity	9	Credibility of expert witnesses	2
Independent	8	Personal skills	2
Attention to details	7	Balance	1
Court procedures	6	Confidentiality	1
Computer skills	5	Investigation skills	1
Critical thinking	5	Management skills	1
Auditing skills	4	Time management skills	1

Professional accountants believe that this problem is facing the new graduates, as one interviewee said:

The problem with the ability to communicate is that very few people have those skills, the graduates come from universities, for example, have very poor communication skills, I am not talking about commercial level, I am talking about the high level of communication. (Professional Accountant)

Conversely, some respondents revealed that poor communication skills are not limited to new graduates; they believe that even among experienced professionals there are some people who do not know how to communicate clearly, as one of the respondents expressed by saying:

I think it is absolutely a communication issue personally even with experienced writers, the problem is that I receive reports for example from people they are doing it for 20 or 30 years and I am struggling to understand what they are talking about, so there are very few who communicate clearly. (Professional Accountant)

Participants stressed the importance of both types of communication skills: written and oral. They emphasised that FAs should have strong writing skills, since their main role is to write reports to the court and to express their opinion in writing on the disputes that they are retained for. Respondents concurrently expressed the significance of verbal communication skills. They stressed its importance in many respects. In court, they emphasised that accountants need oral skills to present their opinions and discuss the findings of their reports. They also highlighted the need for this skill to deal with clients and to interview employees and investigate matters:

Oral communication skills are also important in two contexts: First, in the courtroom, they can present and discuss their report to the court clearly and debate their findings with other parties' lawyers. Second, the expert needs to have good oral communication skills when they are dealing with clients to understand what the situation is and what the case is about and how to assist. (Lawyer)

Another key point was raised in that experts should simplify accounting and financial information in their reports so that the non-professional person can understand it. This issue has been stated by the study of [37]. They found that judges are concerned about the capacity of FAs to provide understandable expert evidence in courts of law. This was emphasized by most respondents, as one interviewee stated:

Communication skills, how to express your opinion in writing and verbally, how to write your report in the proper way and how to simplify the accounting and financial data to lay people who are not experts in accounting such as judges, juries, other parties and lawyers. (Professional Accountant)

The importance of communication skills for FAs who provide expert witness services are in line with existing literature [40,41,42,43]. The study of Tan and Laswad (2018) indicated that effective written and spoken communication skills were ranked among the most desirable skills by employers in accounting employment advertisements in Australia and New Zealand [44]. The issue of communication skills has also been highlighted by [45], with respect to accounting graduates, particularly those from non-English speaking backgrounds who failed to achieve employment as professional accountants. This prompted the professional accounting bodies CPA Australia and CA ANZ to include communication skills as part of the training of accountants. Therefore, communication skills, both written and oral, will be added to the required skills for FAs.

5.4 Presentation skills

Many interviewees emphasised the significance of presentation skills for FAs who intend to perform expert witnessing services before courts. They stated that experts should have strong presentation skills to present and discuss their work and to convince judges, juries and other parties of their opinion and the bases that have been used to adopt this opinion. Some stressed the necessity for forensic expertise to simplify the accounting and financial data contained in the report to the non-technical audience. Many participants do not distinguish between presentation skills and communication skills; they consider both skills as the same.

An additional point that has been highlighted in the interviews is that FAs should take training courses to develop these skills. Some participants emphasised that the universities should include these skills within the forensic accounting courses. Nevertheless, other interviewees deemed that these skills could be improved by work experience. They also referred to the need for FAs to familiarise themselves with the court procedures and how to use the court facilities and other techniques to present their evidence clearly.

5.5 Simplify Accounting Information

The third-ranked skill was simplifying the accounting information, as many participants raised the importance of this competency, especially lawyers who were more concerned about this issue. As one of the respondents expressed this issue by saying:

He (forensic accountant) should express his evidence clearly and in a simple way that non-accountants can understand it. (Lawyer)

They stated that the role of forensic accountants as expert witnesses is to facilitate and clarify the complex and unclear points in the dispute case for judges and juries. Therefore, the interviewees asserted that expert evidence should be simple, clear and easy to understand so that judges could rely on it when deciding about financial matters. One interviewee raised this point with this expression:

Expert witness should provide his opinion evidence in a simple and easy way so ordinary people who are not expert in accounting can understand it, otherwise the judges and juries probably will ignore that evidence. (Professional Accountant)

Consequently, large number of interviewees asserted that FAs should write their reports in a proper and easy way and simplify the accounting and financial data so that other parties who are not professional accountants can understand it—such as judges, juries and lawyers. A respondent also raised this point by saying:

Their reports (FAs) are sometimes unclear or the information they provide is difficult to understand. (Lawyer)

Accordingly, FAs who intend to perform expert witnessing and litigation support services must master their reporting skills by simplifying accounting information and explaining accounting data and figures in a way that ordinary people can easily understand, as many respondents emphasised the importance of this skill in the profession of forensic accounting.

5.6 Analytical skills

The next competency that attained significance was analytical skills, as number of interviewees emphasised the importance of this skill for FAs. The respondents indicated that any case requiring an accounting expert will need to analyse a large amount of data, review a lot of documents and trace many transactions to find any sign of error, fault or fraud and to express these issues in his or her report.

Additionally, few participants asserted valuation skills as part of analytical skills and deemed calculation, evaluation and other ratios as stages or steps within analytical skills. Others considered analysing financial statements to be among the analytical skills that should be acquired by FAs. One respondent describes analytical skills as follows:

Forensic accounting experts are required to gather information from different sources and to analyse a large amount of financial data and trace many transactions, so you need to have a strong analytical capability to deal with commercial disputes before the court; you need to make calculations, evaluations and other ratios to draw your findings. (Professional Accountant)

The importance of analytical skills is consistent with several studies, such as [17,41,46]. This demonstrates that analytical skills are essential for FAs who intend to provide expert witnesses and litigation support services.

5.7 Objectivity

Many participants referred to the importance of objectivity for FAs who are providing expert witnessing services before courts. They asserted that experts are appointed to assist the court to understand the complex accounting or financial issues in the case and to make the appropriate decision, so they must provide unbiased evidence when they express their opinion, or they express the point of view on behalf of their clients. Otherwise, the expert's reputation will be quickly destroyed if he or she is found by the court to not be independent. One interviewee explained the objectivity in brief by saying:

The evidence should be unbiased to any party and the expert should be objective, as he retains to assist the court, not the party that hires him. (Lawyer)

Moreover, some respondents stressed that any lack of objectivity will affect the admissibility of expert evidence; if the judge is concerned about the objectivity of the expert's evidence and feels that there is a bias in the report, then the evidence will be inadmissible. In addition, the respondents stated that the expert should disclose any relationship with the clients and that this will not affect the objectivity of his report. They also emphasised that even if the expert is not independent, his opinion must be independent and his evidence should be based on facts, as one of the participants commented:

You have to be impartial as attitude, you don't have to be independent, but you have to be impartial under the law. In all my reports, I have to declare for any relationship with my clients, as a lot of my clients are insurance companies and I worked with them in the past, so I declared that in my reports. So, there is no any bias or lack of objectivity. (Professional Accountant)

This confirms the significance of objectivity for FAs who provide expert witnessing and litigation services, as it is highly critical for the admissibility of expert testimony.

5.8 Other Skills

The results also revealed that additional skills have been introduced by participants not highlighted in previous studies among the most important skills, such as attention to details, computer skills, critical thinking and valuation skills. It has been reiterated in the comments of several participants, such as in relation to 'attention to details' skills—seven interviewees indicated this is a desirable skill for FAs. One of the participants described the importance of attention to details to forensic accountants as follows:

They must know all the details of their assignment, know exactly the scope of their job that they retained for, get access to all documents and data that are required for the matter; be open minded and ask questions about anything that is not clear in the case. (Lawyer)

Some interviewees asserted the importance of computer skills for FAs. The respondents indicated that FAs use various accounting and forensic programs to investigate and search data, accounting records and other financial activities. The interviewees illustrated that computer skills are used in two ways: in analysis and data mining to prepare evidence, and in presenting the findings to the court through graphs, charts, diagrams, tables and other technological tools that facilitate understanding of expert evidence.

5.9 How to Acquire Forensic Accounting Skills

Most respondents agreed that the best way to acquire skills is through practical experience. They stressed that FAs could develop and enhance their skills from the work experience in auditing, taxation and professional services firms. The respondents added that fundamental skills can be acquired through university education before they enter the field of forensic accounting. Most respondents assumed that FAs should have an undergraduate degree in business with a major in accounting.

However, other interviewees suggested that FAs must take a special course or a master's degree in forensic accounting and that this course should include subjects in corporate finance, auditing, law, fraud and criminology and other specialised forensic subjects, such as investigation skills, communication skills, litigation support and forensic information technology. One interviewee concluded that by saying:

I think from the qualifications aspects, forensic accountant should have recognised qualifications as an entry point and in my opinion, that should include some undergraduate degree of commerce, accounting or finance, and a postgraduate course like a master in finance or commerce, after that work experience with a team of people when you work as part of a team you will acquire a good experience and skills. (Professional Accountant)

A common view among the interviewees was that continuing courses and training would improve the skills required for the work of FAs, as well as help obtain credentials and certificates in areas relevant to the nature of their work, such as

CPA, CFE, valuations, insolvency, insurance and taxation. Recently, with the increasing competition and globalisation of organisations, the focus on finding the right talent to drive business growth has become paramount [47]. Therefore, FAs should continue their training and develop their skills and competencies to retain their talents at work and to meet the expectations of their profession. In addition, they would gain practical experience in their area of competence and in the legal system in which they operate.

As such, there are different ways to acquire the skills that are required for accountants to perform their roles as forensic accountants. This depends on the type of skill and the nature of the tasks that FAs perform—for example, basic accounting skills should be acquired through an undergraduate degree. Some skills, like investigative and analytical skills, can be acquired through postgraduate degrees. Courtroom skills, law and regulation skills may need a special courses or training, while other skills could be obtained through practical experience, such as personal skills.

6 Summary and Conclusion

The main purposes of this research are to investigate the essential requirements that accountants needed to perform their duties as FAs from the perceptions of two key stakeholders (professional accountants and lawyers) —including level of education, area of specialisation, forensic accounting credentials and computer-based forensic techniques. This research also aims to develop a list of forensic accounting skills and to validate the core skills through field research and data collection. Further, this study examines how to acquire and improve the forensic accounting skills.

The research's findings also identified the most crucial abilities that accountants need to possess in order to carry out the duties of FAs that were accepted by all interested parties. These abilities include: effective communication, persuasiveness, the ability to summarize accounting data, analytical prowess, and objectivity. The participants also emphasized the significance of novel skills, such as attention to detail, computer skills, critical thinking, and valuation skills, that had not been previously covered by pertinent studies. Universities and other educational institutions have the chance to broaden their course offerings and training programs to include the most crucial abilities that accountants require to conduct forensic accounting services by identifying these skills. Additionally, by assisting them in developing the necessary skills for the forensic accounting profession, the findings can help accounting students, working professionals, and other training providers.

7 Limitations and future research

Every research has its own challenges and limitations, and thus this study has two limitations. One is that other stakeholders who use the services of FAs—such as judges, jurors and accounting students who intend to practice the services—are not covered in this project. The participation of judges, jurors and accounting students in the research would have enriched the findings. However, the difficult access to judges and jurors in addition to the limited time frame of the research were hindrances to their involvement in this study.

Second, access to the sample was a limitation in itself, as access to two groups (professional accountants and lawyers) was needed to conduct interviews throughout Australia in a short time frame. In general, these groups of people are busy, and most of the time constraint to participate in a survey. To overcome these restrictions a purposive sampling technique was employed to select the appropriate participants for the study using snowball samples. This technique, in addition to selecting the proper participants, facilitates access to other participants through referrals from respondents who have the same characteristics that are of research interest. The interviews were conducted by phone due to the participants' time schedules and the time restriction of the study, which prevented face-to-face interviews.

Accordingly, further research is required especially how to include the aforementioned groups of stakeholders (judges, jurors and accounting students) in future research, how to incorporate the important skills into the curriculum, especially from the perspective of academics and professional accountant, how to study the influence of differences in the perspectives among stakeholder groups regarding the necessary skills that FAs should acquire, as the results of the current study demonstrated significant differences. Forensic accounting is a very broad field that combines accounting, auditing, investigation, law, and many other skills. Therefore, more research is needed to enrich this field.

References

- [1] H. Alshurafat, C. Beattie, G. Jones and J. Sands. Forensic accounting core and interdisciplinary curricula components in Australian universities: analysis of websites. *Journal of Forensic and Investigative Accounting*, **11**, 353–365 (2019).
- [2] H. Al-Shormana, R. Alshawabkeh, F. Aldaihani F. Aityassine, A. Mohammad and S. Al-Hawary. Drivers of E-training Intention to Use in the private universities in Jordan. *International Journal of Data and Network Science*, **5**, 831–836 (2021).

- [3] J.A. DiGabriele. An empirical investigation of the relevant skills of forensic accountants. *Journal for Education for Business*, **83**, 331–338 (2008).
- [4] D.A. McMullen and M.H. Sanchez. A preliminary investigation of the necessary skills, education requirements, and training requirements for forensic accountants. *Journal of Forensic & Investigative Accounting*, **2**, 30–48 (2010).
- [5] M. Al-Alwan, S. Al-Nawafah, H. Al-Shorman, F. Khrisat, F. Alathamneh and S. Al-Hawary. The effect of big data on decision quality: Evidence from telecommunication industry. *International Journal of Data and Network Science*, **6**, 693-702 (2022).
- [6] R. Alshwabkeh, H. AL-Awamleh, M. Alkhalwaldeh, R. Kanaan, S. Al-Hawary, A. Mohammad and R. Alkhalwada. The mediating role of supply chain management on the relationship between big data and supply chain performance using SCOR model. *Uncertain Supply Chain Management*, **10**, 729-736 (2022).
- [7] S. Al-Nawafah, H. Al-Shorman, F. Aityassine, F. Khrisat, M. Hunitie, A. Mohammad and S. Al-Hawary. The effect of supply chain management through social media on competitiveness of the private hospitals in Jordan. *Uncertain Supply Chain Management*, **10**, 737-746 (2022).
- [8] A. AL-Zyadat, J. Alsarairoh, D. Al-Husban, H. Al-Shorman, A. Mohammad, F. Alathamneh and S. Al-Hawary. The effect of industry 4.0 on sustainability of industrial organizations in Jordan. *International Journal of Data and Network Science*, **6**, 1437-1446 (2022).
- [9] M. Khalayleh and S. Al-Hawary. The impact of digital content of marketing mix on marketing performance: An experimental study at five-star hotels in Jordan. *International Journal of Data and Network Science*, **6**, 1023-1032 (2022).
- [10] E. Tariq, M. Alshurideh, I. Akour and S. Al-Hawary. The effect of digital marketing capabilities on organizational ambidexterity of the information technology sector. *International Journal of Data and Network Science*, **6**, 401-408 (2022).
- [11] M.M. Eldahamsheh, H.M. Almomani, A.K. Bani-Khaled, A.Z. Al-Quran, S. Al-Hawary and A. Mohammad. Factors Affecting Digital Marketing Success in Jordan. *International Journal of Entrepreneurship*, **25**, 1-12 (2021).
- [12] S. Al-Hawary and A. Obiadat. Does mobile marketing affect customer loyalty in Jordan?. *International Journal of Business Excellence*, **23**, 226-250 (2021).
- [13] J. Wang, G. Lee and D.L. Crumbley. Current availability of forensic accounting education and state of forensic accounting services in Hong Kong and mainland China. *Journal of Forensic & Investigative Accounting*, **8**, 515–534 (2016).
- [14] J.A. DiGabriele. Fishbowl the forensic accountant: a closer look at the skills forensic accounting education should emphasize. *The Forensic Examiner*, **18**, 77–79 (2009).
- [15] M. Bhasin. Forensic accounting in Asia: perspectives and prospects. *International Journal of Management and Social Sciences*, **5**, 25–38 (2016).
- [16] M. Seda and B. Kramer. A comparison of US forensic accounting programs with the national institute of justice funded model curriculum. *Journal of Forensic & Investigative Accounting*, **7**, 144–177 (2015).
- [17] S. Hegazy, A. Sangster and A. Kotb. Mapping forensic accounting in the UK. *Journal of International Accounting, Auditing and Taxation*, **28**, 43–56 (2017).
- [18] J. Van Akkeren, S. Buckby and J.A. Tarr. Forensic accounting: professional regulation of a multi-disciplinary field. *Australian Business Law Review*, **44**, 204–215 (2016).
- [19] M. Seda and B. Kramer. An examination of the availability and composition of forensic accounting education in the United States and other countries. *Journal of Forensic & Investigative Accounting*, **6**, 1–46 (2014).
- [20] M. Gaffikin. Education for an accounting profession. *Pacific Accounting Review*, **21**, 170–185 (2009).
- [21] J. Van Akkeren and J.A. Tarr. Regulation, compliance and the Australian forensic accounting profession. *Journal of Forensic and Investigative Accounting*, **6**, 1–26 (2014).
- [22] Z. Rezaee, M. Ha and D. Lo. China needs forensic accounting education. *Open Journal of Social Sciences*, **2**, 59-65 (2014).
- [23] M. Seda and B. Kramer. The emergence of forensic accounting programs in higher education. *Management Accounting Quarterly*, **9**, 15-23 (2008).
- [24] M. Italia. The multi-disciplined skills required of forensic accountants. *Journal of modern accounting and auditing*, **8**, 365 (2012).
- [25] M. Gosselin. Forensic accounting in Québec: the context of a distinct society in Canada. *Journal of Forensic and Investigative Accounting*, **6**, 48–61 (2014).
- [26] E.I. Okoye and C.O. Akenbor. Forensic accounting in developing economies-problems and prospects. *The University Advanced Research Journal*, **1**, 1–13 (2009).
- [27] J.L. McIntyre, C. van Graan, J.D. van Romburgh and A. van Zyl. Contextualizing the South African forensic accountant. *Journal of Forensic & Investigative Accounting*, **6**, 98–122 (2014).
- [28] X. Hao. Analysis of the necessity to develop the forensic accounting in China. *International Journal of Business and Management*, **5**, 185 (2010).
- [29] D. Zhang and K. Zhang. Forensic accounting: legal consideration and system construction. *Caikuai Yuekan (Monthly Journal of Accounting)*, **9**, 6–8 (2010).
- [30] B.H. Zhang and H. Bo. Related discussion about the forensic accounting litigation support service. *Caikuai Yuekan (Monthly Journal of Accounting)*, **4**, 17–18 (2010).
- [31] H. Sui. The development way of forensic accounting in China. *Accounting and Finance Research*, **2**, 119–122 (2013).
- [32] L. Silon. Comments on China forensic accounting education (Chinese). *Monthly Journal of Finance and Accounting*, **10**, 93–94 (2008).
- [33] J.A. DiGabriele. An Empirical View of the Transparent Objectivity of Forensic Accounting Expert Witnesses. (January 11, 2010). Available at SSRN: DOI: <http://dx.doi.org/10.2139/ssrn.1534705>

- [34] P.K. Ozili. Forensic Accounting and Fraud: A Review of Literature and Policy Implications. *International Journal of Accounting and Economics Studies*,**3**, 63-68 (2015).
- [35] A. Bryman. *Social research methods*, Oxford University Press, Oxford, UK (2016).
- [36] R.W. Emerson. Convenience sampling, random sampling, and snowball sampling: how does sampling affect the validity of research?. *Journal of Visual Impairment & Blindness*,**109**, 164–168 (2015).
- [37] R. Craig and P. Reddy. Assessments of the expert evidence of accountants. *Australian Accounting Review*,**14**, 73–80 (2004).
- [38] I. Freckelton. *Criminal injuries compensation: law, practice & policy*. LBC Information Services, Sydney (2001).
- [39] I. Freckelton and H. Selby. *The law of expert evidence*. LBC Information Services, North Ryde, NSW (1999).
- [40] Y.P. Astutie and Y. Utami. Characteristics and relevant skills of the forensic accountant: an empirical study on Indonesia. In *International Conference on Accounting and Finance (AT)*. Global Science and Technology Forum (2013).
- [41] C. Davis, R. Farrell and S. Ogilby. Characteristics and skills of the Forensic Accountant. *American Institute of Certified Public Accountants*, 11-26 (2010).
- [42] J.A. DiGabriele. An observation of differences in the transparent objectivity of forensic accounting expert witnesses. *Journal of Forensic & Investigative Accounting*,**3**, 390–416 (2011).
- [43] K. Salleh and R. Ab Aziz. Traits, skills and ethical values of public sector forensic accountants: an empirical investigation. *Procedia-Social and Behavioral Sciences*,**145**, 361–370 (2014).
- [44] L.M. Tan and F. Laswad. Professional skills required of accountants: what do job advertisements tell us?. *Accounting Education*,**27**, 403–432 (2018).
- [45] S. Moore and H.L. Xu. Where the academy meets the workplace: communication needs of tertiary-level accounting students. in *Intersections: applied linguistics as a meeting place (pp. 112–128)*. Cambridge Scholars Publishing, Newcastle (2015).
- [46] J. Van Akkeren, S. Buckby and K. MacKenzie. A metamorphosis of the traditional accountant: an insight into forensic accounting services in Australia. *Pacific Accounting Review*,**25**, 188–216 (2013).
- [47] D.G.H. Trends. *Leading the social enterprise: Reinvent with a human focus*. Deloitte Development LLC, New York (2019). Available at: URL: https://www2.deloitte.com/content/dam/insights/us/articles/5136_HC-Trends-2019/DI_HC-Trends-2019.pdf
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