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Whistleblowing, fraud and forensic accounting subjects: a perception of accounting students in East Java, Indonesia

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Abstract: This study aims to ascertain the factors that influence students' attitudes towards engaging in or refraining from whistleblowing and the factors that contribute to the incorporation of fraud and forensic accounting subjects. This study employs a survey-based approach from 101 active accounting students from East Java, Indonesia universities, focusing on the Surabaya area and its surrounding regions. The integration variable of forensic accounting topics in the curriculum includes three indicators. The student perception variable includes six indicators related to forensic accounting topics. Four indicators are formulated to identify the variables motivating students to whistleblowing. Four indicators explain the factors that discourage students from engaging in whistleblowing. This study highlights the significance of implementing an accounting curriculum to adequately train future accountants in effectively combating fraud. Future studies can utilise these indicators to examine the influence between variables and other pertinent causal relationships.

Keywords: forensic accounting; fraud; whistleblowing; accounting curriculum; Indonesia.

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1 Introduction

Indonesia is a developing nation located in Southeast Asia. Indonesia experiences a significant population growth rate, resulting in an increased demand for clothing and food. The limited job opportunities in Indonesia contribute to its high unemployment rate, which hinders its potential for becoming a developed country. Economic crimes continue to persist in Southeast Asia. Economic crimes have a disruptive impact on various entities, including businesses and governments. This phenomenon frequently occurs as a result of factors such as insufficient credibility, lack of responsibility, minimal legal regulations, and other contributing factors. Economic crimes, including corruption, tax evasion, currency counterfeiting, manipulation, and bribery, are prevalent in developing countries, particularly Indonesia. The recent case involving Rafael Alun has attracted significant attention. Investigators have discovered that Rafael Alun received approximately 1.3 billion Rupiah in gratuity money through PT. Artha Mega Ekadhana (Farisa, 2023). Another notable case involves the discovery made by the Coordinating Minister for Political, Legal and Security Affairs of Indonesia (Menkopolhukam) regarding the involvement of 491 employees at the Ministry of Finance (Kemenkeu) in money laundering (Hafiez, 2023).

The prevalence of corruption and fraud has engendered a sense of public scepticism towards the government, comprising both state and private accountants, who are reluctant to disclose their identified issues. Accountants are required to possess adequate specialised expertise in the domain of forensic accounting in order to aid in the prevention, detection, and investigation of such offences (Ebaid, 2022a). In addition, extensive corruption scandals, such as the Jiwasraya case, PT Asabri, and various other corporate entities, have finally heightened public awareness surrounding fraudulent activities and deceptive financial reporting. Forensic accounting can direct their efforts towards certain areas, such as scrutinising potential instances of corruption within or outside the organisation related to income and expenses. Additionally, they can enhance the organisation's comprehension of its accounting system and address intricate financial challenges. In the context of Indonesia, forensic accounting plays a crucial role in the identification and investigation of corruption cases. This is achieved through the collaborative efforts of various anti-corruption authorities, including the Corruption Eradication Commission (KPK), the Financial Audit Agency (BPK), and the Police. The rapid progression of technology has generated significant interest in the field of forensic accounting across various domains. In addition to acknowledging the good aspects, it is imperative to recognise that technological advancements can also contribute to the proliferation of elevated levels of criminal activity and fraudulent behaviour (Ibadov and Huseynzade, 2019).

Numerous scholarly works in industrialised nations highlight the significance of incorporating forensic accounting education into their academic programs. However, a considerable number of universities in developing countries continue to exhibit deficiencies in offering comprehensive training resources in this field. According to Elzain (2021), including forensic accounting education in the curriculum can enhance accountants' proficiency in predicting and effectively addressing instances of fraudulent activities. The inclusion of forensic accounting education in the training of accountants can enhance their ability to engage in whistleblowing activities. By acquiring the necessary knowledge and skills, accountants are equipped to assess and determine if a certain activity constitutes fraudulent behaviour. Consequently, they are less likely to act impulsively when reporting potential misconduct, as they possess the analytical tools to evaluate the presence of fraud. The demand for individuals possessing expertise in forensic accounting and fraud is expected to rise as a result of widespread knowledge in these areas. Such individuals, equipped with appropriate skills and experience, may play a crucial role in assisting firms and mitigating the likelihood of criminal activities (Lee, 2016).

Educators can initiate the pedagogical process by prioritising the instruction of students in the field of forensic accounting, primarily through engaging in discourse pertaining to the significance of accurate and timely reporting. The significance of students understanding the importance of academic integrity lies in the fact that engaging in academic violations and dishonesty contradicts the fundamental principles of academic integrity (Parkinson et al., 2022). Subsequently, students will embark upon their professional trajectories by either engaging in entrepreneurial endeavours or pursuing employment within established industries. Individuals will inevitably encounter several circumstances that necessitate the exercise of sound judgment in decision-making. The

significance of imparting pupils with knowledge about whistleblowing is expected to exert a substantial influence on the realm of professional employment. Nevertheless, the act of whistleblowing is not as straightforward as initially perceived, as there exist various deterrent elements that prompt individuals, especially students in Indonesia, to reconsider their decision to disclose instances of whistleblowing.

Several issues that impede students from expressing their opinions include apprehension of facing consequences, a perception that wrongdoers will not be held accountable, and a dearth of legal or regulatory safeguards. Nevertheless, it is essential to acknowledge that whistleblowing is influenced by both inhibiting and motivating factors. For instance, individuals may be motivated to engage in whistleblowing due to their belief that fraud is morally wrong and goes against religious principles. Additionally, they may perceive that those responsible for fraudulent activities should be held accountable for their actions (Ebaid, 2022b). Reporting can be influenced by environmental factors since a conducive atmosphere might serve as a catalyst for reporting (Dammak et al., 2022).

The intentions of whistleblowers were found to be strongly influenced by the perceptions of students. Additionally, students and professionals exhibited varying degrees of moral attitudes and judgements towards whistleblowers, with certain viewpoints being deemed relevant while others being considered insignificant (Brody et al., 2020; Owusu et al., 2020). According to Kusumaningsih (2021), the impact of repercussions, social agreement, and relationship closeness on students' desire to engage in whistleblowing is not shown to be statistically significant. However, the fear of retaliation is identified as a key factor influencing students' inclination towards whistleblowing. One motivating element for students to engage in whistleblowing is their notion that fraudulence is in conflict with religious principles and that the wrongdoer should be duly penalised (Ebaid, 2022b). Moreover, a significant deterrent is the presence of apprehension regarding potential reprisals, as pupils perceive a lack of accountability and inadequate consequences for the wrongdoer. Forensic accountants play a crucial role in the identification and detection of escalating instances of fraudulent activities. Similar to earlier research, the study employed a restricted sample size and exclusively utilised preliminary surveys, with the analysis being conducted based on mean values (Ebaid, 2022a).

The primary issue addressed in this study pertains to the advantages associated with incorporating fraud prevention material into the educational curriculum. The subsequent problem formulation pertains to the inquiry of how students perceive the subject matter of forensic accounting. Next, a crucial aspect to consider is identifying the motivational elements that prompt students to engage in whistleblowing activities. The final query pertains to the constraining factors that impede students from engaging in whistleblower activities. This research holds significant value for academic institutions seeking to enhance their educational resources pertaining to fraud and forensic accounting. In addition, the findings of this study can serve as valuable feedback for regulatory bodies and accounting professional organisations in bolstering their efforts to promote whistleblowing.

2 Theoretical basis

2.1 Human behaviour theory

Human behaviour encompasses a range of actions governed by individuals and shaped by factors such as attitudes, emotions, ethics, power dynamics, beliefs, and genetics. Human behaviour is primarily influenced by internal factors. This behaviour is driven by the motivation to fulfil a specific need. The examination of human behaviour necessitates a scientific approach, rather than contemplating or showing concern for the human soul or pondering the essence of one's identity. Behaviourists analyse and study individuals' observable actions and behaviours. Behaviourists have the ability to modify or regulate behaviours for the collective advantage (Gischa, 2021; Okoye, 2011). The theory of planned behaviour is a prominent concept in the field of social psychology. This theory posits that behavioural intention is the primary determinant of behaviour. Behavioural intention, in turn, is influenced by attitudes, subjective norms, and perceived behavioural control. Attitudes towards behaviour refer to an individual's overall emotional disposition towards their preferred patterns of conduct. Subjective norms refer to the social constraints that individuals perceive when making decisions regarding the performance or avoidance of specific behaviours. Perceived behavioural control refers to an individual's perception of the level of ease or difficulty associated with carrying out a specific behaviour. The theory of planned behaviour is commonly employed in behavioural research and has demonstrated strong explanatory and predictive capabilities regarding ethical behaviour (Lin et al., 2022).

2.2 Fraud triangle theory

An examination of the origins of the term 'fraud triangle' is crucial, necessitating a historical overview encompassing its conceptualisation, applications, variations, and criticisms (Cheliatsidou et al., 2023). The fraud triangle is widely recognised as the primary theory and framework for understanding the causes of occupational fraud. The Fraud Triangle Theory is currently the most widely accepted theory regarding fraudulent motives. It posits three psychological paths to fraud, which are as follows:

- 1 *Motivation*. Criminals are motivated by various factors that lead them to engage in fraudulent activities. Possible reasons for their actions may include financial constraints, aspirations for a lavish lifestyle, and being burdened by debt. Motivation can stem from factors beyond material incentives, such as reliance on illicit substances or excessive job demands.
- 2 *Opportunity*. Fraudsters seek opportunities to carry out their intentions whenever they have a specific goal in mind. The workplace is a common target for fraudsters. In addition to engaging in nominal cheating, individuals also engage in the theft of valuable information for the purpose of selling it.
- 3 *Rationalisation* is a psychological defence mechanism that involves justifying or explaining one's thoughts, feelings, or behaviours in a way that makes them incorrect actions can significantly impact one's conscience. Fraudsters experience a sense of justification in order to alleviate their guilt and convince themselves that their actions are morally acceptable.

2.3 Forensic accounting

Forensic accounting is an accounting discipline that investigates and uncovers facts related to issues that may lead to real problems or conflicts. It employs research methods, inquiries, and analyses derived from psychology, criminology, and other scientific fields. Additionally, forensic accounting utilises accounting, auditing, and technical expertise. Previous studies have examined investigations that rely on court processes (Gangwani, 2020; Zeytinoğlu and Anadolu, 2020). The capital market industry is experiencing anxiety due to global market changes, heightened integration, and intense competition in the digital era. Forensic accounting is crucial for uncovering and preventing instances of fraud, corruption, and bribery (Rezaee and Wang, 2019). Forensic accountants have a focused scope of work that involves identifying instances of fraud, identifying the individuals involved in the fraudulent activity, and quantifying the financial losses incurred as a result of the fraud. Prior to entering the field, individuals typically undergo extensive academic training (Nahar, 2018; Qur'ani, 2019). Accountants must enhance their competencies and acquire new skills to effectively navigate a dynamic work environment in the future (Hatane et al., 2020). Forensic accountants and public accountants adhere to five fundamental ethical principles: integrity, objectivity, professional competence and prudence, confidentiality, and professional behaviour (Professional Standards for Public Accountants – IAPI, 2021).

Forensic accounting necessitates a wider range of skills compared to general audit and examination skills. Forensic accountants require specific skills, including investigative abilities, a creative mindset to comprehend the strategies employed by wrongdoers, and effective communication skills to convey information accurately and clearly to relevant parties (Ebaid, 2022a). In addition to formal contexts, forensic accounting can also be applied informally to address financial issues and provide precise information to legal professionals for courtroom proceedings (Utama and Basuki, 2022). According to the Public Accountant Professional Standards (IAPI, 2021), investigative services conducted by public accountants or forensic accountants involve several key components. These include a three-party relationship, subject matter (subject matter information), established criteria, evidence obtained, and a public accounting report.

Forensic accounting education is crucial for aspiring forensic accountants. Universities should provide students with the necessary skills for pursuing a career in forensic accounting. The inclusion of forensic accounting in the accounting education curriculum at universities is recommended to equip students with the necessary skills for the practice of forensic accounting, particularly in relation to fraud, including the understanding of concepts such as the fraud triangle and fraud prevention. This is important as the effectiveness of forensic accounting is influenced by the education received by students and the mindset cultivated within the profession (Ebaid, 2022a; Zeytinoğlu and Anadolu, 2020). The teaching quality influences the curriculum, learning reflection, and student learning outcomes in practice. The primary objective of the education system is to enhance knowledge, skills, and accomplishments in order to cultivate competitive graduates. In addition, students can contribute their expertise and experience beyond the university context (Yusuf et al., 2021). The study of forensic accounting is significant for students as it enables them to identify fraudulent practices. Additionally, the field of forensic accounting is experiencing high demand and contributes to the eradication of corruption in Indonesia.

2.4 *Whistleblowing*

Whistleblowing is the disclosure of confidential information regarding illegal or unethical activities within an organisation or the public. This practice has been observed throughout history (Krambia-Kapardis, 2020). Whistleblowing is influenced by both positive and negative factors in its execution. Effective whistleblowing requires self-awareness and can be facilitated by organisations that establish regulations and offer incentives to whistleblowers. However, it is crucial to verify the credibility of whistleblowers to prevent the misuse of whistleblowing for unethical purposes solely driven by financial motives (Rajeevan, 2019). Whistleblowing has emerged as a moral benchmark, embodying integrity, transparency, safeguarding public interests, and opposing violations of established regulations and ethical codes (Nurhidayat and Kusumasari, 2018). The effectiveness of whistleblowing in combating fraud is influenced by the foundation of ethical and moral values. There is a limited likelihood of success when powerful individuals, deeply entrenched in society, engage in corrupt practices supported by implicit and explicit norm values (Gao and Brink, 2017; Okafor et al., 2020).

Multiple factors influence accountants' intentions to engage in whistleblowing within the workplace. Previous research has identified four factors that can impact whistleblowing intentions, with the first factor being the cultural context of the country. Whistleblowing in accounting refers to the deliberate and transparent act of reporting illegal acts and fraud within an organisation. It is typically carried out by individuals with authority and access to relevant information and data, regardless of whether the illegal acts and fraud have already occurred, are suspected, or are anticipated. The organisation has the authority to transfer control of the error to an external entity capable of resolving it (Ebaid, 2022b; Kusumaningsih, 2021). The primary determinant for whistleblowing is the organisational culture, which can foster an environment where employees are motivated to report issues or signs of fraudulent activities.

Legislation offers protection to witnesses and whistleblowers who disclose information about internal company cases. Guidelines exist for conducting whistleblowing activities, including addressing conflicts of interest, handling gifts and donations, complying with regulations, maintaining information confidentiality, and unethical reporting behaviour (Pusat Edukasi Antikorupsi, 2023).

2.4.1 *Whistleblowing in student's perception*

In the perception of whistleblowing among students, notable parallels and distinctions exist. In terms of similarities, both students and professionals share the objective of gathering evidence pertaining to fraudulent activities. Conversely, professionals tend to place greater emphasis on internal control matters, a contrast that can be attributed to the socialisation process experienced by students and professionals alike (Brody et al., 2020). It is imperative for students to acquire a comprehensive understanding of ethics and possess knowledge pertaining to fraudulent activities. This is particularly crucial in the professional realm, as students may encounter temptations to engage in fraudulent behaviour driven by financial motivations. Such conduct can yield detrimental consequences within the workplace, particularly within the domain of illicit accounting practices. Furthermore, students may also be susceptible to committing fraud while still attending educational institutions, manifesting in acts of academic dishonesty such as

cheating and plagiarism. This propensity can be attributed to a lack of alignment with academic values, as highlighted in the works of Elias and Farag (2010) and Parkinson et al. (2022). Hence, it is imperative to incorporate educational content pertaining to fraud and its prevention into the curriculum. In addition to the tangible aspects, students' subjective interpretations of accounting significantly shape their opinions of the accounting profession's reputation. Moreover, these perceptions can serve as a positive driving force in motivating students to pursue careers in accounting (Hatane et al., 2022).

Accounting students are future accountants. Several studies on students' perceptions of whistleblowing were obtained. Students will engage in internal whistleblowing if they are assured that their work will be protected. Final-year students are more committed to their profession, have a higher perception of it, and are more likely to sound the whistle (Ebaid, 2022b). And the primary factors preventing students from blowing the flag are the severity of the resulting consequences, social agreement, close relationships, and fear of retaliation. There is research that says that student perceptions will influence students in whistleblowing internally but not to external parties (Kusumaningsih, 2021).

3 Literature review

The findings from prior studies (as presented in Table 1) indicate that there exist multiple student perspectives concerning the extent to which the curriculum addresses topics related to forensic accounting and the inclination to report wrongdoing (whistleblowing intention). Research indicates that the current level of education pertaining to forensic accounting is inadequate for students seeking to enhance their skills in this field. This insufficiency is concerning, given the growing interest and demand for forensic accounting (Ebaid, 2022a; Rezaee and Wang, 2019). In order to enhance the quality of forensic accounting education, it is imperative for institutions to offer comprehensive instruction on fraud as an independent subject. This approach is expected to contribute to the development of student integrity (Nahar, 2018). According to Brody et al. (2020), acquiring education can potentially enhance students' perspectives on ethical evaluation.

Existing literature identifies both facilitating and constraining factors. The fear of negative consequences, particularly in terms of retention, plays a crucial role in shaping students' inclination to engage in whistleblowing activities. This fear is driven by various factors, such as religious beliefs and the desire to hold fraud perpetrators accountable. Additionally, environmental factors also exert a substantial influence on whistleblowing behaviour. These findings have been supported by recent studies conducted by Dammak et al. (2022), Ebaid (2022b), and Kusumaningsih (2021). Whistleblowing should incorporate multiple elements to ensure the safety of whistleblowers (Nurhidayat and Kusumasari, 2018). According to Owusu et al. (2020), students' attitudes can impact their intentions to engage in internal whistleblowing activities. In addition to students' whistleblowing intentions, it is crucial for students to receive education on fraud. This education will enable students to provide information effectively and ensure the accuracy of their reports, in which verification from an external source is essential (Che Ku Kassim and Mohd Sallem, 2023).

Table 1 Literature review

<i>Author</i>	<i>Description</i>
Ebaid (2022a)	The inadequate level of forensic accounting education is undesirable for students seeking to acquire skills relevant to their future endeavours.
Kusumaningsih (2021)	Fear of Retention significantly impacts students' intention to blow the whistle and is the most influential factor influencing students' intention to blast the whistle.
Ebaid (2022b)	Students are motivated to tip the whistle because they believe that fraud is unethical and contrary to religious values and that fraud perpetrators must be appropriately punished.
Nahar (2018)	Universities are advised to improve ethics education, particularly regarding fraud, independently or in an integrated fashion in order to improve student ethics.
Che Ku Kassim and Mohd Sallem (2023)	The veracity of pupil reports must be verified, which can be done through third-party confirmation.
Rezaee and Wang (2019)	The interest in and demand for forensic accounting and big data will continue to rise.
Nurhidayat and Kusumasari (2018)	The whistleblowing system must guarantee protection that takes into consideration and incorporates a variety of factors, such as people and ethics, policies, legal protection, and structures adapted to Indonesia.
Dammak et al. (2022)	Creating a favourable environment for individuals is more likely to facilitate the practice of whistleblowing.
Brody et al. (2020)	There is a similarity in ethical perceptions and judgments on whistleblowing between students and professionals.
Owusu et al. (2020)	The attitudes of students have a beneficial impact on their inclination to engage in internal whistleblowing, while their inclination towards external whistleblowing is not similarly influenced.

3.1 *Research questions*

The primary determinant of a student's inclination towards pursuing forensic accounting and engaging in whistleblower activities is the level of interest they hold towards the accounting profession or their educational pursuits. The attitudes of forensic accounting among students are influenced by the responsibilities often associated with the profession of accounting, as well as by the examination of ongoing legal cases within the context of Indonesia. Nevertheless, it appears that education has the potential to shape students' attitudes toward the accounting profession and enhance their knowledge and competencies in advancing the field of accounting (Hatane et al., 2019, 2020). The present study will involve an examination of students' perspectives of forensic accounting and their intention to engage in whistleblowing, drawing upon the data obtained.

RQ1 What are the benefits of integrating forensic accounting topics into the curriculum?

Fraud is a deceptive practice that manifests within an organisational context. It is imperative to acknowledge that students transitioning into the professional realm should

possess knowledge pertaining to the prevention of fraudulent activities. Participants were requested to rank the variable in question, specifically, the inclusion of content on fraud prevention in the educational curriculum, based on its level of importance, ranging from highest to lowest. The objective of this variable is to investigate the degree to which forensic accounting is included into educational curriculum at universities (Ebaid, 2022a).

RQ2 What topics are important in forensic accounting material?

Forensic accounting is an accounting discipline that aims to uncover the truth around issues that have the potential to generate complications. This is achieved by the development of research methodologies, formulation of pertinent inquiries, and use of analytical approaches derived from disciplines like psychology, criminology, and other related sciences. In order to make appropriate decisions, it is imperative that financial information is precise, pertinent, and devoid of any inaccuracies (Demetriades and Owusu-Agyei, 2022). In this variable, participants are requested to rank the factors in order of significance, thus providing insights into the perceptions of students towards forensic accounting.

RQ3 What are the motivating factors for students to carry out whistleblowing?

Driving factors refer to the various elements that motivate individuals to engage in certain actions, including the act of whistleblowing. Since its inception, whistleblowing has emerged as a habit rooted in addressing problems (Nurhidayat and Kusumasari, 2018). This survey aims to assess the motivating factors that prompt students to engage in whistleblowing activities. It seeks to rank these factors based on the perceived strength of their impact, as reported by students.

RQ4 What are the inhibiting factors for students to carry out whistleblowing?

In addition to the aforementioned driving forces, it is evident that inhibitory variables also have a significant role. The presence of a whistleblower system is an exogenous variable that impacts an individual's inclination to engage in unethical conduct, namely fraudulent activities, through the utilisation of an ineffective internal control framework (Triantoro et al., 2019). This survey aims to elicit students' rankings of various factors, arranged in descending order of strength, that contribute to their reluctance in engaging in whistleblowing endeavours.

4 Research methods

This research employs the Factor Analysis method, which simplifies a set of items into four observed variables, namely the benefits of integrating forensic accounting into the curriculum, important topics in forensic accounting, driving factors in whistleblowing, and inhibiting factors in whistleblowing. This study employs confirmatory factor analysis (CFA) because it extends these findings and permits researchers to confirm or refute constructs or dimensions of background factors extracted from previous research. CFA is a theory- or model-based method that evaluates the 'fit' of data to a proposed model or

theory (Tavakol and Wetzel, 2020). Students are asked to rank each variable statement in the questionnaire according to the extant order, then the data will be processed using the CFA method to determine the main factors based on the loading factor numbers.

Purposive sampling is used to determine the sample size for this study, which means that the researcher relies on his judgment when selecting members of the population to participate in his research (Lararenjana, 2020). This study was conducted on accounting students in Surabaya and the adjacent areas using the sample criteria as follows: class of 2019-2022; graduates of reputable accounting study programs at state and private universities in Surabaya and adjacent areas; fill out the questionnaire in its entirety.

5 Analysis and discussion

5.1 Descriptive analysis

This study disseminated 200 online questionnaires to accounting students from various universities in East Java, Indonesia. A total of 180 questionnaires were returned, but only 101 met the criteria. Table 2 illustrates that the majority of respondents were female students, and most of them were enrolled in private universities. Ninety percent of students had a GPA of above 3.00 (4.00 scale) which means the respondents' academic performance is good and proves that the credibility of the survey data obtained is good and increasing validity obtained.

Table 2 Demographics characteristics of respondents

<i>Character</i>	<i>Category</i>	<i>Frequency</i>	<i>(%)</i>
Gender	Female	59	58
	Male	42	42
Batch	2019	45	45
	2020	4	4
	2021	41	41
	2022	11	11
Type of university	Public	26	26
	Private	75	74
GPA	2.51–3.00	10	10
	3.01–3.50	39	39
	> 3.50	52	51

5.2 Analysis and discussion

5.2.1 Student perceptions of the need for forensic accounting

Table 3 displays student responses regarding the importance of a forensic accounting course. A significant majority of students (87.13%) hold the belief that instances of corruption, fraud, and dishonesty have witnessed an upward trend within the Indonesian context throughout the past several years. This phenomenon results from several well-known corruption cases that have received major coverage in national news outlets, leading to extensive discussions across numerous media platforms. A total of 41.58% of

students believe that current audit and investigative processes are insufficient in detecting various cases of corruption and fraud. Most students (70.30%) believe that forensic accountants are essential in detecting corruption and fraud due to the increase in such incidents and the limitations of conventional examination methods. Therefore, many students expect an immense rise in the market for forensic accounting services.

Table 3 Student perceptions of the need for forensic accounting

<i>Question</i>	<i>Yes</i>	<i>No</i>	<i>Not sure</i>
Q.1 Do you think occurrences of corruption, fraud, and dishonesty have risen in recent years?	87.13%	0.99%	11.88%
Q.2 Do you believe that present audit and inspection methods are adequate in detecting corruption, fraud, and dishonesty?	19.80%	41.58%	38.61%
Q.3 During your studies, do you believe forensic accountants can effectively detect corruption, fraud, dishonesty, etc.?	70.30%	8.91%	20.79%

Note: The statements are adopted from Ebaid (2022a).

5.2.2 Student perceptions of the integration of forensic accounting

Students' satisfaction with the present extent of forensic accounting coverage in their university's accounting program is shown in Table 4 by the percentage of students who gave a 'yes' or 'no' response to the question. These findings suggest that the accounting programs at their colleges do not even address forensic accounting. As an illustration of a private institution in Surabaya, Petra Christian University does not yet offer forensic accounting courses. Petra's accounting department includes a course about business crime and ethics that analyses fraud cases but does not include how to become a fraud witness. Due to shortcomings in present forensic accounting education, 90.10% of students stated a wish for forensic accounting-related subjects to be included in the accounting curriculum.

Table 4 Student perceptions of the integration of forensic accounting

<i>Question</i>	<i>Yes</i>	<i>No</i>	<i>Not sure</i>
Q.1 Do you feel that your university's accounting program now covers forensic accounting to a satisfactory degree?	39.60%	39.60%	20.80%
Q.2 Should the accounting curriculum include a more extensive discussion of forensic accounting?	90.10%	0.99%	8.91%

Note: The statements are adopted from Ebaid (2022a).

5.2.3 Student perceptions of the benefits of forensic accounting integration

Table 5 and Table 6 expose three key factors that can explain the benefits of incorporating forensic accounting into an accounting curriculum. As shown in Table 5, the total cumulative variance explained by these three factors is 61.42%. Table 6 presents that the loading factor of the first factor is 0.719, the second factor is 0.673, and the third one is 0.892. The third factor is the strongest factor in explaining the benefits of forensic accounting integration. Table 7 displays each item that can explain each factor. Items whose loading value is less than 0.3, including those with negative values, will be eliminated.

Table 5 Total variance explained benefits of forensic accounting integration in curriculum

Component	Total variance explained							
	Initial eigenvalues				Extraction sums of squared loadings			
	Total	% of variance	Cumulative %		Total	% of variance	Cumulative %	
1	2.815	31.272	31.272		2.815	31.272	31.272	2.141
2	1.501	16.677	47.949		1.501	16.677	47.949	2.105
3	1.213	13.472	61.422		1.213	13.472	61.422	1.282
4	0.959	10.660	72.081					
5	0.828	9.196	81.277					
6	0.774	8.598	89.875					
7	0.515	5.725	95.600					
8	0.396	4.400	100.000					
9	2.176E-16	2.418E-15	100.000					

Note: Extraction method: principal component analysis.

Table 6 Component transformation matrix

<i>Component transformation matrix</i>			
<i>Component</i>	<i>1</i>	<i>2</i>	<i>3</i>
1	0.719	0.690	-0.087
2	-0.592	0.673	0.444
3	0.365	-0.267	0.892

Notes: Extraction method: principal component analysis.

Rotation method: Varimax with Kaiser normalisation.

Table 7 Rotated Component Matrix Student Perceptions of the Benefits of Forensic Accounting Integration

<i>Rotated component matrix</i>			
	<i>Component</i>		
	<i>1</i>	<i>2</i>	<i>3</i>
The demand for accounting graduates with forensic accounting education and skills is increasing within organisations	0.134	-0.754	-0.240
Enhance the marketability of accounting graduates (within the organisation)	-0.333	-0.656	-0.346
Preparing accounting graduates to participate in examinations of fraud (forensics)	-0.786	-0.055	0.004
Accounting graduates are prepared to serve as expert witnesses	-0.657	-0.179	0.257
Educating accounting graduates (accountants) in litigation abilities	-0.041	0.064	0.895
Anticipate the possibility of fraud	0.148	0.744	-0.452
Enhance the credibility of financial reports	0.248	0.689	-0.119
Responding to public demand for accountants with knowledge of fraud and forensic accounting	0.679	-0.006	0.122
Promoting the corporation's Good Governance	0.646	0.197	-0.058

Note: Extraction method: principal component analysis.

Rotation method: Varimax with Kaiser normalisation.

The statements are adopted from Ebaid (2022a)

The first item to be noted is corporate governance (GCG), which comprises two elements: meeting public expectations by training accountants who are well-versed in fraud and forensic accounting (0.679) and encouraging good corporate governance inside the company (0.646). The second factor acts as a safeguard to guarantee the integrity of financial reporting. This element consists of two components: the capacity to identify and stop fraudulent actions (0.744) and the improvement of the dependability and credibility of financial records (0.689). The third aspect is training accountants in litigation skills, with a specific emphasis on equipping accounting graduates with these capabilities (0.895). Four items were excluded from the analysis due to their values falling below the threshold of 0.3.

Table 8 Total variance explained student perception of forensic accounting topic

Component	Total variance explained								
	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2.488	19.140	19.140	2.488	19.140	19.140	1.925	14.806	14.806
2	1.833	14.100	33.240	1.833	14.100	33.240	1.593	12.251	27.057
3	1.662	12.782	46.022	1.662	12.782	46.022	1.512	11.630	38.688
4	1.264	9.721	55.743	1.264	9.721	55.743	1.501	11.544	50.232
5	1.151	8.851	64.594	1.151	8.851	64.594	1.494	11.494	61.726
6	1.085	8.347	72.941	1.085	8.347	72.941	1.458	11.215	72.941
7	0.874	6.724	79.665						
8	0.761	5.852	85.517						
9	0.586	4.511	90.028						
10	0.517	3.977	94.005						
11	0.436	3.356	97.361						
12	0.343	2.639	100.000						
13	2.545E-16	1.958E-15	100.000						

Note: Extraction method: principal component analysis.

5.2.4 Student perceptions of forensic accounting topics

Table 8 and Table 9 obtained six primary factors explaining the significance of accounting's key components, with the cumulative variance explained as 72.41%. Table 10 presents the items explained for each factor. The first factor is fundamental fraud, which consists of two components: fraud principles (0.732) and fraud types (0.886). The second element is financial report fraud, which consists of a single factor: financial reports fraud (0.563). The third factor is the financial audit method, explained by the fraud checking methodology (0.643). Expert and witness contributions are the fourth factor, which consists of a single item: expert testimony and witness techniques (0.872). The fifth element is cybercrime, described as cyber and computer fraud (0.887). The sixth factor is fraud prevention and detection, which consists of two components: programs for fraud detection and prevention (0.642) and litigation tactics (0.765). In addition, five items were eliminated because their values were less than 0.5.

Table 9 Component transformation matrix

<i>Component transformation matrix</i>						
<i>Component</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
1	0.619	0.443	0.349	0.200	0.479	0.172
2	-0.474	-0.264	0.457	0.608	0.155	0.320
3	-0.423	0.515	-0.343	-0.211	0.195	0.596
4	0.388	-0.062	-0.419	0.494	-0.496	0.424
5	-0.251	0.637	-0.051	0.452	-0.229	-0.522
6	0.008	0.245	0.611	-0.311	-0.640	0.245

Notes: Extraction method: principal component analysis.

Rotation method: Varimax with Kaiser normalisation.

5.2.5 Student perceptions of reporting violations

Table 11 displays the distribution of student responses according to their willingness to disclose instances of whistleblowing, expressed as a percentage. As evidenced by the data presented in Table 11, a significant proportion of students (69.31%) demonstrated a willingness to report instances of illicit activities. A significant proportion of students (28.71%) expressed uncertainty over their inclination to engage in whistleblower activities upon discovering illegal acts. Based on this data, it appears that a considerable percentage of students have learned and absorbed the concepts related to fraud and are willing to take an active role in reducing fraud in their community.

5.2.6 Driven factors for reporting violations

Four primary factors can serve as motivational reasons for individuals to engage in whistleblowing actions, as presented in Table 12 and Table 13. The total cumulative variance explained by those four factors is 57.68%. The initial aspect pertains to corporate governance and encompasses three components: the legal protection afforded to whistleblowers (0.665), enhancing organisational sustainability through whistleblowing (0.558), and enhancing public trust (0.715). The second aspect pertains to the necessity of whistleblowing in upholding public trust. This factor encompasses two

key elements: mitigating fraud and corruption (0.539) and preventing significant harm to the organisation (0.714). The third element pertains to the alignment of whistleblowing with organisational values, specifically concerning professional ethics and values. This component encompasses a single item, which is the consistency of whistleblowing with these ethical and value-based principles (0.816). The fourth aspect pertains to the magnitude of financial detriment, specifically highlighting the necessity of whistleblowing in cases involving substantial fraudulent activities (0.762). It can be seen from Table 14 that a total of six items were excluded from the analysis due to their values falling below the threshold of 0.5.

Table 10 Rotates component matrix student perception of forensic accounting topic

	<i>Rotated component matrix</i>					
	<i>Component</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
The basics of fraud	0.732	0.079	0.297	−0.201	−0.014	−0.345
Types of fraud (e.g., employee, management)	0.886	0.001	0.042	0.153	0.084	−0.038
Cyber and computer fraud	0.087	0.069	0.061	0.108	0.887	0.015
Financial statement fraud	−0.133	0.563	−0.022	−0.279	0.385	0.055
Fraud checking methodology	−0.059	0.531	0.643	0.096	−0.011	0.144
Fraud detection and prevention programs	−0.022	−0.028	0.234	0.451	−0.282	0.642
Expert testimony and expert witness techniques	0.042	0.106	−0.048	0.872	0.051	−0.061
Litigation consulting techniques	−0.149	−0.003	−0.002	−0.179	0.172	0.765
Internal control assessment and reporting	−0.519	−0.182	0.458	0.046	−0.049	−0.419
Compliance with applicable laws and regulations	−0.191	−0.859	0.094	−0.143	0.026	0.064
Professional standards relating to forensic accounting	−0.396	−0.361	−0.127	0.012	−0.466	−0.361
Elements of fraud: pressure, opportunity, and rationalisation.	0.081	0.214	−0.382	−0.565	−0.448	−0.022
Criminology, official crime and technological crime	−0.286	0.155	−0.753	−0.002	−0.143	−0.050

Notes: Extraction method: principal component analysis.
Rotation method: Varimax with Kaiser normalisation.
a Rotation converged in 14 iterations.
The statements are adopted from Ebaid (2022a).

Table 11 Student perceptions of reporting violations

<i>Question</i>	<i>Yes</i>	<i>No</i>	<i>Not sure</i>
Q.1 In the event that I encounter illicit, unethical, or unauthorised activities within my organisation, I will actively participate in the act of whistleblowing	69.31%	1.98%	28.71%

Note: The statements are adopted from Ebaid (2022b).

Table 12 Total variance explained driven factors for reporting violations

Total variance explained									
Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2.712	20.862	20.862	2.712	20.862	20.862	2.243	17.252	17.252
2	2.104	16.188	37.051	2.104	16.188	37.051	2.019	15.533	32.785
3	1.569	12.070	49.121	1.569	12.070	49.121	1.651	12.704	45.488
4	1.113	8.563	57.683	1.113	8.563	57.683	1.585	12.195	57.683
5	0.947	7.287	64.971						
6	0.908	6.984	71.954						
7	0.800	6.153	78.107						
8	0.727	5.596	83.703						
9	0.619	4.763	88.466						
10	0.570	4.383	92.849						
11	0.494	3.796	96.645						
12	0.436	3.355	100.000						
13	-3.539E-16	-2.722E-15	100.000						

Note: Extraction method: principal component analysis.

Table 13 Component transformation matrix

<i>Component transformation matrix</i>				
<i>Component</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1	0.754	0.641	0.100	−0.102
2	−0.242	0.265	0.726	0.587
3	0.598	−0.627	0.024	0.500
4	−0.126	0.355	−0.680	0.629

Notes: Extraction method: principal component analysis.
Rotation method: Varimax with Kaiser normalisation.

Table 14 Rotates component matrix driven factors for reporting violations

<i>Rotated component matrix</i>				
	<i>Component</i>			
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
Whistleblowing with religious values	−0.598	−0.293	−0.050	−0.361
Whistleblowing is ethical behaviour	−0.619	−0.326	0.177	0.265
Whistleblowing helps hold guilty parties accountable	−0.038	−0.756	0.059	0.109
Whistleblowing is necessary, especially if the amount of money from illegal, unethical, or unauthorised practices is large	−0.148	0.160	−0.154	0.762
Whistleblowing is consistent with social justice	−0.149	−0.350	−0.573	0.223
Whistleblowing is consistent with professional ethics	−0.166	−0.037	0.816	0.024
Whistleblowing is protected by laws and regulations	0.665	−0.185	−0.088	0.021
Whistleblowing increases organisational sustainability	0.558	0.234	0.277	0.068
Whistleblowing helps reduce fraud and corruption	0.146	0.539	0.352	0.203
Whistleblowing helps prevent serious harm to an organisation	0.145	0.714	0.121	0.127
Whistleblowing increases the public interest	0.715	0.074	−0.143	−0.320
Whistleblowing will help me get financial rewards or a promotion	0.148	0.004	−0.538	−0.507
Whistleblowing was encouraged by my colleagues at work	−0.315	0.460	−0.252	−0.565

Notes: Extraction method: principal component analysis.
Rotation method: Varimax with Kaiser normalisation.
a. Rotation converged in 10 iterations.
The statements are adopted from Ebaid (2022b).

Table 15 Total variance explained factors inhibit reporting valuations

Component	Total variance explained							
	Initial eigenvalues		Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2.674	24.311	2.674	24.311	24.311	2.186	19.877	19.877
2	1.642	14.923	1.642	14.923	39.234	1.802	16.383	36.260
3	1.455	13.227	1.455	13.227	52.461	1.682	15.295	51.554
4	1.125	10.230	1.125	10.230	62.691	1.225	11.137	62.691
5	0.987	8.976			71.668			
6	0.766	6.964			78.632			
7	0.700	6.362			84.994			
8	0.612	5.566			90.560			
9	0.556	5.053			95.614			
10	0.483	4.386			100.000			
11	-4.427E-16	-4.024E-15			100.000			

Note: Extraction method: principal component analysis.

Table 16 Component transformation matrix

<i>Component transformation matrix</i>				
<i>Component</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1	0.735	0.517	0.418	0.132
2	−0.655	0.572	0.327	0.371
3	−0.088	−0.535	0.837	−0.069
4	−0.152	0.346	0.130	−0.917

Notes: Extraction method: principal component analysis.

Rotation method: Varimax with Kaiser normalisation.

Table 17 Rotates component matrix factors inhibit reporting valuations

<i>Rotated component matrix</i>				
	<i>Component</i>			
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
I will not be a whistleblower because my organisation may retaliate against me	0.631	0.149	0.239	0.343
I will not be a whistleblower on fraud and corruption because I may encounter retaliation from those involved	0.458	0.640	−0.171	−0.143
If the perpetrator of the violation holds a superior management position than me, I will not report the incident	−0.037	0.807	0.142	0.093
I will not be a correspondent because I believe that the organisation's management will not hold the perpetrator accountable	0.534	−0.219	−0.316	−0.320
I will not be a whistleblower because I believe that my organisation is unjust	0.205	−0.033	0.515	−0.598
I will not be a whistleblower because I do not wish to inflict harm	−0.050	−0.059	0.795	0.057
I will not be a whistleblower because I would feel betrayed by my employer	0.161	0.040	0.152	0.778
I will not be a whistleblower because I care about my current work and do not care about the directives of others	−0.816	−0.058	0.009	−0.026
If my organisation was constantly scrutinised by external regulators for unlawful behaviour, I would not be a whistleblower	−0.700	−0.070	−0.258	−0.016
If my organisation had a robust internal control system that could detect fraud and corruption, I would not be a whistleblower	−0.256	−0.242	−0.697	−0.065
I would not be a whistleblower if I received media attention	−0.012	−0.773	−0.058	−0.073

Notes: Extraction method: principal component analysis.

Rotation method: Varimax with Kaiser normalisation.

a. Rotation converged in six iterations.

The statements are adopted from Ebaid (2022b).

5.2.7 Factors that Inhibit Reporting Violations

Table 15 and Table 16 illustrate four main parameters that act as inhibiting factors for individuals involved in whistleblower endeavours. The total cumulative variance explained is 62.68%. Table 17 shows the loading factors of each item that can be used as the indicator of each factor. One primary concern pertains to the absence of protective measures and stringent penalties, encompassing two distinct elements: potential retaliation from the reported individual (0.631) and the lack of accountability for the perpetrator (0.534). The second component pertains to the collective nature of the offender, who has a position of authority inside the company. This factor encompasses two distinct elements: the likelihood of facing retribution from the implicated group of individuals (0.640), as well as the influence wielded by the perpetrator's seniority (0.807). The third factor encompasses two distinct components: the presence of organisational unfairness (0.515) and the desire to avoid causing harm to others (0.795). The fourth reason pertains to the avoidance of addressing more significant issues, specifically encompassing the apprehension of betraying the organisation (0.778). Four items were excluded from the analysis due to their values falling below the threshold of 0.5.

5.3 Discussion

The purpose of this study is to evaluate the extent to which forensic accounting is incorporated into accounting curricula and the possible benefits that students may derive from forensic accounting education. This study investigates the determinants of individuals' inclination to engage in whistleblowing. This study empirically demonstrates the application of human behaviour theory and fraud triangle theory by examining the behaviour and knowledge of students regarding the fraud triangle. The data analysed is influenced by these factors. The benefits of integrating forensic accounting can be attributed to three factors: knowledge of good corporate governance, assurance of financial reporting quality, and the development of litigation skills for accountants. Forensic accounting encompasses six key factors: fundamental fraud, fraud in financial statements, fraud research methodology, expert testimony and witness techniques, cybercrime, and fraud prevention and detection. Forensic accounting is crucial in detecting and preventing fraud and corruption due to their rising prevalence. This system employs investigative techniques and litigation procedures to uncover and anticipate fraudulent activities, making it an essential tool in fraud prevention. The expertise of human resources and knowledge of forensic accounting are affected by this (Jannah et al., 2021; Toeweh, 2022).

Enhancing the transparency and accountability of whistleblower programs may motivate students to examine the role of accounting in combating fraud. However, it is important to consider additional factors beyond moral intensity, such as level of knowledge, practical experience, and socio-cultural background (Kusumaningsih, 2021; Okafor et al., 2020). Whistleblowing intention is influenced by two factors: encouragement and discouragement. Whistleblowing is encouraged due to four factors: its role in organisational governance, its necessity for upholding public trust, its embodiment of organisational values, and the extent of financial losses involved. The discouraging aspects of whistleblowing can be attributed to four factors: lack of protection and severe penalties, involvement of a group of individuals and senior

members within the organisation, aversion to conflict, and reluctance to address larger issues. Universities and professional bodies in the field of accounting are advised to consider and further develop the findings of this research. Namazi et al. (2023) suggest that future research can investigate social variables, such as psychological capital, and other factors that influence accounting students' disclosure intentions regarding different types of errors.

5.4 Implications of research results

The field of forensic accounting exhibits a growing trend that has garnered heightened interest among accounting graduates. However, it is worth noting that the current provision of forensic accounting education is not uniformly comprehensive, leading to a diminished level of satisfaction among students pursuing this specialisation at their respective universities. In 2024, the Accounting Department at Petra Christian University created a program called Digital Accounting and Fraud. This program addresses market demands for accounting services focused on forensic accounting and fraud.

Based on the conducted investigation, it has been determined that students derive three distinct benefits, whereas forensic accounting encompasses six key themes. The expectation is that a comprehensive education in forensic accounting can provide accounting graduates with the necessary skills to effectively engage in whistleblowing activities, enabling them to discern instances of fraud in their reports accurately. The inclination to engage in whistleblowing is influenced by two elements, specifically those that encourage and those that discourage such behaviour. The driving reasons underlying whistleblowing actions consist of four factors that motivate individuals to engage in such activities, while the inhibiting factors encompass four characteristics that discourage individuals from engaging in whistleblowing activities.

6 Conclusions and recommendation

The rising occurrence of fraudulent activities and corrupt practices has led to a heightened need for professionals in the field of forensic accounting. These individuals possess a comprehensive understanding of witness and litigation methodologies, which play a crucial role in proactively identifying and preventing fraud and corruption. This study concludes that students have observed an increase in occurrences of corruption and fraud in the past few years. Furthermore, they recognise the need for forensic accounting services to actively deal with and prevent such misbehaviour. Students expect an increase in the need for forensic accounting services in the near future. Nevertheless, it is worth noting that numerous colleges in Surabaya and its environs now lack a comprehensive and autonomous academic discipline dedicated to forensic accounting and fraud. In August 2023, Petra Christian University introduced a new digital accounting and fraud curriculum inside its undergraduate accounting department. At present, the Surabaya region and its environs boast highly developed colleges offering comprehensive programs in forensic accounting, with a particular emphasis on fraud. This study gives an examination of students' perspectives regarding the advantages and significant subject matters pertaining to forensic accounting. In order to cultivate student interest in selecting a forensic accounting major, the university might draw upon various findings from this research as a point of reference.

Universities can enhance the promotion of forensic accounting majors by offering social science students a comprehensive and precise comprehension of the profession. The university is expected to offer an overview of forensic accounting as an intriguing and demanding profession, particularly in light of advancing technologies. Universities can partner with companies and public accounting firms to offer knowledgeable speakers in the field of fraud and forensic accounting, enhancing students' understanding of these practices. This study has limitations in examining fraud curricula at universities as it does not consider the extent of forensic accounting education, specifically the inclusion of fraud-related material, at these institutions. This study offers a comprehensive analysis and overview specifically tailored for universities. Future studies can enhance this study to develop a comprehensive fraud and forensic accounting curriculum to encourage whistleblowing intention.

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