



### Cryptocurrencies in Accounting School?

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## Cryptocurrencies in accounting school?

### Abstract

**Purpose** — This study conducted to determine whether new CPAs and accounting graduate students have a comprehensive understanding of cryptocurrencies and the skills they need over their education years.

**Design/methodology/approach** — a qualitative analysis used through semi-structured interviews to provide an in-depth insight into the cryptocurrencies that could not be investigated easily through quantitative methods, and to provide an understanding of the context for cryptocurrencies from CPA and non-CPA students point of view. This was in addition to focusing on understanding the differences between the students' thoughts.

**Findings** — this study found that the recent accounting graduates and CPA members have the least awareness regarding cryptocurrencies, likely due to a lack of professors' comprehension or exposure to the issue. In addition, the students that involved with forensic courses have provided more information about cryptocurrencies compared with students that do not involved in this course.

**Research limitations/implications** — our data is limited for only a single country. Because cryptocurrencies are a relatively new notion in accounting, there is an alarming lack of legislation. Further, we found that recent accounting graduates and CPA members had the same level of knowledge of cryptocurrencies, most probably due to a lack of exposure or understanding by academics.

**Practical implications** — the different of students answers about cryptocurrencies have varied influence on understanding level of cryptocurrencies on this time.

**Originality/value** — This study has identified that the vast majority of accounting graduates lack adequate knowledge about cryptocurrencies or access to adequate resources despite understanding the fundamental concepts of cryptocurrency.

**Keywords:** Cryptocurrency; Accounting Graduates; Education; Knowledge; Professors.

## Introduction

In recent years, the emergence of new technology has transformed business procedures. Experts have remarked that modern technology has considerably influenced the accounting profession (Al-Htaybat et al., 2018; Ferreira-Lopes et al., 2020). Integration is encouraged by the increasing significance of technology in the accounting and auditing professions (Centobelli et al., 2021). A fundamental understanding of the technological foundations of cryptocurrencies is required before making any judgments (Phillip et al., 2018), as more companies begin to invest in cryptocurrency and investors are more interested than ever. The absence of meaningful formal guidance from Generally Accepted Accounting Procedures (GAAP) standards on cryptocurrencies is a substantial impediment for stakeholders (Yatsyk, 2018). This is an essential subject for both accountants and players in the markets.

Cryptocurrency, which is categorised as an intangible asset under the current accounting standards (Vincent & Wilkins, 2020), has not received exceptional guidance from International Financial Reporting Standards (IFRS). As the Securities and Exchange Commission (SEC) maintains that several cryptocurrencies should be deemed securities (Hacker & Thomale, 2018), businesses should classify them as financial instruments as opposed to intangible assets (Vincent & Wilkins, 2020). In "Holdings of Cryptocurrencies – June 2019" (Tsuji, 2020), the IFRS Committee determined that bitcoin holdings are not financial assets. Recently, CPA Canada published "Audit Considerations Related to Cryptocurrency Assets and Transactions," which included mentioned intangible assets. How effectively are accountants equipped to deal with cryptocurrencies? This is an indispensable factor for both accountants and participants in the markets. The response to this question offers profound insight into the future of accountants and significantly impacts the valuations of financial reports.

This paper aims to determine whether accounting students have been introduced to cryptocurrencies and their handling in recent years. We surveyed students and recent accounting graduates majoring in accounting about their experience learning about cryptocurrency in their accounting programmes. Recent graduate students with accounting degrees and certifications tested their understanding of cryptocurrencies.

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3 According to our findings, most students' core curricula do not provide a comprehensive discussion of  
4 cryptocurrencies. Instead, cryptocurrencies are only introduced as immaterial assets that must be  
5 reported in financial statements, and students are not instructed on auditing or assessing  
6 cryptocurrencies. Most students agree that their professors' lack of cryptocurrency understanding is  
7 evident. These results demonstrate that the quality of accounting graduates is hampered by an  
8 imbalanced relationship between academics and technological progress. One of the most influential  
9 studies (Qasim & Kharbat, 2020) presented the integrated technique for revamping courses at three  
10 levels (introductory, intermediate, and advanced) and technologies. Suppose no effort is made to  
11 modify the curriculum of the accounting profession. In that scenario, this issue will continue, and  
12 information technology (IT) graduates with technical abilities in blockchain, data analytics, and  
13 artificial intelligence will replace accounting graduates. In addition, we find that participants are  
14 concerned about cryptocurrencies and illegal activities. This study's primary contribution is to reveal  
15 the critical need for a prototype and more regulations from the IFRS covering cryptocurrency  
16 categories and data for auditors and accountants to comprehend the issues posed by cryptocurrencies,  
17 similar to the Financial Accounting Standards Board (FASB) as they issued new a handout for  
18 accounting for exchange-traded digital assets in May 2022.  
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## 31 **Literature Review**

### 32 **Blockchain, DLT and decentralised**

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35 Cryptocurrencies such as bitcoin rely on blockchain technology. As the name suggests, blockchains  
36 are newer forms of distributed ledger technology (DLT) consisting of a database that keeps transaction  
37 data in ledgers in the form of distributed blocks. A block is a periodic ledger or container of data in  
38 computing. Each successive block contains the address of the previous block. A chain of  
39 cryptographically linked transaction bundles, or blocks, results from each block referencing the  
40 previous one (Perlman, 2019).  
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49 Periodically, an economic network may verify the authenticity of shared data using a decentralised  
50 blockchain. This general-purpose technology enables the trading of digital property rights and the  
51 creation of new kinds of digital platforms. These shared data might represent, among other sorts of  
52 contracts and digital assets, currency exchanges, intellectual property exchanges, stock exchanges, and  
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3 information exchanges (Rahman & Ali, 2020). A blockchain is a technique used by a community of  
4 users to maintain a shared transaction record. Through a consensus method, the community verifies  
5 each transaction. Consequently, verified transactions are recorded on the ledger of a blockchain  
6 network (Perlman, 2019).  
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11 DLT resolves difficulties relating to innovation or technology with shared and regulated data and the  
12 secure administration of diverse commercial transactions by numerous organisations (Sultan et al.,  
13 2018). The system relies on modern cryptographic proofs for distributed authentication in DLT. Data  
14 are stored in DLT blocks, continuously added and synced between participating nodes in particular  
15 networks (Perdana et al., 2021). However, governments and regulatory organisations prefer DLT to  
16 blockchain. A decentralised peer-to-peer network is used to conduct cryptocurrency transactions,  
17 obviating the requirement for a central authority (Kostić & Sedej, 2020; Vincent & Wilkins, 2020).  
18 Typical strategies would require the creation of a scheme governing body, adopting IT security  
19 standards, and integrating the necessary transaction verification processes into the design and  
20 architecture of the cryptocurrency. It would be possible to place operational and business continuity  
21 criteria directly on these authorities, such as screening investors or users. Because of this, restructuring  
22 the regulatory framework would not be necessary for centralised cryptocurrencies (Nabilou, 2019).  
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33 Decentralised cryptocurrency exchanges, or DEXs, are like centralised exchanges but do not rely on a  
34 third party. In contrast to a centralised crypto exchange's IOU-based structure, these systems allow  
35 peer-to-peer (P2P) trade using assets, proxy tokens, or escrow mechanisms (Adams & Bailey, 2021).  
36 The monies exchanged in this transaction are all preserved on the blockchain. Some top  
37 cryptocurrency companies are built not to be censored and are decentralised, which is a crucial  
38 impediment to the direct regulation of cryptocurrencies: decentralised cryptocurrencies are hard to  
39 regulate without a centralised governance structure.  
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#### 46 **Cryptocurrencies under IFRS: Are they intangible assets?**

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49 Tokens can function as a unit of money or represent other value types as tradable assets. Tokens would  
50 be subject to securities legislation if they qualified as securities. Accounting standards do not yet exist  
51 for various challenges that accountants may encounter in practice; one such concern is  
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3 cryptocurrencies. Due to the lack of an accounting standard defining how cryptocurrency should be  
4 accounted for, accountants are compelled to use established accounting standards (Vincent & Wilkins,  
5 2020). Cryptocurrency is an electronic or virtual version of money, implying an asset. Financial assets  
6 possess a contractual right that the holder can receive cash or another financial asset from any third  
7 party or trade financial assets or liabilities with the third party under potentially favourable conditions.  
8 Cryptocurrency holders do not usually possess this type of contractual right. Because of this,  
9 cryptocurrencies do not appear to fit the definition of a non-cash financial asset in IAS 32 and IFRS 9  
10 (Barker & Teixeira, 2018). A financial asset's primary feature is the holder's contractual right to receive  
11 cash or another asset under favourable conditions in exchange for the firm's obligations. Most  
12 cryptocurrencies do not hold this right.  
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21 Therefore, cryptocurrencies seem to be excluded from the scope of IAS 32 and IFRS 9 (Barker &  
22 Teixeira, 2018). Since cryptocurrencies are not a currency, the IFRS declared that cryptocurrency  
23 ownership is not a financial asset, nor are securities issued by a third party. It confers no contractual  
24 rights on the holder and is not a contract that will or can be concluded via the holder's equity  
25 instruments.  
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31 IAS 38.8 defines an intangible asset as 'an identifiable non-monetary asset that lacks physical  
32 substance' (Barker & Teixeira, 2018). As a result, it appears that a sizable proportion of  
33 cryptocurrencies meet the criteria of intangible assets and, hence, come under the scope of IAS 38. If  
34 we analyse cryptocurrencies under IA38, the cryptocurrency may be recorded at cost (i.e., using the  
35 cost method) or at fair value (i.e., the revaluation method). If no factors suggest a finite useful life,  
36 cryptocurrencies are likely classified as indefinitely valuable intangibles, unlike fiat currencies such  
37 as the U.S. dollar and euro (Anvar kyzy et al., 2022).  
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#### 44 **Cryptocurrencies under the SEC: Are they securities?**

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47 Cryptocurrency and initial coin offerings are booming. The scope of these markets includes regional,  
48 national, and international players and an increasingly diverse spectrum of products and services.  
49 Investors and other market participants can face issues because of these developments. In such a  
50 market, U.S. federal law regulates investment companies and their operations and establishes industry  
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standards. President Franklin D. Roosevelt signed the Investment Advisers Act of 1940 (Moriarty, 2021), empowering the SEC to oversee investment trusts and counsellors. Four divisions comprise the SEC, and several divisions within it work towards the same goal of protecting investors, ensuring fair, organised and efficient markets, and promoting the interests of investors (McLelland et al., 2007).

Another statute is the Securities Act of 1933 (Bullock, 1934), referred to as the Truth in Securities Act (DiMarino & Roberson, 2020). According to the Securities Act of 1933, securities issuers sell securities to raise capital, make investments, or grow operations. These enterprises need investors to flourish, which incentivises issuers to showcase their companies in investor-friendly ways. The Securities Act's primary objective is that securities offered for sale must be free of deception, misrepresentation, and other types of fraud.

Because of the act, if investors can establish that critical information was not disclosed entirely or adequately, they have considerable recovery rights if they lose money while purchasing shares. According to Section 5 of the Securities Act, all issuers of non-exempt securities must register them with the SEC (di Marino & Roberson, 2013). The two steps to the registration process are detailed in Section 6. First, the issuer must provide data that serve as the basis for the prospectus sent to investors. Second, the issuer makes public material that will not appear in the prospectus (Bullock, 1934)

Some of its more recent actions have demonstrated that the SEC views cryptocurrencies that require digital assets to be registered as securities under Security Act 1933. For instance, in exchange for about 12 million Ether, the decentralised autonomous organisations (DAO) issued and sold around 1.15 billion DAO Tokens (Senderowicz et al., 2018). The SEC ruled that with DAO Tokens, DAO's bitcoin-based investment contracts, the term "investment contract" refers to a contract under which a party invests money in a joint venture with the intent to profit from the entrepreneurial endeavours of the other party (Goforth, 2021).

In another example, an SEC complaint was filed against DeFi Money Market ("DMM") earlier this year (SEC, 2021a). This platform allowed users to exchange Ether for redeemable tokens. A collateralised loan redeemed using Ether would pay a minimum interest rate of 6.25%. DMM would buy and retain such loans. DMM, however, did not hold these loans; one of its business associates did.

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3 Even though DMM did not damage investors and gave them the interest promised, the SEC sued the  
4 company for breach of contract, among other things. DMM sold more than 30 million securities in  
5 unregistered offerings. Holders of DeFi Money Market governance (DMG) tokens may participate in  
6 certain voting rights, receive a portion of excess earnings, and benefit from DMG resales.  
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11 However, Director of Corporation Finance at SEC, said that "at least according to my understanding  
12 of Ether's decentralized structure, current Ether transactions are not securities" (Hinman, 2018). Ripple  
13 was sued for failing to undertake an initial coin offering (ICO), which Ethereum did. Ripple advanced  
14 this case in court, and the SEC claimed that Hinman's remark reflected merely his viewpoint, not the  
15 agency's. As previously indicated, the SEC seems to have differing opinions on whether a given  
16 cryptocurrency is a security, which will affect how regulators perceive cryptocurrencies and where to  
17 recognise them in financial statements.  
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### 23 24 **Cryptocurrency and the CSQC**

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27 As part of the Canadian Standard on Quality Control (CSQC), audit firms must establish procedures  
28 for evaluating audit client acceptance and retention (Deloitte, 2009). Specifically, an audit firm's  
29 quality control procedures must provide reasonable assurance that the firm has the competence  
30 necessary to perform the engagement and has considered relevant risks appropriately. As such, an  
31 auditing firm should determine whether it has the expertise and resources necessary to satisfy  
32 customers. If expertise is lacking, audit firms must collaborate with accounting experts to assist with  
33 that project (M. E. Barth, 2008). Considerations that the auditor may make in gaining knowledge of  
34 the entity's relevant financial reporting structure and its application considering the entity's nature,  
35 circumstances, and surroundings are "Accounting for unusual or complex transactions including those  
36 in controversial or emerging areas (for example, accounting for cryptocurrency)" (CPA Canada, 2018).  
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46 Additionally, quality control requires the auditor to evaluate the risks in the engagement (Liu et al.,  
47 2017). Auditors must determine whether a reason exists to believe the client may be engaged in money  
48 laundering or other illegal activity. These kinds of activities are allowed by the anonymity of  
49 blockchain transaction participants. Therefore, the auditor's engagement acceptance or continuation  
50 procedures would certainly entail inquiries and associated procedures to ascertain the entity's business  
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3 purpose for engaging in cryptocurrency transactions for the first time or materially altering the nature  
4 or scope of its cryptocurrency practices.  
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### 7 **Cryptocurrency in school accounting books**

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10 Accounting rules emphasise responsibility in preparing financial reports to reduce unethical conduct  
11 that might endanger stakeholders' assets. Meanwhile, experts concluded that ethical and responsible  
12 behaviour in generating financial reports begins in the classroom. Therefore, vital accounting  
13 education is necessary to improve the compilation of financial reports. According to Suryawathy and  
14 Putra (2016), Chief Financial Officers (CFOs) are worried about the quality of accounting education.  
15 Abayadeera et al. (2016) informed stakeholders of the significance of accounting skills for graduates.  
16 When accounting instructors can convey information (Suryawathy & Putra, 2016) and when the  
17 learning environment is conducive, these abilities are provided (Vroeijenstijn, 2003).  
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25 Furthermore, the globalisation and development of accounting, such as IFRS, impact accounting  
26 education (Needles Jr, 2010), increasing CFOs' demand for improved accountant skills (Mathews,  
27 2001). These demands and rapid changes are fundamental requirements in the educational quality  
28 environment. In addition, most accounting books classify cryptocurrencies as intangible assets (Martin  
29 et al., 2020); the possibility that cryptocurrencies could be classified differently is not discussed.  
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### 35 **Research questions**

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38 Accounting is in a state of transition, resulting in a crisis of competence among young employees  
39 (Lawson et al., 2014), and better accountants start in the classroom. Entry-level accountants of superior  
40 competence are needed (Jeffrey Wilks & Scott Showalter, 2021). According to DELORS (1999),  
41 instructors are responsible for communicating everything to learners. According to Andere (2015),  
42 instructors are education leaders, and their credentials and training, and the performance appraisal of  
43 experience and competencies to keep up with the need for advances and different technologies, are in  
44 greater demand. As a result, accounting instructors must be aware of the types of expertise  
45 and knowledge required for providing high-quality information and relevant guidance for future-  
46 focused choices (Azah Abdul Jalil et al., 2019). From the standpoint of students, we seek to gain a  
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3 greater understanding of whether or not educators have the necessary expertise in cryptocurrency  
4 technology through the following research questions:  
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8 ***RQ1: How do accounting professors introduce, explain, and debate cryptocurrencies during the***  
9 ***academic years?***  
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12 ***RQ2: During the academic years, have accounting professors debated the ethical concerns of***  
13 ***cryptocurrencies?***  
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17 As accounting and accountants evolve, they are affected by various factors, including the context  
18 within which they operate and the technological advances that affect the capture (Wells, P. K. 2018).  
19 Not uncommon are criticisms that the curriculum does not represent contemporary accounting  
20 practices (Mathews, 2001). In response to these curricular issues, the Accounting Education Change  
21 Commission in the United States recommended that beginning accounting courses be liberalised to  
22 represent better the aptitudes and abilities required for an ever-expanding array of employment  
23 prospects in accounting (Mathews, 1994). In publications including Bayerlein (2015) and Parker et al.  
24 (2011), efforts to resolve these curricular issues have primarily centred on the demand for developing  
25 non-technical accounting graduate skills. Nevertheless, Sundem (1999) discovered that practice had  
26 evolved more than contents and that the reaction to these requests for change remained restricted.  
27 Accordingly, we propose the following research question:  
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37 ***RQ3: Did accounting textbooks explain cryptocurrency in detail during your school years?***  
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40 Due to diverse client goals throughout appropriateness engagements, accountants presumably require  
41 experience-based expertise to pick a relevant issue and create value for clients. To develop this  
42 expertise, accounting firms offer training programmes to assist new accountants. This means that firms  
43 examine new employees' competencies to identify development needs. Despite the increased interest  
44 in this area, no studies examine development programmes for accountants on cryptocurrency.  
45 Consequently, we propose our final research question:  
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51 ***RQ4: During your work, did accounting firms provide training on cryptocurrency?***  
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## RESEARCH METHOD

This study examines the knowledge, experiences and perceived outcomes of students who have completed CPA studies and recent graduates who enrol in a CPA programme. To investigate our research question, we conduct semi-structured interviews. These semi-structured interviews offer precise information on individual real-world students' experiences with cryptocurrencies, allowing us to understand better how they acquire crypto knowledge.

Additionally, our investigation allows, uniquely and directly, whatever aspect of the institution contributes to students' unfamiliarity with cryptocurrencies. Additionally, we were permitted to ask follow-up questions freely throughout our semi-structured interviews. As a result, we could delve further into students' understanding of and interest in cryptocurrency.

A virtual interview process was conducted with 57 recently qualified accountants. To ensure diversity across universities and colleges in Canada, we identified interviewees through our contacts. One co-author conducted a thorough question-by-question analysis in keeping with the study's interpretive focus (Hermanson et al., 2012). This co-author classified and categorised replies by their frequency of occurrence; the co-author conferred with the other co-authors as required. A second co-author evaluated the data file and chose quotes from interviews to publish. Along with the initial co-author, two more co-authors analysed the patterns of the results and quoted discussions for consistency with their perceptions. This study used Han's (2015) quoting method to present our results.

All participants received their credentials within the last five years. We estimate that government entities employ 35% of the population. Two-fifths (40%) are employed by major companies, whereas small companies employ 27%. Three-quarters (73%) of the participants invest in cryptocurrencies, although none of them analysed them in their job. Just over a third (35%) started to invest in cryptocurrencies while at school, the majority in 2019. All participants had to provide a copy of their degree certificates in accounting for reliability.

We apply a two-phase strategy to evaluate recent graduates' understanding of cryptocurrency and how they acquire this information. In the first phase, we construct an interview protocol and execute semi-structured interviews.

### Semi-structured interviews

A sample population of 57 recent accounting graduates from five public universities and two public colleges enrolled in the CPA Canada programme participated in the interviews in 2021. The mean (median) age of interviewees was 28 (median: 24.5), they were primarily male (26%), and they had an average (median) of four years of job experience. The study focuses on the Canadian market since the researchers had access to participants there. The principal researcher teaches at a Canadian institution with access to individuals and accounting programme expertise in Canada.

Semi-structured interviews, guided by a set script, enabled us to explore cryptocurrency's fundamental positions among participants. This method conforms to various scholars' methods (Beasley et al., 2009). At least two study team members were present at each interview. Each interview lasted around 20 minutes, and all interviewees consented to be videotaped. Given the questions in the interview guide, interview responses were first categorised into topics and then into the survey's emerging themes. The experts reached a consensus on coded topics and themes through a series of iterations.

## Results

### Research Question 1

Our initial step in designing our interviews was to ascertain if the professors have accounting competence. Because 62% of respondents could provide concrete examples of their professor's superior accounting knowledge, students typically display confidence when assessing their professor's accounting knowledge and experience. According to respondents, accounting lecturers are mostly CPA graduates who have worked in major accounting firms. These skills and experiences aided significantly in the explanation of the accounting topic. The following quotations demonstrate this "discovery" of accounting professors' job skills and background.

*"I have a pretty professional faculty to learn from. They know about vast things. They were so easy to approach. I remember three of my accounting professors worked at KPMJ. I think that helped us to learn more and better." (P2)*

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3 *“My lecturers used to offer us significant examples from their past job experience*  
4 *and provide us with difficulties that required us to collaborate to determine a*  
5 *solution [for] customers. I honestly thought this to be very fascinating... I*  
6 *discovered that I probably want to get further knowledge in this area.” (P24)*  
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11 *“Now that I work as an accountant, I think, ‘Oh. I completely get all of the*  
12 *instances my instructors illustrated in class, and their expertise has increased my*  
13 *confidence in reaching this point at my present company.’” (P7)*  
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18 It is crucial to demonstrate that students can assess instructors' knowledge levels to ascertain if they  
19 can judge the instructors' understanding of cryptocurrency. Participants were asked if accounting  
20 instructors were aware of cryptocurrency and whether they discussed cryptocurrencies. The  
21 overwhelming majority of our participants were dissatisfied that their accounting instructors never  
22 covered cryptocurrency in class, even though the vast expertise of their accounting professors had  
23 benefitted them in general. A few individuals acknowledged that particular instructors discussed  
24 cryptocurrencies but not accounting treatments or auditing cryptos. These views are conveyed in the  
25 following quotations.  
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32 *"My instructors used to insist that we must live in the present. So, to live,*  
33 *individuals must learn new things. As a result, they spent time talking about*  
34 *cryptocurrencies but were never about financial treatment. " (P15)*  
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39 *"My professors are knowledgeable, but they have never really discussed such*  
40 *topics... I do not recall any of them ever mentioning bitcoins." (P8)*  
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44 *"Cryptocurrency or bitcoin should be taught to students.... Regrettably, our*  
45 *lecturers never fully addressed such issues in class and the ones who did were*  
46 *against bitcoins." (P17)*  
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50 This result helps explain the varying knowledge and abilities of accounting professors. According to  
51 participants, they have a high degree of confidence in their capacity to determine the level of expertise  
52 of certain lecturers. The differences between accounting university graduates and college professors  
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3 regarding their knowledge and skills are not substantial. This diversity of experience of accounting  
4 professors is consistent with prior studies (Bhaskar, 1983; Bolzan, 2010; Romney, 1983); it  
5 demonstrates the profession's willingness to hire academics with diverse skill sets. Most of the findings  
6 correctly recognised the academics' lack of knowledge about cryptocurrency. Academics' lack of  
7 expertise in cryptocurrency may have contributed to these conclusions. Another probable explanation  
8 is that most accounting professors earned their degrees before cryptocurrencies were introduced,  
9 rendering them incapable of educating students.  
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## 15 16 **Research Question 2**

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19 J. R. Barth et al. (2020) explored the impact of ethical and immoral conduct on the value of  
20 cryptocurrencies. Ethical concerns about their usage impact cryptocurrencies' value. In this study, we  
21 explored the ethical implications of cryptocurrencies to determine if professors avoid them because of  
22 ethical concerns and their belief systems. We learned that many participants' professors were  
23 concerned about cryptocurrencies and ethics, corresponding to an earlier study (Vincent & Wilkins,  
24 2020). We inquired about the respondents' and their professors' perspectives on cryptocurrencies to  
25 evaluate whether they shared the same perspective.  
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32 According to most respondents, cryptocurrencies are primarily used for money laundering, illegal  
33 currency exchanges and platforms, and underground black markets. Expectedly, participants whose  
34 instructor was opposed to cryptocurrencies were hostile to cryptocurrency investments and  
35 transactions. In addition, our findings show that the worries mentioned during the interview did not  
36 stop most accounting graduates from investing in cryptocurrencies. Due to a lack of awareness and  
37 ethical challenges, participants are learning more about crypto concerning accounting and audit  
38 procedures. They feel that cryptocurrencies will not vanish due to ethical concerns as more significant  
39 corporations invest in bitcoins. These views are conveyed in the following quotations.  
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47 *"It is well known that drug dealers use cryptocurrencies." (P14)*  
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50 *"There are so many issues surrounding bitcoin, take real states in Canada as an*  
51 *example, how international money is being used to legitimate the money." (P4)*  
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3 *"I have many concerns about crypto..... drugs being the main reason." (P31)*  
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6 *"I do think cryptocurrency is here to stay..... If governments issued their*  
7 *cryptocurrency in a few years, we would not see the mess in the market... and*  
8 *illegal activities will disappear." (P22)*  
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12 *"I recall my professors talking about bitcoins and how drug dealers are using*  
13 *bitcoin... I feel it is better to be far away for now from bitcoin." (P27)*  
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### 16 17 **Research Question 3**

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20 Regarding whether accounting textbooks include cryptocurrencies, students have differing  
21 viewpoints. More than half of the respondents said that cryptocurrencies were never discussed in their  
22 books. These views are conveyed in the following quotations.  
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26 *"I have never read anything about it in the previous version of books. Probably,*  
27 *the new versions may contain a little information on it." (P41)*  
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31 *"I do not remember having encountered such a subject during my accounting*  
32 *studies in the books. I would remember if I saw it, given that I had reviewed my*  
33 *accounting books while preparing for my CPA." (P52)*  
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37 *"I had never seen it, even when I was studying for my CPA. I went through all my*  
38 *CPA materials and CPA competencies books; I never had the opportunity to read*  
39 *about them... I firmly believed that no textbook stated anything about crypto."*  
40 *(P39)*  
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45 The remaining participants reported that the textbook devoted just one page to cryptography without  
46 providing examples or problems, or if it did, it did so unhelpfully. Students agree that the book's  
47 material on intangibles covers cryptocurrency. According to them, the handling of cryptocurrency in  
48 the book was insufficient for the subject since an increasing number of businesses embrace  
49 cryptocurrencies. These views are conveyed in the following quotations.  
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3 *"I remember that my intermediate accounting volume 2 accounting textbook*  
4 *discussed cryptocurrency, but I think it was an introduction page, maybe in a one*  
5 *or two page only and was classified as intangible assets." (P30)*  
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9 *"Since I am investing in crypto, this caught my attention... I think there was one*  
10 *column in one of the chapters." (P9)*  
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14 Respondents were able to offer precise justifications for their positions in answer to a subsequent  
15 inquiry. Their responses centred on crypto as a new problem, and future textbooks will need more  
16 resources to accommodate the growing number of crypto investors. Students cited the writers' lack of  
17 knowledge regarding cryptocurrency as a contributing factor. These views are conveyed in the  
18 following quotations. Students cited the writers' lack of  
19 knowledge regarding cryptocurrency as a contributing factor. These views are conveyed in the  
20 following quotations.  
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23  
24 *"I do not believe the textbook included information about bitcoin, which is a new*  
25 *subject. It may take a few years before doing so." (P24)*  
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28 *"I think the book's author has no depth knowledge about crypto, so they did not*  
29 *expand on the subject..... Remember, it is a very new subject...., and people still*  
30 *test the water." (P29)*  
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34 *"I think if more people and companies invest in crypto, the more demand for*  
35 *information's needed. Which I believe will be in new editions of accounting*  
36 *textbook." (P51)*  
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41 This result indicates a dearth of information available in the textbook. Whether or not the interviewees  
42 stated that the cryptocurrency was discussed in the book, the fact remains that it was barely mentioned,  
43 indicating that students are incapable of addressing the accounting treatment of a cryptocurrency. This  
44 result contradicts prior research (Hammond et al., 2015). As a result of their examination of accounting  
45 textbooks, which revealed that accounting textbooks are being revised at an accelerating rate and that  
46 accounting professors believe the rate of change should be slowed, faculty members who are not  
47 textbook authors deem frequent textbook revisions to be of diminishing value.  
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#### Research Question 4

It is acknowledged that the range of duties of experienced accountants has expanded in recent years. Most accounting companies accept 'suitable' relevant job experience if a prospective member works under the guidance of a competent member in specific areas. Most universities and colleges in Canada provide an accounting co-op designed for students interested in acquiring work experience in accounting firms. Students in accounting must complete one semester working for a firm to be able to graduate from the programme. All participants completed the programme in their current or prior place of employment. Participants report that their work while in school was an entry-level role and that the training they obtained was relevant to their daily duties and understanding of the firm structures. Many in-hire positions reported that their training was only related to the new job and did not extend to other areas, such as cryptocurrencies. Few participants indicated that their firm has a specialist department and personnel who deal with cryptocurrency investment, yet they have no interaction due to the nature of their jobs. These views are conveyed in the following quotations.

*"I have been investing in cryptocurrency since 2019. Thus, I have been acquainted with it. Nevertheless, I have never been trained at work about classifying crypto."*  
(P11)

*"Last year, I started my job as an account receivable clerk; I have been reading much about it since my co-op was mainly about bookkeeping while I was at school.....my firm does not deal with crypto; it is a small firm..... My supervisor invests in crypto; we sometimes discuss the crypto but not in terms of accounting classification auditing." (P26)*

*"I was surprised when I learned that we have a specialist in crypto in our firms. Some of our companies invest in crypto..... But I rarely see or talk to the people who deal with crypto investors." (P31)*

*"My work is not related to crypto, and as a result, I have not been informed about it. Even though we have a large number of firms who invest in crypto.....our*

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3 *database has information about crypto to read, but it's only accessible for people*  
4 *whose work relates to bitcoin." (P2)*  
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8 *"Since I completed school, I have worked as an auditor at the government agency;*  
9 *so far, I did not have any clients who invested in crypto. Therefore, I never had*  
10 *training. I do not recall anyone at my workplace discussing the crypto... most of*  
11 *them believe it is a scam.....but as we provide public service, I think we should*  
12 *know about crypto." (P27)*  
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## 17 **Conclusion**

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20 Since cryptocurrency is a relatively new concept in accounting, laws are alarmingly absent. The  
21 challenges presented by the SEC in its quest to regulate cryptocurrencies and classify most of them as  
22 financial securities put pressure on the international standard to assess its definition of security through  
23 the lens of IFRS and offer a more accurate classification of cryptocurrency. While student investors  
24 are aware of the underlying principles of cryptocurrency, most graduates with accounting degrees  
25 continue to face difficulties due to a lack of knowledge about cryptocurrencies or a lack of resources.  
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29 Additionally, we discovered that recent accounting graduates have only the slightest awareness  
30 regarding cryptocurrencies, likely due to a lack of professors' comprehension or exposure to the issue.  
31 Our primary contribution understands if accounting graduates are prepared to do accounting and  
32 auditing work in the future regarding cryptocurrencies.  
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38 Some may argue that time is impacting the progress of cryptocurrencies more quickly than anybody  
39 anticipated. Although this may be true, cryptocurrencies have been on the market since 2011 and  
40 received substantial investment acceptance from companies in 2017. Since then, several textbooks  
41 have been revised and no longer include the appropriate section on cryptocurrencies. Another  
42 objection might be made about the instructors' expertise in cryptocurrencies since the subject was not  
43 featured in the textbook and was thus not discussed in class. This is a reasonable point; however, most  
44 participants report that they discuss cryptocurrencies with their professors; either they are opposed to  
45 cryptocurrency for ethical reasons or have a limited understanding of it.  
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Several actions can be taken by schools in response to these findings, including collaboration with the CPA, regulators, and academic book authors to provide more resources about cryptocurrencies. Accounting schools should educate academics on cryptocurrencies and encourage instructors to include cryptocurrency-related content in their courses. Furthermore, we suggest that accounting textbooks should contain a section on cryptocurrencies. Students should learn about cryptocurrencies through CPA Canada's cryptocurrency exams. In addition to developing criteria for evaluating whether cryptocurrencies qualify as securities, IFRS committees should comprehensively examine cryptocurrency classification.

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## Cryptocurrencies in accounting school?

### Abstract

**Purpose** — This study was conducted to determine whether new Certified Public Accountant (CPAs) and accounting graduate students have a comprehensive understanding of cryptocurrencies and the skills they need over their education years.

**Design/methodology/approach** — A qualitative analysis was used through semi-structured interviews to provide an in-depth insight into the cryptocurrencies that could not be investigated easily through quantitative methods, and to provide an understanding of the context for cryptocurrencies from CPA and non-CPA students' point of view. This was in addition to focusing on understanding the differences between the students' thoughts.

**Findings** — This study found that the recent accounting graduates and CPA members have the least awareness regarding cryptocurrencies, likely due to a lack of professors' comprehension or exposure to the issue. In addition, the students involved with forensic courses have provided more information about cryptocurrencies compared with students that were not involved in this course.

**Research limitations/implications** — Our data are limited for only a single country. Because cryptocurrencies are a relatively new notion in accounting, there is an alarming lack of legislation. Further, we found that recent accounting graduates and CPA members had the same level of knowledge of cryptocurrencies, most probably due to a lack of exposure or understanding by academics.

**Practical implications** — The different students' answers about cryptocurrencies have varied influence on the current level of understanding about cryptocurrencies.

**Originality/value** — This study has identified that the vast majority of accounting graduates lack adequate knowledge about cryptocurrencies or access to adequate resources despite understanding the fundamental concepts of cryptocurrency.

**Keywords:** Cryptocurrency; Accounting Graduates; Education; Knowledge; Professors.

## 1. Introduction

In recent years, the emergence of new technology has transformed business procedures (Shaban, 2020). Experts have remarked that modern technology has considerably influenced the accounting profession (Al-Htaybat et al., 2018; Ferreira-Lopes et al., 2020). Integration is encouraged by the increasing significance of technology in the accounting and auditing professions (Centobelli et al., 2021); however, a fundamental understanding of the technological foundations of cryptocurrencies is required before making any judgements (Phillip et al., 2018), as more companies begin to invest in cryptocurrency and investors are more interested than ever. The absence of meaningful formal guidance from Generally Accepted Accounting Procedures (GAAP) standards on cryptocurrencies is a substantial impediment for stakeholders (Yatsyk, 2018). This is an essential subject for both accountants and players in the markets.

Cryptocurrency, which is categorised as an intangible asset under the current accounting standards (Vincent & Wilkins, 2020), has not received exceptional guidance from International Financial Reporting Standards (IFRS). As the Securities and Exchange Commission (SEC) maintains that several cryptocurrencies should be deemed securities (Hacker & Thomale, 2018), businesses should classify them as financial instruments as opposed to intangible assets (Vincent & Wilkins, 2020). In "Holdings of Cryptocurrencies – June 2019" (Tsuji, 2020), the IFRS Committee determined that bitcoin holdings are not financial assets. Recently, CPA Canada published "Audit Considerations Related to Cryptocurrency Assets and Transactions", which included mention of intangible assets. How effectively are accountants equipped to deal with cryptocurrencies? This is an indispensable factor for both accountants and participants in the markets. The response to this question offers profound insight into the future of accountants and significantly affects the valuations of financial reports.

This paper aims to determine whether accounting students have been introduced to cryptocurrencies and their handling in recent years. We surveyed students and recent accounting graduates majoring in accounting about their experience learning about cryptocurrency in their accounting programmes. Recent graduate students with accounting degrees and certifications were tested regarding their understanding of cryptocurrencies.

Cryptocurrencies can have various implications for graduate students, both as investors and as participants in the cryptocurrency industry. Cryptocurrencies can offer graduate students new investment opportunities, either as a speculative investment or as a long-term investment in the

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3 future of blockchain technology. However, graduate students should carefully evaluate the risks  
4 and benefits of investing in cryptocurrencies, as the market can be highly volatile and subject to  
5 market manipulation. In addition, cryptocurrencies can offer graduate students new opportunities  
6 for investment, research, job-seeking, and entrepreneurship. However, they should carefully  
7 evaluate the risks and benefits of engaging with the cryptocurrency industry and should be  
8 prepared to adapt to the rapid changes and uncertainties that are characteristic of the industry.  
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15 According to our findings, most students' core curricula do not provide a comprehensive  
16 discussion of cryptocurrencies. Instead, cryptocurrencies are only introduced as immaterial assets  
17 that must be reported in financial statements, and students are not instructed on auditing or  
18 assessing cryptocurrencies. Most students agree that their professors' lack of cryptocurrency  
19 understanding is evident. These results demonstrate that the quality of accounting graduates is  
20 hampered by an imbalanced relationship between academics and technological progress. One of  
21 the most influential studies (Qasim & Kharbat, 2020) presented the integrated technique for  
22 revamping courses at three levels (introductory, intermediate, and advanced) and technologies.  
23 Suppose no effort is made to modify the curriculum of the accounting profession. In that scenario,  
24 this issue will continue and information technology (IT) graduates with technical abilities in  
25 blockchain, data analytics and artificial intelligence will replace accounting graduates. In  
26 addition, we find that participants are concerned about cryptocurrencies and illegal activities. This  
27 study's primary contribution is to reveal the critical need for a prototype and more regulations  
28 from the IFRS covering cryptocurrency categories and data for auditors and accountants to  
29 comprehend the issues posed by cryptocurrencies (Ramassa & Leoni, 2022), similar to the  
30 Financial Accounting Standards Board (FASB) which issued a new handout for accounting for  
31 exchange-traded digital assets in May 2022.  
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## 45 2. Literature Review

### 46 **Blockchain, DLT and decentralised**

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51 Cryptocurrencies such as bitcoin rely on blockchain technology (Shaban, 2020). As the name  
52 suggests, blockchains are newer forms of distributed ledger technology (DLT) consisting of a  
53 database that keeps transaction data in ledgers in the form of distributed blocks. A block is a  
54 periodic ledger or container of data in computing. Each successive block contains the address of  
55 the previous block; a chain of cryptographically linked transaction bundles, or blocks, results  
56 from each block referencing the previous one (Perlman, 2019).  
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3 Periodically, an economic network may verify the authenticity of shared data using a  
4 decentralised blockchain. This general-purpose technology enables the trading of digital property  
5 rights and the creation of new kinds of digital platforms. These shared data might represent,  
6 among other sorts of contracts and digital assets, currency exchanges, intellectual property  
7 exchanges, stock exchanges, and information exchanges (Rahman & Ali, 2020). A blockchain is  
8 a technique used by a community of users to maintain a shared transaction record. The community  
9 verifies each transaction through a consensus method and verified transactions are consequently  
10 recorded in the ledger of a blockchain network (Perlman, 2019).  
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18 DLT resolves difficulties relating to innovation or technology with shared and regulated data and  
19 the secure administration of diverse commercial transactions by numerous organisations (Sultan  
20 et al., 2018). The system relies on modern cryptographic proofs for distributed authentication in  
21 DLT. Data are stored in DLT blocks, continuously added and synced between participating nodes  
22 in particular networks (Perdana et al., 2021). However, governments and regulatory organisations  
23 prefer DLT to blockchain. A decentralised peer-to-peer network is used to conduct  
24 cryptocurrency transactions, obviating the requirement for a central authority (Kostić & Sedej,  
25 2022; Vincent & Wilkins, 2020). Typical strategies would require the creation of a scheme  
26 governing body, adopting IT security standards, and integrating the necessary transaction  
27 verification processes into the design and architecture of the cryptocurrency. It would be possible  
28 to place operational and business continuity criteria directly on these authorities, such as screening  
29 investors or users. Because of this, restructuring the regulatory framework would not be necessary  
30 for centralised cryptocurrencies (Nabilou, 2019).  
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42 Decentralised cryptocurrency exchanges, or DEXs, are like centralised exchanges but do not rely  
43 on a third party. In contrast to a centralised crypto exchange's IOU-based structure, these systems  
44 allow peer-to-peer (P2P) trade using assets, proxy tokens, or escrow mechanisms (Adams &  
45 Bailey, 2021). The monies exchanged in this transaction are all preserved in the blockchain. Some  
46 top cryptocurrency companies are, however, built not to be censored and are decentralised, which  
47 is a crucial impediment to the direct regulation of cryptocurrencies: decentralised  
48 cryptocurrencies are hard to regulate without a centralised governance structure.  
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55 **In summary, blockchain is a type of DLT that is decentralised, and decentralisation is a key aspect**  
56 **of both blockchain and DLT technologies. DLT is a broader term that encompasses all types of**  
57 **decentralised and distributed ledger technologies, including blockchains.**  
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### **Cryptocurrencies Under IFRS: Are They Intangible Assets?**

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6 Tokens can function as a unit of money or represent other value types as tradable assets. Tokens  
7 would be subject to securities legislation if they qualified as securities. Accounting standards do  
8 not yet exist for various challenges that accountants may encounter in practice; one such concern  
9 is cryptocurrencies. Due to the lack of an accounting standard defining how cryptocurrency  
10 should be accounted for, accountants are compelled to use established accounting standards  
11 (Vincent & Wilkins, 2020). Cryptocurrency is an electronic or virtual version of money, implying  
12 an asset. Financial assets possess a contractual right that the holder can receive cash or another  
13 financial asset from any third party or trade financial assets or liabilities with the third party under  
14 potentially favourable conditions. However, cryptocurrency holders do not usually possess this  
15 type of contractual right. Because of this, cryptocurrencies do not appear to fit the definition of a  
16 non-cash financial asset in IAS 32 and IFRS 9 (Barker & Teixeira, 2018). A financial asset's  
17 primary feature is the holder's contractual right to receive cash or another asset under favourable  
18 conditions in exchange for the firm's obligations. Again, most cryptocurrencies do not hold this  
19 right and seem to be excluded from the scope of IAS 32 and IFRS 9 (Barker & Teixeira, 2018).  
20 Since cryptocurrencies are not a currency, the IFRS declared that cryptocurrency ownership is  
21 not a financial asset, nor are securities issued by a third party. It confers no contractual rights on  
22 the holder and is not a contract that will or can be concluded via the holder's equity instruments.

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37 **The classification of cryptocurrencies under International Financial Reporting Standards (IFRS)**  
38 **is a matter of debate and interpretation. Currently, there is no specific guidance on how to classify**  
39 **cryptocurrencies under IFRS. However, it is generally considered that cryptocurrencies may be**  
40 **classified as intangible assets under IFRS, if they meet the definition of an intangible asset as**  
41 **stated in IFRS 38. According to IFRS 38, an intangible asset is an identifiable non-monetary asset**  
42 **without physical substance. To meet this definition, a cryptocurrency would need to have specific**  
43 **attributes, such as an identifiable and distinct set of rights and obligations, the ability to generate**  
44 **future economic benefits, and the ability to be sold, transferred or exchanged (Anvar Kyzy et al.,**  
45 **2022; Chou et al., 2022;). Therefore, if a cryptocurrency meets the definition of an intangible**  
46 **asset, it would be recorded as an intangible asset on the company's balance sheet, with any**  
47 **changes in its fair value being recognised in the company's income statement.**

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57 **In conclusion, it is important to note that the classification of cryptocurrencies as intangible assets**  
58 **under IFRS is still subject to interpretation and may be different in different jurisdictions.**  
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3 Companies and their auditors should exercise judgement and carefully consider the specific facts  
4 and circumstances in each case to determine the most appropriate classification under IFRS.  
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### 8 **Cryptocurrencies Under The SEC: Are They Securities?**

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10 Cryptocurrency and initial coin offerings are booming. The scope of these markets includes  
11 regional, national, and international players and an increasingly diverse spectrum of products and  
12 services. Investors and other market participants can face issues because of these developments.  
13 In such a market, U.S. federal law regulates investment companies and their operations and  
14 establishes industry standards. President Franklin D. Roosevelt signed the Investment Advisers  
15 Act of 1940 (Moriarty, 2021), empowering the SEC to oversee investment trusts and counsellors.  
16 The SEC is comprised of four divisions and several divisions within it work towards the same  
17 goal of protecting investors, ensuring fair, organised and efficient markets, and promoting the  
18 interests of investors (Jorgensen et al., 2007).  
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27 However, while the SEC has not issued a definitive ruling on whether all cryptocurrencies are  
28 securities, in its guidance, it has stated that many cryptocurrencies may be considered securities  
29 and, therefore, subject to federal securities laws (Quamara & Singh, 2022). The SEC applies the  
30 Howey test, a court-created test, to determine whether a particular investment is a security.  
31 According to the Howey test, an investment is a security if it involves an investment of money in  
32 a common enterprise with the expectation of profits predominantly from the efforts of others.  
33 Based on this definition, the SEC has indicated that many initial coin offerings (ICOs) and other  
34 cryptocurrency offerings may be considered securities offerings, and, therefore, subject to federal  
35 securities laws. For example, if a cryptocurrency is marketed as an investment opportunity and  
36 promises a return on investment, the SEC may view it as a security (Hacker & Thomale, 2018).  
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45 Another statute is the Securities Act of 1933 (Bullock, 1934), referred to as the Truth in Securities  
46 Act (DiMarino & Roberson, 2020). According to the Act securities issuers sell securities to raise  
47 capital, make investments, or grow operations. These enterprises need investors to flourish, which  
48 incentivises issuers to showcase their companies in investor-friendly ways. The Securities Act's  
49 primary objective is that securities offered for sale must be free of deception, misrepresentation,  
50 and other types of fraud.  
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56 Because of the Act, if investors can establish that critical information was not disclosed entirely  
57 or adequately, they have considerable recovery rights if they lose money while purchasing shares.  
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3 According to Section 5 of the Securities Act, all issuers of non-exempt securities must register  
4 them with the SEC (DiMarino & Roberson, 2013). The two steps to the registration process are  
5 detailed in Section 6. First, the issuer must provide data that serve as the basis for the prospectus  
6 sent to investors. Second, the issuer makes public material that will not appear in the prospectus  
7 (Bullock, 1934)  
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13 Some of its more recent actions have demonstrated that the SEC views cryptocurrencies that  
14 require digital assets to be registered as securities under Security Act 1933. For instance, in  
15 exchange for about 12 million Ether, the decentralised autonomous organisations (DAO) issued  
16 and sold around 1.15 billion DAO Tokens (Senderowicz et al., 2018). The SEC ruled that, with  
17 DAO Tokens, DAO's bitcoin-based investment contracts, the term "investment contract" refers  
18 to a contract under which a party invests money in a joint venture with the intent to profit from  
19 the entrepreneurial endeavours of the other party (Goforth, 2021). In another example, an SEC  
20 complaint was filed against DeFi Money Market (DMM) earlier this year (SEC, 2021a). This  
21 platform allowed users to exchange Ether for redeemable tokens. A collateralised loan redeemed  
22 using Ether would pay a minimum interest rate of 6.25%. DMM would buy and retain such loans.  
23 DMM, however, did not hold these loans; one of its business associates did. Even though DMM  
24 did not damage investors and gave them the interest promised, the SEC sued the company for  
25 breach of contract, among other things. DMM sold more than 30 million securities in unregistered  
26 offerings. Holders of DeFi Money Market governance (DMG) tokens may participate in certain  
27 voting rights, receive a portion of excess earnings, and benefit from DMG resales.  
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40 However, the Director of Corporation Finance at SEC said "at least according to my  
41 understanding of Ether's decentralized structure, current Ether transactions are not securities"  
42 (Hinman, 2018). Ripple was sued for failing to undertake an initial coin offering (ICO), which  
43 Ethereum did. Ripple advanced this case in court, and the SEC claimed that Hinman's remark  
44 reflected merely his viewpoint, not the agency's. As previously indicated, the SEC seems to have  
45 differing opinions on whether a given cryptocurrency is a security, which will affect how  
46 regulators perceive cryptocurrencies and where to recognise them in financial statements.  
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53 Finally, it is essential to note that the classification of cryptocurrencies as securities is a fact-  
54 specific determination and may vary depending on the specific facts and circumstances of each  
55 case. Companies and individuals involved in cryptocurrency offerings should carefully consider  
56 the applicable laws and regulations and consult with legal counsel to determine the appropriate  
57 regulatory treatment of their offerings.  
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### **Cryptocurrency and the CSQC**

As part of the Canadian Standard on Quality Control (CSQC), audit firms must establish procedures for evaluating audit client acceptance and retention (Deloitte, 2009). Specifically, an audit firm's quality control procedures must provide reasonable assurance that the firm has the competence necessary to perform the engagement and has considered relevant risks appropriately. As such, an auditing firm should determine whether it has the expertise and resources necessary to satisfy customers. If expertise is lacking, audit firms must collaborate with accounting experts to assist with that project (Barth, 2008). Considerations that the auditor may make in gaining knowledge of the entity's relevant financial reporting structure and its application considering the entity's nature, circumstances, and surroundings are "Accounting for unusual or complex transactions including those in controversial or emerging areas (for example, accounting for cryptocurrency)" (CPA Canada, 2018).

Additionally, quality control requires the auditor to evaluate the risks in the engagement (Liu et al., 2017). Auditors must determine whether a reason exists to believe the client may be engaged in money laundering or other illegal activity. These kinds of activities are allowed by the anonymity of blockchain transaction participants. Therefore, the auditor's engagement acceptance or continuation procedures would certainly entail inquiries and associated procedures to ascertain the entity's business purpose for engaging in cryptocurrency transactions for the first time or materially altering the nature or scope of its cryptocurrency practices.

### **Cryptocurrency in School Accounting Books**

Accounting rules emphasise responsibility in preparing financial reports to reduce unethical conduct that might endanger stakeholders' assets. Meanwhile, experts have concluded that ethical and responsible behaviour in generating financial reports begins in the classroom. Therefore, vital accounting education is necessary to improve the compilation of financial reports. According to Suryawathy and Putra (2016), Chief Financial Officers (CFOs) are worried about the quality of accounting education. Abayadeera et al. (2016) informed stakeholders of the significance of accounting skills for graduates. When accounting instructors can convey information (Suryawathy & Putra, 2016) and when the learning environment is conducive, these abilities are provided (Vroeijenstijn, 2003).

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3 Furthermore, the globalisation and development of accounting, such as IFRS, affects accounting  
4 education (Needles Jr, 2010), increasing CFOs' demand for improved accountant skills  
5 (Mathews, 2001). These demands and rapid changes are fundamental requirements in the  
6 educational quality environment. In addition, most accounting books classify cryptocurrencies as  
7 intangible assets (Martin et al., 2020); the possibility that cryptocurrencies could be classified  
8 differently is not discussed.  
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### 14 **Cryptocurrency Accounting and Theoretical Framework**

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18 Cryptocurrency accounting and framework theories are still evolving, as the use of  
19 cryptocurrencies and their underlying blockchain technology is relatively new. However, several  
20 theoretical frameworks have been proposed to help accountants and financial professionals  
21 understand how to approach accounting for cryptocurrencies and related transactions. One  
22 framework that has been proposed is based on the concept of "real options" which considers the  
23 potential future value of a cryptocurrency investment and how that value can be realised (Sumarti  
24 et al., 2021). This framework considers the uncertainty of cryptocurrency prices and the ability  
25 of investors to make decisions based on that uncertainty. Another framework that has been  
26 proposed is based on the "information economics" perspective, which views cryptocurrencies as  
27 a source of information about the state of the underlying blockchain network (Caferra, 2022;  
28 Marthinsen & Gordon, 2021). This framework considers the role of cryptocurrencies in  
29 facilitating the transfer of information and the creation of value, as well as the impact of network  
30 effects on the overall value of a cryptocurrency investment.  
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34 In terms of actual accounting for cryptocurrencies, there are currently no globally accepted  
35 standards for how to account for cryptocurrencies in financial statements. However, some  
36 guidance has been provided by organisations such as the International Accounting Standards  
37 Board (IASB) and the Financial Accounting Standards Board (FASB), which have issued  
38 information on how to account for cryptocurrencies in general purpose financial statements.  
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42 In conclusion, while there is still much work to be done to fully understand the implications of  
43 cryptocurrency accounting; the existing frameworks and guidance can provide a starting point for  
44 accountants and financial professionals as they work to develop a comprehensive approach to  
45 accounting for cryptocurrencies.  
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### 3. Research Questions

Accounting is in a state of transition, resulting in a crisis of competence among young employees (Lawson et al., 2014), and better accountants start in the classroom. Entry-level accountants of superior competence are needed (Showalter & Wilks, 2021). According to Delors (1999), instructors are responsible for communicating everything to learners. Andere (2015) documented that instructors are education leaders, and their credentials and training, and the performance appraisal of experience and competencies to keep up with the need for advances and different technologies, are in greater demand. As a result, accounting instructors must be aware of the types of expertise and knowledge required for providing high-quality information and relevant guidance for future-focused choices (Jalil et al., 2019). From the standpoint of students, we seek to gain a greater understanding of whether or not educators have the necessary expertise in cryptocurrency technology through the following research questions:

***RQ1: How do accounting professors introduce, explain, and debate cryptocurrencies during the academic years?***

Our study focused to explain the cryptocurrencies in accounting classes might vary depending on the instructor's personal views and the specific course being taught. However, some common ways accounting professors may introduce, explain and debate cryptocurrencies in their classes include accounting professors, which may begin by explaining what cryptocurrencies are and how they function, including their underlying technology, such as blockchain, and how they differ from traditional fiat currencies. Accounting implications, whereby the accounting professors may then explain the accounting implications of cryptocurrencies, such as the challenges in valuation, the need for proper disclosures, and the potential impact on financial statements, as well as the regulation should be discussed to show the current regulatory landscape for cryptocurrencies, including the varying approaches taken by different countries, and the implications for companies and investors (Ammous, 2018). In summary, the introduction, explanation and debate of cryptocurrencies in accounting classes may vary, but, generally, accounting professors aim to provide students with a comprehensive understanding of the accounting implications of these emerging technologies, and to encourage critical thinking and analysis of their potential impact on the financial system.

***RQ2: During the academic years, have accounting professors debated the ethical concerns of cryptocurrencies?***

As accounting and accountants evolve, they are affected by various factors, including the context within which they operate and the technological advances that affect the capture (Wells, 2018).

The curriculum for accounting education is often criticised for needing to represent contemporary accounting practices fully. This can be due to a variety of reasons, including the slow pace of change, emphasis on traditional accounting methods, lack of industry involvement, lack of practical experience, and that accounting education often lacks opportunities for students to gain valuable experience in real-world accounting scenarios, which can limit their exposure to contemporary accounting practices (Mathews, 2001). In response to these curricular issues, the Accounting Education Change Commission in the United States recommended that beginning accounting courses be liberalised to represent better the aptitudes and abilities required for an ever-expanding array of employment prospects in accounting (Mathews, 1994). In publications including Parker et al. (201) and Bayerlein (2015) efforts to resolve these curricular issues have primarily centred on the demand for developing non-technical accounting graduate skills. Nevertheless, Sundem (1999) discovered that practice had evolved more than contents and that the reaction to these requests for change remained restricted. Accordingly, we propose the following research question:

***RQ3: Did accounting textbooks explain cryptocurrency in detail during your school years?***

Cryptocurrencies are a relatively new development, and their impact on the accounting profession is still evolving. While some accounting textbooks may briefly mention cryptocurrencies, they are generally not covered in depth. Instead, accounting professors may supplement their courses with additional readings, case studies, and other materials to provide students with a more comprehensive understanding of this emerging area (e.g., Abayadeera et al., 2016; Suryawathy & Putra, 2016; Vroeijenstijn, 2003). It is likely that, as the use and impact of cryptocurrencies continues to grow, they will receive more attention in accounting textbooks and courses in the future.

Due to diverse client goals throughout appropriateness engagements, accountants presumably require experience-based expertise to pick a relevant issue and create value for clients. To develop this expertise, accounting firms offer training programmes to assist new accountants. This means that firms examine new employees' competencies to identify development needs. Despite the increased interest in this area, no studies examine development programmes for accountants on cryptocurrency. Consequently, we propose our final research question:

***RQ4: During your work, did accounting firms provide training on cryptocurrency?***

Recently, many accounting firms have begun to provide training on cryptocurrency to their employees. As the use of cryptocurrencies becomes more widespread, accounting firms are recognising the importance of having a knowledgeable workforce that understands the accounting implications of these emerging technologies (Stern & Reinstein, 2021). The nature and extent of cryptocurrency training provided by accounting firms can, however, vary widely, ranging from brief overviews to comprehensive courses. Some firms may offer in-house training sessions or workshops, while others may provide online courses or other training materials. The training may focus on a range of topics, including the basics of cryptocurrencies, the accounting and financial reporting implications, and the regulatory landscape. Overall, providing training on cryptocurrency is becoming increasingly important for accounting firms as the use of these technologies continues to grow, and it is likely that this trend will continue in the future.

#### **4. Research Method**

This study examines the knowledge, experiences and perceived outcomes of students who have completed CPA studies and recent graduates who enrol in a CPA programme. To investigate our research question, we conduct semi-structured interviews. These semi-structured interviews offer precise information on individual real-world students' experiences with cryptocurrencies, allowing us to understand better how they acquire crypto knowledge. Additionally, our investigation allows, uniquely and directly, whatever aspect of the institution contributes to students' unfamiliarity with cryptocurrencies. Additionally, we were permitted to ask follow-up questions freely throughout our semi-structured interviews. As a result, we could delve further into students' understanding of and interest in cryptocurrency.

A virtual interview process was conducted with 57 recently qualified accountants. To ensure diversity across universities and colleges in Canada, we identified interviewees through our contacts. One co-author conducted a thorough question-by-question analysis in keeping with the study's interpretive focus (Hermanson et al., 2012). This co-author classified and categorised replies by their frequency of occurrence; the co-author conferred with the other co-authors as required. A second co-author evaluated the data file and chose quotes from interviews to publish. Along with the initial co-author, two more co-authors analysed the patterns of the results and quoted discussions for consistency with their perceptions. This study used Han's (2015) quoting method to present our results.

All participants received their credentials within the last five years. We estimate that government entities employ 35% of the population. Two-fifths (40%) are employed by major companies, whereas small companies employ 27%. Three-quarters (73%) of the participants invest in cryptocurrencies, although none of them analysed them in their job. Just over a third (35%) started to invest in cryptocurrencies while at school, the majority in 2019. All participants had to provide a copy of their degree certificates in accounting for reliability. We apply a two-phase strategy to evaluate recent graduates' understanding of cryptocurrency and how they acquire this information. In the first phase, we construct an interview protocol and execute semi-structured interviews.

#### 4.1. Semi-Structured Interviews

Overall, semi-structured interviews can be a valuable tool for studying cryptocurrencies, as they allow researchers to collect rich, detailed data on participants' experiences, perspectives, and behaviours (Obreja, 2022). We conducted interviews with 57 recent accounting graduates. We randomly selected the sample from five public universities and two public colleges enrolled in the CPA Canada programme participated in the interviews in 2021.

Table 1 summarises the characteristics of the interviewees, including education, qualifications, age, gender and experience. As shown, most of our interviews were with accountants (67%), followed by senior accountants (33%). Of these, 77% held bachelor in accounting, and 23% had masters in accounting. In addition, 14% of interviewees held a CPA qualification. In terms of experience, 46% of interviewees had long periods of work experience in their current firm (>5 years), 42% had medium experience (2–4 years), and 12% had an experience of one year. According to interviewees, our analysis shows 87% of our participants are between 22 to 29 years old, and 13% are 30 years and older. Finally, our sample includes 26% male interviewees, and 74% are female. Together, these statistics suggest that that our interviewees are sufficiently well-qualified and experienced to provide in-depth insights about the cryptocurrencies in accounting school. The study focuses on the Canadian market since the researchers had access to participants there. The principal researcher teaches at a Canadian institution with access to individuals and accounting programme expertise in Canada.

<INSERT TABLE 1 HERE>

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3 Semi-structured interviews, guided by a set script, enabled us to explore cryptocurrency's  
4 fundamental positions among participants. This method conforms to various scholars' methods  
5 (Beasley et al., 2009). At least two study team members were present at each interview. Each  
6 interview lasted around 20 minutes, and all interviewees consented to be videotaped. Given the  
7 questions in the interview guide, interview responses were first categorised into topics and then  
8 into the survey's emerging themes. The experts reached a consensus on coded topics and themes  
9 through a series of iterations.  
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## 15 16 **5. Results**

### 17 18 **Research Question 1**

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22 Accounting professors may have a wide range of experiences with cryptocurrencies and the  
23 blockchain technology. As the cryptocurrency industry continues to evolve, accounting  
24 professors will likely play an important role in developing accounting practices and standards that  
25 can help ensure the transparency and accuracy of cryptocurrency transactions (Ammous, 2018).  
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31 Our initial step in designing our interviews was to ascertain whether the professors had accounting  
32 competence. Because 62% of respondents could provide concrete examples of their professor's  
33 superior accounting knowledge, students typically display confidence when assessing their  
34 professor's accounting knowledge and experience. According to respondents, accounting  
35 lecturers are mostly CPA graduates who have worked in major accounting firms. These skills and  
36 experiences aided significantly in the explanation of the accounting topic. The following quotes  
37 demonstrate this "discovery" of accounting professors' job skills and background.  
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43 *"I have a pretty professional faculty to learn from. They know about vast things.*  
44 *They were so easy to approach. I remember three of my accounting professors*  
45 *worked at KPMJ. I think that helped us to learn more and better". (P2)*  
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50 *"My lecturers used to offer us significant examples from their past job experience*  
51 *and provide us with difficulties that required us to collaborate to determine a*  
52 *solution [for] customers. I honestly thought this to be very fascinating... I*  
53 *discovered that I probably want to get further knowledge in this area". (P24)*  
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*“Now that I work as an accountant, I think, ‘Oh. I completely get all of the instances my instructors illustrated in class, and their expertise has increased my confidence in reaching this point at my present company’”. (P7)*

It is crucial to demonstrate that students can assess instructors' knowledge levels to ascertain whether they can judge their understanding of cryptocurrency. Participants were asked if accounting instructors were aware of cryptocurrency and whether they discussed cryptocurrencies. The overwhelming majority of our participants were dissatisfied that their accounting instructors never covered cryptocurrency in class, even though the vast expertise of their accounting professors had benefitted them in general. A few individuals acknowledged that instructors discussed cryptocurrencies but not accounting treatments or auditing cryptos. These views are conveyed in the following quotes.

*"My instructors used to insist that we must live in the present. So, to live, individuals must learn new things. As a result, they spent time talking about cryptocurrencies but were never about financial treatment". (P15)*

*"My professors are knowledgeable, but they have never really discussed such topics... I do not recall any of them ever mentioning bitcoins". (P8)*

*"Cryptocurrency or bitcoin should be taught to students.... Regrettably, our lecturers never fully addressed such issues in class and the ones who did were against bitcoins". (P17)*

This result helps explain the varying knowledge and abilities of accounting professors. According to participants, they have a high degree of confidence in their capacity to determine the level of expertise of certain lecturers. The differences between accounting university graduates and college professors regarding their knowledge and skills are not substantial; this diversity of experience of accounting professors is consistent with prior studies (Bhaskar, 1983; Romney, 1983) and demonstrates the profession's willingness to hire academics with diverse skill sets. Most of the findings correctly recognised the academics' lack of knowledge about cryptocurrency, which as such may have contributed to these conclusions. Another probable explanation is that most accounting professors earned their degrees before cryptocurrencies were introduced, rendering them incapable of educating students.

## Research Question 2

Barth et al. (2020) explored the impact of ethical and immoral conduct on the value of cryptocurrencies. Ethical concerns about their usage affect cryptocurrencies' value. In this study, we explored the ethical implications of cryptocurrencies to determine if professors avoid them because of ethical concerns and their belief systems. We learned that many participants' professors were concerned about cryptocurrencies and ethics, corresponding to an earlier study (Vincent & Wilkins, 2020). We inquired about the respondents' and their professors' perspectives on cryptocurrencies to evaluate whether they shared the same perspective.

According to most respondents, cryptocurrencies are primarily used for money laundering, illegal currency exchanges and platforms, and underground black markets. Expectedly, participants whose instructor was opposed to cryptocurrencies were hostile to cryptocurrency investments and transactions. In addition, our findings show that the concerns mentioned during the interview did not stop most accounting graduates from investing in cryptocurrencies. Due to a lack of awareness and ethical challenges, participants are learning more about crypto concerning accounting and audit procedures; they feel that cryptocurrencies will not vanish due to ethical concerns as more significant corporations invest in bitcoins. These views are conveyed in the following quotes.

*"It is well known that drug dealers use cryptocurrencies". (P14)*

*"There are so many issues surrounding bitcoin, take real states in Canada as an example, how international money is being used to legitimate the money". (P4)*

*"I have many concerns about crypto..... drugs being the main reason". (P31)*

*"I do think cryptocurrency is here to stay..... If governments issued their cryptocurrency in a few years, we would not see the mess in the market... and illegal activities will disappear". (P22)*

*"I recall my professors talking about bitcoins and how drug dealers are using bitcoin... I feel it is better to be far away for now from bitcoin". (P27)*

Accordingly, our analysis results show a consistent with prior study, which found that the government and regulatory bodies are increasingly focusing on the ethical considerations of cryptocurrencies. Unethical conduct, such as market manipulation or fraudulent ICOs, can lead

to increased regulation and scrutiny, which can affect the valuation and adoption of cryptocurrencies (Bagus & De la Horra, 2021). In addition, ethics play a critical role in the adoption and valuation of cryptocurrencies. It is important for investors, companies, and regulators to promote ethical practices and hold those who engage in unethical conduct accountable (Dierksmeier & Seele, 2018). This can help build trust, protect the reputation of the industry, and ensure the long-term success of cryptocurrencies.

### Research Question 3

Developing accounting books for cryptocurrencies can be a complex task, but it is important for individuals and companies that hold, trade, or mine cryptocurrencies to accurately track and report their cryptocurrency transactions. By doing so, they can comply with tax and regulatory requirements, and make informed decisions about their cryptocurrency holdings (Abayadeera et al., 2016). Therefore, as to whether accounting textbooks include cryptocurrencies, students had differing viewpoints. More than half of the respondents said that cryptocurrencies were never discussed in their books. These views are conveyed in the following quotes.

*"I have never read anything about it in the previous version of books. Probably, the new versions may contain a little information on it". (P41)*

*"I do not remember having encountered such a subject during my accounting studies in the books. I would remember if I saw it, given that I had reviewed my accounting books while preparing for my CPA". (P52)*

*"I had never seen it, even when I was studying for my CPA. I went through all my CPA materials and CPA competencies books; I never had the opportunity to read about them... I firmly believed that no textbook stated anything about crypto". (P39)*

The remaining participants reported that the textbook devoted just one page to cryptography without providing examples or problems, or if it did, it did so unhelpfully. Students agree that the book's material on intangibles covers cryptocurrency, but, according to them, the handling of cryptocurrency in the book was insufficient for the subject since an increasing number of businesses embrace cryptocurrencies. These views are conveyed in the following quotes.

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3 *"I remember that my Intermediate Accounting volume 2 accounting textbook*  
4 *discussed cryptocurrency, but I think it was an introduction page, maybe in a one*  
5 *or two page only and was classified as intangible assets". (P30)*  
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9 *"Since I am investing in crypto, this caught my attention... I think there was one*  
10 *column in one of the chapters". (P9)*  
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14 Respondents were able to offer precise justifications for their positions in answer to a subsequent  
15 inquiry. Their responses centred on crypto as a new problem, and future textbooks will need more  
16 resources to accommodate the growing number of crypto investors. Students cited the writers'  
17 lack of knowledge regarding cryptocurrency as a contributing factor. These views are conveyed  
18 in the following quotes.  
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24 *"I do not believe the textbook included information about bitcoin, which is a new*  
25 *subject. It may take a few years before doing so". (P24)*  
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28 *"I think the book's author has no depth knowledge about crypto, so they did not*  
29 *expand on the subject..... Remember, it is a very new subject....., and people still*  
30 *test the water". (P29)*  
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35 *"I think if more people and companies invest in crypto, the more demand for*  
36 *information's needed. Which I believe will be in new editions of the accounting*  
37 *textbook". (P51)*  
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41 This result indicates a dearth of information available in the textbook. Whether or not the  
42 interviewees stated that the cryptocurrency was discussed in the book, the fact remains that it was  
43 barely mentioned, indicating that students are incapable of addressing the accounting treatment  
44 of a cryptocurrency. This result contradicts prior research (Hammond et al., 2015). As a result of  
45 their examination of accounting textbooks, which revealed that accounting textbooks are being  
46 revised at an accelerating rate and that accounting professors believe the rate of change should be  
47 slowed, faculty members who are not textbook authors deem frequent textbook revisions to be of  
48 diminishing value.  
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#### Research Question 4

It is acknowledged that the range of duties of experienced accountants has expanded in recent years. Most accounting companies accept 'suitable' relevant job experience if a prospective member works under the guidance of a competent member in specific areas. Most universities and colleges in Canada provide an accounting co-op designed for students interested in acquiring work experience in accounting firms. Students in accounting must complete one semester working for a firm to be able to graduate from the programme. All participants completed the programme in their current or prior place of employment. Participants' reported that their work while in school was an entry-level role and that the training they obtained was relevant to their daily duties and understanding of the firm structures. Many in-hire positions reported that their training was only related to the new job and did not extend to other areas, such as cryptocurrencies. Few participants indicated that their firm has a specialist department and personnel who deal with cryptocurrency investment, yet they have no interaction due to the nature of their jobs. These views are conveyed in the following quotes.

*"I have been investing in cryptocurrency since 2019. Thus, I have been acquainted with it. Nevertheless, I have never been trained at work about classifying crypto". (P11)*

*"Last year, I started my job as an account receivable clerk; I have been reading much about it since my co-op was mainly about bookkeeping while I was at school.....my firm does not deal with crypto; it is a small firm..... My supervisor invests in crypto; we sometimes discuss the crypto but not in terms of accounting classification auditing". (P26)*

*"I was surprised when I learned that we have a specialist in crypto in our firms. Some of our companies invest in crypto..... But I rarely see or talk to the people who deal with crypto investors". (P31)*

*"My work is not related to crypto, and, as a result, I have not been informed about it. Even though we have a large number of firms who invest in crypto.....our database has information about crypto to read, but it's only accessible for people whose work relates to bitcoin". (P2)*

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3 *"Since I completed school, I have worked as an auditor at the government agency;*  
4 *so far, I did not have any clients who invested in crypto. Therefore, I never had*  
5 *training. I do not recall anyone at my workplace discussing the crypto... most of*  
6 *them believe it is a scam.....but as we provide public service, I think we should*  
7 *know about crypto". (P27)*  
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13 Our results supported prior research that document that the graduate students may have a wide  
14 range of experiences with cryptocurrencies, depending on their interests and professional goals.  
15 Cryptocurrencies are a rapidly evolving field, and graduate students who engage with them may  
16 have the opportunity to gain valuable skills, develop new ideas, and make important contributions  
17 to the industry (Hasan et al., 2022).  
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## 23 **6. Conclusion**

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25 Since cryptocurrency is a relatively new concept in accounting, laws are alarmingly absent. The  
26 challenges presented by the SEC in its quest to regulate cryptocurrencies and classify most of  
27 them as financial securities put pressure on the international standard to assess its definition of  
28 security through the lens of IFRS and offer a more accurate classification of cryptocurrency.  
29 While student investors are aware of the underlying principles of cryptocurrency, most graduates  
30 with accounting degrees continue to face difficulties due to a lack of knowledge about  
31 cryptocurrencies or a lack of resources.  
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34 Additionally, we discovered that recent accounting graduates have only the slightest awareness  
35 regarding cryptocurrencies, likely due to a lack of professors' comprehension or exposure to the  
36 issue. Our primary contribution is to understand if accounting graduates are prepared to do  
37 accounting and auditing work in the future regarding cryptocurrencies.  
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40 Some may argue that time is affecting the progress of cryptocurrencies more quickly than  
41 anybody anticipated. Although this may be true, cryptocurrencies have been on the market since  
42 2011 and received substantial investment acceptance from companies in 2017. Since then, several  
43 textbooks have been revised and no longer include the appropriate section on cryptocurrencies.  
44 Another objection might be made about the instructors' expertise in cryptocurrencies since the  
45 subject was not featured in the textbook and was thus not discussed in class. This is a reasonable  
46 point; however, most participants report that they discuss cryptocurrencies with their professors  
47 and find either they are opposed to cryptocurrency for ethical reasons or have a limited  
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3 understanding of it. Several actions can be taken by schools in response to these findings,  
4 including collaboration with the CPA, regulators, and academic book authors to provide more  
5 resources about cryptocurrencies. Accounting schools should educate academics on  
6 cryptocurrencies and encourage instructors to include cryptocurrency-related content in their  
7 courses. Furthermore, we suggest that accounting textbooks should contain a section on  
8 cryptocurrencies. Students should learn about cryptocurrencies through CPA, Canada's  
9 cryptocurrency exams. In addition to developing criteria for evaluating whether cryptocurrencies  
10 qualify as securities, IFRS committees should comprehensively examine cryptocurrency  
11 classification.  
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**Table 1. Interviewees**

| Institution  | Interviewee<br>(Participant) | Position | Age | Gender | Academic<br>qualification | Professional<br>qualification | Years of firm<br>experience |
|--------------|------------------------------|----------|-----|--------|---------------------------|-------------------------------|-----------------------------|
| College 2    | 1                            | A        | 28  | Female | BA                        |                               | 5                           |
| University 2 | 2                            | A        | 27  | Female | BA                        |                               | 5                           |
| University 2 | 3                            | A        | 22  | Male   | BA                        |                               | 4                           |
| University 5 | 4                            | A        | 29  | Female | BA                        |                               | 5                           |
| College 2    | 5                            | A        | 27  | Female | BA                        |                               | 4                           |
| University 4 | 6                            | A        | 26  | Female | BA                        |                               | 4                           |
| College 1    | 7                            | A        | 28  | Female | BA                        |                               | 5                           |
| College 1    | 8                            | A        | 27  | Female | BA                        |                               | 3                           |
| University 5 | 9                            | SA       | 33  | Male   | MA                        | CPA                           | 5                           |
| College 2    | 10                           | A        | 24  | Female | BA                        |                               | 4                           |
| University 3 | 11                           | A        | 27  | Male   | BA                        |                               | 3                           |
| University 3 | 12                           | SA       | 32  | Female | MA                        | CPA                           | 5                           |
| University 3 | 13                           | SA       | 24  | Female | BA                        |                               | 2                           |

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| 3  | College 1    | 14 | A  | 28 | Male   | BA |     | 5 |
| 4  | University 4 | 15 | A  | 27 | Female | BA |     | 3 |
| 5  | College 1    | 16 | A  | 29 | Female | BA |     | 5 |
| 6  | University 1 | 17 | A  | 24 | Female | BA |     | 2 |
| 7  | University 1 | 18 | A  | 23 | Female | BA |     | 1 |
| 8  | University 5 | 19 | A  | 29 | Male   | BA |     | 5 |
| 9  | College 2    | 20 | SA | 28 | Female | BA |     | 4 |
| 10 | University 2 | 21 | A  | 27 | Female | BA |     | 4 |
| 11 | University 2 | 22 | SA | 29 | Female | BA |     | 5 |
| 12 | College 1    | 23 | SA | 35 | Male   | MA | CPA | 5 |
| 13 | University 4 | 24 | SA | 29 | Female | BA |     | 5 |
| 14 | University 3 | 25 | A  | 24 | Female | BA |     | 2 |
| 15 | College 1    | 26 | A  | 26 | Female | BA |     | 3 |
| 16 | University 5 | 27 | A  | 22 | Male   | BA |     | 1 |
| 17 | University 3 | 28 | A  | 28 | Female | BA |     | 4 |
| 18 | College 1    | 29 | SA | 32 | Female | MA | CPA | 5 |
| 19 | University 5 | 30 | SA | 27 | Male   | BA |     | 5 |
| 20 | University 1 | 31 | SA | 29 | Female | MA |     | 5 |
| 21 | College 1    | 32 | A  | 26 | Female | BA |     | 4 |
| 22 | University 2 | 33 | SA | 31 | Male   | MA | CPA | 5 |
| 23 | University 4 | 34 | A  | 29 | Female | BA |     | 5 |
| 24 | College 1    | 35 | A  | 26 | Female | BA |     | 3 |
| 25 | University 1 | 36 | SA | 28 | Female | MA |     | 5 |
| 26 | College 1    | 37 | A  | 25 | Male   | BA |     | 3 |
| 27 | University 4 | 38 | A  | 27 | Female | BA |     | 5 |
| 28 | University 3 | 39 | A  | 23 | Female | BA |     | 2 |
| 29 | College 1    | 40 | SA | 27 | Female | MA |     | 5 |
| 30 | University 1 | 41 | SA | 29 | Female | MA |     | 5 |
| 31 | University 2 | 42 | A  | 27 | Female | BA |     | 3 |
| 32 | University 4 | 43 | A  | 26 | Male   | BA |     | 3 |
| 33 | University 4 | 44 | A  | 26 | Female | BA |     | 4 |
| 34 | University 3 | 45 | SA | 27 | Female | BA |     | 5 |
| 35 | University 1 | 46 | A  | 23 | Female | BA |     | 1 |
| 36 | University 3 | 47 | A  | 28 | Female | BA |     | 5 |
| 37 | University 3 | 48 | SA | 34 | Male   | MA | CPA | 6 |
| 38 | University 2 | 49 | A  | 28 | Female | BA |     | 4 |
| 39 | University 4 | 50 | A  | 23 | Female | MA |     | 1 |
| 40 | College 1    | 51 | SA | 29 | Male   | BA |     | 5 |
| 41 | University 5 | 52 | A  | 28 | Female | BA |     | 4 |
| 42 | University 3 | 53 | SA | 30 | Male   | MA | CPA | 5 |
| 43 | University 2 | 54 | A  | 22 | Female | BA |     | 1 |
| 44 | College 2    | 55 | A  | 24 | Female | BA |     | 1 |
| 45 | University 1 | 56 | SA | 29 | Male   | MA | CPA | 8 |
| 46 | University 2 | 57 | A  | 27 | Female | BA |     | 3 |

Notes: SA – Senior Accountant, A – Accountant, MA – Master’s in accounting, BA – Bachelor’s in Accounting.

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## Responses to Reviewers Comments on “Cryptocurrencies in accounting school?”

I would like to thank the Editor and Reviewers for the care they have taken in reviewing my Manuscript and for their comments, which I feel have helped me enormously in revising the Manuscript. I am very happy that you are supportive my work. It has taken a proper time to rework, and I have tried, once again, to comprehensively address your comments.

< *Reviewers comments are in italics below* >

### Reviewer (1) Comments and Justifications

< *Kindly work the methodology part and results discussion.* >

**Amendment:** This is very important comment. Both sections have been amended to meet the reviewer comment.

**Affected Sections:** Methodology and Results Sections.

### Additional Questions:

< *1. Originality: Does the paper contain new and significant information adequate to justify publication?: The study is novel and examines a very pertinent questions on need of crypto knowledge for students* >

**Thank you so much for your comment.**

< *2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: There is lot of improvement needed to link the research questions to past literature. At the moment it looks more like a commentary paper instead of a full research article* >

**Amendment:** Thank you for your great comment. This comment has been addressed based on the prior comment that related to the literature review.

**Affected Sections:** Literature Review Section.

< *3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate?: How exactly these research questions were formed needs to be justified. We don't see any statistical analysis being done* >

**Amendment:** Thank you for your comment. This comment has been addressed by adding new explanation for interview statistics.

**Affected Sections:** Research Method Section.

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7 <4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately  
8 tie together the other elements of the paper?: The results are written quite casually and can only be  
9 considered valid when adequate statistical tool and robustness checks are shown. Currently there is  
10 very little information apart from percentages of respondent and their feedback.>

11  
12 Amendment: Thank you for your valuable comment. This comment has been addressed by adding new  
13 table for interview statistics.

14  
15 Affected Sections: Research Method Section.

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19 <5. Implications for research, practice and/or society: Does the paper identify clearly any implications  
20 for research, practice and/or society? Does the paper bridge the gap between theory and practice?  
21 How can the research be used in practice (economic and commercial impact), in teaching, to influence  
22 public policy, in research (contributing to the body of knowledge)? What is the impact upon society  
23 (influencing public attitudes, affecting quality of life)? Are these implications consistent with the  
24 findings and conclusions of the paper?: The area is important, but the statistical and methodology needs  
25 significant improvement.>

26  
27  
28 Amendment: Thank you for this comment. This comment has been addressed according to the previous  
29 two comments 3 and 4. In addition, new implications paragraph added to the introduction section.

30  
31 Affected Sections: Research Method and Introduction Sections.

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35 <6. Quality of Communication: Does the paper clearly express its case, measured against the technical  
36 language of the field and the expected knowledge of the journal's readership? Has attention been paid  
37 to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.:  
38 There are quite a few typos and English can be checked by a native speaker.>

39  
40 Amendment: Thank you for this comment. A proofreading completed for our article.

41  
42 Affected Sections: Whole Sections.

43  
44  
45  
46 <Do the title, keywords, abstract adequately reflect the paper's content? Readers will locate, and  
47 potentially cite, the article based on these words - they are crucial: Yes>

48  
49 Thank you so much for your comment.

50  
51  
52 <If you have answered No, please provide feedback below and suggest alternative titles and keywords  
53 if appropriate.:>

54  
55  
56 Do you feel the paper gives adequate international coverage (if appropriate)? Please provide details if  
57 possible.: Decent>

58  
59 Thank you so much for your comment.

1  
2  
3 *Would this paper be of interest to an international audience? Please provide details if possible: Yes*  
4

5 **Thank you so much for your comment.**  
6

## 7 **Reviewer (2) Comments and Justifications**

8  
9

10  
11 *<Review page 3, lines 25 to 27. I suggest use to use parenthetical citation at the end of the idea, after*  
12 *the acronym (IFRS).>*

13  
14 **This comment has been addressed by adding a new reference. Thank you.**  
15

16  
17 *<Review page 9, lines 20 to 23. You need to improve the writing of this part to make ideas clear and*  
18 *more understandable.>*

19  
20 **This comment has been addressed by rewriting the part that suggests being changed. Thank you.**  
21  
22  
23

24 *Additional Questions:*

25  
26  
27 *<1. Originality: Does the paper contain new and significant information adequate to justify*  
28 *publication?: This paper contains new and significant information that accounting professors should*  
29 *consider to include in their curricula, in this way their students will know the pros and cons of topics*  
30 *they would face once in their professional lives.>*  
31

32 **Thank you so much for your comment.**  
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36

37 *<2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant*  
38 *literature in the field and cite an appropriate range of literature sources? Is any significant work*  
39 *ignored?: This paper contains relevant literature review and a considerable number of sources that*  
40 *support the topic in discussion.>*  
41

42 **Thank you so much for your comment.**  
43  
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45

46 *<3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other*  
47 *ideas? Has the research or equivalent intellectual work on which the paper is based been well*  
48 *designed? Are the methods employed appropriate?: The paper's argument contains theoretical support*  
49 *that makes it clear to understand the method applied for researching about this topic. The method*  
50 *includes a detailed explanation about the process followed to collect information and data about*  
51 *criptocurrency and bitcoins with quotes mentioned by both professors and students that help the reader*  
52 *to understand their position.>*  
53

54 **Thank you so much for your comment.**  
55  
56  
57

58 *<4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately*  
59 *tie together the other elements of the paper?: The results are clear and have been properly analysed,*  
60 *the conclusions are tied to the main research questions of the paper.>*

1  
2  
3  
4 Thank you so much for your comment.  
5

6 <5. Implications for research, practice and/or society: Does the paper identify clearly any implications  
7 for research, practice and/or society? Does the paper bridge the gap between theory and practice?  
8 How can the research be used in practice (economic and commercial impact), in teaching, to influence  
9 public policy, in research (contributing to the body of knowledge)? What is the impact upon society  
10 (influencing public attitudes, affecting quality of life)? Are these implications consistent with the  
11 findings and conclusions of the paper?: This paper relates theory with practice, the information here  
12 can help future accountants to be aware of this important topic which should be covered deeply in  
13 accounting classes, since it has impact in our society affecting many people who do not know in a deep  
14 way how it works.>  
15

16  
17 Thank you so much for your comment.  
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20  
21 <6. Quality of Communication: Does the paper clearly express its case, measured against the technical  
22 language of the field and the expected knowledge of the journal's readership? Has attention been paid  
23 to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.: The  
24 paper has been well supported with technical terms that allow to better understand the topic, the  
25 language is clear and can be easily understood, sentence structure is correct and meaning of acronyms  
26 used have been mentioned when first introduced in the paper.>  
27

28  
29 Thank you so much for your comment.  
30

31 <Do the title, keywords, abstract adequately reflect the paper's content? Readers will locate, and  
32 potentially cite, the article based on these words - they are crucial: Yes>  
33

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35 Thank you so much for your comment.  
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37 <If you have answered No, please provide feedback below and suggest alternative titles and keywords  
38 if appropriate.:  
39

40 Do you feel the paper gives adequate international coverage (if appropriate)? Please provide details if  
41 possible.: Yes I do, as it covers a topic of interest for many people, I am sure there will be many people  
42 iwho would like to read information about this topic.>  
43

44  
45 Thank you so much for your comment.  
46

47 <Would this paper be of interest to an international audience? Please provide details if possible: In my  
48 personal opinion this paper will be interesting for professors and students involved in the accounting  
49 and financial fields; therefore, its contents will result attractive for them to take into consideration  
50 aspects that need to be covered in the curricula.>  
51

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53 Thank you so much for your comment.  
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### Reviewer (3) Comments and Justifications

<Since accounting curriculums have limited space and are generally focused on more common, basic elements of accounting and financial reporting, a more suggestion that crypto needs to be added is not very impactful. However, developing the theoretical aspects of reporting crypto in financial statements along with current FASB and IASB rules on the subject would be very useful. The paper also has a number of grammatical and stylistic problems, so I recommend you have it professionally proof-read and edited before resubmitting.>

**Amendment:** Thank you for your comment. This comment has been addressed by adding a new section explaining cryptocurrency accounting and its theoretical framework and what the FASB and IFRS recommended. In addition, a proofreading has been completed for the paper.

**Affected Sections:** Literature Review Section and All paper sections.

*Additional Questions:*

<1. *Originality:* Does the paper contain new and significant information adequate to justify publication?: The information is new, however, the results are not especially significant since the premise is that cryptocurrency should be part of an undergraduate accounting curriculum. It would be good to survey academic curriculum design faculty to see if this topic should be included in depth in an accounting curriculum. As a topic, it fits more with finance unless accounting standard setting is discussed. However, the paper does not develop a new standard setting recommendation.>

**Amendment:** Thank you for your valuable comment. Accounting standards have been discussed concerning cryptocurrency.

**Affected Sections:** Literature Review Section.

<2. *Relationship to Literature:* Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored?: Good literature review.>

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2  
3 Thank you so much for your comment.  
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7 <3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other  
8 ideas? Has the research or equivalent intellectual work on which the paper is based been well  
9 designed? Are the methods employed appropriate?: The methods are appropriate for the questions  
10 posed by the researcher.>  
11

12  
13 Thank you so much for your comment.  
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17 <4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately  
18 tie together the other elements of the paper?: The paper would be more impactful with a well developed  
19 theoretical argument for accounting rulemaking.>  
20

21 Amendment: Thank you for your valuable comment. We added a new argument to meet your comment.  
22

23 Affected Sections: Literature Review Section, Research Method and Results Sections.  
24  
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27 <5. Implications for research, practice and/or society: Does the paper identify clearly any implications  
28 for research, practice and/or society? Does the paper bridge the gap between theory and practice?  
29 How can the research be used in practice (economic and commercial impact), in teaching, to influence  
30 public policy, in research (contributing to the body of knowledge)? What is the impact upon society  
31 (influencing public attitudes, affecting quality of life)? Are these implications consistent with the  
32 findings and conclusions of the paper?: The implications of the research are limited to recommending  
33 more crypto- based education in an accounting curriculum. The theory and financial reporting  
34 discussion and recommendations were not well developed but deserve much more attention. I suggest  
35 the author add more theoretical development and financial reporting policy recommendations.>  
36  
37

38 Amendment: Thank you for your comment. This comment has been addressed by adding a new section  
39 explaining cryptocurrency accounting and its theoretical framework and what the FASB and IFRS  
40 recommended.  
41

42 Affected Sections: Literature Review Section.  
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48 <6. Quality of Communication: Does the paper clearly express its case, measured against the technical  
49 language of the field and the expected knowledge of the journal's readership? Has attention been paid  
50 to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc.:  
51 Some of the language and sentence structure suggests the writer is not a native English speaker. I  
52 recommend taking the paper to the university English writing lab for assistance before resubmitting.>  
53

54 Amendment: Professional proofreading completed for the paper.  
55

56 Affected Sections: All Sections.  
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3 <Do the title, keywords, abstract adequately reflect the paper's content? Readers will locate, and  
4 potentially cite, the article based on these words - they are crucial: Yes  
5

6 If you have answered No, please provide feedback below and suggest alternative titles and keywords if  
7 appropriate.:>  
8

9 Thank you so much for your comment.  
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11  
12  
13 <Do you feel the paper gives adequate international coverage (if appropriate)? Please provide details  
14 if possible.: Yes. The paper does discuss both US GAAP and IFRS, so it seems to be directed toward  
15 an international audience. However, it does not develop the theory for cryptocurrency accounting  
16 under either framework very well.  
17

18 Would this paper be of interest to an international audience? Please provide details if possible:  
19 Yes. Cryptocurrency is an international phenomenon.>  
20

21 Amendment: Thank you for your comment. This comment has been addressed by adding a new section  
22 explaining cryptocurrency accounting and its theoretical framework.  
23

24 Affected Sections: Literature Review Section.  
25

#### 26 27 28 Associate Editor Comments and Justifications 29

30 This is an interesting paper and the feedback from the reviewers provides clear guidance of the  
31 amendments required.  
32

33  
34  
35 Thank you so much for your great efforts in reviewing our paper and providing us with great and  
36 valuable comments to ensure that our article meets your journal requirements before publication (if  
37 accepted).  
38

39 All reviewers' comments have been addressed.  
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## Cryptocurrencies in Accounting Schools?

### Abstract

**Purpose** – This study was conducted to determine whether new certified public accountants (CPAs) and accounting graduate students have a comprehensive understanding of cryptocurrencies and the skills they need over their years of education.

**Design/methodology/approach** – A qualitative analysis was used through semi-structured interviews to obtain an in-depth insight into cryptocurrencies, which could not be investigated easily through quantitative methods, and to provide an understanding of the context for cryptocurrencies from CPA and non-CPA students' points of view. This was in addition to focusing on understanding the differences between the students' thoughts.

**Findings** – This study found that recent accounting graduates and CPA members have the least awareness of cryptocurrencies, likely due to a lack of professors' comprehension or exposure to the concept. However, students involved in forensic courses provided more information about cryptocurrencies compared with other students.

**Research limitations/implications** – Our data are limited to only a single country. Given that cryptocurrencies are a relatively new notion in accounting, there is an alarming lack of legislation. Further, we found that recent accounting graduates and CPAs had the same level of knowledge of cryptocurrencies, most probably due to a lack of exposure during their education and academics' limited understanding of the concept.

**Practical implications** – The students' differing answers about cryptocurrencies show differences in their current level of understanding of cryptocurrencies.

**Originality/value** – This study has identified that the vast majority of accounting graduates lack adequate knowledge about cryptocurrencies or access to adequate resources, despite understanding the fundamental concepts of cryptocurrency.

**Keywords:** cryptocurrency; accounting graduates; education; knowledge; professors.

## 1. Introduction

In recent years, the emergence of new technology has transformed business procedures (Shaban, 2020). Experts have indicated that modern technology has considerably influenced the accounting profession (Al-Htaybat et al., 2018; Ferreira-Lopes et al., 2020). Integration is encouraged by the increasing significance of technology in the accounting and auditing professions. However, a fundamental understanding of the technological foundations of new technologies, such as cryptocurrencies, is needed (Phillip et al., 2018), as more companies begin to invest in cryptocurrencies, and investors are more interested than ever. The absence of meaningful formal guidance from generally accepted accounting procedures (GAAP) standards on cryptocurrencies is a substantial impediment for stakeholders (Yatsyk, 2018). This is an essential subject for both accountants and players in the market.

Cryptocurrency, which is categorized as an intangible asset under the current accounting standards (Vincent & Wilkins, 2020), has not received exceptional guidance from the International Financial Reporting Standards (IFRS). The Securities and Exchange Commission (SEC) maintains that several cryptocurrencies should be deemed securities (Hacker & Thomale, 2018); thus, businesses should classify them as financial instruments as opposed to intangible assets (Vincent & Wilkins, 2020). In “Holdings of Cryptocurrencies – June 2019” (Tsuji, 2020), the IFRS Committee determined that bitcoin holdings are not financial assets. Recently, CPA Canada published “Audit Considerations Related to Cryptocurrency Assets and Transactions,” which included the mention of intangible assets.

Cryptocurrencies can have various implications for graduate accounting students, both as investors and as participants in the cryptocurrency industry. Cryptocurrencies can offer graduate students new investment opportunities, either as a speculative investment or as a long-term investment in the future of blockchain technology. In addition, cryptocurrencies can offer graduate students new opportunities for investment, research, job seeking, and entrepreneurship. However, graduate students should carefully evaluate the risks and benefits of investing in cryptocurrencies, as the market can be highly volatile and subject to market manipulation. As investors or participants, students should carefully evaluate the risks and benefits of engaging with the cryptocurrency industry and should be prepared to adapt to the rapid changes and uncertainties that are characteristic of the industry.

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3 This study aims to determine whether accounting students have been introduced to  
4 cryptocurrencies and their handling during their education. We surveyed current students and  
5 recent graduates of accounting about their experiences learning about cryptocurrency in their  
6 accounting programs. Recent graduate students with accounting degrees and certifications were  
7 tested regarding their understanding of cryptocurrencies.  
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13 According to our findings, most students' core curricula do not provide a comprehensive  
14 discussion of cryptocurrencies. Instead, cryptocurrencies are introduced only as immaterial assets  
15 that must be reported in financial statements, and students are not instructed on auditing or  
16 assessing cryptocurrencies. Most students agreed that their professors' lack of cryptocurrency  
17 understanding is evident. These results demonstrate that the quality of accounting graduates is  
18 hampered by an imbalanced relationship between academics and technological progress. One of  
19 the most influential studies (Qasim & Kharbat, 2020) presented the integrated technique for  
20 revamping courses at three levels (introductory, intermediate, and advanced) and technologies.  
21 We also found that participants were concerned about cryptocurrencies and illegal activities.  
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30 This study's primary contribution is its revealing the critical need for a prototype and more  
31 regulations from the IFRS covering cryptocurrency categories and data for auditors and  
32 accountants to comprehend the issues posed by cryptocurrencies (Ramassa & Leoni, 2022),  
33 similar to the Financial Accounting Standards Board (FASB), which issued a new handout for  
34 accounting for exchange-traded digital assets in May 2022.  
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## 39 **2. Literature Review**

### 40 41 42 **Blockchain, DLT, and decentralized**

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45 Cryptocurrencies, such as bitcoin, rely on blockchain technology (Shaban, 2020). As the name  
46 suggests, blockchains are newer forms of distributed ledger technology (DLT) consisting of a  
47 database that keeps transaction data in ledgers in the form of distributed blocks. A block is a  
48 periodic ledger or container of data in computing. Each successive block contains the address of  
49 the previous block; a chain of cryptographically linked transaction bundles, or blocks, results  
50 from each block referencing the previous block (Perlman, 2019). A blockchain is a technique  
51 used by a community of users to maintain a shared transaction record. The community verifies  
52 each transaction through a consensus method, and verified transactions are consequently recorded  
53 in the ledger of a blockchain network (Perlman, 2019; Rahman & Ali, 2020).  
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DLT resolves difficulties relating to innovation or technology with shared and regulated data and the secure administration of diverse commercial transactions by numerous organizations (Sultan et al., 2018). The system relies on modern cryptographic proofs for distributed authentication in the DLT. Data are stored in DLT blocks, continuously added, and synced between participating nodes in particular networks (Perdana et al., 2021). However, governments and regulatory organizations prefer DLT to blockchains. A decentralized peer-to-peer network is used to conduct cryptocurrency transactions, obviating the requirement for a central authority (Adams & Bailey, 2021; Kostić & Sedej, 2022; Nabilou, 2019; Vincent & Wilkins, 2020). In summary, blockchains are a type of DLT that is decentralized, and decentralization is a key aspect of both blockchain and DLT technologies. DLT is a broader term that encompasses all types of decentralized and distributed ledger technologies, including blockchains.

### **Cryptocurrencies Under IFRS: Are They Intangible Assets?**

Accounting standards do not yet exist for various challenges that accountants may encounter in practice. One such concern is cryptocurrencies. Due to the lack of an accounting standard defining how cryptocurrencies should be accounted for, accountants are compelled to use established accounting standards (Vincent & Wilkins, 2020). However, cryptocurrency holders do not usually possess this type of contractual right. Thus, cryptocurrencies do not appear to fit the definition of a non-cash financial asset in IAS 32 and IFRS 9 (Barker & Teixeira, 2018).

The classification of cryptocurrencies under IFRS is a matter of debate and interpretation. Currently, there is no specific guidance on how to classify cryptocurrencies under the IFRS. However, it is generally considered that cryptocurrencies may be classified as intangible assets under IFRS if they meet the definition of an intangible asset, as stated in IFRS 38. According to IFRS 38, an intangible asset is an identifiable non-monetary asset without physical substance. To meet this definition, a cryptocurrency would need to have specific attributes, such as an identifiable and distinct set of rights and obligations, the ability to generate future economic benefits, and the ability to be sold, transferred, or exchanged (Chou et al., 2022). Therefore, if a cryptocurrency meets the definition of an intangible asset, it would be recorded as an intangible asset on the company's balance sheet, with any changes in its fair value being recognized in the company's income statement.

To summarize, it is important to note that the classification of cryptocurrencies as intangible assets under the IFRS is still subject to interpretation and may differ in different jurisdictions.

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3 Companies and their auditors should exercise judgment and carefully consider the specific facts  
4 and circumstances in each case to determine the most appropriate classification under the IFRS.  
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### 8 **Cryptocurrencies Under the SEC: Are They Securities?**

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10 Cryptocurrency and initial coin offerings are booming. The scope of these markets includes  
11 regional, national, and international players and an increasingly diverse spectrum of products and  
12 services. Investors and other market participants can face issues because of these developments.  
13 In such a market, U.S. federal law regulates investment companies and their operations and  
14 establishes industry standards. President Franklin D. Roosevelt signed the Investment Advisers  
15 Act of 1940 (Moriarty, 2021), empowering the SEC to oversee investment trusts and counselors.  
16 The SEC is comprised of four divisions, and several divisions within it work toward the same  
17 goal of protecting investors, ensuring fair, organized, and efficient markets, and promoting the  
18 interests of investors (Jorgensen et al., 2007).  
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27 However, while the SEC has not issued a definitive ruling on whether all cryptocurrencies are  
28 securities, in its guidance, it has stated that many cryptocurrencies may be considered securities  
29 and, therefore, subject to federal securities laws (Quamara & Singh, 2022). The SEC applies the  
30 Howey test, a court-created test, to determine whether a particular investment is a security.  
31 According to the Howey test, an investment is a security if it involves an investment of money in  
32 a common enterprise, with the expectation of profits predominantly from the efforts of others.  
33 Based on this definition, the SEC has indicated that many initial coin offerings (ICOs) and other  
34 cryptocurrency offerings may be considered securities offerings, and, therefore, subject to federal  
35 securities laws. For example, if a cryptocurrency is marketed as an investment opportunity and  
36 promises a return on investment, the SEC may view it as security (DiMarino & Roberson, 2013;  
37 Hacker & Thomale, 2018).  
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47 Lastly, it is essential to note that the classification of cryptocurrencies as securities is a fact-  
48 specific determination and may vary depending on the specific facts and circumstances of each  
49 case. Companies and individuals involved in cryptocurrency offerings should carefully consider  
50 the applicable laws and regulations, and consult with legal counsel to determine the appropriate  
51 regulatory treatment of their offerings.  
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### 56 **Cryptocurrency in School Accounting Books**

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Accounting rules emphasize responsibility in preparing financial reports to reduce unethical conduct that might endanger stakeholders' assets. Experts have concluded that ethical and responsible behavior in generating financial reports begins in the classroom. Therefore, vital accounting education is necessary to improve the compilation of financial reports. According to Suryawathy and Putra (2016), chief financial officers (CFOs) are worried about the quality of accounting education. Abayadeera et al. (2016) informed stakeholders of the significance of accounting skills for graduates. When accounting instructors can effectively convey information (Suryawathy & Putra, 2016) in a conducive learning environment, these abilities are provided (CPA Canada, 2018; Vroeijenstijn, 2003).

Furthermore, the globalization and development of accounting, such as IFRS, affects accounting education (Needles Jr, 2010), increasing CFOs' demand for improved accountant skills (Mathews, 2001). These demands and rapid changes are fundamental requirements in the educational quality environment. In addition, most accounting books classify cryptocurrencies as intangible assets (Martin et al., 2020); the possibility that cryptocurrencies could be classified differently is not discussed.

### **Cryptocurrency Accounting and Theoretical Framework**

Cryptocurrency accounting and framework theories are still evolving, as the use of cryptocurrencies and their underlying blockchain technology is relatively new. However, several theoretical frameworks have been proposed to help accountants and financial professionals understand how to approach accounting for cryptocurrencies and related transactions. One of the frameworks is based on the concept of "real options," which considers the potential future value of a cryptocurrency investment and how that value can be realized (Sumarti et al., 2021). This framework considers the uncertainty of cryptocurrency prices and the ability of investors to make decisions based on that uncertainty. Another framework is based on the "information economics" perspective, which views cryptocurrencies as a source of information about the state of the underlying blockchain network (Caferra, 2022; Marthinsen & Gordon, 2021). In terms of actual accounting for cryptocurrencies, there are currently no globally accepted standards for how to account for cryptocurrencies in financial statements. However, some guidance has been provided by organizations such as the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB), which have issued information on how to account for cryptocurrencies in general-purpose financial statements.

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3 Thus, although there is still much work to be done to fully understand the implications of  
4 cryptocurrency accounting, the existing frameworks and guidance can provide a starting point for  
5 accountants and financial professionals as they work to develop a comprehensive approach to  
6 accounting for cryptocurrencies.  
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### 10 11 **3. Research Questions** 12

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14 From the standpoint of students, we seek to gain a greater understanding of whether educators  
15 have the necessary expertise in cryptocurrency technology through the following research  
16 questions:  
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20 ***RQ1: How do accounting professors introduce, explain, and debate cryptocurrencies during***  
21 ***the academic years?***  
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25 Our study focused on explaining how cryptocurrencies in accounting classes might vary,  
26 depending on the instructor's personal views and the specific course being taught. However, some  
27 common ways accounting professors may introduce, explain, and debate cryptocurrencies in their  
28 classes include beginning by explaining what cryptocurrencies are and how they function,  
29 including their underlying technology, such as blockchains, and how they differ from traditional  
30 fiat currencies. Accounting professors may then explain the accounting implications of  
31 cryptocurrencies, such as the challenges in valuation, the need for proper disclosures, and the  
32 potential impact on financial statements, as well as the regulations, which should be discussed to  
33 show the current regulatory landscape for cryptocurrencies, including the varying approaches  
34 taken by different countries, and the implications for companies and investors (Ammous, 2018;  
35 Lawson et al., 2014; Showalter & Wilks, 2021).  
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45 ***RQ2: During the academic years, do accounting professors debate the ethical concerns of***  
46 ***cryptocurrencies?***  
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50 As accounting and accountants evolve, they are affected by various factors, including the context  
51 within which they operate and the technological advances that affect their capture (Wells, 2018).  
52 The curriculum for accounting education is often criticized for needing to represent contemporary  
53 accounting practices fully. This can be due to a variety of reasons, including the slow pace of  
54 change, emphasis on traditional accounting methods, lack of industry involvement, lack of  
55 practical experience, and the fact that accounting education often lacks opportunities for students  
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3 to gain valuable experience in real-world accounting scenarios, which can limit their exposure to  
4 contemporary accounting practices (Parker et al., 2011; Mathews, 2001). Accordingly, we  
5 propose the following research question:  
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10 ***RQ3: Do accounting textbooks used during school years explain cryptocurrency in detail?***

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12 Cryptocurrencies are a relatively new development, and their impact on the accounting profession  
13 is still evolving. Some accounting textbooks briefly mention cryptocurrencies, and most  
14 textbooks generally do not cover the topic in depth. Instead, accounting professors may  
15 supplement their courses with additional readings, case studies, and other materials to provide  
16 students with a more comprehensive understanding of this emerging area (e.g., Abayadeera et al.,  
17 2016; Suryawathy & Putra, 2016; Vroeijenstijn, 2003). It is likely that, as the use and impact of  
18 cryptocurrencies continue to grow, they will receive more attention in accounting textbooks and  
19 courses in the future. This means that firms may examine new employees' competencies to  
20 identify development needs. Despite the increased interest in this area, no studies have examined  
21 development programs for accountants on cryptocurrency. Consequently, we propose our final  
22 research question:  
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33 ***RQ4: Do accounting firms provide on-the-job training on cryptocurrency?***

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35 Recently, many accounting firms have begun to provide training on cryptocurrency to their  
36 employees. As the use of cryptocurrencies becomes more widespread, accounting firms are  
37 recognising the importance of having a knowledgeable workforce that understands the accounting  
38 implications of these emerging technologies (Stern & Reinstein, 2021). The nature and extent of  
39 cryptocurrency training provided by accounting firms can, however, vary widely, ranging from  
40 brief overviews to comprehensive courses. Some firms may offer in-house training sessions or  
41 workshops, while others may provide online courses or other training materials. The training may  
42 focus on a range of topics, including the basics of cryptocurrencies, the implications of accounting  
43 and financial reporting, and the regulatory landscape. Overall, providing training on  
44 cryptocurrency is becoming increasingly important for accounting firms as the use of these  
45 technologies continues to grow, and it is likely that this trend will continue in the future.  
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#### 4. Research Method

This study examines the knowledge, experiences, and perceived outcomes of students who have completed CPA studies and recent graduates who enroll in a CPA program. To investigate our research question, we conducted semi-structured interviews. These semi-structured interviews offer precise information on individual real-world students' experiences with cryptocurrencies, allowing us to better understand how they acquire crypto knowledge. A virtual interview process was conducted with 57 recently qualified accountants. To ensure diversity across universities and colleges in Canada, we identified interviewees through our contacts. One coauthor conducted a thorough question-by-question analysis in keeping with the study's interpretive focus (Hermanson et al., 2012). This coauthor classified and categorized replies by their frequency of occurrence; the coauthor conferred with the other coauthors as needed. A second coauthor evaluated the data file and chose quotes from the interviews to prepare the manuscript. Along with the initial coauthor, two more coauthors analyzed the patterns of the results and quoted discussions for consistency with their perceptions. This study used Han's (2015) quoting method to present the results.

All participants had received their credentials within the last five years. We estimated that government entities employ 35% of the population. Two-fifths (40%) are employed by major companies, whereas small companies employ 27%. Three-quarters (73%) of the participants invested in cryptocurrencies, although none analyzed them in their jobs. Just over a third (35%) started to invest in cryptocurrencies while at school, the majority in 2019. All participants had to provide a copy of their degree certificates in accounting for reliability. We apply a two-phase strategy to evaluate recent graduates' understanding of cryptocurrency and how they acquire this information. In the first phase, we constructed an interview protocol and executed semi-structured interviews.

##### 4.1. Semi-Structured Interviews

Overall, semi-structured interviews can be a valuable tool for studying cryptocurrencies because they allow researchers to collect rich, detailed data on participants' experiences, perspectives, and behaviors (Obreja, 2022). We conducted interviews with 57 recent accounting graduates. We randomly selected the sample from five public universities and two public colleges enrolled in the CPA Canada program that participated in the interviews in 2021.

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3 Table 1 summarizes the characteristics of the interviewees, including education, qualifications,  
4 age, gender, and experience. As shown, most of our interviews were with accountants (67%),  
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Semi-structured interviews, guided by a set script, enabled us to explore the fundamental positions of cryptocurrency among the participants. This method conforms to the methods of various scholars' methods (Beasley et al., 2009). At least two study team members were present at each interview. Each interview lasted around 20 minutes, and all interviewees consented to be videotaped. Based on the questions in the interview guide, the interview responses were initially categorized into topics and then into emerging themes. The experts reached a consensus on coded topics and themes through a series of iterations.

## 5. Results

### Research Question 1

Accounting professors may have a wide range of experience with cryptocurrencies and blockchain technology. As the cryptocurrency industry continues to evolve, accounting professors will likely play an important role in developing accounting practices and standards that can help ensure the transparency and accuracy of cryptocurrency transactions (Ammous, 2018).

Our initial step in designing our interviews was to ascertain whether the professors had accounting competence. Overall, 62% of respondents provided concrete examples of their professor's superior accounting knowledge, indicating students' confidence in assessing their professor's

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3 accounting knowledge and experience. According to the respondents, accounting lecturers were  
4 mostly CPA graduates who worked in major accounting firms. These skills and experiences aided  
5 significantly in explaining the accounting topic. The following quotes demonstrate this  
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8 “discovery” of accounting professors’ job skills and backgrounds.  
9

10  
11 *“I have a pretty professional faculty to learn from. They know about vast things.*  
12 *They were so easy to approach. I remember three of my accounting professors*  
13 *worked at KPMJ. I think that helped us learn more and better.” (P2)*  
14  
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16  
17 *“My lecturers used to offer us significant examples from their past job experience*  
18 *and provide us with difficulties that required us to collaborate to determine a*  
19 *solution [for] customers. I honestly thought this to be very fascinating ... I*  
20 *discovered that I probably want to get further knowledge in this area.” (P24)*  
21  
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23  
24 *“Now that I work as an accountant, I think, ‘Oh. I completely get all of the instances*  
25 *my instructors illustrated in class, and their expertise has increased my confidence*  
26 *in reaching this point at my present company’”.* (P7)  
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32 It is crucial to demonstrate that students can assess instructors’ knowledge levels to ascertain  
33 whether they can judge their understanding of cryptocurrency. The overwhelming majority of our  
34 participants were dissatisfied that their accounting instructors had never covered cryptocurrency  
35 in class, even though the vast expertise of their accounting professors had benefitted them in  
36 general. A few individuals acknowledged that instructors discussed cryptocurrencies but not  
37 accounting treatments or auditing cryptos. These views are conveyed in the following quotes:  
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43 *“My instructors used to insist that we must live in the present. So, to live,*  
44 *individuals must learn new things. As a result, they spent time talking about*  
45 *cryptocurrencies but were never about financial treatment”.* (P15)  
46  
47  
48

49 *“My professors are knowledgeable, but they have never really discussed such*  
50 *topics... I do not recall any of them ever mentioning bitcoins.” (P8)*  
51  
52

53  
54 *“Cryptocurrency or bitcoin should be taught to students ... Regrettably, our*  
55 *lecturers never fully addressed such issues in class, and the ones who did were*  
56 *against bitcoins.” (P17)*  
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3 These quotes highlight the variation in the knowledge and abilities of accounting professors.  
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5 According to the participants, they had a high degree of confidence in their capacity to determine  
6 the level of expertise of certain lecturers. The differences between accounting university  
7 graduates and college professors regarding their knowledge and skills were not substantial. This  
8 diversity of experience of accounting professors is consistent with prior studies (Bhaskar, 1983;  
9 Romney, 1983) and demonstrates the profession's willingness to hire academics with diverse skill  
10 sets. Another probable explanation is that most accounting professors earned their degrees before  
11 cryptocurrencies were introduced, rendering them incapable of educating students.  
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## 18 **Research Question 2**

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21 Our analysis showed that many participants' professors were concerned about cryptocurrencies  
22 and ethics, corresponding to an earlier study (Barth et al., 2020; Vincent & Wilkins, 2020). We  
23 inquired about the respondents' and their professors' perspectives on cryptocurrencies to evaluate  
24 whether they shared the same perspective. According to most respondents, cryptocurrencies were  
25 primarily used for money laundering, illegal currency exchanges and platforms, and underground  
26 black markets. As expected, participants whose instructor was opposed to cryptocurrencies were  
27 hostile to cryptocurrency investments and transactions. In addition, our findings show that the  
28 concerns mentioned during the interview did not stop most accounting graduates from investing  
29 in cryptocurrencies. Due to a lack of awareness and ethical challenges, participants were learning  
30 more about crypto concerning accounting and audit procedures; they felt that cryptocurrencies  
31 would not vanish due to ethical concerns, and as more significant corporations invest in bitcoins.  
32 These views are conveyed in the following quotes:  
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43 *"It is well known that drug dealers use cryptocurrencies." (P14)*

44  
45  
46 *"There are so many issues surrounding bitcoin, take real states in Canada as an*  
47 *example, how international money is being used to legitimate the money". (P4)*

48  
49  
50 *"I have many concerns about crypto..... drugs being the main reason." (P31)*

51  
52  
53 *"I do think cryptocurrency is here to stay ... If governments issued their*  
54 *cryptocurrency in a few years, we would not see the mess in the market... and*  
55 *illegal activities will disappear." (P22)*  
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3 *“I recall my professors talking about bitcoins and how drug dealers are using*  
4 *bitcoin... I feel it is better to be far away for now from bitcoin.” (P27)*  
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8 Accordingly, our analysis results are consistent with prior studies, which found that government  
9 and regulatory bodies are increasingly focusing on the ethical considerations of cryptocurrencies.  
10 Unethical conduct, such as market manipulation or fraudulent ICOs, can lead to increased  
11 regulation and scrutiny, which can affect the valuation and adoption of cryptocurrencies (Bagus  
12 & De la Horra, 2021). In addition, ethics play a critical role in the adoption and valuation of  
13 cryptocurrencies. It is important for investors, companies, and regulators to promote ethical  
14 practices and hold those who engage in unethical conduct accountable (Dierksmeier & Seele,  
15 2018). This can help build trust, protect the reputation of the industry, and ensure the long-term  
16 success of cryptocurrencies.  
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### 23 24 **Research Question 3**

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27 Developing accounting books for cryptocurrencies can be a complex task, but it is important for  
28 individuals and companies that hold, trade, or mine cryptocurrencies to accurately track and report  
29 their cryptocurrency transactions. By doing so, they can comply with tax and regulatory  
30 requirements, and make informed decisions about their cryptocurrency holdings (Abayadeera et  
31 al., 2016). Therefore, regarding whether accounting textbooks include cryptocurrencies, the  
32 students had differing viewpoints. More than half of the respondents said that cryptocurrencies  
33 were never discussed in their textbooks. These views are conveyed in the following quotes:  
34  
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40 *“I have never read anything about it in the previous version of books. Probably,*  
41 *the new versions may contain a little information on it.” (P41)*  
42  
43  
44

45 *“I do not remember having encountered such a subject during my accounting*  
46 *studies in the books. I would remember if I saw it, given that I had reviewed my*  
47 *accounting books while preparing for my CPA.” (P52)*  
48  
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51 *“I had never seen it, even when I was studying for my CPA. I went through all my*  
52 *CPA materials and CPA competencies books; I never had the opportunity to read*  
53 *about them... I firmly believed that no textbook stated anything about crypto.”*  
54 *(P39)*  
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3 The remaining participants reported that the textbook devoted just one page to cryptography  
4 without providing examples or problems, or if they did, the examples were not helpful. Students  
5 agreed that the textbook's material on intangibles covered cryptocurrency, but according to them,  
6 the handling of cryptocurrency in the book was insufficient for the subject, since an increasing  
7 number of businesses were embracing cryptocurrencies. These views are conveyed in the  
8 following quotes:  
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13  
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15 *"I remember that my Intermediate Accounting volume 2 accounting textbook*  
16 *discussed cryptocurrency, but I think it was an introduction page, maybe in a one*  
17 *or two page only and was classified as intangible assets". (P30)*  
18  
19

20  
21 *"Since I am investing in crypto, this caught my attention... I think there was one*  
22 *column in one of the chapters." (P9)*  
23  
24

25  
26 The respondents were able to offer precise justifications for their positions in response to a  
27 subsequent inquiry. Their responses centered on crypto as a new problem, indicating that future  
28 textbooks would need more resources to accommodate the growing number of crypto investors.  
29 Students cited the writers' lack of knowledge regarding cryptocurrency as a contributing factor.  
30 These views are conveyed in the following quotes:  
31  
32  
33

34  
35 *"I do not believe the textbook included information about bitcoin, which is a new*  
36 *subject. It may take a few years before doing so." (P24)*  
37  
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39  
40 *"I think the book's author has no in-depth knowledge about crypto, so they did not*  
41 *expand on the subject ... Remember, it is a very new subject ..., and people still test*  
42 *the water." (P29)*  
43  
44

45  
46 *"I think if more people and companies invest in crypto, the more demand for*  
47 *information's needed. Which I believe will be in new editions of the accounting*  
48 *textbook". (P51)*  
49  
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51  
52 This result indicates a dearth of information available in the textbooks. Whether or not the  
53 interviewees stated that the cryptocurrency was discussed in the book, the fact remains that it was  
54 barely mentioned, indicating that students are incapable of addressing the accounting treatment  
55 of a cryptocurrency. This result contradicts prior studies (Hammond et al., 2015). As a result of  
56 their examination of accounting textbooks, which revealed that accounting textbooks are being  
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3 revised at an accelerating rate and that accounting professors believe the rate of change should be  
4 slowed, faculty members who are not textbook authors deem frequent textbook revisions to be of  
5 diminishing value.  
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#### 8 9 **Research Question 4**

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12 Most universities and colleges in Canada provide an accounting co-op designed for students  
13 interested in acquiring work experience in accounting firms. Students in accounting must  
14 complete one semester of working for a firm to be able to graduate from the program. All  
15 participants completed the program in their current or prior place of employment. Participants  
16 reported that their work while in school was an entry-level role, and that the training they obtained  
17 was relevant to their daily duties and understanding of the firm structures. Many in-hire positions  
18 reported that their training was only related to the new job and did not extend to other areas, such  
19 as cryptocurrencies. A few participants indicated that their firm had specialist departments and  
20 personnel who dealt with cryptocurrency investment, yet they had no interaction due to the nature  
21 of their jobs. These views are conveyed in the following quotes:  
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31 *“I have been investing in cryptocurrency since 2019. Thus, I have become*  
32 *acquainted with it. Nevertheless, I have never been trained at work about*  
33 *classifying crypto.” (P11)*  
34  
35

36  
37 *“Last year, I started my job as an account receivable clerk. I have been reading*  
38 *much about it since my co-op was mainly about bookkeeping while I was at school*  
39 *... my firm does not deal with crypto; it is a small firm ... My supervisor invests in*  
40 *crypto. We sometimes discuss the crypto but not in terms of accounting*  
41 *classification auditing”.* (P26)  
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47 *“I was surprised when I learned that we have a specialist in crypto in our firms.*  
48 *Some of our companies invest in crypto ... But I rarely see or talk to the people who*  
49 *deal with crypto investors.”* (P31)  
50  
51

52  
53 *“My work is not related to crypto, and as a result, I have not been informed about*  
54 *it. Even though we have a large number of firms who invest in crypto ... our*  
55 *database has information about crypto to read, but it’s only accessible for people*  
56 *whose work relates to bitcoin.”* (P2)  
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3                   *“Since I completed school, I have worked as an auditor at the government agency;*  
4                   *so far, I did not have any clients who invested in crypto. Therefore, I never had*  
5                   *training. I do not recall anyone at my workplace discussing the crypto ... most of*  
6                   *them believe it is a scam.....but as we provide public service, I think we should*  
7                   *know about crypto.” (P27)*  
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13 Our results supported prior research that documented that graduate students may have a wide  
14 range of experiences with cryptocurrencies, depending on their interests and professional goals.  
15 Cryptocurrencies are a rapidly evolving field, and graduate students who engage with them may  
16 have the opportunity to gain valuable skills, develop new ideas, and make important contributions  
17 to the industry (Hasan et al., 2022).  
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## 23 **6. Conclusion**

24  
25 Since cryptocurrency is a relatively new concept in accounting, laws are alarmingly absent. The  
26 challenges presented by the SEC in its quest to regulate cryptocurrencies and classify most of  
27 them as financial securities put pressure on the international standard to assess its definition of  
28 security through the lens of IFRS and offer a more accurate classification of cryptocurrency.  
29 Whereas student investors are aware of the underlying principles of cryptocurrency, most  
30 graduates with accounting degrees continue to face difficulties due to a lack of knowledge about  
31 cryptocurrencies or a lack of resources. We also discovered that recent accounting graduates had  
32 only the slightest awareness of cryptocurrencies, likely due to a lack of professors’ comprehension  
33 of or exposure to the issue. Our primary contribution is to understand whether accounting  
34 graduates are prepared to conduct accounting and auditing work regarding cryptocurrencies in  
35 the future.  
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46 Our analysis showed that several textbooks have been revised and no longer included the  
47 appropriate section on cryptocurrencies. Another objection might be made about the instructors’  
48 expertise in cryptocurrencies, since the subject was not featured in the textbook and was thus not  
49 discussed in class. This is a reasonable point; however, most participants reported that they  
50 discussed cryptocurrencies with their professors and either opposed cryptocurrency for ethical  
51 reasons or had a limited understanding of it. Several actions can be taken by schools in response  
52 to these findings, including collaboration with the CPA, regulators, and academic book authors  
53 to provide more resources about cryptocurrencies. Accounting schools should educate academics  
54 on cryptocurrencies and encourage instructors to include cryptocurrency-related content in their  
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courses. Furthermore, we suggest that accounting textbooks should contain a section on cryptocurrencies. Students should learn about cryptocurrencies through CPA and Canada's cryptocurrency exams. In addition to developing criteria for evaluating whether cryptocurrencies qualify as securities, IFRS committees should comprehensively examine cryptocurrency classification.

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**Table 1.** Interviewees

| Institution  | Interviewee (Participant) | Position | Age | Gender | Academic qualification | Professional qualification | Years of firm experience |
|--------------|---------------------------|----------|-----|--------|------------------------|----------------------------|--------------------------|
| College 2    | 1                         | A        | 28  | Female | BA                     |                            | 5                        |
| University 2 | 2                         | A        | 27  | Female | BA                     |                            | 5                        |
| University 2 | 3                         | A        | 22  | Male   | BA                     |                            | 4                        |
| University 5 | 4                         | A        | 29  | Female | BA                     |                            | 5                        |
| College 2    | 5                         | A        | 27  | Female | BA                     |                            | 4                        |
| University 4 | 6                         | A        | 26  | Female | BA                     |                            | 4                        |
| College 1    | 7                         | A        | 28  | Female | BA                     |                            | 5                        |
| College 1    | 8                         | A        | 27  | Female | BA                     |                            | 3                        |
| University 5 | 9                         | SA       | 33  | Male   | MA                     | CPA                        | 5                        |
| College 2    | 10                        | A        | 24  | Female | BA                     |                            | 4                        |
| University 3 | 11                        | A        | 27  | Male   | BA                     |                            | 3                        |
| University 3 | 12                        | SA       | 32  | Female | MA                     | CPA                        | 5                        |
| University 3 | 13                        | SA       | 24  | Female | BA                     |                            | 2                        |
| College 1    | 14                        | A        | 28  | Male   | BA                     |                            | 5                        |
| University 4 | 15                        | A        | 27  | Female | BA                     |                            | 3                        |
| College 1    | 16                        | A        | 29  | Female | BA                     |                            | 5                        |
| University 1 | 17                        | A        | 24  | Female | BA                     |                            | 2                        |
| University 1 | 18                        | A        | 23  | Female | BA                     |                            | 1                        |
| University 5 | 19                        | A        | 29  | Male   | BA                     |                            | 5                        |
| College 2    | 20                        | SA       | 28  | Female | BA                     |                            | 4                        |
| University 2 | 21                        | A        | 27  | Female | BA                     |                            | 4                        |
| University 2 | 22                        | SA       | 29  | Female | BA                     |                            | 5                        |
| College 1    | 23                        | SA       | 35  | Male   | MA                     | CPA                        | 5                        |
| University 4 | 24                        | SA       | 29  | Female | BA                     |                            | 5                        |
| University 3 | 25                        | A        | 24  | Female | BA                     |                            | 2                        |
| College 1    | 26                        | A        | 26  | Female | BA                     |                            | 3                        |
| University 5 | 27                        | A        | 22  | Male   | BA                     |                            | 1                        |
| University 3 | 28                        | A        | 28  | Female | BA                     |                            | 4                        |
| College 1    | 29                        | SA       | 32  | Female | MA                     | CPA                        | 5                        |
| University 5 | 30                        | SA       | 27  | Male   | BA                     |                            | 5                        |
| University 1 | 31                        | SA       | 29  | Female | MA                     |                            | 5                        |
| College 1    | 32                        | A        | 26  | Female | BA                     |                            | 4                        |
| University 2 | 33                        | SA       | 31  | Male   | MA                     | CPA                        | 5                        |
| University 4 | 34                        | A        | 29  | Female | BA                     |                            | 5                        |

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|--------------|----|----|----|--------|----|-----|---|
| College 1    | 35 | A  | 26 | Female | BA |     | 3 |
| University 1 | 36 | SA | 28 | Female | MA |     | 5 |
| College 1    | 37 | A  | 25 | Male   | BA |     | 3 |
| University 4 | 38 | A  | 27 | Female | BA |     | 5 |
| University 3 | 39 | A  | 23 | Female | BA |     | 2 |
| College 1    | 40 | SA | 27 | Female | MA |     | 5 |
| University 1 | 41 | SA | 29 | Female | MA |     | 5 |
| University 2 | 42 | A  | 27 | Female | BA |     | 3 |
| University 4 | 43 | A  | 26 | Male   | BA |     | 3 |
| University 4 | 44 | A  | 26 | Female | BA |     | 4 |
| University 3 | 45 | SA | 27 | Female | BA |     | 5 |
| University 1 | 46 | A  | 23 | Female | BA |     | 1 |
| University 3 | 47 | A  | 28 | Female | BA |     | 5 |
| University 3 | 48 | SA | 34 | Male   | MA | CPA | 6 |
| University 2 | 49 | A  | 28 | Female | BA |     | 4 |
| University 4 | 50 | A  | 23 | Female | MA |     | 1 |
| College 1    | 51 | SA | 29 | Male   | BA |     | 5 |
| University 5 | 52 | A  | 28 | Female | BA |     | 4 |
| University 3 | 53 | SA | 30 | Male   | MA | CPA | 5 |
| University 2 | 54 | A  | 22 | Female | BA |     | 1 |
| College 2    | 55 | A  | 24 | Female | BA |     | 1 |
| University 1 | 56 | SA | 29 | Male   | MA | CPA | 8 |
| University 2 | 57 | A  | 27 | Female | BA |     | 3 |

Notes: SA – Senior Accountant, A – Accountant, MA – Master’s in accounting, BA – Bachelor’s in Accounting.

## Cryptocurrencies in Accounting Schools?

### Abstract

**Purpose** – This study aims to investigate the extent to which newly certified public accountants (CPAs) and accounting graduate students possess a comprehensive understanding of cryptocurrencies and the skills they have acquired throughout their education.

**Design/methodology/approach** – A qualitative analysis was used through semi-structured interviews to obtain an in-depth insight into cryptocurrencies, which could not be investigated easily through quantitative methods, and to provide an understanding of the context for cryptocurrencies from CPA and non-CPA students' points of view. This was in addition to focusing on understanding the differences between the students' thoughts.

**Findings** – This study found that recent accounting graduates and CPA members have the least awareness of cryptocurrencies, likely due to a lack of professors' comprehension or exposure to the concept. However, students involved in forensic courses provided more information about cryptocurrencies compared with other students.

**Research limitations/implications** – Our data are limited to only a single country. Given that cryptocurrencies are a relatively new notion in accounting, there is an alarming lack of legislation. Further, we found that recent accounting graduates and CPAs had the same level of knowledge of cryptocurrencies, most probably due to a lack of exposure during their education and academics' limited understanding of the concept.

**Practical implications** – The students' differing answers about cryptocurrencies show differences in their current level of understanding of cryptocurrencies.

**Originality/value** – This study has identified that the vast majority of accounting graduates lack adequate knowledge about cryptocurrencies or access to adequate resources, despite understanding the fundamental concepts of cryptocurrency.

**Keywords:** cryptocurrency; accounting graduates; education; knowledge; professors.

## 1. Introduction

In recent years, the emergence of new technology has transformed business procedures (Shaban, 2020). Experts have indicated that modern technology has considerably influenced the accounting profession (Al-Htaybat et al., 2018; Ferreira-Lopes et al., 2020). Integration is encouraged by the increasing significance of technology in the accounting and auditing professions. However, a fundamental understanding of the technological foundations of new technologies, such as cryptocurrencies, is needed (Phillip et al., 2018), as more companies begin to invest in cryptocurrencies, and investors are more interested than ever. The absence of meaningful formal guidance from generally accepted accounting procedures (GAAP) standards on cryptocurrencies is a substantial impediment for stakeholders (Yatsyk, 2018). This is an essential subject for both accountants and players in the market.

Cryptocurrency, which is categorized as an intangible asset under the current accounting standards (Vincent & Wilkins, 2020), has not received exceptional guidance from the International Financial Reporting Standards (IFRS). The Securities and Exchange Commission (SEC) maintains that several cryptocurrencies should be deemed securities (Hacker & Thomale, 2018); thus, businesses should classify them as financial instruments as opposed to intangible assets (Vincent & Wilkins, 2020). In “Holdings of Cryptocurrencies – June 2019” (Tsuji, 2020), the IFRS Committee determined that bitcoin holdings are not financial assets. Recently, CPA Canada published “Audit Considerations Related to Cryptocurrency Assets and Transactions,” which included the mention of intangible assets.

Cryptocurrencies can have various implications for graduate accounting students, both as investors and as participants in the cryptocurrency industry. Cryptocurrencies can offer graduate students new investment opportunities, either as a speculative investment or as a long-term investment in the future of blockchain technology. In addition, cryptocurrencies can offer graduate students new opportunities for investment, research, job seeking, and entrepreneurship. However, graduate students should carefully evaluate the risks and benefits of investing in cryptocurrencies, as the market can be highly volatile and subject to market manipulation. As investors or participants, students should carefully evaluate the risks and benefits of engaging with the cryptocurrency industry and should be prepared to adapt to the rapid changes and uncertainties that are characteristic of the industry.

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3 This study aims to determine whether accounting students have been introduced to  
4 cryptocurrencies and their handling during their education. We surveyed current students and  
5 recent graduates of accounting about their experiences learning about cryptocurrency in their  
6 accounting programs. Recent graduate students with accounting degrees and certifications were  
7 tested regarding their understanding of cryptocurrencies.  
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13 According to our findings, most students' core curricula do not provide a comprehensive  
14 discussion of cryptocurrencies. Instead, cryptocurrencies are introduced only as immaterial assets  
15 that must be reported in financial statements, and students are not instructed on auditing or  
16 assessing cryptocurrencies. Most students agreed that their professors' lack of cryptocurrency  
17 understanding is evident. These results demonstrate that the quality of accounting graduates is  
18 hampered by an imbalanced relationship between academics and technological progress. One of  
19 the most influential studies (Qasim & Kharbat, 2020) presented the integrated technique for  
20 revamping courses at three levels (introductory, intermediate, and advanced) and technologies.  
21 We also found that participants were concerned about cryptocurrencies and illegal activities.  
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30 This study's primary contribution is its revealing the critical need for a prototype and more  
31 regulations from the IFRS covering cryptocurrency categories and data for auditors and  
32 accountants to comprehend the issues posed by cryptocurrencies (Ramassa & Leoni, 2022),  
33 similar to the Financial Accounting Standards Board (FASB), which issued a new handout for  
34 accounting for exchange-traded digital assets in May 2022.  
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## 39 **2. Literature Review**

### 40 41 42 **Blockchain, DLT, and decentralized**

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45 Cryptocurrencies, such as bitcoin, rely on blockchain technology (Shaban, 2020). As the name  
46 suggests, blockchains are newer forms of distributed ledger technology (DLT) consisting of a  
47 database that keeps transaction data in ledgers in the form of distributed blocks. A block is a  
48 periodic ledger or container of data in computing. Each successive block contains the address of  
49 the previous block; a chain of cryptographically linked transaction bundles, or blocks, results  
50 from each block referencing the previous block (Perlman, 2019). A blockchain is a technique  
51 used by a community of users to maintain a shared transaction record. The community verifies  
52 each transaction through a consensus method, and verified transactions are consequently recorded  
53 in the ledger of a blockchain network (Perlman, 2019; Rahman & Ali, 2020).  
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DLT resolves difficulties relating to innovation or technology with shared and regulated data and the secure administration of diverse commercial transactions by numerous organizations (Sultan et al., 2018). The system relies on modern cryptographic proofs for distributed authentication in the DLT. Data are stored in DLT blocks, continuously added, and synced between participating nodes in particular networks (Perdana et al., 2021). However, governments and regulatory organizations prefer DLT to blockchains. A decentralized peer-to-peer network is used to conduct cryptocurrency transactions, obviating the requirement for a central authority (Adams & Bailey, 2021; Kostić & Sedej, 2022; Nabilou, 2019; Vincent & Wilkins, 2020). In summary, blockchains are a type of DLT that is decentralized, and decentralization is a key aspect of both blockchain and DLT technologies. DLT is a broader term that encompasses all types of decentralized and distributed ledger technologies, including blockchains.

### **Cryptocurrencies Under IFRS: Are They Intangible Assets?**

Accounting standards do not yet exist for various challenges that accountants may encounter in practice. One such concern is cryptocurrencies. Due to the lack of an accounting standard defining how cryptocurrencies should be accounted for, accountants are compelled to use established accounting standards (Vincent & Wilkins, 2020). However, cryptocurrency holders do not usually possess this type of contractual right. Thus, cryptocurrencies do not appear to fit the definition of a non-cash financial asset in IAS 32 and IFRS 9 (Barker & Teixeira, 2018).

The classification of cryptocurrencies under IFRS is a matter of debate and interpretation. Currently, there is no specific guidance on how to classify cryptocurrencies under the IFRS. However, it is generally considered that cryptocurrencies may be classified as intangible assets under IFRS if they meet the definition of an intangible asset, as stated in IFRS 38. According to IFRS 38, an intangible asset is an identifiable non-monetary asset without physical substance. To meet this definition, a cryptocurrency would need to have specific attributes, such as an identifiable and distinct set of rights and obligations, the ability to generate future economic benefits, and the ability to be sold, transferred, or exchanged (Chou et al., 2022). Therefore, if a cryptocurrency meets the definition of an intangible asset, it would be recorded as an intangible asset on the company's balance sheet, with any changes in its fair value being recognized in the company's income statement.

To summarize, it is important to note that the classification of cryptocurrencies as intangible assets under the IFRS is still subject to interpretation and may differ in different jurisdictions.

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3 Companies and their auditors should exercise judgment and carefully consider the specific facts  
4 and circumstances in each case to determine the most appropriate classification under the IFRS.  
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### 8 **Cryptocurrencies Under the SEC: Are They Securities?**

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10 Cryptocurrency and initial coin offerings are booming. The scope of these markets includes  
11 regional, national, and international players and an increasingly diverse spectrum of products and  
12 services. Investors and other market participants can face issues because of these developments.  
13 In such a market, U.S. federal law regulates investment companies and their operations and  
14 establishes industry standards. President Franklin D. Roosevelt signed the Investment Advisers  
15 Act of 1940 (Moriarty, 2021), empowering the SEC to oversee investment trusts and counselors.  
16 The SEC is comprised of four divisions, and several divisions within it work toward the same  
17 goal of protecting investors, ensuring fair, organized, and efficient markets, and promoting the  
18 interests of investors (Jorgensen et al., 2007).  
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27 However, while the SEC has not issued a definitive ruling on whether all cryptocurrencies are  
28 securities, in its guidance, it has stated that many cryptocurrencies may be considered securities  
29 and, therefore, subject to federal securities laws (Quamara & Singh, 2022). The SEC applies the  
30 Howey test, a court-created test, to determine whether a particular investment is a security.  
31 According to the Howey test, an investment is a security if it involves an investment of money in  
32 a common enterprise, with the expectation of profits predominantly from the efforts of others.  
33 Based on this definition, the SEC has indicated that many initial coin offerings (ICOs) and other  
34 cryptocurrency offerings may be considered securities offerings, and, therefore, subject to federal  
35 securities laws. For example, if a cryptocurrency is marketed as an investment opportunity and  
36 promises a return on investment, the SEC may view it as security (DiMarino & Roberson, 2013;  
37 Hacker & Thomale, 2018).  
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47 Lastly, it is essential to note that the classification of cryptocurrencies as securities is a fact-  
48 specific determination and may vary depending on the specific facts and circumstances of each  
49 case. Companies and individuals involved in cryptocurrency offerings should carefully consider  
50 the applicable laws and regulations, and consult with legal counsel to determine the appropriate  
51 regulatory treatment of their offerings.  
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### 56 **Cryptocurrency in School Accounting Books**

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3 Accounting rules emphasize responsibility in preparing financial reports to reduce unethical  
4 conduct that might endanger stakeholders' assets. Experts have concluded that ethical and  
5 responsible behavior in generating financial reports begins in the classroom. Therefore, vital  
6 accounting education is necessary to improve the compilation of financial reports. According to  
7 Suryawathy and Putra (2016), chief financial officers (CFOs) are worried about the quality of  
8 accounting education. Abayadeera et al. (2016) informed stakeholders of the significance of  
9 accounting skills for graduates. When accounting instructors can effectively convey information  
10 (Suryawathy & Putra, 2016) in a conducive learning environment, these abilities are provided  
11 (CPA Canada, 2018; Vroeijenstijn, 2003).  
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20 Furthermore, the globalization and development of accounting, such as IFRS, affects accounting  
21 education (Needles Jr, 2010), increasing CFOs' demand for improved accountant skills  
22 (Mathews, 2001). These demands and rapid changes are fundamental requirements in the  
23 educational quality environment. In addition, most accounting books classify cryptocurrencies as  
24 intangible assets (Martin et al., 2020); the possibility that cryptocurrencies could be classified  
25 differently is not discussed.  
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### 31 **Cryptocurrency Accounting and Theoretical Framework**

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34 Cryptocurrency accounting and framework theories are still evolving, as the use of  
35 cryptocurrencies and their underlying blockchain technology is relatively new. However, several  
36 theoretical frameworks have been proposed to help accountants and financial professionals  
37 understand how to approach accounting for cryptocurrencies and related transactions. One of the  
38 frameworks is based on the concept of "real options," which considers the potential future value  
39 of a cryptocurrency investment and how that value can be realized (Sumarti et al., 2021). This  
40 framework considers the uncertainty of cryptocurrency prices and the ability of investors to make  
41 decisions based on that uncertainty. Another framework is based on the "information economics"  
42 perspective, which views cryptocurrencies as a source of information about the state of the  
43 underlying blockchain network (Caferra, 2022; Marthinsen & Gordon, 2021). In terms of actual  
44 accounting for cryptocurrencies, there are currently no globally accepted standards for how to  
45 account for cryptocurrencies in financial statements. However, some guidance has been provided  
46 by organizations such as the International Accounting Standards Board (IASB) and the Financial  
47 Accounting Standards Board (FASB), which have issued information on how to account for  
48 cryptocurrencies in general-purpose financial statements.  
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3 Thus, although there is still much work to be done to fully understand the implications of  
4 cryptocurrency accounting, the existing frameworks and guidance can provide a starting point for  
5 accountants and financial professionals as they work to develop a comprehensive approach to  
6 accounting for cryptocurrencies.  
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### 10 11 **3. Research Questions** 12

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14 From the standpoint of students, we seek to gain a greater understanding of whether educators  
15 have the necessary expertise in cryptocurrency technology through the following research  
16 questions:  
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20 ***RQ1: How do accounting professors introduce, explain, and debate cryptocurrencies during***  
21 ***the academic years?***  
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25 Our study focused on explaining how cryptocurrencies in accounting classes might vary,  
26 depending on the instructor's personal views and the specific course being taught. However, some  
27 common ways accounting professors may introduce, explain, and debate cryptocurrencies in their  
28 classes include beginning by explaining what cryptocurrencies are and how they function,  
29 including their underlying technology, such as blockchains, and how they differ from traditional  
30 fiat currencies. Accounting professors may then explain the accounting implications of  
31 cryptocurrencies, such as the challenges in valuation, the need for proper disclosures, and the  
32 potential impact on financial statements, as well as the regulations, which should be discussed to  
33 show the current regulatory landscape for cryptocurrencies, including the varying approaches  
34 taken by different countries, and the implications for companies and investors (Ammous, 2018;  
35 Lawson et al., 2014; Showalter & Wilks, 2021).  
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45 ***RQ2: During the academic years, do accounting professors debate the ethical concerns of***  
46 ***cryptocurrencies?***  
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50 As accounting and accountants evolve, they are affected by various factors, including the context  
51 within which they operate and the technological advances that affect their capture (Wells, 2018).  
52 The curriculum for accounting education is often criticized for needing to represent contemporary  
53 accounting practices fully. This can be due to a variety of reasons, including the slow pace of  
54 change, emphasis on traditional accounting methods, lack of industry involvement, lack of  
55 practical experience, and the fact that accounting education often lacks opportunities for students  
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3 to gain valuable experience in real-world accounting scenarios, which can limit their exposure to  
4 contemporary accounting practices (Parker et al., 2011; Mathews, 2001). Accordingly, we  
5 propose the following research question:  
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10 ***RQ3: Do accounting textbooks used during school years explain cryptocurrency in detail?***  
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12 Cryptocurrencies are a relatively new development, and their impact on the accounting profession  
13 is still evolving. Some accounting textbooks briefly mention cryptocurrencies, and most  
14 textbooks generally do not cover the topic in depth. Instead, accounting professors may  
15 supplement their courses with additional readings, case studies, and other materials to provide  
16 students with a more comprehensive understanding of this emerging area (e.g., Abayadeera et al.,  
17 2016; Suryawathy & Putra, 2016; Vroeijenstijn, 2003). It is likely that, as the use and impact of  
18 cryptocurrencies continue to grow, they will receive more attention in accounting textbooks and  
19 courses in the future. This means that firms may examine new employees' competencies to  
20 identify development needs. Despite the increased interest in this area, no studies have examined  
21 development programs for accountants on cryptocurrency. Consequently, we propose our final  
22 research question:  
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33 ***RQ4: Do accounting firms provide on-the-job training on cryptocurrency?***  
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35 Recently, many accounting firms have begun to provide training on cryptocurrency to their  
36 employees. As the use of cryptocurrencies becomes more widespread, accounting firms are  
37 recognising the importance of having a knowledgeable workforce that understands the accounting  
38 implications of these emerging technologies (Stern & Reinstein, 2021). The nature and extent of  
39 cryptocurrency training provided by accounting firms can, however, vary widely, ranging from  
40 brief overviews to comprehensive courses. Some firms may offer in-house training sessions or  
41 workshops, while others may provide online courses or other training materials. The training may  
42 focus on a range of topics, including the basics of cryptocurrencies, the implications of accounting  
43 and financial reporting, and the regulatory landscape. Overall, providing training on  
44 cryptocurrency is becoming increasingly important for accounting firms as the use of these  
45 technologies continues to grow, and it is likely that this trend will continue in the future.  
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#### 4. Research Method

This study examines the knowledge, experiences, and perceived outcomes of students who have completed CPA studies and recent graduates who enroll in a CPA program. To investigate our research question, we conducted semi-structured interviews. These semi-structured interviews offer precise information on individual real-world students' experiences with cryptocurrencies, allowing us to better understand how they acquire crypto knowledge. A virtual interview process was conducted with 57 recently qualified accountants. To ensure diversity across universities and colleges in Canada, we identified interviewees through our contacts. One coauthor conducted a thorough question-by-question analysis in keeping with the study's interpretive focus (Hermanson et al., 2012). This coauthor classified and categorized replies by their frequency of occurrence; the coauthor conferred with the other coauthors as needed. A second coauthor evaluated the data file and chose quotes from the interviews to prepare the manuscript. Along with the initial coauthor, two more coauthors analyzed the patterns of the results and quoted discussions for consistency with their perceptions. This study used Han's (2015) quoting method to present the results.

All participants had received their credentials within the last five years. We estimated that government entities employ 35% of the population. Two-fifths (40%) are employed by major companies, whereas small companies employ 27%. Three-quarters (73%) of the participants invested in cryptocurrencies, although none analyzed them in their jobs. Just over a third (35%) started to invest in cryptocurrencies while at school, the majority in 2019. All participants had to provide a copy of their degree certificates in accounting for reliability.

##### 4.1. Semi-Structured Interviews

Overall, semi-structured interviews can be a valuable tool for studying cryptocurrencies because they allow researchers to collect rich, detailed data on participants' experiences, perspectives, and behaviors (Obreja, 2022). We conducted interviews with 57 recent accounting graduates. We randomly selected the sample from five public universities and two public colleges enrolled in the CPA Canada program that participated in the interviews in 2021.

Table 1 summarizes the characteristics of the interviewees, including education, qualifications, age, gender, and experience. As shown, most of our interviews were with accountants (67%), followed by senior accountants (33%). Of these, 77% had a bachelor's degree in accounting, and

23% had a master's degree in accounting. In addition, 14% of interviewees had CPA qualifications. In terms of experience, 46% of interviewees had long periods of work experience in their current firm (>5 years), 42% had medium experience (2–4 years), and 12% had an experience of one year. Our analysis showed that 87% of our participants were between 22 and 29 years old, and 13% were 30 years and older. Our sample included 26% male and 74% female interviewees. Together, these statistics suggest that our interviewees were sufficiently well-qualified and experienced to provide in-depth insights about cryptocurrencies in accounting schools. The study focuses on the Canadian market, since the researchers had access to participants there. The principal researcher teaches at a Canadian institution with access to individuals and accounting program expertise in Canada.

<INSERT TABLE 1 HERE>

Semi-structured interviews, guided by a set script, enabled us to explore the fundamental positions of cryptocurrency among the participants. This method conforms to the methods of various scholars' methods (Beasley et al., 2009). At least two study team members were present at each interview. Each interview lasted around 20 minutes, and all interviewees consented to be videotaped. Based on the questions in the interview guide, the interview responses were initially categorized into topics and then into emerging themes. The experts reached a consensus on coded topics and themes through a series of iterations.

## 5. Results

### Research Question 1

Accounting professors may have a wide range of experience with cryptocurrencies and blockchain technology. As the cryptocurrency industry continues to evolve, accounting professors will likely play an important role in developing accounting practices and standards that can help ensure the transparency and accuracy of cryptocurrency transactions (Ammous, 2018).

Our initial step in designing our interviews was to ascertain whether the professors had accounting competence. Overall, 62% of respondents provided concrete examples of their professor's superior accounting knowledge, indicating students' confidence in assessing their professor's accounting knowledge and experience. According to the respondents, accounting lecturers were mostly CPA graduates who worked in major accounting firms. These skills and experiences aided

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3 significantly in explaining the accounting topic. The following quotes demonstrate this  
4 “discovery” of accounting professors’ job skills and backgrounds.  
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8 *“I have a pretty professional faculty to learn from. They know about vast things.*  
9 *They were so easy to approach. I remember three of my accounting professors*  
10 *worked at KPMJ. I think that helped us learn more and better.” (P2)*  
11  
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13

14 *“My lecturers used to offer us significant examples from their past job experience*  
15 *and provide us with difficulties that required us to collaborate to determine a*  
16 *solution [for] customers. I honestly thought this to be very fascinating ... I*  
17 *discovered that I probably want to get further knowledge in this area.” (P24)*  
18  
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21

22 *“Now that I work as an accountant, I think, ‘Oh. I completely get all of the instances*  
23 *my instructors illustrated in class, and their expertise has increased my confidence*  
24 *in reaching this point at my present company’”.* (P7)  
25  
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28 It is crucial to demonstrate that students can assess instructors’ knowledge levels to ascertain  
29 whether they can judge their understanding of cryptocurrency. The overwhelming majority of our  
30 participants were dissatisfied that their accounting instructors had never covered cryptocurrency  
31 in class, even though the vast expertise of their accounting professors had benefitted them in  
32 general. A few individuals acknowledged that instructors discussed cryptocurrencies but not  
33 accounting treatments or auditing cryptos. These views are conveyed in the following quotes:  
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40 *“My instructors used to insist that we must live in the present. So, to live,*  
41 *individuals must learn new things. As a result, they spent time talking about*  
42 *cryptocurrencies but were never about financial treatment”.* (P15)  
43  
44  
45

46 *“My professors are knowledgeable, but they have never really discussed such*  
47 *topics... I do not recall any of them ever mentioning bitcoins.” (P8)*  
48  
49  
50

51 *“Cryptocurrency or bitcoin should be taught to students ... Regrettably, our*  
52 *lecturers never fully addressed such issues in class, and the ones who did were*  
53 *against bitcoins.” (P17)*  
54  
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57 These quotes highlight the variation in the knowledge and abilities of accounting professors.  
58 According to the participants, they had a high degree of confidence in their capacity to determine  
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1  
2  
3 the level of expertise of certain lecturers. The differences between accounting university  
4 graduates and college professors regarding their knowledge and skills were not substantial. This  
5 diversity of experience of accounting professors is consistent with prior studies (Bhaskar, 1983;  
6 Romney, 1983) and demonstrates the profession's willingness to hire academics with diverse skill  
7 sets. Another probable explanation is that most accounting professors earned their degrees before  
8 cryptocurrencies were introduced, rendering them incapable of educating students.  
9

## 10 11 12 13 14 15 **Research Question 2**

16  
17 Our analysis showed that many participants' professors were concerned about cryptocurrencies  
18 and ethics, corresponding to an earlier study (Barth et al., 2020; Vincent & Wilkins, 2020). We  
19 inquired about the respondents' and their professors' perspectives on cryptocurrencies to evaluate  
20 whether they shared the same perspective. According to most respondents, cryptocurrencies were  
21 primarily used for money laundering, illegal currency exchanges and platforms, and underground  
22 black markets. As expected, participants whose instructor was opposed to cryptocurrencies were  
23 hostile to cryptocurrency investments and transactions. In addition, our findings show that the  
24 concerns mentioned during the interview did not stop most accounting graduates from investing  
25 in cryptocurrencies. Due to a lack of awareness and ethical challenges, participants were learning  
26 more about crypto concerning accounting and audit procedures; they felt that cryptocurrencies  
27 would not vanish due to ethical concerns, and as more significant corporations invest in bitcoins.  
28 These views are conveyed in the following quotes:  
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39 *"It is well known that drug dealers use cryptocurrencies." (P14)*  
40

41  
42 *"There are so many issues surrounding bitcoin, take real states in Canada as an*  
43 *example, how international money is being used to legitimate the money". (P4)*  
44

45  
46 *"I have many concerns about crypto..... drugs being the main reason." (P31)*  
47

48  
49 *"I do think cryptocurrency is here to stay ... If governments issued their*  
50 *cryptocurrency in a few years, we would not see the mess in the market... and*  
51 *illegal activities will disappear." (P22)*  
52  
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54  
55 *"I recall my professors talking about bitcoins and how drug dealers are using*  
56 *bitcoin... I feel it is better to be far away for now from bitcoin." (P27)*  
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3 Accordingly, our analysis results are consistent with prior studies, which found that government  
4 and regulatory bodies are increasingly focusing on the ethical considerations of cryptocurrencies.  
5 Unethical conduct, such as market manipulation or fraudulent ICOs, can lead to increased  
6 regulation and scrutiny, which can affect the valuation and adoption of cryptocurrencies (Bagus  
7 & De la Horra, 2021). In addition, ethics play a critical role in the adoption and valuation of  
8 cryptocurrencies. It is important for investors, companies, and regulators to promote ethical  
9 practices and hold those who engage in unethical conduct accountable (Dierksmeier & Seele,  
10 2018). This can help build trust, protect the reputation of the industry, and ensure the long-term  
11 success of cryptocurrencies.  
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### 20 **Research Question 3**

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23 Developing accounting books for cryptocurrencies can be a complex task, but it is important for  
24 individuals and companies that hold, trade, or mine cryptocurrencies to accurately track and report  
25 their cryptocurrency transactions. By doing so, they can comply with tax and regulatory  
26 requirements, and make informed decisions about their cryptocurrency holdings (Abayadeera et  
27 al., 2016). Therefore, regarding whether accounting textbooks include cryptocurrencies, the  
28 students had differing viewpoints. More than half of the respondents said that cryptocurrencies  
29 were never discussed in their textbooks. These views are conveyed in the following quotes:  
30  
31  
32  
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36 *“I have never read anything about it in the previous version of books. Probably,*  
37 *the new versions may contain a little information on it.” (P41)*  
38

39  
40  
41 *“I do not remember having encountered such a subject during my accounting*  
42 *studies in the books. I would remember if I saw it, given that I had reviewed my*  
43 *accounting books while preparing for my CPA.” (P52)*  
44  
45

46  
47 *“I had never seen it, even when I was studying for my CPA. I went through all my*  
48 *CPA materials and CPA competencies books; I never had the opportunity to read*  
49 *about them... I firmly believed that no textbook stated anything about crypto.”*  
50 *(P39)*  
51  
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55 The remaining participants reported that the textbook devoted just one page to cryptography  
56 without providing examples or problems, or if they did, the examples were not helpful. Students  
57 agreed that the textbook’s material on intangibles covered cryptocurrency, but according to them,  
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3 the handling of cryptocurrency in the book was insufficient for the subject, since an increasing  
4 number of businesses were embracing cryptocurrencies. These views are conveyed in the  
5 following quotes:  
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10 *“I remember that my Intermediate Accounting volume 2 accounting textbook*  
11 *discussed cryptocurrency, but I think it was an introduction page, maybe in a one*  
12 *or two page only and was classified as intangible assets”. (P30)*  
13  
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15  
16 *“Since I am investing in crypto, this caught my attention... I think there was one*  
17 *column in one of the chapters.” (P9)*  
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20  
21 The respondents were able to offer precise justifications for their positions in response to a  
22 subsequent inquiry. Their responses centered on crypto as a new problem, indicating that future  
23 textbooks would need more resources to accommodate the growing number of crypto investors.  
24 Students cited the writers' lack of knowledge regarding cryptocurrency as a contributing factor.  
25 These views are conveyed in the following quotes:  
26  
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29  
30 *“I do not believe the textbook included information about bitcoin, which is a new*  
31 *subject. It may take a few years before doing so.” (P24)*  
32  
33

34  
35 *“I think the book's author has no in-depth knowledge about crypto, so they did not*  
36 *expand on the subject ... Remember, it is a very new subject ..., and people still test*  
37 *the water.” (P29)*  
38  
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40  
41 *“I think if more people and companies invest in crypto, the more demand for*  
42 *information's needed. Which I believe will be in new editions of the accounting*  
43 *textbook”. (P51)*  
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47  
48 This result indicates a dearth of information available in the textbooks. Whether or not the  
49 interviewees stated that the cryptocurrency was discussed in the book, the fact remains that it was  
50 barely mentioned, indicating that students are incapable of addressing the accounting treatment  
51 of a cryptocurrency. This result contradicts prior studies (Hammond et al., 2015). As a result of  
52 their examination of accounting textbooks, which revealed that accounting textbooks are being  
53 revised at an accelerating rate and that accounting professors believe the rate of change should be  
54 slowed, faculty members who are not textbook authors deem frequent textbook revisions to be of  
55 diminishing value.  
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#### Research Question 4

Most universities and colleges in Canada provide an accounting co-op designed for students interested in acquiring work experience in accounting firms. Students in accounting must complete one semester of working for a firm to be able to graduate from the program. All participants completed the program in their current or prior place of employment. Participants reported that their work while in school was an entry-level role, and that the training they obtained was relevant to their daily duties and understanding of the firm structures. Many in-hire positions reported that their training was only related to the new job and did not extend to other areas, such as cryptocurrencies. A few participants indicated that their firm had specialist departments and personnel who dealt with cryptocurrency investment, yet they had no interaction due to the nature of their jobs. These views are conveyed in the following quotes:

*“I have been investing in cryptocurrency since 2019. Thus, I have become acquainted with it. Nevertheless, I have never been trained at work about classifying crypto.” (P11)*

*“Last year, I started my job as an account receivable clerk. I have been reading much about it since my co-op was mainly about bookkeeping while I was at school ... my firm does not deal with crypto; it is a small firm ... My supervisor invests in crypto. We sometimes discuss the crypto but not in terms of accounting classification auditing”. (P26)*

*“I was surprised when I learned that we have a specialist in crypto in our firms. Some of our companies invest in crypto ... But I rarely see or talk to the people who deal with crypto investors.” (P31)*

*“My work is not related to crypto, and as a result, I have not been informed about it. Even though we have a large number of firms who invest in crypto ... our database has information about crypto to read, but it’s only accessible for people whose work relates to bitcoin.” (P2)*

*“Since I completed school, I have worked as an auditor at the government agency; so far, I did not have any clients who invested in crypto. Therefore, I never had training. I do not recall anyone at my workplace discussing the crypto ... most of*

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3 *them believe it is a scam.....but as we provide public service, I think we should*  
4 *know about crypto.” (P27)*  
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8 Our results supported prior research that documented that graduate students may have a wide  
9 range of experiences with cryptocurrencies, depending on their interests and professional goals.  
10 Cryptocurrencies are a rapidly evolving field, and graduate students who engage with them may  
11 have the opportunity to gain valuable skills, develop new ideas, and make important contributions  
12 to the industry (Hasan et al., 2022).  
13  
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## 16 17 **6. Conclusion** 18

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20 Since cryptocurrency is a relatively new concept in accounting, laws are alarmingly absent. The  
21 challenges presented by the SEC in its quest to regulate cryptocurrencies and classify most of  
22 them as financial securities put pressure on the international standard to assess its definition of  
23 security through the lens of IFRS and offer a more accurate classification of cryptocurrency.  
24 Whereas student investors are aware of the underlying principles of cryptocurrency, most  
25 graduates with accounting degrees continue to face difficulties due to a lack of knowledge about  
26 cryptocurrencies or a lack of resources. We also discovered that recent accounting graduates had  
27 only the slightest awareness of cryptocurrencies, likely due to a lack of professors' comprehension  
28 of or exposure to the issue. Our primary contribution is to understand whether accounting  
29 graduates are prepared to conduct accounting and auditing work regarding cryptocurrencies in  
30 the future.  
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40 Our analysis showed that several textbooks have been revised and no longer included the  
41 appropriate section on cryptocurrencies. Another objection might be made about the instructors'  
42 expertise in cryptocurrencies, since the subject was not featured in the textbook and was thus not  
43 discussed in class. This is a reasonable point; however, most participants reported that they  
44 discussed cryptocurrencies with their professors and either opposed cryptocurrency for ethical  
45 reasons or had a limited understanding of it. Several actions can be taken by schools in response  
46 to these findings, including collaboration with the CPA, regulators, and academic book authors  
47 to provide more resources about cryptocurrencies. Accounting schools should educate academics  
48 on cryptocurrencies and encourage instructors to include cryptocurrency-related content in their  
49 courses. Furthermore, we suggest that accounting textbooks should contain a section on  
50 cryptocurrencies. Students should learn about cryptocurrencies through CPA and Canada's  
51 cryptocurrency exams. In addition to developing criteria for evaluating whether cryptocurrencies  
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qualify as securities, IFRS committees should comprehensively examine cryptocurrency classification.

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**Table 1.** Interviewees

| Institution  | Interviewee<br>(Participant) | Position | Age | Gender | Academic<br>qualification | Professional<br>qualification | Years of firm<br>experience |
|--------------|------------------------------|----------|-----|--------|---------------------------|-------------------------------|-----------------------------|
| College 2    | 1                            | A        | 28  | Female | BA                        |                               | 5                           |
| University 2 | 2                            | A        | 27  | Female | BA                        |                               | 5                           |
| University 2 | 3                            | A        | 22  | Male   | BA                        |                               | 4                           |
| University 5 | 4                            | A        | 29  | Female | BA                        |                               | 5                           |
| College 2    | 5                            | A        | 27  | Female | BA                        |                               | 4                           |
| University 4 | 6                            | A        | 26  | Female | BA                        |                               | 4                           |
| College 1    | 7                            | A        | 28  | Female | BA                        |                               | 5                           |
| College 1    | 8                            | A        | 27  | Female | BA                        |                               | 3                           |
| University 5 | 9                            | SA       | 33  | Male   | MA                        | CPA                           | 5                           |
| College 2    | 10                           | A        | 24  | Female | BA                        |                               | 4                           |
| University 3 | 11                           | A        | 27  | Male   | BA                        |                               | 3                           |
| University 3 | 12                           | SA       | 32  | Female | MA                        | CPA                           | 5                           |
| University 3 | 13                           | SA       | 24  | Female | BA                        |                               | 2                           |
| College 1    | 14                           | A        | 28  | Male   | BA                        |                               | 5                           |
| University 4 | 15                           | A        | 27  | Female | BA                        |                               | 3                           |
| College 1    | 16                           | A        | 29  | Female | BA                        |                               | 5                           |
| University 1 | 17                           | A        | 24  | Female | BA                        |                               | 2                           |
| University 1 | 18                           | A        | 23  | Female | BA                        |                               | 1                           |
| University 5 | 19                           | A        | 29  | Male   | BA                        |                               | 5                           |
| College 2    | 20                           | SA       | 28  | Female | BA                        |                               | 4                           |
| University 2 | 21                           | A        | 27  | Female | BA                        |                               | 4                           |
| University 2 | 22                           | SA       | 29  | Female | BA                        |                               | 5                           |
| College 1    | 23                           | SA       | 35  | Male   | MA                        | CPA                           | 5                           |
| University 4 | 24                           | SA       | 29  | Female | BA                        |                               | 5                           |
| University 3 | 25                           | A        | 24  | Female | BA                        |                               | 2                           |
| College 1    | 26                           | A        | 26  | Female | BA                        |                               | 3                           |
| University 5 | 27                           | A        | 22  | Male   | BA                        |                               | 1                           |
| University 3 | 28                           | A        | 28  | Female | BA                        |                               | 4                           |
| College 1    | 29                           | SA       | 32  | Female | MA                        | CPA                           | 5                           |
| University 5 | 30                           | SA       | 27  | Male   | BA                        |                               | 5                           |
| University 1 | 31                           | SA       | 29  | Female | MA                        |                               | 5                           |
| College 1    | 32                           | A        | 26  | Female | BA                        |                               | 4                           |
| University 2 | 33                           | SA       | 31  | Male   | MA                        | CPA                           | 5                           |
| University 4 | 34                           | A        | 29  | Female | BA                        |                               | 5                           |
| College 1    | 35                           | A        | 26  | Female | BA                        |                               | 3                           |
| University 1 | 36                           | SA       | 28  | Female | MA                        |                               | 5                           |
| College 1    | 37                           | A        | 25  | Male   | BA                        |                               | 3                           |
| University 4 | 38                           | A        | 27  | Female | BA                        |                               | 5                           |
| University 3 | 39                           | A        | 23  | Female | BA                        |                               | 2                           |
| College 1    | 40                           | SA       | 27  | Female | MA                        |                               | 5                           |
| University 1 | 41                           | SA       | 29  | Female | MA                        |                               | 5                           |

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| University 2 | 42 | A  | 27 | Female | BA |     | 3 |
| University 4 | 43 | A  | 26 | Male   | BA |     | 3 |
| University 4 | 44 | A  | 26 | Female | BA |     | 4 |
| University 3 | 45 | SA | 27 | Female | BA |     | 5 |
| University 1 | 46 | A  | 23 | Female | BA |     | 1 |
| University 3 | 47 | A  | 28 | Female | BA |     | 5 |
| University 3 | 48 | SA | 34 | Male   | MA | CPA | 6 |
| University 2 | 49 | A  | 28 | Female | BA |     | 4 |
| University 4 | 50 | A  | 23 | Female | MA |     | 1 |
| College 1    | 51 | SA | 29 | Male   | BA |     | 5 |
| University 5 | 52 | A  | 28 | Female | BA |     | 4 |
| University 3 | 53 | SA | 30 | Male   | MA | CPA | 5 |
| University 2 | 54 | A  | 22 | Female | BA |     | 1 |
| College 2    | 55 | A  | 24 | Female | BA |     | 1 |
| University 1 | 56 | SA | 29 | Male   | MA | CPA | 8 |
| University 2 | 57 | A  | 27 | Female | BA |     | 3 |

Notes: SA – Senior Accountant, A – Accountant, MA – Master’s in accounting, BA – Bachelor’s in Accounting.

## Cryptocurrencies in Accounting Schools?

### Abstract

**Purpose** – This study aims to investigate the extent to which newly certified public accountants (CPAs) and accounting graduate students possess a comprehensive understanding of cryptocurrencies and the skills they have acquired throughout their education.

**Design/methodology/approach** – A qualitative analysis was used through semi-structured interviews to obtain an in-depth insight into cryptocurrencies, which could not be investigated easily through quantitative methods, and to provide an understanding of the context for cryptocurrencies from CPA and non-CPA students' points of view. This was in addition to focusing on understanding the differences between the students' thoughts.

**Findings** – This study found that recent accounting graduates and CPA members have the least awareness of cryptocurrencies, likely due to a lack of professors' comprehension or exposure to the concept. However, students involved in forensic courses provided more information about cryptocurrencies compared with other students.

**Research limitations/implications** – Our data are limited to only a single country. Given that cryptocurrencies are a relatively new notion in accounting, there is an alarming lack of legislation. Further, we found that recent accounting graduates and CPAs had the same level of knowledge of cryptocurrencies, most probably due to a lack of exposure during their education and academics' limited understanding of the concept.

**Practical implications** – The students' differing answers about cryptocurrencies show differences in their current level of understanding of cryptocurrencies.

**Originality/value** – This study has identified that the vast majority of accounting graduates lack adequate knowledge about cryptocurrencies or access to adequate resources, despite understanding the fundamental concepts of cryptocurrency.

**Keywords:** cryptocurrency; accounting graduates; education; knowledge; professors.

## 1. Introduction

In recent years, the emergence of new technology has transformed business procedures (Shaban, 2020). Experts have indicated that modern technology has considerably influenced the accounting profession (Al-Htaybat et al., 2018; Ferreira-Lopes et al., 2020). Integration is encouraged by the increasing significance of technology in the accounting and auditing professions. However, a fundamental understanding of the technological foundations of new technologies, such as cryptocurrencies, is needed (Phillip et al., 2018), as more companies begin to invest in cryptocurrencies, and investors are more interested than ever. The absence of meaningful formal guidance from generally accepted accounting procedures (GAAP) standards on cryptocurrencies is a substantial impediment for stakeholders (Yatsyk, 2018). This is an essential subject for both accountants and players in the market.

Cryptocurrency, which is categorized as an intangible asset under the current accounting standards (Vincent & Wilkins, 2020), has not received exceptional guidance from the International Financial Reporting Standards (IFRS). The Securities and Exchange Commission (SEC) maintains that several cryptocurrencies should be deemed securities (Hacker & Thomale, 2018); thus, businesses should classify them as financial instruments as opposed to intangible assets (Vincent & Wilkins, 2020). In “Holdings of Cryptocurrencies – June 2019” (Tsuji, 2020), the IFRS Committee determined that bitcoin holdings are not financial assets. Recently, CPA Canada published “Audit Considerations Related to Cryptocurrency Assets and Transactions,” which included the mention of intangible assets.

Cryptocurrencies can have various implications for graduate accounting students, both as investors and as participants in the cryptocurrency industry. Cryptocurrencies can offer graduate students new investment opportunities, either as a speculative investment or as a long-term investment in the future of blockchain technology. In addition, cryptocurrencies can offer graduate students new opportunities for investment, research, job seeking, and entrepreneurship. However, graduate students should carefully evaluate the risks and benefits of investing in cryptocurrencies, as the market can be highly volatile and subject to market manipulation. As investors or participants, students should carefully evaluate the risks and benefits of engaging with the cryptocurrency industry and should be prepared to adapt to the rapid changes and uncertainties that are characteristic of the industry.

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3 This study aims to determine whether accounting students have been introduced to  
4 cryptocurrencies and their handling during their education. We surveyed current students and  
5 recent graduates of accounting about their experiences learning about cryptocurrency in their  
6 accounting programs. Recent graduate students with accounting degrees and certifications were  
7 tested regarding their understanding of cryptocurrencies.  
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13 According to our findings, most students' core curricula do not provide a comprehensive  
14 discussion of cryptocurrencies. Instead, cryptocurrencies are introduced only as immaterial assets  
15 that must be reported in financial statements, and students are not instructed on auditing or  
16 assessing cryptocurrencies. Most students agreed that their professors' lack of cryptocurrency  
17 understanding is evident. These results demonstrate that the quality of accounting graduates is  
18 hampered by an imbalanced relationship between academics and technological progress. One of  
19 the most influential studies (Qasim & Kharbat, 2020) presented the integrated technique for  
20 revamping courses at three levels (introductory, intermediate, and advanced) and technologies.  
21 We also found that participants were concerned about cryptocurrencies and illegal activities.  
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30 This study's primary contribution is its revealing the critical need for a prototype and more  
31 regulations from the IFRS covering cryptocurrency categories and data for auditors and  
32 accountants to comprehend the issues posed by cryptocurrencies (Ramassa & Leoni, 2022),  
33 similar to the Financial Accounting Standards Board (FASB), which issued a new handout for  
34 accounting for exchange-traded digital assets in May 2022.  
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## 39 **2. Literature Review**

### 40 41 42 **Blockchain, DLT, and decentralized**

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45 Cryptocurrencies, such as bitcoin, rely on blockchain technology (Shaban, 2020). As the name  
46 suggests, blockchains are newer forms of distributed ledger technology (DLT) consisting of a  
47 database that keeps transaction data in ledgers in the form of distributed blocks. A block is a  
48 periodic ledger or container of data in computing. Each successive block contains the address of  
49 the previous block; a chain of cryptographically linked transaction bundles, or blocks, results  
50 from each block referencing the previous block (Perlman, 2019). A blockchain is a technique  
51 used by a community of users to maintain a shared transaction record. The community verifies  
52 each transaction through a consensus method, and verified transactions are consequently recorded  
53 in the ledger of a blockchain network (Perlman, 2019; Rahman & Ali, 2020).  
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DLT resolves difficulties relating to innovation or technology with shared and regulated data and the secure administration of diverse commercial transactions by numerous organizations (Sultan et al., 2018). The system relies on modern cryptographic proofs for distributed authentication in the DLT. Data are stored in DLT blocks, continuously added, and synced between participating nodes in particular networks (Perdana et al., 2021). However, governments and regulatory organizations prefer DLT to blockchains. A decentralized peer-to-peer network is used to conduct cryptocurrency transactions, obviating the requirement for a central authority (Adams & Bailey, 2021; Kostić & Sedej, 2022; Nabilou, 2019; Vincent & Wilkins, 2020). In summary, blockchains are a type of DLT that is decentralized, and decentralization is a key aspect of both blockchain and DLT technologies. DLT is a broader term that encompasses all types of decentralized and distributed ledger technologies, including blockchains.

### **Cryptocurrencies Under IFRS: Are They Intangible Assets?**

Accounting standards do not yet exist for various challenges that accountants may encounter in practice. One such concern is cryptocurrencies. Due to the lack of an accounting standard defining how cryptocurrencies should be accounted for, accountants are compelled to use established accounting standards (Vincent & Wilkins, 2020). However, cryptocurrency holders do not usually possess this type of contractual right. Thus, cryptocurrencies do not appear to fit the definition of a non-cash financial asset in IAS 32 and IFRS 9 (Barker & Teixeira, 2018).

The classification of cryptocurrencies under IFRS is a matter of debate and interpretation. Currently, there is no specific guidance on how to classify cryptocurrencies under the IFRS. However, it is generally considered that cryptocurrencies may be classified as intangible assets under IFRS if they meet the definition of an intangible asset, as stated in IFRS 38. According to IFRS 38, an intangible asset is an identifiable non-monetary asset without physical substance. To meet this definition, a cryptocurrency would need to have specific attributes, such as an identifiable and distinct set of rights and obligations, the ability to generate future economic benefits, and the ability to be sold, transferred, or exchanged (Chou et al., 2022). Therefore, if a cryptocurrency meets the definition of an intangible asset, it would be recorded as an intangible asset on the company's balance sheet, with any changes in its fair value being recognized in the company's income statement.

To summarize, it is important to note that the classification of cryptocurrencies as intangible assets under the IFRS is still subject to interpretation and may differ in different jurisdictions.

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3 Companies and their auditors should exercise judgment and carefully consider the specific facts  
4 and circumstances in each case to determine the most appropriate classification under the IFRS.  
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### 8 **Cryptocurrencies Under the SEC: Are They Securities?**

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10 Cryptocurrency and initial coin offerings are booming. The scope of these markets includes  
11 regional, national, and international players and an increasingly diverse spectrum of products and  
12 services. Investors and other market participants can face issues because of these developments.  
13 In such a market, U.S. federal law regulates investment companies and their operations and  
14 establishes industry standards. President Franklin D. Roosevelt signed the Investment Advisers  
15 Act of 1940 (Moriarty, 2021), empowering the SEC to oversee investment trusts and counselors.  
16 The SEC is comprised of four divisions, and several divisions within it work toward the same  
17 goal of protecting investors, ensuring fair, organized, and efficient markets, and promoting the  
18 interests of investors (Jorgensen et al., 2007).  
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27 However, while the SEC has not issued a definitive ruling on whether all cryptocurrencies are  
28 securities, in its guidance, it has stated that many cryptocurrencies may be considered securities  
29 and, therefore, subject to federal securities laws (Quamara & Singh, 2022). The SEC applies the  
30 Howey test, a court-created test, to determine whether a particular investment is a security.  
31 According to the Howey test, an investment is a security if it involves an investment of money in  
32 a common enterprise, with the expectation of profits predominantly from the efforts of others.  
33 Based on this definition, the SEC has indicated that many initial coin offerings (ICOs) and other  
34 cryptocurrency offerings may be considered securities offerings, and, therefore, subject to federal  
35 securities laws. For example, if a cryptocurrency is marketed as an investment opportunity and  
36 promises a return on investment, the SEC may view it as security (DiMarino & Roberson, 2013;  
37 Hacker & Thomale, 2018).  
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47 Lastly, it is essential to note that the classification of cryptocurrencies as securities is a fact-  
48 specific determination and may vary depending on the specific facts and circumstances of each  
49 case. Companies and individuals involved in cryptocurrency offerings should carefully consider  
50 the applicable laws and regulations, and consult with legal counsel to determine the appropriate  
51 regulatory treatment of their offerings.  
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### 56 **Cryptocurrency in School Accounting Books**

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Accounting rules emphasize responsibility in preparing financial reports to reduce unethical conduct that might endanger stakeholders' assets. Experts have concluded that ethical and responsible behavior in generating financial reports begins in the classroom. Therefore, vital accounting education is necessary to improve the compilation of financial reports. According to Suryawathy and Putra (2016), chief financial officers (CFOs) are worried about the quality of accounting education. Abayadeera et al. (2016) informed stakeholders of the significance of accounting skills for graduates. When accounting instructors can effectively convey information (Suryawathy & Putra, 2016) in a conducive learning environment, these abilities are provided (CPA Canada, 2018; Vroeijenstijn, 2003).

Furthermore, the globalization and development of accounting, such as IFRS, affects accounting education (Needles Jr, 2010), increasing CFOs' demand for improved accountant skills (Mathews, 2001). These demands and rapid changes are fundamental requirements in the educational quality environment. In addition, most accounting books classify cryptocurrencies as intangible assets (Martin et al., 2020); the possibility that cryptocurrencies could be classified differently is not discussed.

### **Cryptocurrency Accounting and Theoretical Framework**

Cryptocurrency accounting and framework theories are still evolving, as the use of cryptocurrencies and their underlying blockchain technology is relatively new. However, several theoretical frameworks have been proposed to help accountants and financial professionals understand how to approach accounting for cryptocurrencies and related transactions. One of the frameworks is based on the concept of "real options," which considers the potential future value of a cryptocurrency investment and how that value can be realized (Sumarti et al., 2021). This framework considers the uncertainty of cryptocurrency prices and the ability of investors to make decisions based on that uncertainty. Another framework is based on the "information economics" perspective, which views cryptocurrencies as a source of information about the state of the underlying blockchain network (Caferra, 2022; Marthinsen & Gordon, 2021). In terms of actual accounting for cryptocurrencies, there are currently no globally accepted standards for how to account for cryptocurrencies in financial statements. However, some guidance has been provided by organizations such as the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB), which have issued information on how to account for cryptocurrencies in general-purpose financial statements.

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3 Thus, although there is still much work to be done to fully understand the implications of  
4 cryptocurrency accounting, the existing frameworks and guidance can provide a starting point for  
5 accountants and financial professionals as they work to develop a comprehensive approach to  
6 accounting for cryptocurrencies.  
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### 10 11 **3. Research Questions** 12

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14 From the standpoint of students, we seek to gain a greater understanding of whether educators  
15 have the necessary expertise in cryptocurrency technology through the following research  
16 questions:  
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20 ***RQ1: How do accounting professors introduce, explain, and debate cryptocurrencies during***  
21 ***the academic years?***  
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25 Our study focused on explaining how cryptocurrencies in accounting classes might vary,  
26 depending on the instructor's personal views and the specific course being taught. However, some  
27 common ways accounting professors may introduce, explain, and debate cryptocurrencies in their  
28 classes include beginning by explaining what cryptocurrencies are and how they function,  
29 including their underlying technology, such as blockchains, and how they differ from traditional  
30 fiat currencies. Accounting professors may then explain the accounting implications of  
31 cryptocurrencies, such as the challenges in valuation, the need for proper disclosures, and the  
32 potential impact on financial statements, as well as the regulations, which should be discussed to  
33 show the current regulatory landscape for cryptocurrencies, including the varying approaches  
34 taken by different countries, and the implications for companies and investors (Ammous, 2018;  
35 Lawson et al., 2014; Showalter & Wilks, 2021).  
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45 ***RQ2: During the academic years, do accounting professors debate the ethical concerns of***  
46 ***cryptocurrencies?***  
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50 As accounting and accountants evolve, they are affected by various factors, including the context  
51 within which they operate and the technological advances that affect their capture (Wells, 2018).  
52 The curriculum for accounting education is often criticized for needing to represent contemporary  
53 accounting practices fully. This can be due to a variety of reasons, including the slow pace of  
54 change, emphasis on traditional accounting methods, lack of industry involvement, lack of  
55 practical experience, and the fact that accounting education often lacks opportunities for students  
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3 to gain valuable experience in real-world accounting scenarios, which can limit their exposure to  
4 contemporary accounting practices (Parker et al., 2011; Mathews, 2001). Accordingly, we  
5 propose the following research question:  
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10 ***RQ3: Do accounting textbooks used during school years explain cryptocurrency in detail?***

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12 Cryptocurrencies are a relatively new development, and their impact on the accounting profession  
13 is still evolving. Some accounting textbooks briefly mention cryptocurrencies, and most  
14 textbooks generally do not cover the topic in depth. Instead, accounting professors may  
15 supplement their courses with additional readings, case studies, and other materials to provide  
16 students with a more comprehensive understanding of this emerging area (e.g., Abayadeera et al.,  
17 2016; Suryawathy & Putra, 2016; Vroeijenstijn, 2003). It is likely that, as the use and impact of  
18 cryptocurrencies continue to grow, they will receive more attention in accounting textbooks and  
19 courses in the future. This means that firms may examine new employees' competencies to  
20 identify development needs. Despite the increased interest in this area, no studies have examined  
21 development programs for accountants on cryptocurrency. Consequently, we propose our final  
22 research question:  
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33 ***RQ4: Do accounting firms provide on-the-job training on cryptocurrency?***

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35 Recently, many accounting firms have begun to provide training on cryptocurrency to their  
36 employees. As the use of cryptocurrencies becomes more widespread, accounting firms are  
37 recognising the importance of having a knowledgeable workforce that understands the accounting  
38 implications of these emerging technologies (Stern & Reinstein, 2021). The nature and extent of  
39 cryptocurrency training provided by accounting firms can, however, vary widely, ranging from  
40 brief overviews to comprehensive courses. Some firms may offer in-house training sessions or  
41 workshops, while others may provide online courses or other training materials. The training may  
42 focus on a range of topics, including the basics of cryptocurrencies, the implications of accounting  
43 and financial reporting, and the regulatory landscape. Overall, providing training on  
44 cryptocurrency is becoming increasingly important for accounting firms as the use of these  
45 technologies continues to grow, and it is likely that this trend will continue in the future.  
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#### 4. Research Method

This study examines the knowledge, experiences, and perceived outcomes of students who have completed CPA studies and recent graduates who enroll in a CPA program. To investigate our research question, we conducted semi-structured interviews. These semi-structured interviews offer precise information on individual real-world students' experiences with cryptocurrencies, allowing us to better understand how they acquire crypto knowledge. A virtual interview process was conducted with 57 recently qualified accountants. To ensure diversity across universities and colleges in Canada, we identified interviewees through our contacts. One coauthor conducted a thorough question-by-question analysis in keeping with the study's interpretive focus (Hermanson et al., 2012). This coauthor classified and categorized replies by their frequency of occurrence; the coauthor conferred with the other coauthors as needed. A second coauthor evaluated the data file and chose quotes from the interviews to prepare the manuscript. Along with the initial coauthor, two more coauthors analyzed the patterns of the results and quoted discussions for consistency with their perceptions. This study used Han's (2015) quoting method to present the results.

All participants had received their credentials within the last five years. We estimated that government entities employ 35% of the population. Two-fifths (40%) are employed by major companies, whereas small companies employ 27%. Three-quarters (73%) of the participants invested in cryptocurrencies, although none analyzed them in their jobs. Just over a third (35%) started to invest in cryptocurrencies while at school, the majority in 2019. All participants had to provide a copy of their degree certificates in accounting for reliability.

##### 4.1. Ethical Procedures

Ethical procedures in research are crucial for protecting the rights and dignity of research participants and ensuring that research is conducted in a manner that upholds scientific integrity. Therefore, we followed several steps to ensure that our research adheres to ethical standards and sought guidance from ethical review committees.

According to the 46.101(b) Categories of Exempt Human Subjects Research, our research is exempt based on the first and second categories. However, our process to obtain this exemption started with the development of a consent form and interview script, which we provided to the IRB. After obtaining the IRB exemption (#18860), we ensured that the data we collected from

participants was kept confidential and secure by providing a password-protected laptop that was used for research purposes only. We informed the participants that the information would be destroyed from the laptop after three years.

Participants were notified that each interview was expected to last 15 to 20 minutes and would be held in a private room provided by each university for this purpose. Participants were provided with consent forms and interview copies an hour before their scheduled interview time. The interviews were recorded by taking notes with paper and pen, and no audio or video recording was used. To ensure privacy, each participant was recorded using their initials. We also ensured that our sample consisted of individuals aged between 21 and 33 with a background in accounting and experience in the accounting field to ensure that all interview information was related to our research topic. Additionally, we ensured that our sample included individuals of all gender identities.

Furthermore, we provided the participants with all the information about the research, including the research aim, the low risk involved (as their name and university would not appear in our research), potential results, and contributions for this research. Additionally, all participants were notified that they could leave at any time if they felt under pressure during the interview.

#### 4.2. Semi-Structured Interviews

Overall, semi-structured interviews can be a valuable tool for studying cryptocurrencies because they allow researchers to collect rich, detailed data on participants' experiences, perspectives, and behaviors (Obreja, 2022). We conducted interviews with 57 recent accounting graduates. We randomly selected the sample from five public universities and two public colleges enrolled in the CPA Canada program that participated in the interviews in 2021.

Table 1 summarizes the characteristics of the interviewees, including education, qualifications, age, gender, and experience. As shown, most of our interviews were with accountants (67%), followed by senior accountants (33%). Of these, 77% had a bachelor's degree in accounting, and 23% had a master's degree in accounting. In addition, 14% of interviewees had CPA qualifications. In terms of experience, 46% of interviewees had long periods of work experience in their current firm (>5 years), 42% had medium experience (2–4 years), and 12% had an experience of one year. Our analysis showed that 87% of our participants were between 22 and 29 years old, and 13% were 30 years and older. Our sample included 26% male and 74% female

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3 interviewees. Together, these statistics suggest that our interviewees were sufficiently well-  
4 qualified and experienced to provide in-depth insights about cryptocurrencies in accounting  
5 schools. The study focuses on the Canadian market, since the researchers had access to  
6 participants there. The principal researcher teaches at a Canadian institution with access to  
7 individuals and accounting program expertise in Canada.  
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16 Semi-structured interviews, guided by a set script, enabled us to explore the fundamental positions  
17 of cryptocurrency among the participants. This method conforms to the methods of various  
18 scholars' methods (Beasley et al., 2009). At least two study team members were present at each  
19 interview. Each interview lasted around 20 minutes, and all interviewees consented to  
20 be videotaped. Based on the questions in the interview guide, the interview responses were  
21 initially categorized into topics and then into emerging themes. The experts reached a consensus  
22 on coded topics and themes through a series of iterations.  
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## 29 **5. Results**

### 30 **Research Question 1**

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33 Accounting professors may have a wide range of experience with cryptocurrencies and  
34 blockchain technology. As the cryptocurrency industry continues to evolve, accounting  
35 professors will likely play an important role in developing accounting practices and standards that  
36 can help ensure the transparency and accuracy of cryptocurrency transactions (Ammous, 2018).  
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43 Our initial step in designing our interviews was to ascertain whether the professors had accounting  
44 competence. Overall, 62% of respondents provided concrete examples of their professor's  
45 superior accounting knowledge, indicating students' confidence in assessing their professor's  
46 accounting knowledge and experience. According to the respondents, accounting lecturers were  
47 mostly CPA graduates who worked in major accounting firms. These skills and experiences aided  
48 significantly in explaining the accounting topic. The following quotes demonstrate this  
49 "discovery" of accounting professors' job skills and backgrounds.  
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56 *"I have a pretty professional faculty to learn from. They know about vast things.*  
57 *They were so easy to approach. I remember three of my accounting professors*  
58 *worked at KPMJ. I think that helped us learn more and better."* (P2)  
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*“My lecturers used to offer us significant examples from their past job experience and provide us with difficulties that required us to collaborate to determine a solution [for] customers. I honestly thought this to be very fascinating ... I discovered that I probably want to get further knowledge in this area.” (P24)*

*“Now that I work as an accountant, I think, ‘Oh. I completely get all of the instances my instructors illustrated in class, and their expertise has increased my confidence in reaching this point at my present company’”. (P7)*

It is crucial to demonstrate that students can assess instructors' knowledge levels to ascertain whether they can judge their understanding of cryptocurrency. The overwhelming majority of our participants were dissatisfied that their accounting instructors had never covered cryptocurrency in class, even though the vast expertise of their accounting professors had benefitted them in general. A few individuals acknowledged that instructors discussed cryptocurrencies but not accounting treatments or auditing cryptos. These views are conveyed in the following quotes:

*“My instructors used to insist that we must live in the present. So, to live, individuals must learn new things. As a result, they spent time talking about cryptocurrencies but were never about financial treatment”. (P15)*

*“My professors are knowledgeable, but they have never really discussed such topics... I do not recall any of them ever mentioning bitcoins.” (P8)*

*“Cryptocurrency or bitcoin should be taught to students ... Regrettably, our lecturers never fully addressed such issues in class, and the ones who did were against bitcoins.” (P17)*

These quotes highlight the variation in the knowledge and abilities of accounting professors. According to the participants, they had a high degree of confidence in their capacity to determine the level of expertise of certain lecturers. The differences between accounting university graduates and college professors regarding their knowledge and skills were not substantial. This diversity of experience of accounting professors is consistent with prior studies (Bhaskar, 1983; Romney, 1983) and demonstrates the profession's willingness to hire academics with diverse skill sets. Another probable explanation is that most accounting professors earned their degrees before cryptocurrencies were introduced, rendering them incapable of educating students.

## Research Question 2

Our analysis showed that many participants' professors were concerned about cryptocurrencies and ethics, corresponding to an earlier study (Barth et al., 2020; Vincent & Wilkins, 2020). We inquired about the respondents' and their professors' perspectives on cryptocurrencies to evaluate whether they shared the same perspective. According to most respondents, cryptocurrencies were primarily used for money laundering, illegal currency exchanges and platforms, and underground black markets. As expected, participants whose instructor was opposed to cryptocurrencies were hostile to cryptocurrency investments and transactions. In addition, our findings show that the concerns mentioned during the interview did not stop most accounting graduates from investing in cryptocurrencies. Due to a lack of awareness and ethical challenges, participants were learning more about crypto concerning accounting and audit procedures; they felt that cryptocurrencies would not vanish due to ethical concerns, and as more significant corporations invest in bitcoins. These views are conveyed in the following quotes:

*"It is well known that drug dealers use cryptocurrencies." (P14)*

*"There are so many issues surrounding bitcoin, take real states in Canada as an example, how international money is being used to legitimate the money". (P4)*

*"I have many concerns about crypto..... drugs being the main reason." (P31)*

*"I do think cryptocurrency is here to stay ... If governments issued their cryptocurrency in a few years, we would not see the mess in the market... and illegal activities will disappear." (P22)*

*"I recall my professors talking about bitcoins and how drug dealers are using bitcoin... I feel it is better to be far away for now from bitcoin." (P27)*

Accordingly, our analysis results are consistent with prior studies, which found that government and regulatory bodies are increasingly focusing on the ethical considerations of cryptocurrencies. Unethical conduct, such as market manipulation or fraudulent ICOs, can lead to increased regulation and scrutiny, which can affect the valuation and adoption of cryptocurrencies (Bagus & De la Horra, 2021). In addition, ethics play a critical role in the adoption and valuation of cryptocurrencies. It is important for investors, companies, and regulators to promote ethical practices and hold those who engage in unethical conduct accountable (Dierksmeier & Seele,

2018). This can help build trust, protect the reputation of the industry, and ensure the long-term success of cryptocurrencies.

### Research Question 3

Developing accounting books for cryptocurrencies can be a complex task, but it is important for individuals and companies that hold, trade, or mine cryptocurrencies to accurately track and report their cryptocurrency transactions. By doing so, they can comply with tax and regulatory requirements, and make informed decisions about their cryptocurrency holdings (Abayadeera et al., 2016). Therefore, regarding whether accounting textbooks include cryptocurrencies, the students had differing viewpoints. More than half of the respondents said that cryptocurrencies were never discussed in their textbooks. These views are conveyed in the following quotes:

*“I have never read anything about it in the previous version of books. Probably, the new versions may contain a little information on it.” (P41)*

*“I do not remember having encountered such a subject during my accounting studies in the books. I would remember if I saw it, given that I had reviewed my accounting books while preparing for my CPA.” (P52)*

*“I had never seen it, even when I was studying for my CPA. I went through all my CPA materials and CPA competencies books; I never had the opportunity to read about them... I firmly believed that no textbook stated anything about crypto.” (P39)*

The remaining participants reported that the textbook devoted just one page to cryptography without providing examples or problems, or if they did, the examples were not helpful. Students agreed that the textbook’s material on intangibles covered cryptocurrency, but according to them, the handling of cryptocurrency in the book was insufficient for the subject, since an increasing number of businesses were embracing cryptocurrencies. These views are conveyed in the following quotes:

*“I remember that my Intermediate Accounting volume 2 accounting textbook discussed cryptocurrency, but I think it was an introduction page, maybe in a one or two page only and was classified as intangible assets”. (P30)*

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3           *“Since I am investing in crypto, this caught my attention... I think there was one*  
4           *column in one of the chapters.” (P9)*  
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8       The respondents were able to offer precise justifications for their positions in response to a  
9       subsequent inquiry. Their responses centered on crypto as a new problem, indicating that future  
10       textbooks would need more resources to accommodate the growing number of crypto investors.  
11       Students cited the writers’ lack of knowledge regarding cryptocurrency as a contributing factor.  
12       These views are conveyed in the following quotes:  
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17           *“I do not believe the textbook included information about bitcoin, which is a new*  
18           *subject. It may take a few years before doing so.” (P24)*  
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22           *“I think the book’s author has no in-depth knowledge about crypto, so they did not*  
23           *expand on the subject ... Remember, it is a very new subject ..., and people still test*  
24           *the water.” (P29)*  
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28           *“I think if more people and companies invest in crypto, the more demand for*  
29           *information’s needed. Which I believe will be in new editions of the accounting*  
30           *textbook”.* (P51)  
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35       This result indicates a dearth of information available in the textbooks. Whether or not the  
36       interviewees stated that the cryptocurrency was discussed in the book, the fact remains that it was  
37       barely mentioned, indicating that students are incapable of addressing the accounting treatment  
38       of a cryptocurrency. This result contradicts prior studies (Hammond et al., 2015). As a result of  
39       their examination of accounting textbooks, which revealed that accounting textbooks are being  
40       revised at an accelerating rate and that accounting professors believe the rate of change should be  
41       slowed, faculty members who are not textbook authors deem frequent textbook revisions to be of  
42       diminishing value.  
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#### 50       **Research Question 4**

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52       Most universities and colleges in Canada provide an accounting co-op designed for students  
53       interested in acquiring work experience in accounting firms. Students in accounting must  
54       complete one semester of working for a firm to be able to graduate from the program. All  
55       participants completed the program in their current or prior place of employment. Participants  
56       reported that their work while in school was an entry-level role, and that the training they obtained  
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3 was relevant to their daily duties and understanding of the firm structures. Many in-hire positions  
4 reported that their training was only related to the new job and did not extend to other areas, such  
5 as cryptocurrencies. A few participants indicated that their firm had specialist departments and  
6 personnel who dealt with cryptocurrency investment, yet they had no interaction due to the nature  
7 of their jobs. These views are conveyed in the following quotes:  
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13 *“I have been investing in cryptocurrency since 2019. Thus, I have become*  
14 *acquainted with it. Nevertheless, I have never been trained at work about*  
15 *classifying crypto.” (P11)*  
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19 *“Last year, I started my job as an account receivable clerk. I have been reading*  
20 *much about it since my co-op was mainly about bookkeeping while I was at school*  
21 *... my firm does not deal with crypto; it is a small firm ... My supervisor invests in*  
22 *crypto. We sometimes discuss the crypto but not in terms of accounting*  
23 *classification auditing”.* (P26)  
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29 *“I was surprised when I learned that we have a specialist in crypto in our firms.*  
30 *Some of our companies invest in crypto ... But I rarely see or talk to the people who*  
31 *deal with crypto investors.” (P31)*  
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36 *“My work is not related to crypto, and as a result, I have not been informed about*  
37 *it. Even though we have a large number of firms who invest in crypto ... our*  
38 *database has information about crypto to read, but it’s only accessible for people*  
39 *whose work relates to bitcoin.” (P2)*  
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44 *“Since I completed school, I have worked as an auditor at the government agency;*  
45 *so far, I did not have any clients who invested in crypto. Therefore, I never had*  
46 *training. I do not recall anyone at my workplace discussing the crypto ... most of*  
47 *them believe it is a scam.....but as we provide public service, I think we should*  
48 *know about crypto.” (P27)*  
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53 Our results supported prior research that documented that graduate students may have a wide  
54 range of experiences with cryptocurrencies, depending on their interests and professional goals.  
55 Cryptocurrencies are a rapidly evolving field, and graduate students who engage with them may  
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3 have the opportunity to gain valuable skills, develop new ideas, and make important contributions  
4 to the industry (Hasan et al., 2022).  
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## 8 **6. Conclusion**

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10 Since cryptocurrency is a relatively new concept in accounting, laws are alarmingly absent. The  
11 challenges presented by the SEC in its quest to regulate cryptocurrencies and classify most of  
12 them as financial securities put pressure on the international standard to assess its definition of  
13 security through the lens of IFRS and offer a more accurate classification of cryptocurrency.  
14 Whereas student investors are aware of the underlying principles of cryptocurrency, most  
15 graduates with accounting degrees continue to face difficulties due to a lack of knowledge about  
16 cryptocurrencies or a lack of resources. We also discovered that recent accounting graduates had  
17 only the slightest awareness of cryptocurrencies, likely due to a lack of professors' comprehension  
18 of or exposure to the issue. Our primary contribution is to understand whether accounting  
19 graduates are prepared to conduct accounting and auditing work regarding cryptocurrencies in  
20 the future.  
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30 Our analysis showed that several textbooks have been revised and no longer included the  
31 appropriate section on cryptocurrencies. Another objection might be made about the instructors'  
32 expertise in cryptocurrencies, since the subject was not featured in the textbook and was thus not  
33 discussed in class. This is a reasonable point; however, most participants reported that they  
34 discussed cryptocurrencies with their professors and either opposed cryptocurrency for ethical  
35 reasons or had a limited understanding of it. Several actions can be taken by schools in response  
36 to these findings, including collaboration with the CPA, regulators, and academic book authors  
37 to provide more resources about cryptocurrencies. Accounting schools should educate academics  
38 on cryptocurrencies and encourage instructors to include cryptocurrency-related content in their  
39 courses. Furthermore, we suggest that accounting textbooks should contain a section on  
40 cryptocurrencies. Students should learn about cryptocurrencies through CPA and Canada's  
41 cryptocurrency exams. In addition to developing criteria for evaluating whether cryptocurrencies  
42 qualify as securities, IFRS committees should comprehensively examine cryptocurrency  
43 classification.  
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Table 1. Interviewees

| Institution  | Interviewee (Participant) | Position | Age | Gender | Academic qualification | Professional qualification | Years of firm experience |
|--------------|---------------------------|----------|-----|--------|------------------------|----------------------------|--------------------------|
| College 2    | 1                         | A        | 28  | Female | BA                     |                            | 5                        |
| University 2 | 2                         | A        | 27  | Female | BA                     |                            | 5                        |
| University 2 | 3                         | A        | 22  | Male   | BA                     |                            | 4                        |
| University 5 | 4                         | A        | 29  | Female | BA                     |                            | 5                        |
| College 2    | 5                         | A        | 27  | Female | BA                     |                            | 4                        |
| University 4 | 6                         | A        | 26  | Female | BA                     |                            | 4                        |
| College 1    | 7                         | A        | 28  | Female | BA                     |                            | 5                        |
| College 1    | 8                         | A        | 27  | Female | BA                     |                            | 3                        |
| University 5 | 9                         | SA       | 33  | Male   | MA                     | CPA                        | 5                        |
| College 2    | 10                        | A        | 24  | Female | BA                     |                            | 4                        |
| University 3 | 11                        | A        | 27  | Male   | BA                     |                            | 3                        |
| University 3 | 12                        | SA       | 32  | Female | MA                     | CPA                        | 5                        |
| University 3 | 13                        | SA       | 24  | Female | BA                     |                            | 2                        |
| College 1    | 14                        | A        | 28  | Male   | BA                     |                            | 5                        |
| University 4 | 15                        | A        | 27  | Female | BA                     |                            | 3                        |
| College 1    | 16                        | A        | 29  | Female | BA                     |                            | 5                        |
| University 1 | 17                        | A        | 24  | Female | BA                     |                            | 2                        |
| University 1 | 18                        | A        | 23  | Female | BA                     |                            | 1                        |
| University 5 | 19                        | A        | 29  | Male   | BA                     |                            | 5                        |
| College 2    | 20                        | SA       | 28  | Female | BA                     |                            | 4                        |
| University 2 | 21                        | A        | 27  | Female | BA                     |                            | 4                        |
| University 2 | 22                        | SA       | 29  | Female | BA                     |                            | 5                        |
| College 1    | 23                        | SA       | 35  | Male   | MA                     | CPA                        | 5                        |
| University 4 | 24                        | SA       | 29  | Female | BA                     |                            | 5                        |
| University 3 | 25                        | A        | 24  | Female | BA                     |                            | 2                        |
| College 1    | 26                        | A        | 26  | Female | BA                     |                            | 3                        |
| University 5 | 27                        | A        | 22  | Male   | BA                     |                            | 1                        |
| University 3 | 28                        | A        | 28  | Female | BA                     |                            | 4                        |
| College 1    | 29                        | SA       | 32  | Female | MA                     | CPA                        | 5                        |
| University 5 | 30                        | SA       | 27  | Male   | BA                     |                            | 5                        |
| University 1 | 31                        | SA       | 29  | Female | MA                     |                            | 5                        |
| College 1    | 32                        | A        | 26  | Female | BA                     |                            | 4                        |
| University 2 | 33                        | SA       | 31  | Male   | MA                     | CPA                        | 5                        |
| University 4 | 34                        | A        | 29  | Female | BA                     |                            | 5                        |
| College 1    | 35                        | A        | 26  | Female | BA                     |                            | 3                        |
| University 1 | 36                        | SA       | 28  | Female | MA                     |                            | 5                        |
| College 1    | 37                        | A        | 25  | Male   | BA                     |                            | 3                        |
| University 4 | 38                        | A        | 27  | Female | BA                     |                            | 5                        |
| University 3 | 39                        | A        | 23  | Female | BA                     |                            | 2                        |
| College 1    | 40                        | SA       | 27  | Female | MA                     |                            | 5                        |
| University 1 | 41                        | SA       | 29  | Female | MA                     |                            | 5                        |
| University 2 | 42                        | A        | 27  | Female | BA                     |                            | 3                        |
| University 4 | 43                        | A        | 26  | Male   | BA                     |                            | 3                        |
| University 4 | 44                        | A        | 26  | Female | BA                     |                            | 4                        |
| University 3 | 45                        | SA       | 27  | Female | BA                     |                            | 5                        |
| University 1 | 46                        | A        | 23  | Female | BA                     |                            | 1                        |
| University 3 | 47                        | A        | 28  | Female | BA                     |                            | 5                        |
| University 3 | 48                        | SA       | 34  | Male   | MA                     | CPA                        | 6                        |
| University 2 | 49                        | A        | 28  | Female | BA                     |                            | 4                        |
| University 4 | 50                        | A        | 23  | Female | MA                     |                            | 1                        |
| College 1    | 51                        | SA       | 29  | Male   | BA                     |                            | 5                        |
| University 5 | 52                        | A        | 28  | Female | BA                     |                            | 4                        |
| University 3 | 53                        | SA       | 30  | Male   | MA                     | CPA                        | 5                        |

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| University 2 | 54 | A  | 22 | Female | BA |     | 1 |
| College 2    | 55 | A  | 24 | Female | BA |     | 1 |
| University 1 | 56 | SA | 29 | Male   | MA | CPA | 8 |
| University 2 | 57 | A  | 27 | Female | BA |     | 3 |

Notes: SA – Senior Accountant, A – Accountant, MA – Master’s in accounting, BA – Bachelor’s in Accounting.



1 [IRB Portal] Application Exempt "Cryptocurrencies in Accounting School?"

2  
3 IRB Portal <irb@gcsu.edu>

4 Mon 03/04/2023 18:49

5  
6 To: adel almasarwah <adel.almasarwah@gcsu.edu>

7 Cc: IRB <irb@gcsu.edu>

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10 Institutional Review Board

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12 Office of Academic Affairs

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15 [irb@gcsu.edu](mailto:irb@gcsu.edu)

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18 <http://www.gcsu.edu/irb>

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26 DATE: 2023-04-03

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28 TO: ADEL ALMASARWAH

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30 FROM: Sallie Coke, Ph.D., Chair of Georgia College Institutional Review Board

31  
32 PROJECT TITLE: #18860 Cryptocurrencies in Accounting School?

33  
34 ACTION: DETERMINATION OF EXEMPT STATUS

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36 DECISION DATE: 2023-04-03

37  
38 REVIEW CATEGORY: Exempt

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44  
45 Thank you for submitting an application to the Georgia College IRB for the  
46 above-referenced project. Based on the information you provided in your  
47 submission, IRB has determined that your project involving human subjects  
48 qualifies for EXEMPT status under 45CFR part 46 commonly known as the  
49 Revised Common Rule 2018.

50  
51  
52 Assignment of exempt status to this project means that this project is exempt  
53 from further IRB review. This exempt status is valid unless substantive revisions  
54 to the study design occur which would alter the risk to participants. If a  
55 substantive change is anticipated, you may submit an extension/modification  
56 form detailing these changes. Please consult the GC IRB if you have a question  
57 about a potential change to your exempt study.  
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Please note that all responsibilities required of conducting human subject research still apply to this project. Specifically, the Belmont Report principles of respect for persons, beneficence, and justice apply, and all investigators involved in this project must have and maintain current/valid certification of training with conducting research with human subjects

We will retain a copy of this correspondence within our records.

If you have any questions, please contact [irb@gcsu.edu](mailto:irb@gcsu.edu). Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Georgia College IRB's records.

Sincerely,

Sallie Coke, Ph.D.

and Work-Based Learning

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## Responses to Editor Comments on “Cryptocurrencies in accounting school?”

I would like to thank you again for your efforts and patience in the fourth-round review.

### Editor Comments and Justifications

*<1. You need to insert text into the methods section about your ethical procedures. This needs to show that (1) your institutional procedures have been followed and (2) the ethical procedures followed. This helps assure readers that you have been ethical.>*

Thank you so much for this valuable comment. We have added a new section explaining my university and ethical procedures.

Affected Sections: Section 4.1. Ethical Procedures.

*< 2. You need to upload a formal email from a senior person in your faculty or university which confirms the details you have entered in text form to your previous reply. This helps assure ourselves that proper procedure has been followed.>*

**Amendment:** Thank you. I have uploaded an email from my current university. As my previous university, where I started my project, did not have an IRB committee.

Again, thank you so much for your great and valuable comments. We hope that this time we have provided the information you need to make your final decision.