Impact of Fintech Revolution on Accounting Profession and Future Accounting Graduates

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ABSTRACT

The COVID-19 crisis has irrefutably impacted occupations by increasing technological adoption on a global scale. In this context, the accounting profession also feels the heat, as the technological impact could be significant for many businesses. However, the impacts and phenomena are still under investigation and unexplored in many jobs and professions, particularly in the accounting field or less developed countries like Malaysia. Therefore, the purpose of this research is to ascertain the effects of technological adoption, specifically financial technology (Fintech), on the accounting profession, and to explore how higher education institutions can adapt to meet the evolving needs and characteristics of accounting graduates in the industry. This study uses semi-structured interviews with six (6) accountants who are currently employed in various organisations, such as government organisations, private sector and government link companies. The interview data is analyzed using three qualitative analysis stages: data reduction, data display, and data conclusion. According to this study, employers of future accounting graduates seek skills and technical knowledge related to information technology, accounting, and law. This study underscores the significance of the skills and knowledge that accounting graduates must possess, particularly those necessary during and after pandemic periods. Additionally, this study focuses on the environment of developing countries, an area currently under research. This study also offers recommendations to address the existing skills and knowledge gap in the job market. This will benefit both practitioners and academics.

Keywords: Fintech, pandemic, accounting profession, accounting education, employability

INTRODUCTION

In early 2020, the World Health Organisation (WHO) declared coronavirus disease (COVID-19) a world pandemic. This pandemic has inevitable and profound social and economic impacts not only in developing countries but also in developed countries (Zhang, Hu & Ji, 2020). Each country in the world has implemented a preventive set of measures to contain the pandemic outbreak, such as social distancing and national or partial lockdowns (Adam et al., 2024). The global population previously lived with new rules on the restriction of movement and the closure of non-essential businesses, schools, daycare care centers and other institutions. This has a profound impact on many services and non-services industries, ranging from the tourism and hospitality sector to retail and leisure industries (Williams and Kayaouglu, 2020). In this context, many professional service industries, including accounting and financial services, were also severely affected due to the pandemic crisis.

The repercussion of this pandemic, whether it is in a positive or negative way, is inevitable and cannot be avoided. Undeniably, one of the biggest impacts of the pandemic crisis is the rising importance of using technology in the workplace (Salin et al., 2023). Online businesses and transactions have become very popular, while digital applications are the norm nowadays. There is also the emerging of various business models such as the home business model, working from home, digital business event, virtual fair, gig and freelance economy, e-learning, micro-credentials and various financial technology (commonly known as fintech) such as roboadvisor, mobile payment, crowdfunding, blockchain, cryptocurrency and insuretech (Hikouatcha et al., 2024; Li et al., 2024; Zeng et al., 2024). The hybrid style of work will stay forever and hardly be eliminated in the future.

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As a result of the pandemic, the emergence of Industrial Revolution 4.0 (IR4.0) became faster, wider, and seriously affected the traditional professions, including accounting. This profession needs to embrace data analytics and other technologies to stay relevant and competitive. IR4.0 will transform the way accounting functions in business, as the accountant can not only easily retrieve data in real time but also analyze high-quality data to make accurate decision-making (Hart, 2017). Furthermore, various business reports are more credible and relevant (Buritt & Christ, 2016), and many manual jobs currently performed by humans will be largely replaced by computerization and automation (Blasi, Freeman & Kruse, 2013).

Regrettably, the transformation experienced by the accounting profession is still under research and under explored. The Report on the Strengthening of the Accountancy Profession in Malaysia 2014 suggests that accountants should enhance their skills and competency to meet market expectations. This is to ensure that the profession can enhance its effectiveness and efficiency in enforcing professional standards, laws, and regulations, thereby protecting the public interest. Employers generally view accountants as professionals who possess a broad range of skills, not only in finance and accounting, but also in technology and other areas of business and management.

In addition, there is also a skill gap that exists between the skills of the graduates that are produced by the university and the skills demanded by the employers. For example, Maali and Al-Attar (2020) believe that there is a significant gap between the accounting curriculum offered by universities in Jordan and the skills acquired by the students with the market's expectations and demands. On the other hand, Ku Bahador, Haider, & Wan Mohd Saman (2018) found that accounting graduates need to be equipped with information technology-related knowledge and skills to ensure they will be able to perform when they enter the workforce after they have completed their studies. Although the university is working hard to align their curriculum with industrial needs, the mismatch still persists due to the variability of the job roles, the dynamic nature of the labour market, and changes in the business environment (Pham & Jackson, 2020). In this context, the fintech explosion that starts in 2020 also becomes one of the main factors that may push the accounting profession to undergo another transformation.

Based on this gap, the purpose of this research is to investigate the impact of the financial technology revolution on the role of the accountant in the organisation and the actions that can be taken by the higher education institution to meet the demand by the accounting profession industry. A new or revised framework of accounting programs and courses that meet the requirements of accounting firms and organizations can be established, while many types of accounting education providers, such as universities, private colleges, and polytechnics, can design more relevant accounting courses based on this framework.

This research is significant as it provides guidelines for the company generally and accounting practitioners specifically to develop an instrument designed to assess the readiness of the accounting graduates to enter the job market post-pandemic crisis. This will ensure the company hires the right candidate that meets the skill set determined by the organizations. In summary, the research aims to identify the essential skills that accounting graduates must possess when entering the job market. Thus, the research question of the research is *"What are the knowledge and skills needed by the accounting industry from the accounting graduates due to the fintech revolution?".*

This study is beneficial in several ways. First, it adds to the theoretical understanding and body of the literature on the importance of skills and knowledge required from the accounting graduates by focussing on the skills and knowledge required due to the explosion of fintech post-pandemic crisis. In addition, this study focusses on the environment of the developing country, which is still under research. Prior research focusses more on accounting issues in the developed countries, such as the United States, Europe and Australia. Secondly, it uses semi-structured interviews as a data collection method, which is difficult to access because the respondents of this research, who are the practitioners, were occupied. The findings of this study are invaluable for academic literature and practitioners, especially in higher learning institutions. Finally, it will provide recommendations to the current expectation gap of the skills and knowledge that currently exist in the job market. This will benefit both practitioners and academics.

This paper is distributed into several sections. The next section is the review of literature, followed by a description of methods used to conduct this research. The fourth section presents the findings and discussion of the research, while the fifth section puts forth conclusions. Recommendations to improve the limitations of the current research are in the last section.

LITERATURE REVIEW

Impact of Fintech on the Role of Accountants

The COVID-19 pandemic rapidly developed towards the end of 2019 and continues to be active until 2022. This unprecedented outbreak has had a significant impact on financial reporting, auditor's reports, and banking environments, contributing to the rapid advancement of technological revolutions in areas such as financial technology. Coupled with the explosion in financial technology (Fintech), including the emergence of artificial intelligence, machine learning, big data analytics, blockchain, cyber security, virtual banking, and digital currencies, the recent trend highlights the critical need for higher skills and competencies among accountants to meet this national agenda (Salin et al., 2024).

Financial institutions such as banks, lending institutions, and insurance companies that provide protection to affected individuals and businesses are likely to be impacted (Ernst & Young, 2020). The International Federation of Accountants (IFAC), a global organisation representing the accounting profession, has suggested certain recommendations and guidelines to address the COVID-19 pandemic crisis and its economic effects, which led to investors and other stakeholders demanding high-quality financial information in particular (Gould & Arnold 2020, SC 2020).

This includes the preparation of financial statements that require new and multiple considerations, such as the issue of going concern and liquidity, management’s estimates, subsequent events, government assistance and income tax. There will be issues to consider for the current year’s reporting as well as in future years. According to a report by IFAC, there are companies that may have made their first report on the financial effects in interim financial statements, which most likely involves the greater use of accounting estimates.

Furthermore, the information in the financial statement must be reliable, and all financial information materials relevant to understanding the company's financial position or performance should be appropriately disclosed. It is expected that throughout the year 2020, companies will need to review all areas of the accounts that are subjected to judgement and estimation uncertainty. The use of forecast information is pervasive in assessing a range of effects in addition to ongoing concerns, including the impairment of financial and non-financial assets, expected credit losses, and the recoverability of deferred tax assets (Ernst & Young, 2020).

For auditors, the apparent challenge of the public accounting firm is to perform audit procedures remotely from the home office due to travel restrictions both locally and abroad. This, in turn, will affect the risk assessment, as well as the nature, timing, and extent of work to be performed by auditors. However, despite these challenges, auditors are still expected to conduct the audit in accordance with the approved auditing standards in Malaysia and International Standards on Auditing (Dohrer & Mayes, 2020), although the methodology and tools used by the accounting firms will be different from their prior practices.

According to a study conducted by a cloud-based provider on accounting professionals, the audit client should have their own cloud-based document management in order to ensure that the audit can be done without any obstacles. Prior to the COVID-19 pandemic, firms that already had at least one cloud system in place far outperformed firms that did not have any cloud systems in place (CPA, 2020).

The Influence of Fintech Transformation on Accounting Education

The revolution of fintech has also impacted the education landscape with the dynamic shift from in-person to online learning (Nariman, 2020). The higher education system experiences significant digital revolutions through online lectures, teleconferencing, digital open books, online examinations, and interaction in virtual

environments. Applications like Google Classroom, Zoom and WhatsApp become popular tools among accounting educators and students (Totanan, 2022).

It appears that the digital revolution has prepared students with some of the information technology skills needed for the workplace of the future. According to a survey conducted by ACCA regarding business recovery strategies due to the breakthrough of fintech, it was reported that more organisations in Malaysia are seriously considering remote working as a longer-term transformation for their businesses (ACCA, 2020).

In accounting organizations, accountants were asked to learn new rules and regulations to effectively guide their clients and stakeholders through an online platform with the masses working from home. Experts predict that the reduction in in-person training and conferences will result in lower education costs for both accountants and accounting students during their online learning experiences. Moreover, the educational materials are offered to the accounting community for free or at greatly reduced prices (Zarret, 2020).

In response to fintech disruptions, businesses are looking forward to improving productivity and work efficiencies by reviewing their organizational processes while putting greater emphasis on digital investment in data capabilities. Most of the financial professionals have recognised that big data will become the next frontier for innovation, competition, and productivity in business in the future (McKinsey Global Institute, 2011). Accordingly, accountants play a significant role in big data and data analytics because their profession involves massive data, information processing, analysis, and reporting (Liu & Vasarhelyi, 2014). This will indirectly shape the needs of the accounting industry from the perspectives of accounting graduates.

According to Zhang, Dai and Vasarhelyi (2018), there will be a substantial surge in the technical maintenance and analytic needs of work done by accountants as more traditional tasks become automated. Enterprise resource planning, for example, transforms business from a labor to a machine-intensive process, changing the roles of accountants (Suhaimi et al., 2017). Therefore, accounting graduates need to stay up-to-date with technological advancements, and universities should develop a new program for students that focuses on up-skilling talent in the workforce. This can be done by integrating technology and data analytic skills into the accounting curriculum (Andiola, Masters & Norman, 2018). Therefore, both professional bodies and accounting educators should prioritize the integration of advanced skills like big data analytics and information technology into traditional accounting courses such as financial accounting, managerial accounting, auditing, and taxation.

THEORETICAL FRAMEWORK

This study uses Bloom's Taxonomy Framework as the theoretical basis to evaluate the influences of fintech on the accounting and finance professions, as well as its education. We chose this framework because it is widely used in education institutions as a guide to develop comprehensive and relevant educational and curriculum programs at various levels. This research classifies the response of accountants and finance professionals from various organisations towards the new needs of the accounting fraternity into three main domain classifications: cognitive, affective, and psychomotor. Accordingly, this research will further map the needs based on the different levels of domain classifications such as knowledge, comprehension, application, analysis, synthesis and evaluation (cognitive domain), receiving, responding, valuing, organizing and characterising (affective domain), perception, set, guided response, mechanism, complex overt response, adaptation and origination (psychomotor domain).

RESEARCH METHODOLOGY

This study uses semi-structured interviews with accountants and finance professionals who are currently employed in various organizations, such as accounting firms, government organisations, private sectors, and government link companies. There are several reasons why this method is chosen. First, it provides quick but detailed information on the fintech phenomenon that currently affects the business. Thus, the researcher is able to roughly estimate the magnitude or severity of the influence. Second, this research allows for interaction and clarification of the issues under investigation. This will avoid false answers, inaccurate response and self-desire bias that frequently occur in other data collection methods, such as market surveys. Third, the findings

from interviews are more credible because they were conducted in a natural setting by experts in the business ecosystem who directly feel the pandemic consequences.

The interview questions are divided into two sections: the demographic profiles of the respondents and questions that seek their opinions on the impact of Fintech on the profession, the essential skills needed to face or survive this crisis, and the role of higher learning institutions in assisting the industry in producing accounting graduates with the necessary skills. In the section dedicated to demographic profiles, we collect information such as age, gender, position, highest qualification, and years of working experience. In the second section, the following questions are posed:

Question 1: How does fintech change the work of the accountant?

Question 2: What are the three most important technical skills required by the accountant because of the fintech revolution?

The questions formulated above draw heavily from literature reviews, newspapers, and professional accounting body magazines, which extensively discuss the impact of fintech not only on the accounting profession but also on business operations, where accountants and finance professionals play a crucial role in safeguarding the business. The interview questions are sent for expert review by the well-known academicians and professionals to ensure their validity. In addition, the questions are crafted to ensure simplicity, clarity, ease of understand and ethical sensitivity. These questions are prepared and sent to the potential respondents before interviewing the candidates. In addition, permission is requested for the interview to be recorded and later transcribed. For the respondents that did not give consent for the interview to be recorded, notes and information were taken while the interview was conducted. This is in agreement with Lofland and Lofland (2006), who suggest that note-taking during the interview should be conducted to avoid any missing information due to memory loss.

Data analysis

Data collected from the interview is analysed based on Malhotra's (2010) three qualitative analysis stages, namely data reduction, data display and data conclusion. In data reduction, the raw information is manually transcribed and coded. By using the discourse analysis technique, it was then analysed to identify the emerging patterns or relationships. This kind of analysis focusses on the content of a conversation and its subject matter rather than linguistic structures, patterns of communication and genres (Edwards and Potter, 1992). For data display, images and visuals are used to monitor any emerging pattern and its relationship as a result of the data reduction stage. In the final stage, namely the data conclusion, the theme or pattern that emerged in the data display stage is analysed, verified and linked with the purpose of the interview and objective of the study. All these rounds of analysis were carried out utilising qualitative software.

FINDINGS AND DISCUSSION

In total, there were six (6) interviews conducted with six (6) respondents. This is in line with the minimum needs for qualitative research as recommended by Creswell (2002). The demographic profiles of all respondents are shown below.

Table 1: Demographic Profiles of the Respondents

Respondent	Age	Gender	Position	Highest Qualification	Years of Working Experience
R1	29	Female	Account Executive	Bachelor	3
R2	43	Male	Senior Accountant	CIMA	18
R3	40	Female	Treasury	Master	16

R4	44	Male	Investigating Officer	Master	15
R5	45	Male	Senior Treasurer	Bachelor	20
R6	31	Male	Account Executive	Bachelor	4

Impact of fintech on the work of the accountant.

All respondents agree that COVID-19 and, hence, the fintech revolution had an impact on their work as accountants and finance executives. It significantly disrupts the operations of accountants, necessitating them to adapt their roles accordingly. For example, R1 explained that:

"Operation was disturbed. Many documents arrive late from the supplier and client. Hence, payment cannot be made on time, and it really affects our cash flow."

R2 also agrees with this statement. His organization, on the other hand, had already taken a small step towards accounting digitalization before the pandemic but showed no willingness to take it seriously. However, the pandemic and fintech transformation present a significant incentive for them to accelerate this process.

"The digitalisation already provided the change, but the pandemic pushed it faster. Cashless projects began before the pandemic but are slow moving. However, after the pandemic, it was approved by higher authorities very fast.".

This shows that accountants are forced to enhance their processes digitally, although they feel it was impossible before. R2 added,

"Accountants need to be able to anticipate, meaning they have forward-thinking capability. The role of the accountant is not traditional anymore; new requirements need to be understood, like the Internet of Things (IOT), blockchain, data-centric analytics, big data, cybersecurity and many more.".

R2's opinions are largely supported by R3 and R4. According to R3, she has no choice but to learn new digital knowledge, such as virtual meeting applications like Webex, Microsoft Teams, and Google Meet. Interestingly, she noted that her employer had previously provided many of these Google software and applications before the pandemic, but they were either underutilised or, more accurately, no one was interested in learning them. The fintech revolution has been a hidden asset, enabling all individuals within the organization to operate and oversee these applications.

For R4, he opined that now accountants are required to have information technology knowledge to survive in the profession. He explained,

" IT (information technology) is now equally important with accounting knowledge.".

It can be concluded that not only the accountants, but the accounting process itself is also affected due to the fintech revolution. As people are forced to quarantine at home for almost two years due to COVID-19 and keep physical distance in the office, information and communication technology is critical to assist the profession in managing through unanticipated change (Delfino and van der Kolk, 2021; Al-Okaily, 2021).

Important technical knowledge and skills required due to fintech

The next issue to be discussed is the knowledge and skills required for accountants as a result of the fintech transformation. All respondents agreed that information technology is the most important knowledge and future-proofed skills required. R1 argued that because the current accounting system is designed for office use (intranet), its hasty migration to a web-based (internet) system requires the staff to quickly learn all the technical aspects of the systems so they can work from home. Any problem raised needs to be fixed quickly, based on remote guidance by the IT officers, so the accounting operation does not halt in the middle.

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R4 supported this argument,

"We are now living in the digital world. Every work process, including accounting, is now highly dependent on information technology.".

R2 and R5 share the same perspective as R4. R2, for example, expresses that,

"Accountants need to quickly learn how to handle technology."

As accountants are working with new updated technologies continuously without limit, it is important for them to quickly adapt and gain familiarity with various not only accounting but non-accounting software and tools. Technology has the potential to enhance productivity, efficiency, and effectiveness of the accountants, which will bring desired positive results to the organisations and clients. R6, for example, suggests that *accountants must be able to conduct data analysis and perform automation using robotic process automation (RPA).* Thus, accountants are expected to be proficient with a wide range of business hardware and software.

According to the interviews, accounting standard skills rank as the second most required skill. Even with cutting-edge technology, mistakes can still occur. Thus, the typical accounting skills that are related to reporting standards are necessary to prevent errors in accounting treatment that may spiral to the loss of millions of dollars. Furthermore, because of fintech, certain financial reporting standards are changed to suit the circumstances and ensure that the financial statements are clear, complete, and give a fair view. It is also argued that accounting information and regulation play a significant role in the post-systemic crisis to support policymakers in designing effective relief mechanisms (Buchetti et al., 2022). R4 explained,

"Accounting skills become more important because some accounting standards are changed."

R1 and R2 also agree with R4. R1 argued that she should re-learn the Financial Reporting Standard when preparing the final account. In this regard, many items in the financial statements need more disclosure and explanation, particularly on the related assumptions and estimates used in preparing the financial statement. Material effects on specific assets and liabilities, including the company's liquidity and ongoing concerns, require sufficient information to enhance the confidence of accounting information users.

The third most required skill is knowledge of laws, rules and regulations. Since the pandemic, compliance with rules and regulations has been one of the biggest issues debated among the practitioners. This is particularly relevant to business transactions that involve fulfilling contracts. The pandemic once caused an unprecedented lockdown on the global economy, which prevented the delivery of many projects, promises, and services. Accountants must understand the legal implications of this situation and make a quantitative assessment of the impact. R3 provides an example.

"Force majeure needs to be learnt and practically applied... Before the pandemic, this phrase seemed not important and was routinely written in the contract. However, during the crisis, I need to really understand this concept and look how it will impact the amendment of the contract.".

R2 also supported that opinion.

"Accountants need to understand the regulatory changes. Additionally, they must be able to grasp the concept of a fair and true view for the preparation of financial statements in the crisis environment."

Undoubtedly, fintech forces many businesses to change their way of operating. This includes regulatory changes in areas of contractual obligation, employment relationships, tourism and hospitality, company law, competition law, human rights and many others (Trakic, 2021). As a result, accountants must understand and be able to identify the legal challenges caused by the technological revolution and suggest possible remedies.

This knowledge, which includes information technology, accounting standards, and laws, aligns with the Bloom's Taxonomy Framework within the cognitive and psychomotor domains. In the cognitive domain, the evaluation category rates all three technical knowledges as high. While accountants require basic knowledge,

their ability to evaluate and assess the pandemic situation and apply this knowledge to solve problems is of utmost importance. At this level, accountants and future accounting graduates are expected to make judgments about the materials presented to them using the highest level of thinking and complex mental processes.

Again, for the psychomotor domain, this knowledge can be classified at the highest level of origination. For example, in information technology, while accountants and accounting graduates need to learn basic skills to operate computer hardware and software, they must have the ability to create new movement from the already developed skills. With the abundance of applications available in the market such as cloud computing, machine learning, artificial intelligence, augmented reality, blockchain, data analytics, and cybersecurity, accountants must creatively utilize these opportunities to apply and integrate accounting and financial skills with information technology. This approach not only gives them a competitive edge, but also adds value to their tasks and the organization as a whole.

CONCLUSION

The purpose of this research is to determine the impact of the fintech revolution on the accounting profession and how it shapes the technical knowledge required for future accounting graduates to survive in their career. This study utilized Bloom's Taxonomy Framework as the theoretical foundation to assess the impact of fintech on both the accounting profession and accounting education. This study also uses semi-structured interviews to collect data from accountants and finance professionals who are currently employed in various organisations, including public accounting firms, government organisations, private sectors, and government link companies.

This study found that no doubt the fintech explosion heavily affects the business and economy, and hence, the accounting profession. The pandemic crisis has resulted in the suspension or reduction of many operations due to quarantine restrictions. Thus, working from home is the alternative effort to ensure organisations continue to operate. In this context, information and communication technology is crucial as a support system. Digitalization is essential, and hybrid working systems appear to persist, even after the crisis.

Due to the rapid changes in technology, the expectations for future accounting graduates have also changed, particularly in terms of the level of technological knowledge required. This study found that employers placed information technology competency equally important with the existing accounting-based knowledge. As accounting information systems and technology are blended together, accounting students need to be well versed in the functions and operations of software and hardware that are related to the accounting system. All changes to the required financial reporting standard, such as impairment, liquidity, estimates, judgement, risk, and cash flows, must be learned deeply and able to be adapted quickly for accounting knowledge. Aside from this, knowledge of basic laws is also highly valuable, especially on contracts, employment law, taxation, the company act, and others.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The study has several limitations, which present opportunities for future research. Initially, only a limited number of individuals participated in the interviews. Many potential respondents were unable to participate due to time constraints and being at work. Future research should increase the number of interviews from various backgrounds so that a wealth of information can be collected. Second, this study relies on only a semi-structured interview as a method of data collection. Other data collection methods, such as market surveys and questionnaires, may be used in the future so that more issues and research problems can be examined. Finally, the focus of this study is on accountants with accounting backgrounds. Future research should include studies with non-accounting employees in areas such as investment, finance, payroll, operation, marketing, and so on. A comparative study can be executed, and in-depth analysis on the issues of interest can be conducted.

Ethical Approval

The collection of data was approved with consent from the respondents.

Conflict of Interest

The author(s) declared no potential conflict of interest with respect to research and publication of this article.

Data Availability

Data is available upon request.

REFERENCES

1. ACCA. (2020). Covid-19 global survey: The road to recovery? ACCA.
2. Adam, A., Abdullah, W. R. W., Maruhun, E. N. S., Anwar, I. S. K., & Salin, A. S. A. P. (2024). Determinants of business sustainability of women entrepreneurs. International Journal of Management and Sustainability, 13(3), 612-624.
3. Al-Okaily, M. (2021). Assessing the effectiveness of accounting information systems in the era of COVID-19 pandemic. VINE Journal of Information and Knowledge Management Systems, 54(1), 157-175.
4. Andiola, L. M., Masters, E., & Norman, C. (2020). Integrating technology and data analytic skills into the accounting curriculum: accounting department leaders' experiences and insights. Journal of Accounting Education, 50, 1-18.
5. Blasi, J. R., Freeman, R. B., & Kruse, D. L. (2013). The citizen's share: Putting ownership back into democracy. Yale University Press.
6. Buchetti, B., Parbonetti, A., & Pugliese, A. (2022). Covid-19, corporate survival and public policy: The role of accounting information and regulation in the wake of a systemic crisis. Journal of Accounting and Public Policy, 41(1), 106919.
7. Burritt, R., & Christ, K. (2016). Industry 4.0 and environmental accounting: a new revolution? Asian Journal of Sustainability and Social Responsibility, 1(1), 23-38.
8. CPA Practice Advisor (2020, April 24). Survey shows impact of COVID-19 on the accounting profession. https://www.cpapracticeadvisor.com/accounting-audit/news/21135518/survey-shows-impact-of-covid19-on-the-accounting-profession.
9. Creswell, J. W. (2002). Educational research: Planning, conducting, and evaluating quantitative and qualitative research. Pearson Education.
10. Delfino, G. F., & Van der Kolk, B. (2021). Remote working, management control changes and employee responses during the COVID-19 crisis. Accounting, Auditing & Accountability Journal, 34(6), 1376-1387.
11. Dohrer, B., & Mayes, C. (2020). Auditing during COVID-19: 6 areas to focus on. Journal of Accountancy, Special Digital Edition, 4-18.
12. Edwards, D., & Potter, J. (1992). Discursive Psychology. Sage.
13. Ernst & Young. (2020). Applying IFRS: IFRS Accounting Considerations of the Coronavirus Pandemic. Ernst & Young.
14. Gould S. and Arnold C. (2020, April 13). The financial reporting implication of COVID-19. International Federation of Accountants. https://www.ifac.org/knowledge-gateway/supporting-international-standards/discussion/financial-reporting-implications-covid-19.
15. Hart, L. (2017, September 25). How industry 4.0 will change accounting? Journal of Accountancy. https://www.journalofaccountancy.com/newsletters/2017/sep/industry-4-0-change-accounting.html.
16. Hikouatcha, P., Foka, A. G. T., Fossi, A. D., & Asongu, S. A. (2024). Empirical investigation of the Fintech and financial literacy nexus: Small business managers' insights in Cameroon. African Journal of Science, Technology, Innovation and Development, 1-19.
17. Ku Bahador, K. M., Haider, A., & Wan Mohd Saman, W. S. (2018). Assessing information technology skills using maturity scale approach: a case of Malaysian accounting firms. Journal of Engineering and Applied Sciences, 13(4), 954- 960.
18. Li, X., Ye, Y., Liu, Z., Tao, Y., & Jiang, J. (2024). FinTech and SME'performance: Evidence from China. Economic Analysis and Policy, 81, 670-682.
19. Liu, Q., & Vasarhelvi (2014). Big questions in AIS research: measurement, information processing, data analysis and reporting. Journal of Information Systems, 28(1), 1-17.

20. Maali, B., & Al-Attar, A. M. (2020). Accounting curricula in universities and market needs: the Jordanian case. SAGE Open, 10(1), 1-12.
21. Malhotra, N. K. (2010). Marketing research: An applied orientation. Pearson Education Limited.
22. McKinsey Global Institute (2011, May 1). Big data: the next frontier for innovation, competition, and productivity.https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/big-data-the-next-frontier-for-innovation.
23. Nariman, D. (2020). Impact of the interactive e-learning instructions on effectiveness of a programming course. In Kacprzyk, J. (Ed.), Advances in Intelligent Systems and Computing (pp.11-22). Springer.
24. Pham, T., & Jackson, D. (2020). The need to develop graduate employability for a globalized world. In Nghia, T.L.H., Pham, T., Tomlinson, M., Medica, K., & C. Thompson, C. (Eds.), Developing and Utilizing Employability Capitals (pp. 21-40).Taylor & Francis.
25. Salin, A. S. A. P., Hasan, H. C., Kamarudin, N. N. A. N., & Mad, S. (2023). Factors affecting the use of accounting and finance technology during the pandemic crisis. International Journal of Management and Sustainability, 12(2), 147-158.
26. Salin, A. S. A. P., Hasan, H. C., Kamarudin, N. N. A. N., & Mad, S. (2024). Formulating A Competency Framework for Accountants on Environment, Social and Governance (ESG) Standards and Finance Digitalization. Information Management and Business Review, 16(3 (I)), 309-317.
27. Suhaimi, N. S. A., Nawawi, A., & Salin, A. S. A. P. (2017). Determinants and problems of successful ERP implementations-Malaysian experience. International Journal of Advanced Operations Management, 9(3), 207-223.
28. Totanan, C. (2022). Is Google Classroom, Zoom, and WhatsApp effective for accounting students during the COVID-19 pandemic? Journal of Education for Business, 97(8), 555-561.
29. Trakic, A. (2021). Covid-19 and business law: Legal implications of a global pandemic. De Gruyter.
30. Williams, C. C., & Kayaoglu, A. (2020). COVID-19 and undeclared work: impacts and policy responses in Europe. The Service Industries Journal, 40(13-14), 914-931.
31. Zhang, D., Hu, M., & Ji, Q. (2020). Financial markets under the global pandemic of COVID-19. Finance Research Letters, 36, 101528.
32. Zarret, S. (2020, Jun 15). The impact of coronavirus on education in the accounting profession. https://www.cpapracticeadvisor.com/accounting-audit/news/21142154/the-impact-of-coronavirus-on-education-in-the-accounting-profession.
33. Zeng, L., Wong, W. K., Fu, H., Mahmoud, H. A., Cong, P. T., Thuy, D. T. T., & Bach, P. X. (2024). FinTech and sustainable financing for low carbon energy transitions: A biodiversity and natural resource perspective in BRICS economies. Resources Policy, 88, 104486.