

# Competency of the Virtual Accounting Learning to Meet CMA Certification Needs

Suzan Abed<sup>1</sup>, Tan(Alex) Tih Koon<sup>2</sup>, Botao Chen<sup>3</sup>, <sup>1,2,3</sup>School of Business & Public Administration, University of the District of Columbia, Washington-DC-USA.

<sup>1</sup>Corresponding Author: [suzan.abed@udc.edu](mailto:suzan.abed@udc.edu), [tihkoon.tan@udc.edu](mailto:tihkoon.tan@udc.edu), [botao.chen@udc.edu](mailto:botao.chen@udc.edu).

The objective of this study is to investigate the level of competencies in the virtual accounting curriculum to meet CMA certification needs. The study sample consists of 27 accounting curricula that were randomly selected. We employ content analysis to investigate the level of competencies in an undergraduate degree using four dimensions. The analysis of accounting curricula reveals that the content of the CPA exam is the primary source for accounting curricula. However, several mandatory courses in accounting curricula focus on taxation and audit, while these are not mandatory CMA certification competencies. The results show that the accounting curriculum struggles to implement a competency-based curriculum. Virtual learning lacks competency in human interaction skills interface with the business community through activities such as writing, presenting, and managing. The learning process cannot reach its full potential until students practice what they learn. Therefore, more competencies should be added to accounting curricula to meet the needs for the certification. Our finding implies the necessity of revising the current version of the accounting curriculum to focus on long-term career paths by dynamically integrating data analytics and ethical competencies into course content, changing as business needs change.

**Keywords:** *virtual learning, COVID-19, content analysis, undergraduate degree, accounting curriculum, CMA competencies.*

## 1. Introduction

Technological change alters how educators go about their daily delivery of subject content (Reeves, 1997; Bryant & Hunton, 2000). Changes in technology present challenges for both students and faculty members (Atkinson et al., 1996). While the industry generally adopts new technology quickly, educators should also be vigilant in adopting new technology (Sangster & Mulligan, 1997). For example, adopting new technology in education results in virtual learning to communicate and disseminate information to facilitate learning (Seale & Mence, 2001).

The concept of e-learning has been increasingly adopted over the last decade; e-learning became universally mandatory in 2020, due to the requirement of distancing dictated by the COVID-19 pandemic. However, Linney (2020) reports that the significant changes caused by the COVID-19 lockdown have not been accepted by all students, as 43% stated that they are not interested in online studying as it imposes greater demands on them. Chen et al. (2008) indicate that distance learning had a lower student engagement than face-to-face learning. Hipkins (2012) shows that students' engagement with on-campus learning significantly affected their perceived competencies.

Yanto et al. (2021) argue that learning transactions during the COVID-19 pandemic are carried out online using various platforms. Also, the end of the COVID-19 pandemic is still unclear, meaning the virtual accounting learning process may last for longer. The theory of involvement states that students will learn and understand more if they are physically and psychologically involved in a university environment (Astin, 2012). Similarly, Tinto (1993) documents that students must be integrated with their university's academic and social systems. Yanto (2016) finds that active, collaborative, and enrichment learning positively impacts the students' perceived accounting competencies.

Interaction between the students and faculty members is vital inside and outside the classroom. Richardson & Radloff (2014) find that the relationship between students and faculty increases the opportunities for faculty to motivate students to achieve the learning objectives. It is likely that, during the pandemic, the intensity of faculty-student interactions has decreased significantly. Nevertheless, Lawson (2021) mentions that virtual learning has become the "new normal"; this may last for the long term, even in post-pandemic conditions. Virtual learning has demonstrated how easily upskilling can be achieved. For example, full-time professionals may have greater flexibility in enrolling in virtual graduate courses. Also, organizations may dedicate time or budget to corporate upskilling so their employees can meet technological demands, and undergraduate students can explore various career paths in the account. Fabrizz et al. (2021) indicate that synchronous and asynchronous settings are not uniform environments but offer various options for teaching and learning.



The outbreak of COVID-19 is having a remarkable and widespread effect on global financial markets. These changes also affect education, with the close of institutions worldwide and resorting to online teaching in a short time to implement quality teaching and learning only online. Palvia et al. (2018) predict that online learning will become a mainstream mode of education by 2025.

Management accounting plays a crucial role in the success and continuity of the US Industrial revolution. Similarly, innovative cost management techniques significantly improve companies' competitiveness and profitability (Tatikonda, 2004). Charles & Krumwiede (2020) indicate that CMA certification broadens the knowledge base into areas not only directly related to management accounting but also gives the ability to excel the barriers to other financial management areas that may contribute intelligently to the overall success of an organization.

Interest in accounting certification programs is rising, as the Institute of Management Accountants (IMA) reports a 17% year-over-year global growth of the Certified Management Accountant (CMA) program. Its annual report also highlights the long-term growth of the profession, with a 10-year compound annual growth rate in CMA candidates of 14%. Though 2020 is a tumultuous year for most, accounting and finance professionals continued to affirm their dedication to continued growth (Lawson, 2021).

Based on the above discussion, previous studies show mixed results regarding virtual learning; a few studies show that distance learning had a lower level of student engagement (e.g., Chen et al., 2008). Other studies (e.g., Lawson, 2021) mention that undergraduate students can explore various career paths. The previous literature does not examine the competency of virtual learning, especially in meeting the need for CMA certification in our challenging economy. Therefore, the objectives of the current study are: First, to review the status of accounting education. Second, to investigate the level of competencies in virtual accounting learning to meet CMA certifications needs.

The remainder of the study consists of the following. Section 2 describes the current status of accounting education. Section 3 outlines the methodology used and the data collection process. Section 4 presents a discussion of the main results. The conclusion and implications of the study are presented in the final section.

## **2. The Current Status of Accounting Education**

The Bedford Report indicated that accounting education as it is approached requires significant adjustments, and they also documented a gap in accounting education. Accountants who remain narrowly educated will find it more challenging to compete in the profession (The Bedford Report,



1986). Many similar arguments were raised by different professional bodies, such as the Institute of Management Accountants (IMA), the American Accounting Association (AAA), and the American Institute of Certified Public Accountants (AICPA). Tatikonda (2004) argued that the current position of accounting education is a mess.

Tatikonda (2004) proves that decades of criticism have had little or no effect on accounting curricula. Jackling & De Lange (2009) argue that the skills of knowledgeable professionals cannot be nurtured efficiently in university courses where a raft of specialized technical skills dominates the curriculum. Howieson (2003) debates that the requisite skills required by tomorrow's business leaders will include transferable technical skills along with generic, professional, ethical, and lifelong learning skills. The term "generic skills" has recently expanded to emphasize relevance to graduate outcomes with employability.

Miihkinen & Virtanen (2018) suggest that students should adopt a suitable approach to learning, self-regulate their learning, and have a feeling of self-efficacy and academic integration. Abed (2014) points out that accounting education has been changed from a knowledge-based education to a process-oriented program.

Jackling & De Lange (2009) survey professionals, they find it necessary that the universities teach a broad set of additional skills such as team orientation, leadership, oral communication, and interpersonal skills. One of the AICPA releases indicates a steep decline (37.7%) in individuals hired by US accounting firms from 2014 to 2018 (AICPA, 2019). Pincus et al. (2017) conclude that the decline in employability in accounting is related to two main reasons: Offshoring and outsourcing tasks to employees in different countries to reduce compensation costs. The second, is automation, i.e., the use of technology to perform business operations by robotics. Both offshoring and robotics are likely to reduce the need for traditional accounting professionals.

In 2010, the Joint Curriculum Task Force of the IMA and the Management Accounting Section (MAS) of the AAA aimed to create a comprehensive set of competencies for formulating university curricula (Lawson et al., 2014). They recommend a curriculum focus on (1) long-term career needs rather than career starting needs, (2) careers beyond public accounting, (3) adding value to organizations, and (4) integrating competencies in a way these competencies will be used in practice. In 2018, the AICPA, in its release identified skills in five categories (technical, business, people, leadership, and digital) (AICPA, 2018). The pathways commission, in 2012, indicated the necessity of viewing competencies as dynamic, that is, changing as the needs of business change. Moreover, the commission states the need to identify competencies beyond public accounting (Pathways Commission 2012).

In the pioneer effort of IMA in 2019, the IMA provides endorsement of curricula that certify career readiness for those seeking "a career track beyond public accounting". To obtain the endorsement,



the university should contact IMA and must offer a curriculum that meets at least 75 percent of the learning aims of the Certified Management Accounting (CMA) program at the “highest cognitive level”.

Tatikonda (2004) highlights that the only way to keep high-paying jobs in accounting is to perform high-value-adding activities such as process improvement. Technology replaces everyday accounting activities, and the current accounting education is inconsistent with the knowledge and the required skills for high-value activities and with the rapid change in the role of accounting.

Due to the unprecedented uncertainty associated with the mass community spread of the virus, the COVID-19 pandemic disrupted many aspects of social and economic life. However, it has also offered an opportunity for corporations around the world to reconsider and reconnect with their key stakeholders (Brammer et al., 2020). The COVID-19 pandemic has automated many traditional accounting activities. The current accounting program, as they exist today, may not survive in the future unless significant changes are made. Therefore, accounting curricula need to be revised to reflect the change in accounting’s role in our organizations.

### **3. Research Design**

The present study focuses on accounting curriculums within undergraduate accounting degrees. Therefore, accounting curriculums for 27 universities that were randomly selected were reviewed and analyzed. Each curriculum was analyzed to explore the extent of accounting competencies in the undergraduate curriculum.

The websites of all the sampled universities were searched to check whether an undergraduate degree in accounting is offered. Then, we downloaded the accounting curriculum if it is publicly available. Otherwise, alternative emails have been sent to department chairs asking them to send their accounting curriculum for research purposes.

The websites of all the sampled universities were searched to check whether an undergraduate degree in accounting is offered. Then, we downloaded the accounting curriculum if it is publicly available. Otherwise, alternative emails have been sent to department chairs asking them to send their accounting curriculum for research purposes.

Having collected 27 accounting curriculums between December 2021 and January 2022, each of these available curricula was then analyzed. Content analysis for the collected curriculum was conducted based on four dimensions: Total credit hours, status (mandatory, general electives, or general education, or optional), managerial accounting or cost accounting credit hours, and business statistics & analytics/computer software & applications credit hours. Moreover, content

analysis was performed for the content of CMA certification. Then, accounting curricula dimensions were matched with CMA content to investigate whether the current program meets the competency of CMA certification.

#### 4. Discussion and Results

##### 4.1 Descriptive Results

The result of the collected data shows that, on average, the total credit hours for the undergraduate degree in accounting is 121, as shown in Table 1, with a minimum of 120 credit hours and a maximum of 124 credit hours.

Table 1: Credit Hours

# of school	Credit hours
18	120
3	121
1	122
3	123
2	124
Total number of schools	27
Average of credit hours	121

Moreover, the presented results in Table 2 reveal that universities with a bachelor's degree in accounting required, on average, 76 compulsory credit hours in accounting, with a minimum mandatory credit hour equal to 52 and a maximum of 90 credit hours. This result indicates that mandatory courses present almost 62.5% of total credit hours.

Table 2: Mandatory Credit Hours

MCH	52	63	68	69	72	73	74	75	76	78	79	80	81	82	84	85	90
# of school	1	1	1	2	4	1	1	3	1	2	2	1	1	1	3	1	1
Average of MCH = 75.6 Credit hours																	

Table 3 exhibits the results of general electives or university colloquium. The results show that, on average, schools teach five credit hours as a general elective or university colloquium, with a minimum credit hour of Zero and a maximum credit hour of 19. The analysis of accounting

curricula reveals that the content of the CPA exam is the primary source for accounting curricula and accounting departments. Generally, revise their curricula to meet changes in the CPA exam. For example, several mandatory courses in accounting curricula focus on taxation and audit, while these courses are not mandatory courses for CMA certification. However, additional competencies should be added to cover the need for ethical considerations for management and organizations

Table 3: General Electives or University Colloquium Credit Hours

Credit Hours	0	1	3	4	6	9	11	12	17	19
# of school	12	2	2	1	4	2	1	1	1	1
Average of General Electives = 4.88										

Moreover, Table 4 presents the credit hours of general education. The presented results indicate that, on average, universities offer almost 41 credit hours, with a minimum of 27 hours and a maximum of 59 credit hours.

Table 4: General Education

Credit Hours	27	29	30	31	34	36	37	39	40	41	42	45	48	50	51	52	59
# of school	1	1	2	1	1	2	1	1	6	1	2	3	1	1	1	1	1
Average of General Education = 40.33																	

The below table exhibits the third dimension of content analysis related to the existence of managerial accounting courses in the accounting curriculum.

Table 5: Managerial Accounting/ Cost Accounting Credit Hours

Credit Hours	Minimum	Maximum	Average
Managerial Accounting	0	4	2.89
Cost Accounting	0	4	3
Total Credit Hours	3	8	5.89

The results of taught credit hours related to managerial accounting courses or cost accounting courses presented in Table 5 show that, on average, schools teach three credit hours with a minimum credit hour of (0) and a maximum of (4). For the results related to the total of courses related to managerial accounting and cost accounting courses, the average is almost 6 hours, with a minimum of 3 hours and a maximum of 8 credit hours. This result indicates that 5% of total

credit hours concentrate on cost accounting or managerial accounting courses. Based on this, it is evident that accounting curricula focus on the traditional role of accounting. However, the managerial accounting technique is essential for organizational success and survival. This percentage confirms that little attention has been paid to identifying the required skills to meet the needs of CMA certification.

Table 6: Business Statistics & Analytics/Computer Software & Applications

Credit Hours	0	3	4	6	7
# of school	4	11	3	8	1
Average of Credit Hours = 3.7					

Additionally, the results of the Business Statistics and Analytics or Computer Software and Applications course credit hours are presented in Table 6. The results show that, on average, schools offer approximately four credit hours in computer applications with a minimum of (0) and a maximum of (7) credit hours. The collected data show that universities offer 3% of their total credit hours as courses related to business analytics or computer applications. This percentage indicates that e-accounting education is still under the required level in universities which does not meet the integration of technological changes in accounting education (Kotb et al., 2013; Abed, 2014).

However, Table 7 presents the content of CMA certification parts 1 & 2. It also presents the relative weight assigned to the primary topic.

Table 7: Content of CMA Certification Part 1&2

<b>Part 1: Financial Planning, Performance, and Analytics</b>	<b>%</b>	<b>Part 2: Strategic Financial Management</b>	<b>%</b>
External Financial Reporting Decisions	15	Financial Statement Analysis	20
Planning, Budgeting, and Forecasting	20	Corporate Finance	20
Performance Management	20	Decision Analysis	25
Cost Management	15	Risk Management	10
Internal Controls	15	Investment Decisions	10
Technology and Analytics	15	Professional Ethics	15

As it appeared in the above table, technology and analytics are one of the major topics in Part 1: Financial Planning, Performance, and Analytics, and the relative weight assigned to this topic is 15%. However, only 3% of accounting curricula focus on data analytics or computer applications. Additionally, Table VII reveals that the relative weight of the professional ethics major topic is 15% in part 2: Strategic Financial Management, and this is only one course in general education.

Table 8 exhibits a detailed table of CMA content. As it appeared in this table, part 1 consists of 20 study units, whereas part 2 consists of 15 study units (Gleim and Flesher, 2021a&b). Table 8 exhibits a detailed table of CMA content, as it appeared in this table, part 1 consists of 20 study units, whereas part 2 consists of 15 study units (Gleim and Flesher, 2021a&b).

Table 8: Detailed Table of CMA Content

Topic/Study unit	Part 1	Study unit	Part 2
<b>1.</b>	<b>External Financial Reporting Decisions</b>	<b>2.</b>	<b>Strategic Financial Management</b>
1	External Financial Statements	1	Liquidity, Solvency, and Leverage Ratios
2	Measurement, Valuation, and Disclosure: Assets-Short-Term Items	2	Profitability and Per-share Ratios
3	Measurement, Valuation, and Disclosure: Assets-Long-Term Items	3	Activity Ratios and Special Issues
4	Measurement, Valuation, and Disclosure: Liabilities	4	Types of Securities
5	Revenue and Impairment Recognition	5	Financial Markets and Financing
6.	Integrated Reporting	6	Valuation Methods and Cost of Capital
7	Cost Management concepts	7	Working Capital Management
8	Cost Accumulation Systems	8	Corporate Restructuring, International Trade, and Exchange Rates
9	Cost Allocation Techniques	9	CVP Analysis
10	Supply Chain Management	10	Marginal Analysis
11	Business Process Improvement	11	Pricing Analysis
12	Analysis, Forecasting, and Strategy	12	Risk Management
13	Budgeting-Concepts and Methodology	13	Investment Decisions



14	Budgeting-Calculations and Pro forma Financial Statements	14	Ethical Considerations for Management
15	Cost and Variance Measures	15	Ethical Considerations for the Organization
16	Responsibility Accounting and Performance Measures		
17	Internal Controls- Corporate Governance		
18	Internal Controls- Controls and Security Measures		
19	Information Systems and Data Governance		
20	Systems Development and Data Analytics		

Most of the content of CMA certification is covered in accounting curricula. However, based on the above table, more attention should be paid to information systems and data governance, systems development, and data analytics. Practical actions should be taken to upgrade students' technology skills, which the COVID-19 pandemic may complicate since the students spend a long time sitting in front of their devices for their virtual or online classes.

Another competency should be added to human interaction skills, such as dealing with process improvements, legal environment, and ethical considerations for management and organizations. This competency is essential for high process improvement in the existence of shortages in the supply chain.

The website of the IMA indicates that 62 universities only in the US have endorsed their accounting programs by the IMA. In comparison, the number of schools teaching accounting programs all over the US reaches 751. This implies that only 8.3% of programs may offer a career track beyond public accounting, or their curricula may not meet at least 75 percent of the learning aims of the Certified Management Accounting (CMA) program.

The collected data show that all the universities succeeded in shifting to virtual learning using synchronous and asynchronous learning classes. However, there were several challenges and difficulties in meeting competencies in CMA certification before the pandemic. At the same time, the accounting curriculum's pre-pandemic is the same as post-pandemic. The pandemic adds an extra burden on accounting education by imposing virtual learning where faculty struggle to keep students engaged.



Based on the above, we can argue that the current version of accounting curricula needs to be revised. Online courses should be designed in such a way that they are creative, interactive, relevant, student-centered, and group based (Partlow & Gibbs, 2003).

#### *4.2 Discussion*

Nowadays, the entire world has been affected by the global COVID-19 pandemic, and businesses all over the world face unprecedented challenges. The pandemic has changed how most organizations serve their customers and how employees perform their jobs. In some cases, workers found themselves job hunting or seeking a significant change in their skills to rejoin the workforce (Charles & Krumwiede, 2021).

Organizations will likely need to quickly update strategies as business conditions have changed and will likely continue to change with COVID-19. Some parts of an organization's strategy would be quickly discontinued or merged. Therefore, the current management accounting education does not prepare the students with the ability to make the quick changes required by COVID-19. So, this required quick movements toward integration management accounting techniques in our teaching (Sprakman, 2020).

Singh & Thurman (2019) point out that online learning can be a tool that can make the teaching-learning process more student-centered, innovative, and even more flexible using different devices. In these environments, students can be anywhere (independent) to learn and interact with instructors and other students. Remote teaching combined with in-person teaching can help students to regulate their learning and increase their self-efficacy. For example, students are expected to take responsibility and write advanced written assignments independently, but they would also have contact sessions, reducing unnecessary loneliness and stress (Miihkinen & Kykkänen (2020).

A review of accounting curricula in different universities reveals that the current version of the curriculum must be revised to meet the rapid change in the role of accounting professionals. The current accounting curricula are not adequate for a future career. The future curriculum should primarily concentrate on analytical, technology, and human interaction skills, considering the effect of virtual learning, which may last for a long time.

Based on the above, faculty struggle to implement a competency-based curriculum. The competency of human interaction skills interfaces with the business community through writing, presenting, and managing. The learning process cannot reach its full potential until students practice what they learn. More courses must be added to the curriculum to address the above competencies. However, there are some stakeholders and regulators that influence curriculum

development and make the process of adding more courses not practical. For example, Lawson et al. (2017) indicate that state regulations limit the flexibility of the business school to add more courses to the curriculum in a way different from other disciplines. Pasewark (2021) debates that typical accounting faculty will not be able to teach all the competencies expected of new accounting professionals. He also suggests hiring non-traditional faculty who can establish strategic relationships with non-accounting faculty.

Therefore, an innovative way for curriculum development is to work on the content of the course syllabus by encompassing at least one of the major competencies within the accounting course major. Faculty should include additional education and training to the current curriculum without increasing credit hours.

## **5. Conclusion, Implication, and Future Studies**

The first objective of this study was to review the status of accounting education. Because of the COVID-19 pandemic, and the continuous shortage in supply change, the gap between accounting education and the industry's need is widening. The current accounting program as they exist today needs significant changes. Therefore, accounting curricula should add process improvement activities to their syllabi to meet the industry's change. In other words, accounting programs must be flexible and fair and provide better preparation for alternate accounting careers.

The second objective was to investigate the level of competencies in virtual accounting learning to meet CMA certification needs. The content analysis results revealed that the collected data shows that universities offer 3% of their total credit hours as courses related to business analytics or computer applications. The results of taught courses reveal that only 5% of total credit hours are related to management accounting courses. However, the current accounting curricula are insufficient to meet the required competencies for successful CMA certification. Additionally, virtual learning decreases students' engagement; they cannot reach their full potential until they practice what they learn. Based on this, we argue that our virtual learning inflates the gap between accounting learning and CMA certification needs.

The pandemic expands the gap between accounting education and the industry's need. Advanced technology has automated most of the activities performed by traditional accountants and changed the accountants' role (Tatikonda, 2004). Most traditional activities, such as journalizing, posting, paying invoices, and preparing standardized reports, have been automated or outsourced to reduce running costs and meet the pandemic requirements of social distancing. As a result, a future professional accountant will be required to perform activities that cannot be offshored or cannot be performed by robotics (Pasewark, 2021).



Management accounting is crucial for organizational success and business continuity, especially in our challenging environment. In their salary survey, Charles & Krumwiede (2020) indicate that the values of the CMA certification are evident in improving overall competencies, including professional expertise, analytical skills, and management skills. Therefore, future accounting professionals require significantly different training than traditional accounting professionals. However, this kind of change should start in universities.

The current study declares the need to revise the current accounting curricula to meet changes in the dynamic environment. Changes and amendments to the accounting curriculum to meet the competencies in accounting education can make a positive difference in understanding changes in the dynamic environment. That is, changing as the needs of business change. An accounting curriculum can be developed innovatively by encompassing at least one of the competencies within an accounting course major. Faculty should include additional education and training to course content without increasing credit hours. In today's environment, accounting students need to demonstrate more qualifications than just the technical skills they learn in traditional accounting classes (Ahadiat & Martin, 2016), especially with the COVID-19 pandemic. Most accounting certifications require students to finish 150 credit hours to be eligible for certification. Two ways may figure out this problem. The first, by assigning students after 60-70 credit hours to CPA/CMA, CIA, and CFA paths based on students' aspirations. The second, add more competencies to accounting curricula to meet the needs for certification.

The study recommends linking professional bodies and university education to retain accounting department survival. Therefore, future research should be conducted to survey practitioners and accounting bodies to investigate competencies, skills and attributes that are considered relevant for successful accountants. This investigation provides a solid background for any expected changes in the curricula.



## References

- Abed, S., 2014. A review of e-accounting education for undergraduate accounting degrees. *International Business Research*, 7(2), p.113-117. <https://doi.org/10.5539/ibr.v7n2p113>
- Ahadiat, N. and Martin, R.M., 2016. Necessary attributes, preparations, and skills for the selection and promotion of accounting professionals. *Journal of Accounting and Finance*, 16(1), p.11-25
- Association of International Certified Professional Accountants. 2018a. CGMA competency framework guide: Generate value for long-term success. Available at: <https://www.cfoinnovation.com/accounting-compliance/cgma-competency-framework-guide-generatevalue-for-long-term-success>
- Association of International Certified Professional Accountants. 2019a. 2019 Trends in the supply of accounting graduates and demand for public accounting recruits. Available at: <https://www.aicpa.org/content/dam/aicpa/interestareas/accountingeducation/newsandpublications/downloadabledocuments/2019-trends-report.pdf>. [https://doi.org/10.1007/978-1-349-95810-8\\_84](https://doi.org/10.1007/978-1-349-95810-8_84)
- Astin, A.W., 2012. *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education*. Rowman & Littlefield Publishers.
- Atkinson, E., Conboy, I., Atkinson, J., Doods, A. and McInnis, C., 1996. Evaluation of the open learning initiative: Tertiary, access to through a national brokerage agency. *Center for the Studies of Higher Education*. University of Melbourne, Melbourne, Australia
- Brammer, S., Branicki, L. and Linnenluecke, M.K., 2020. COVID-19, societalization, and the future of business in society. *Academy of Management Perspectives*, 34(4), pp.493-507. <https://doi.org/10.5465/amp.2019.0053>
- Bryant, S.M. and Hunton, J.E., 2000. The use of technology in the delivery of instruction: Implications for accounting educators and education researchers. *Issues in Accounting Education*, 15(1), pp.129-162. <https://doi.org/10.2308/iace.2000.15.1.129>
- Charles, S. and Kip Krumwiede, P.H.D., 2021. IMA'S GLOBAL SALARY SURVEY. *Strategic Finance*, 102(9), pp.28-37.
- Chen, P.S.D., Gonyea, R. and Kuh, G., 2008. Learning at a distance: Engaged or not?. *Innovate: Journal of Online Education*, 4(3), pp.1-7.



- Fabriz, S., Mendzheritskaya, J. and Stehle, S., 2021. Impact of synchronous and asynchronous settings of online teaching and learning in higher education on students' learning experience during COVID-19. *Frontiers in Psychology*, 733544, pp1-16. <https://doi.org/10.3389/fpsyg.2021.733554>
- Gleim, I., & Flesher, D. (2021a). *CMA Review, Part 1: Financial Planning, Performance, and Analysis*. 40th Anniversary Edition, Gleim Publications.
- Gleim, I., & Flesher, D. (2021b). *CMA Review, Part 2: Strategic Financial Management*. 40th Anniversary Edition, Gleim Publications.
- Hipkins, R., 2012. The engaging nature of teaching for competency development. In *Handbook of research on student engagement* (pp. 441-456). Springer, Boston, MA. [https://doi.org/10.1007/978-1-4614-2018-7\\_21](https://doi.org/10.1007/978-1-4614-2018-7_21)
- Howieson, B., 2003. Accounting practice in the new millennium: is accounting education ready to meet the challenge?. *The British Accounting Review*, 35(2), pp.69-103. [https://doi.org/10.1016/s0890-8389\(03\)00004-0](https://doi.org/10.1016/s0890-8389(03)00004-0)
- Jackling, B. and De Lange, P., 2009. Do accounting graduates' skills meet the expectations of employers? A matter of convergence or divergence. *Accounting Education: an international journal*, 18(4-5), pp.369-385. <https://doi.org/10.1080/09639280902719341>
- Kotb, A., Roberts, C. and Stoner, G., 2013. E-business in accounting education in the UK and Ireland: Influences on inclusion in the curriculum. *The International Journal of Management Education*, 11(3), pp.150-162. <https://doi.org/10.1016/j.ijme.2013.05.002>
- Lawson, R.A., Blocher, E.J., Brewer, P.C., Cokins, G., Sorensen, J.E., Stout, D.E., Sundem, G.L., Wolcott, S.K. and Wouters, M.J., 2014. Focusing accounting curricula on students' long-run careers: Recommendations for an integrated competency-based framework for accounting education. *Issues in Accounting Education*, 29(2), pp.295-317. <https://doi.org/10.2308/iace-50673>
- Lawson, R., 2021. Growing Interest in Lifelong Learning Creates a Positive Outlook for the Accounting Profession. *The CPA Journal*, 91(8/9), pp.17-18
- Linney, S. "How Universities are embracing online learning during the Coronavirus Outbreak," QS, Mar. 26, 2020. [HTTPS:// www.qs.com/how-universities-are-embracing-online-learning-during-the-coronavirus-outbreak/](https://www.qs.com/how-universities-are-embracing-online-learning-during-the-coronavirus-outbreak/) (accessed Jun. 20, 2020). <https://doi.org/10.18638/dialogo.2020.6.2.12>



- Miihkinen, A. and Virtanen, T., 2018. Development and application of assessment standards to advanced written assignments. *Accounting Education*, 27(2), pp.121-159. <https://doi.org/10.1080/09639284.2017.1396480>
- Miihkinen, A. and Kykkänen, T., 2020. COVID-19 Effects at the Aalto University School of Business Department of Accounting. Published in One Section of the Compilation Article 'insights into Accounting Education in a COVID-19 World'. Sangster, A., Stoner, G. and Flood, B., 2020. *Insights into Accounting Education in a COVID-19 world*. *Accounting Education*, 29(5), pp.431-562. <https://doi.org/10.2139/ssrn.3775016>
- Palvia, S., Aeron, P., Gupta, P., Mahapatra, D., Parida, R., Rosner, R. and Sindhi, S., 2018. Online education: Worldwide status, challenges, trends, and implications. *Journal of Global Information Technology Management*, 21(4), pp.233-241. <https://doi.org/10.1080/1097198x.2018.1542262>
- Partlow, K.M. and Gibbs, W.J., 2003. Indicators of constructivist principles in Internet-based courses. *Journal of Computing in Higher Education*, 14(2), pp.68-97. <https://doi.org/10.1007/bf02940939>
- Pasewark, W.R., 2021. Preparing accountants of the future: Five ways business schools struggle to meet the needs of the profession. *Issues in Accounting Education*, 36(4), pp.119-151. <https://doi.org/10.2308/issues-19-025>
- Pathways Commission. 2012. Charting a national strategy for the next generation of accountants. Available at: <https://aaahq.org/Portals/0/images/education/Pathways/8-9-47216.pdf?ver=42021-02-23-180351-313>. <https://doi.org/10.2308/1558-7983-27.3.593>
- Pincus, K.V., Stout, D.E., Sorensen, J.E., Stocks, K.D. and Lawson, R.A., 2017. Forces for change in higher education and implications for the accounting academy. *Journal of Accounting Education*, 40, pp.1-18. <https://doi.org/10.1016/j.jaccedu.2017.06.001>
- Reeves, T.C., 1994. Evaluating what really matters in computer-based education. *Computer education: New perspectives*, pp.219-246.
- Richardson, S. and Radloff, A., 2014. Allies in learning: critical insights into the importance of staff–student interactions in university education. *Teaching in Higher Education*, 19(6), pp.603-615. <https://doi.org/10.1080/13562517.2014.901960>
- Sangster, A. and Mulligan, C., 1997. Integrating the World Wide Web into an accounting systems course. *Accounting Education*, 6(1), pp.53-62. <https://doi.org/10.1080/096392897331631>



- Seale, J. and Rius-Riu, M., 2001. An introduction to learning technology in tertiary education in the UK.
- Singh, V. and Thurman, A., 2019. How many ways can we define online learning? A systematic literature review of definitions of online learning (1988-2018). *American Journal of Distance Education*, 33(4), pp.289-306. <https://doi.org/10.1080/08923647.2019.1663082>
- Spraakman, G., 2020. Ramifications of Covid-19 on management accounting teaching and research. *Journal of Accounting & Organizational Change*, 16(4), pp. 593-598. <https://doi.org/10.1108/jaoc-08-2020-0106>
- Tatikonda, L.U., 2004. Naked truths about accounting curricula. *Management Accounting Quarterly*, 5(4), p.62.
- Tinto, V., 2012. *Leaving college: Rethinking the causes and cures of student attrition*. University of Chicago press. <https://doi.org/10.7208/chicago/9780226922461.001.0001>
- Yanto, H., 2016. Internationalizing the accounting graduates' competencies through the improvement of student engagement. Available at SSRN 2913206. Paper presented at the ICEEBA. <https://doi.org/10.2139/ssrn.2913206>
- Yanto, H., Hidayah, R., Hajawiyah, A., Baroroh, N. and Wibowo, A., 2021. Developing operational accounting competencies during the pandemic using emergency online learning. *Cogent Education*, 8(1), p.1926405. <https://doi.org/10.1080/2331186x.2021.1926405>