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Main article

# Accounting education literature review (2018)

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ABSTRACT

This review of the accounting education literature includes 101 articles published during 2018 in five journals: (1) *Journal of Accounting Education*, (2) *Accounting Education*, (3) *Advances in Accounting Education: Teaching and Curriculum Innovations*, (4) *Issues in Accounting Education*, and (5) *The Accounting Educators' Journal*. We update 13 prior accounting education literature reviews by organizing and summarizing contributions to the accounting education literature made during 2018. Articles are categorized into five sections corresponding to traditional knowledge bases: (1) curriculum and instruction, (2) instruction by content area, (3) educational technology, (4) students, and (5) faculty. Research rigor of the empirical articles is discussed and critiqued. Suggestions for research in all areas are presented. Articles classified as instructional resources and cases published in the same five journals during 2018 are listed in appendices categorized by the relevant content area.



## 1. Introduction

This review of the accounting education literature includes 101 articles published during 2018 in five journals: (1) *Journal of Accounting Education*, (2) *Accounting Education*, (3) *Advances in Accounting Education: Teaching and Curriculum Innovations*, (4) *Issues in Accounting Education*, and (5) *The Accounting Educators' Journal*.[1] This review article is the 14th in a series of accounting education literature reviews first published in 1986 (as presented in Table 1). Table 2 reports the accounting education journals reviewed since 1991.[2] We classify a published article as empirical, descriptive, instructional resource, or case. Empirical and descriptive articles are summarized in the body of the article; instructional resources and cases are listed in Appendix A and B, respectively. Consistent with prior reviews, an empirical article is one in which conclusions are derived from an analysis of data. Articles that discuss a strategy, describe an innovation, or report student perceptions without statistical analysis are classified as descriptive. Table 3 summarizes commonly used abbreviations and corresponding definitions used throughout this article.

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[1] *Global Perspectives on Accounting Education* has been included in prior accounting education literature reviews (Table 1), but did not publish its 2018 issue in time for inclusion in this review.

[2] We intentionally limit our analysis to those journals that have accounting education as a primary orientation, although accounting education articles may appear in journals not included in our review. For example, Bernardi, Zamojcin, and Delande (2016) reviewed accounting education research in 13 journals.

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**Table 1**
Accounting education literature review series.

| Reference | Time period covered |
|---|---|
| 1. Apostolou, Dorminey, Hassell, and Hickey (2019) | 2018 |
| 2. Apostolou et al. (2018) | 2017 |
| 3. Apostolou, Dorminey, Hassell, and Rebele (2017) | 2016 |
| 4. Apostolou, Dorminey, Hassell, and Rebele (2016) | 2015 |
| 5. Apostolou, Dorminey, Hassell, and Rebele (2015) | 2013–2014 |
| 6. Apostolou, Dorminey, Hassell, and Watson (2013) | 2010–2012 |
| 7. Apostolou, Hassell, Rebele, and Watson (2010) | 2006–2009 |
| 8. Watson, Apostolou, Hassell, and Webber (2007) | 2003–2005 |
| 9. Watson, Apostolou, Hassell, and Webber (2003) | 2000–2002 |
| 10. Apostolou, Watson, Hassell, and Webber (2001) | 1997–1999 |
| 11. Rebele et al. (1998a) | 1991–1997 (part I) |
| 12. Rebele et al. (1998b) | 1991–1997 (part II) |
| 13. Rebele, Stout, and Hassell (1991) | 1985–1991 |
| 14. Rebele and Tiller (1986) | Prior to 1985 |

**Table 2**
Journals reviewed in the accounting education literature review series.

| | Period covered by review | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1991–1997(a) | 1997–1999 | 2000–2002 | 2003–2005 | 2006–2009 | 2010–2012 | 2013–2014 | 2015 | 2016 | 2017 | 2018 |
| *Journal of Accounting Education* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| *Accounting Education* | (b) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| *Advances in Accounting Education: Teaching and Curriculum Innovations* | (c) | ✓ | ✓ | ✓ | (d) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| *Global Perspectives on Accounting Education* | (e) | (e) | (e) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | (h) |
| *Issues in Accounting Education* | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| *The Accounting Educators' Journal* | ✓ | (f) | (f) | (g) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

(a) *Accounting Perspectives* is included in the 1991–1997 review, but is excluded thereafter because after 1997 its focus shifted away from education-related articles.
(b) Not reviewed prior to 1997.
(c) Known as *Accounting Education: A Journal of Theory, Practice, and Research* for the 1991–1997 review.
(d) No issue published in 2006.
(e) No issues published.
(f) Volumes 11, 12, 13, and 14 (1999–2002) not reviewed in this series.
(g) Included in the 2006–2009 review.
(h) Not published in time for inclusion in the 2018 review.

**Table 3**
Summary of common abbreviations.

| Abbreviation | Definition |
|---|---|
| AAA | American Accounting Association |
| AACSB | The Association to Advance Collegiate Schools of Business |
| AICPA | Association of International Certified Professional Accountants |
| AIS | Accounting information systems |
| CA | Chartered Accountant |
| CFC | Federal Council of Accounting (Brazil) |
| CPA | Certified Public Accountant |
| GAAP | Generally Accepted Accounting Principles (US) |
| GNP | Government and not-for-profit accounting |
| GPA | Grade point average |
| IFRS | International Financial Reporting Standards |
| IRB | Institutional Review Board (oversees human subject research) |
| KSAs | Knowledge, skills, and abilities required for accountants |
| MPA / MSA | Master of Professional Accountancy; Master of Science in Accounting |
| MTurk | Amazon Mechanical Turk |
| NASBA | National Association of State Boards of Accountancy (US) |
| PTB | Publisher test banks |
| SET | Student evaluation of teaching |
| STEM | Science, technology, engineering, and mathematics |

**Table 4**
Summary of author count by article type.

| Article type | Total articles | Author count per article | | | | |
|---|---|---|---|---|---|---|
| | | One author | Two coauthors | Three coauthors | Four coauthors | Five coauthors |
| Empirical | 46 | 6 | 19 | 15 | 5 | 1 |
| Descriptive | 22 | 13 | 4 | 4 | 1 | |
| Instructional resource | 8 | 2 | 4 | 1 | 1 | |
| Case | 25 | 4 | 10 | 7 | 3 | 1 |
| Total | 101 | 25 | 37 | 27 | 10 | 2 |
| *Percentage of total* | *100%* | *25%* | *36%* | *27%* | *10%* | *2%* |

*Note*: 219 individual authors contributed to publishing the 101 empirical and descriptive articles, instructional resources, and cases. During 2018, 11 authors published two articles and 208 authors published one article.

**Table 5**
Article classification by journal.

| Journal | Articles summarized | | | Appendix A: Instructional resources (c) | Appendix B: Cases (d) | Grand total |
|---|---|---|---|---|---|---|
| | Empirical (a) | Descriptive (b) | Total | | | |
| *Journal of Accounting Education* | 6 | 5 | 11 | 3 | 8 | 22 |
| *Accounting Education* | 25 | 3 | 28 | | | 28 |
| *Advances in Accounting Education: Teaching and Curriculum Innovations* | 6 | 1 | 7 | 2 | 1 | 10 |
| *Global Perspectives on Accounting Education* (e) | | | | | | |
| *Issues in Accounting Education* | 1 | 12 | 13 | 1 | 15 | 29 |
| *The Accounting Educators' Journal* | 8 | 1 | 9 | 2 | 1 | 12 |
| Total | 46 | 22 | 68 | 8 | 25 | 101 |
| Percentage of grand total | *45%* | *22%* | *67%* | *8%* | *25%* | *100%* |
| Comparative data from 2017 review | 40 | 21 | 61 | 9 | 33 | 103 |
| Percentage of grand total | *39%* | *20%* | *59%* | *9%* | *32%* | *100%* |

(a) Empirical articles derive conclusions from an analysis of data.
(b) Descriptive articles discuss strategies, describe innovations, or report student perceptions without statistical analysis.
(c) Instructional resources are articles that provide guidance on how to implement teaching strategies or projects.
(d) Cases describe actual or hypothetical situations that require student analysis.
(e) Not published in time for inclusion in the 2018 review, included here because comparative data includes 2017 articles.

We tabulated author count by article type in Table 4. The articles published in accounting education journals in 2018 reflected the authorship of 219 individual authors. An analysis of the author count by article type is presented in Table 4. We tabulated coauthorship, which revealed 25% of the articles were sole-authored, 36% had two authors, 27% had three authors, and 12% had more than three authors. Eleven authors published two different articles, and 208 authors published one article during 2018 (not tabulated).

Article type and subject area corresponding to the organization of this review for each of the five journals are presented in Tables 5 and 6. Table 5 presents a classification of the 101 articles as empirical and descriptive ($n$ = 68, 67%), instructional resource ($n$ = 8, 8%), or case ($n$ = 25, 25%) by each journal reviewed. Table 6 provides an overview of the number of empirical and descriptive articles allocated to subject area for each journal. Two subject areas, curriculum and instruction ($n$ = 23, 34%) and faculty ($n$ = 20, 29%), account for 63% of the empirical and descriptive articles summarized. The remaining empirical and descriptive articles address students ($n$ = 13, 19%), instruction by content area ($n$ = 6, 9%), and educational technology ($n$ = 6, 9%).

We identify the data collection method, analysis approach, and geographic location of the sample studied for each empirical article by subject area in three separate tables. Table 7 reports the six data collection methods used in the empirical articles: survey data ($n$ = 28, 61%), course performance ($n$ = 9, 19%), published source ($n$ = 3, 7%), experiment ($n$ = 3, 7%), interviews ($n$ = 2, 4%) and quasi-experiment ($n$ = 1, 2%). Our analysis of the research rigor of the empirical articles is presented in Section 7.2.

Table 8 reports the four primary analysis approaches used in the empirical articles published in 2018 in order of frequency:[3] (1) regression ($n$ = 19, 42%), (2) differences-in-means ($n$ = 11, 24%), (3) tabulation ($n$ = 8, 17%), and (4) analysis of variance ($n$ = 8, 17%). The geographic locations of the samples analyzed in the empirical articles are reported in Table 9 and are classified in five regions: (1) US and Canada ($n$ = 25, 55%), (2) Australia and New Zealand ($n$ = 6, 13%), (3) Europe ($n$ = 7, 15%), (4) Asia and Africa ($n$ = 7, 15%), and (5) Brazil ($n$ = 1, 2%).

We define an instructional resource article as one that describes a pedagogy that can be used to facilitate teaching and promote student learning. We tabulated the eight (8% of 101 total articles) instructional resource articles published in

[3] For studies that used more than one analysis approach, we identify and describe the most rigorous.

**Table 6**
Number of empirical (E) and descriptive (D) articles by section reference and subject area.

| Journal | Section reference and subject area: | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2. Curriculum and instruction | | 3. Instruction by content area | | 4. Educational technology | | 5. Students | | 6. Faculty | | Total summarized articles | |
| | E | D | E | D | E | D | E | D | E | D | E | D |
| *Journal of Accounting Education* | 3 | 2 | 1 | 1 | | | 1 | | 1 | 2 | 6 | 5 |
| *Accounting Education* | 9 | 2 | 4 | | 2 | | 7 | 1 | 3 | | 25 | 3 |
| *Advances in Accounting Education: Teaching and Curriculum Innovations* | 3 | | | | | | 2 | | 1 | 1 | 6 | 1 |
| *Global Perspectives on Accounting Education* (a) | | | | | | | | | | | | |
| *Issues in Accounting Education* | | 1 | | | 1 | | | | | 11 | 1 | 12 |
| *The Accounting Educators' Journal* | 2 | 1 | | | 3 | | 2 | | 1 | | 8 | 1 |
| Subtotal by article classification | 17 | 6 | 5 | 1 | 6 | 0 | 12 | 1 | 6 | 14 | 46 | 22 |
| Total by section reference and subject area | | 23 | | 6 | | 6 | | 13 | | 20 | | 68 |
| Percentage of total | | *34%* | | *9%* | | *9%* | | *19%* | | *29%* | | *100%* |
| Comparative data from 2017 review | | 20 | | 8 | | 5 | | 16 | | 12 | | 61 |
| Percentage of total | | *33%* | | *13%* | | *8%* | | *26%* | | *20%* | | *100%* |

Note: Refer to Table 5 for an overview of article production by journal.
(a) Not published in time for inclusion in the 2018 review, included here because comparative data includes 2017 articles.

**Table 7**
Data collection method used in empirical articles (*by frequency count*).

| Section reference and subject area | Survey | Course performance | Published source | Quasi-experiment | Interview | Experiment | Total |
|---|---|---|---|---|---|---|---|
| 2. Curriculum and instruction | 11 | 1 | 1 | 1 | 1 | 2 | 17 |
| 3. Instruction by content area | 4 | 1 | | | | | 5 |
| 4. Educational technology | 2 | 3 | | | | 1 | 6 |
| 5. Students | 8 | 3 | 1 | | | | 12 |
| 6. Faculty | 3 | 1 | 1 | | 1 | | 6 |
| Total | 28 | 9 | 3 | 1 | 2 | 3 | 46 |
| *Percentage of total* | *61%* | *19%* | *7%* | *2%* | *4%* | *7%* | *100%* |
| Comparative data from prior year literature review (2017) | 21 | 6 | 6 | 3 | 3 | 1 | 40 |
| | *53%* | *15%* | *15%* | *7%* | *7%* | *3%* | *100%* |

**Table 8**
Analysis approach used in empirical articles (*by frequency count*).

| Section reference and subject area | Regression | Differences-in-means | Tabulation | Analysis of variance | Path Analysis | Total |
|---|---|---|---|---|---|---|
| 2. Curriculum and instruction | 2 | 5 | 6 | 4 | | 17 |
| 3. Instruction by content area | 4 | | | 1 | | 5 |
| 4. Educational technology | 2 | 1 | 1 | 2 | | 6 |
| 5. Students | 9 | 2 | | 1 | | 12 |
| 6. Faculty | 2 | 3 | 1 | | | 6 |
| Total | 19 | 11 | 8 | 8 | 0 | 46 |
| *Percentage of total* | *42%* | *24%* | *17%* | *17%* | *0%* | *100%* |
| Comparative data from prior year literature review (2017) | 17 | 12 | 7 | 4 | 0 | 40 |
| | *43%* | *30%* | *17%* | *10%* | *0%* | *100%* |

**Table 9**
Geographic location of sample used in empirical articles (*by frequency count*).

| Section reference and subject area | US and Canada | Australia and New Zealand | Europe | Asia and Africa (a) | Brazil | Total |
|---|---|---|---|---|---|---|
| 2. Curriculum and instruction | 8 | 4 | 3 | 2 | | 17 |
| 3. Instruction by content area | 2 | 1 | 2 | | | 5 |
| 4. Educational technology | 4 | | | 2 | | 6 |
| 5. Students | 7 | | 1 | 3 | 1 | 12 |
| 6. Faculty | 4 | 1 | 1 | | | 6 |
| Total | 25 | 6 | 7 | 7 | 1 | 46 |
| *Percentage of total* | *55%* | *13%* | *15%* | *15%* | *2%* | *100%* |
| Comparative data from prior year literature review (2017) | 29 | 4 | 6 | 1 | 0 | 40 |
| | *73%* | *10%* | *15%* | *2%* | *0%* | *100%* |

(a) Includes one article from United Arab Emirates (UAE).

2018 by primary content area in Appendix A. As an example of an instructional resource, Stice, Stice, Cottrell, and Stice (2018) presented a matrix approach for preparing both the direct and indirect method of the statement of cash flows.

We define a case as an article that presents actual or hypothetical information with questions and activities that encourage contextual learning. The listing of 25 articles (25% of 101 total articles) classified as cases appears in Appendix B, identified by the primary content area to which the case relates. As an example, Hess and Andiola (2018) used an actual company, Tesla Motors, as a context for students to learn about the realities of fraud risk assessment.

Six special themes were highlighted in the 16 issues of the accounting education journals in 2018. Topics covered in the special-theme issues (or sections within issues) included 24 articles and five cases. The articles are summarized within the relevant section of this article and the cases are tabulated in Appendix B.

**Table 10**
Overview of curriculum and instruction articles (Section 2).

| | Reference | Type* | Topic |
|---|---|---|---|
| *2.1.* | *Curricular issues* | | |
| | Al-Htaybat et al.(2018) | E | Faculty perceptions of technology in curriculum |
| | Brink and Stoel (2018) | E | KSA for data analytics |
| | Dzuranin et al. (2018) | E | Implementing data analytics into the curriculum |
| | Eames et al. (2018) | E | Accelerated accounting certification programs |
| | Fogarty (2018) | D | Future of accounting education |
| | Freeman (2018) | E | Faculty responses to changes in CPA exam |
| | Kulesza and Weaver (2018) | E | Curricular changes related to CPA exam changes |
| | Pelzer and DeLaurell (2018) | E | Implementation of AACSB Standard A7 |
| *2.2.* | *Assurance of learning and assessment* | | |
| | Abbott and Palatnik (2018) | D | Improvement of learning outcomes in first course |
| | Fletcher et al. (2018) | D | Assessing oral presentations with videos and role play |
| | Miihkinen and Virtanen (2018) | E | Rubric assessment effectiveness in thesis development |
| | Sridharan et al. (2018) | E | Effectiveness of peer assessment |
| *2.3.* | *Core competencies* | | |
| | Ballou et al. (2018) | E | Knowledge, skills, and abilities for accountants |
| | Cloete (2018) | E | Critical thinking skills |
| | Tan and Laswad (2018) | E | Employer perspective of employability skills |
| *2.4.* | *Instructional approaches* | | |
| | Erasmus and Fourie (2018) | E | Teaching approach for marginalized students |
| | Opdecam and Everaert (2018) | D | Cooperative learning misconceptions |
| | Osgerby et al. (2018) | E | Visual imagery exercises |
| | Sithole (2018) | E | Split-attention and self-managed instruction |
| | Taylor et al. (2018) | E | Digital storytelling and visual metaphor in lectures |
| | Vendrzyk and Bagranoff (2018) | D | Tips from teaching-award winners |
| | Wynder (2018) | E | Multimedia digital learning objects |
| | Wyness and Dalton (2018) | D | Problem-based learning for sustainability accounting |

* Empirical (E) or descriptive (D) article.

1. Accounting education in Africa (five articles).[4]
2. Cooperative learning in accounting education (five articles).[5]
3. Ethics within an accounting and auditing context (one article and two cases).[6]
4. 2017 Teaching, Learning and Curriculum Midyear Colloquium (three cases).[7]
5. Special section on critical reflections (nine articles).[8]
6. Visual metaphor and visual tools in accounting education (four articles).[9]

The use of special issues with guest editors is an excellent tool in accounting education journals to bring attention to current topics and stimulate scholarship and teaching innovation.[10]

This accounting education literature review is organized by five major sections corresponding to traditional lines of inquiry. Section 2 summarizes articles on curriculum and instruction. Section 3 includes articles on instruction by content area, and Section 4 summarizes articles about educational technology. Section 5 summarizes articles about students, followed by articles about faculty in Section 6. In Section 7, we offer a summary and reflections, along with suggestions for future accounting education scholarship.

## 2. Curriculum and instruction

This section summarizes 23 articles, 17 empirical and six descriptive, that address curricular issues, assurance of learning and assessment, core competencies, and instructional approaches. This section contains 34% of the empirical and descriptive articles reviewed in 2018 as compared to 20 articles (33%) in the 2017 accounting education literature review. Table 10 presents a topical summary of the reviewed articles related to curriculum and instruction.

[4] *Accounting Education* (Vol. 27, No. 5).
[5] *Accounting Education* (Vol. 27, No. 3).
[6] *Journal of Accounting Education* (Vols. 43 and 44).
[7] *Journal of Accounting Education* (Vols. 44 and 45).
[8] *Issues in Accounting Education* (Vol. 33, No. 3).
[9] *Accounting Education* (Vol. 27, No. 6).
[10] *Journal of Accounting Education* has changed to a virtual format for special issues, with articles appearing in multiple volumes as they are ready for publication.

### 2.1. Curricular issues

Fogarty (2018) wrote a rejoinder about the issues raised in Pincus, Stout, Sorensen, Stocks, and Lawson (2017) regarding the forces of change in higher education and implications for accounting educators and the education of future accountants. Fogarty (2018) urged every accounting educator to read the Pincus et al. (2017) article because a major change to the infrastructure of accounting education is underway. Fogarty asserted that making minor adjustments to curricula (e.g., include Big Data or popular technology) is an inadequate strategy to address the many constraints faced by institutions. A brief summary of the commentary does not do it justice, and faculty involved in curricular change and innovation should be attentive to the messages in both Fogarty (2018) and Pincus et al. (2017).

Dzuranin, Jones, and Olvera (2018) surveyed accounting faculty in the US and Canada ($n$ = 267, 6% response rate) about implementing data analytics into the accounting curriculum. The authors addressed four research questions (analyzed using tabulation): (1) which data analytics skills and tools should be taught, (2) whether data analytics should be administered as a standalone course and/or be embedded in accounting courses, (3) how data analytics should be taught (e.g., case studies or projects), and (4) when data analytics should be introduced to students. The majority of accounting faculty responded that instruction should focus on developing critical thinking skills that enable students to answer questions using data. Survey results also favored a hands-on approach to teaching, introducing data analytics at the advanced undergraduate or graduate level, and a hybrid approach to administering data analytics as both a standalone course and in most accounting courses.

Two articles investigated AACSB Standard A7.[11] Pelzer and DeLaurell (2018) were interested in how to incorporate AACSB Standard A7 into the accounting curriculum. The authors surveyed accounting graduates ($n$ = 117, 24% response rate) from 2010 to 2016 of one US university regarding their professional experiences in using big data and using software to analyze big data. The sample included alumni who were practicing in public accounting and in non-public accounting positions. Extensive data were presented. For example, in analyzing data, responses indicated 77.6% used Excel, 24.7% used IDEA,[12] and 17.6% used firm proprietary software. The authors also reviewed the literature regarding Standard A7, and, building on the suggestions of Sledgianowski, Gomaa, and Tan (2017), offered suggestions for implementation in specific areas the accounting curriculum (e.g., Audit, AIS, managerial).

Brink and Stoel (2018) surveyed US accounting professionals on their perception of the knowledge, skills, and abilities (KSA) needed for data analytics, an area of emphasis identified in 2013 by AACSB under Standard A7 for information technology among graduates. Graduates ($n$ = 342, 7% response rate) from a US Midwest public research institution were asked three research questions regarding analytics on a 100 point scale: (1) the frequency of using data analytics for decisions, (2) the type of analytic tasks performed, and (3) how analytic skills were developed. The authors indicated that differences-in-means analysis suggested participants frequently used data for decisions, applied more data interpretation than technical skills, and learned more analytical skills on the job than in academia. The second part of the study asked graduates to rank analytic skills in order of importance. Problem-solving, business communication, and data interpretation were perceived as most important, while data visualization ranked lower.

Al-Htaybat, von Alberti-Alhtaybat, and Alhatabat (2018) studied US accounting educators' perceptions on modernizing the accounting curriculum for current and future generations of students (i.e., digital natives) in response to new technologies. A selected sample of accounting educators ($n$ = 16) was recruited and interviewed. Data analysis consisted of two-cycle qualitative coding (a type of tabulation analysis) of interviews and supplementary data from online sources (e.g., blogs, podcasts) that represented technology-related concerns of the accounting profession. The authors concluded that tabulated responses suggested accounting educators foresaw new technological developments (e.g., artificial intelligence, increased automation, cyber security) in the accounting profession, and made suggestions on how such developments should inform curriculum development.

Eames, Luttman, and Parker (2018) investigated the value of a certificate program designed to allow the student to be qualified for the CPA exam as compared to the traditional undergraduate accounting degree program. The authors surveyed graduates from the accounting certificate program[13] ($n$ = 284, 36% response rate) and graduates from the traditional undergraduate accounting degree program ($n$ = 224, 29% response rate) of one US university to evaluate program effectiveness regarding the CPA exam. After controlling for several factors, neither the traditional undergraduate program nor the certificate program showed a significant difference in whether students took the CPA exam. Performance on the CPA exam was measured in three ways: (1) passing all four parts in an 18-month window, (2) total number of attempts to pass all parts of the exam, and (3) number of months between completion/graduation and passing all four parts of the exam. Across all three measures of CPA exam performance, regression results indicated no significant difference between certificate and undergraduate accounting major groups.

Two articles studied faculty responses to changes in the Uniform CPA exam in 2017 to include increased assessment of higher-order cognitive skills. Freeman (2018) surveyed accounting faculty ($n$ = 69, 13% response rate) at US institutions. Questions included topics such as class format and if the faculty member had changed the course in the last five years. Most

[11] AACSB Standard A7 (2013), "Information Technology Skills and Knowledge for Accounting Graduates" was replaced by AACSB Standard A5 (2018), "Information Technology Skills, Agility and Knowledge for Accounting Graduates" https://www.aacsb.edu/accreditation/standards.

[12] IDEA Data Analysis Software (http://www.audimation.com/Product-Detail/CaseWare-IDEA).

[13] Two different certificate programs were used over time. Originally, the certificate program was 24 semester hours, but later it was expanded to 30 semester hours based upon CPA exam qualification requirements. The certificate programs were offered in a weekend format and a summer format.

respondents reported that the class pedagogy included traditional lecture and practice problems. However, 75% reported that they either had or were going to update the method of course delivery in response to the CPA exam changes. The article included a large amount of information about the ways accounting classes are taught.

Kulesza and Weaver (2018) surveyed US accounting educators ($n$ = 17, 14% response rate) regarding plans to change their courses or modify the pedagogy in their undergraduate curriculum in response to changes in the CPA Exam. Results indicated: (1) 76% of respondents anticipated making at least one change (2) more than 50% intended to incorporate critical thinking into intermediate accounting, introduction to taxation, and introduction to financial accounting courses, and (3) many intended to have a greater emphasis on Excel skills.

### 2.2. Assurance of learning and assessment

Sridharan, Muttakin, and Mihret (2018) investigated the association between Australian students' perceptions of peer assessment attributes (e.g., maintaining anonymity, relevance of questions selected, appropriateness of marks allocated) and the perceived effectiveness of the peer assessment, as represented by three constructs: (1) prevention of free riding, (2) improving communication within teams, and (3) improving quality of team members' contributions. Students in a master's-level accounting course ($n$ = 95, 48% response rate) were surveyed, and exploratory factor analysis was used to validate whether the survey questions measured the three constructs of peer effectiveness. Regression analysis was used to test for significant associations between perceived attributes and effectiveness of peer assessment. Results showed that the design of the mark allocation and maintaining anonymity were significantly associated with the prevention of free riding.

Miihkinen and Virtanen (2018) explored the effectiveness of rubric assessment criteria in aiding the thesis development process for undergraduate accounting students ($n$ = 64) at a university in Finland. A written thesis is a degree requirement for undergraduate students in Finland. Rubric criteria incorporated clear distinctions between grade categories, specific values for page length and resource requirements, and a weighted importance of all thesis topics including the research question and literature review. Students were surveyed about the rubric's effectiveness and asked to provide a self-assessment of their confidence, motivation, and understanding regarding the thesis project. Univariate and regression analyses indicated a positive association between the perceived benefit of the rubric and change in student confidence. Self-reported changes in confidence and understanding were positively associated with the seminar grade. Change in confidence was positively associated with the reported change in motivation. The authors concluded that the assessment rubric may improve learning outcomes for written assignments.

Abbott and Palatnik (2018) employed action research to facilitate continuous improvement of learning outcomes for the first accounting course (financial accounting) by using students in the second accounting course (managerial accounting) to reflect on their experiences in the first accounting course. Two focus groups of US students were conducted in two separate managerial accounting courses. Three areas for improvement of learning outcomes in the financial accounting course were identified: (1) students desired greater relevance and connection of the first accounting course to real businesses and to other courses; (2) the importance and practice of critical thinking was not readily apparent to students; and (3) activities other than lectures and PowerPoint led to more engagement in learning in the classroom.

Fletcher, Mullen, and Stuart (2018) reported the results of two pilot tests conducted to better assess and develop oral presentation skills at a US university. Based on feedback from the School of Accountancy's Advisory Board, the authors implemented one-on-one role playing among undergraduate tax and advanced marketing (senior) sales students, whereby tax students were videotaped playing the role of a tax accountant who discussed a tax return to a client (played by a marketing student). Graduate students from a tax class conducted assessments of the videotapes. Overall results were favorable, in which 96% and 89% of the students in the fall and spring terms, respectively, exceeded faculty expectations in oral presentation skills.

### 2.3. Core competencies

Ballou, Heitger, and Stoel (2018) investigated the impact of data-driven decision-making on a US undergraduate accounting curriculum by identifying specific knowledge, skills, and abilities (KSA) desired in the accounting profession. Prior literature was used to identify traditionally preferred KSA, and separate surveys were conducted with business professionals and academic faculty to assess the perceived importance of each KSA for a successful accounting career. Survey results from two groups (faculty: $n$ = 52, 68% response rate; professionals: $n$ = 415, 8% response rate) showed that professionals consistently valued an equal focus approach to all KSA, and a difference existed between professionals and academics. Academics tended to recommend a heavier concentration in technical knowledge in comparison to other KSA.

Cloete (2018) investigated the effectiveness of an integrated assessment on critical thinking skills of first-year accounting students from one South African university. The study employed a quasi-experimental design to assess students' abilities to evaluate multidisciplinary issues relating to social, political, and economic concerns. Both the control (pre-test group: $n$ = 39; post-test group: $n$ = 17) and treatment (pre-test group: $n$ = 33; post-test group: $n$ = 24) groups were administered the Watson-Glaser™ Critical Thinking Appraisal (Watson & Glaser, 2002)[14] in both the pre-test and post-test. Following the

[14] The Watson-Glaser™ Critical Thinking Appraisal is used to determine critical thinking ability and decision-making. Competencies include recognize assumptions, evaluate arguments, and draw conclusions.

pre-test evaluation, both the control and treatment groups participated in five assignments/tasks: (1) research the importance of small business development, (2) negotiate a relationship with a small business, (3) visit a macro-business, (4) draft a business plan for the chosen small business, and (5) present the business plan of the chosen small business. The treatment group received integrated assessments during the assignments, and the control group was provided traditional assessments. In contrast to a traditional assessment, an integrated assessment is one in which the tasks and skills of an assignment or set of assignments are evaluated and communicated holistically. A significant difference existed between the pre-test and post-test critical thinking scores of both the experimental and control groups. The author concluded that integrated assessment enhanced the critical thinking skills of the participating students.

Tan and Laswad (2018) investigated employability skills expected by employers of accountants in Australia and New Zealand. Primary data collection was achieved through content analysis of job advertisements ($n$ = 39,606).[15] Skills identified in job advertisements were categorized using cluster analysis. Comparison of means tests (e.g., t-test, ANOVA) were used to examine differences in skills requirements based on (1) experience between CPA/CA versus non-CPA/CA, and (2) five accounting sub-specialties (ANOVA). Overall results revealed 31 different skills, 13 of which were included in at least 10% of the advertisements. Interpersonal skills were highly desired, particularly for more experienced accountants.

### 2.4. Instructional approaches

Opdecam and Everaert (2018) discussed common misconceptions regarding cooperative learning and provided strategies for effective implementation. The seven misconceptions included the following: (1) collaborative work is only required to reduce instructor grading time; (2) assigning students to groups automatically establishes a successful team; (3) teamwork always has a positive effect on student satisfaction; (4) free riding behavior is unavoidable; (5) peer assessment eliminates group workload issues; (6) teaching teamwork skills is simple; and (7) teamwork reduces each individual student's workload. Several mitigation strategies were presented to combat these concerns including: (1) removing the aspect of grading group work and offering it as a volunteered activity, (2) providing instructor-based guidance on team communication and understanding group dynamics, and (3) encouraging an entirely collaborative work process rather than a "divide and conquer" strategy. The authors asserted that cooperative learning enhances professional success and should be widely employed.

Erasmus and Fourie (2018) investigated the benefits of a teaching approach designed to improve success rates of marginalized students. The approach was developed based on focus group discussions and questionnaires addressing innovative teaching approaches, students' perceptions of the teaching approach, and pilot testing of the teaching approach. Effectiveness of the teaching approach was assessed through student course performance (treatment group: $n$ = 238; control group: $n$ = 1606) at two South African Universities. The new teaching approach (treatment) included seven key elements, all of which involved extensive involvement of a tutor and timely remediation of student performance. An analysis of the differences-in-means between the treatment and control groups revealed that the revised teaching approach was positively associated with student academic performance.

Sithole (2018) investigated the efficacy of two instructional strategies with first-year accounting students enrolled in a financial accounting course at an Australian university. Students ($n$ = 74) were randomly assigned to a split-attention ($n$ = 36) or self-managed ($n$ = 38) instructional format. The traditional split-attention format presented the textual and visual information separately. The self-managed format embedded the textual information in a diagram. The experimental approach was comprised of three phases: (1) collection of demographic information, (2) review of instructional material where the alternative instructional formats were provided to each group, and (3) evaluation of learning outcomes. Measurement of learning outcomes included recall questions (retention of information) and transfer questions (concept application). Students also self-reported mental effort using a 9-item cognitive load assessment tool. ANOVA results revealed that the self-managed group outperformed the split-attention group in both recall and transfer questions. ANOVA results also demonstrated that the split-attention group reported heavier mental effort than the self-managed group. The authors suggested that converging diagrams and textual information, as represented in the self-managed approach, may yield improved learning outcomes.

Wynder (2018) surveyed Master of Professional Accounting (MPA) and Business Commerce (Bcom) students at an Australian university regarding their perceived value of multimedia digital learning objects (MDLO). The sample ($n$ = 95) consisted of 45 students self-identified as native English speakers (NES) and 55 who self-identified that English was a second language (ESL). Students were taught with traditional delivery methods (e.g., textbook, lectures, tutorials) and various MDLO tools (e.g., visual content, audio explanations, static visuals, and combined audio and visual delivery). Students were asked to rank their perceived value of various learning materials and their perceived value of certain features of the learning materials. Differences-in-means analysis revealed five discernable differences between ESL and NES students. Relative to ESL students, NES students placed higher value on materials that feature (1) a focus on key issues, and (2) a learning result that is high compared to the time invested. Relative to NES students, ESL students placed higher value on (1) online lectures, (2) audio only material, and (3) static visuals.

[15] The resource used was www.sea.co.nz.

Taylor, Marrone, Tayar, and Mueller (2018) surveyed students at an Australian university about their perceptions of including digital storytelling and visual metaphor in lectures. The study crossed two sequential semesters and involved second-year undergraduate accounting students (first semester: $n = 116$; second semester: $n = 136$) and second-year undergraduate management students (first semester: $n = 81$; second semester: $n = 126$). In the first semester, students were taught using traditional course delivery, and in the second semester, instruction included digital storytelling and visual metaphors. The survey included seven 5-point scale questions: (1) number of lectures attended, (2) number of tutorials attended, (3) evaluation of educational experience, (4) quality of materials, (5) entertainment factor, (6) perceived levels of understanding, and (7) if the students would recommend the course. ANOVA results showed that the mean response for both the accounting and management students was higher after the second semester than those of the first semester survey for all questions. The ANOVA results indicated that the integration of digital storytelling and visual metaphors generated were associated with improved perceptions across all characteristics examined regardless of specific discipline. Follow-up interviews with 18 students affirmed the ANOVA results. The authors concluded that the use of digital storytelling and visual metaphor in lectures enhanced student engagement and conceptual understanding.

Osgerby, Marriott, and Gee (2018) surveyed accounting students ($n = 71$) at a UK university about their perceptions of using visual imagery to represent their personal development plan (PDP). Students initially completed a questionnaire intended to identify learning style as visual, aural, read/write, or kinesthetic. Next, visual metaphors were presented and discussed with students to demonstrate their application in representing a PDP. Students were asked to develop a PDP statement along with its visual representation and then complete a survey that included 30 questions regarding their perception of the visualization exercise (five-point scale where 1 = strongly agree and 5 = strongly disagree). No statistical tests were conducted, and extensive tabulated results were presented. For example, tabulated results indicated that nearly 75% of the students were comfortable using the visualization, and over 50% found it enjoyable.

Wyness and Dalton (2018) prepared a two-semester module to introduce accounting for sustainability in a cohort of UK undergraduate accounting students. Group presentations, reports, and individual reflective essays were used for assessment. The authors made detailed ethnographic observations (field notes interview transcripts) and also surveyed students ($n = 34$, 65% response rate). In a post-analysis survey, students reported that the inclusion of the sustainability module was valuable, particularly because it broadened their perspective. Faculty interested in introducing the topic of sustainability will find the information in the article about process and materials used to be informative.

Vendrzyk and Bagranoff (2018) collected information from the J. Michael and Mary Anne Cook/Deloitte Foundation Prize winners of 2017. Teaching philosophy statements from each of the three winners regarding teaching style and approaches to the classroom were included. Instructional approaches described by the exemplars included story-telling, pre-lecture quizzes, stimulation of intellectual curiosity, creation of a critical-learning environment, reflection on famous accountants, games, and activities relevant to real-life experiences.

## 3. Instruction by content area

Table 11 provides an overview and citation references of the six articles (five empirical and one descriptive) about instruction in four different content areas: (1) AIS, (2) auditing, (3) ethics, and (4) managerial accounting (one article). This section contains 9% of the articles reviewed, compared to 8 articles (13%) in 2017. Appendix A provides citation references and summarizes eight instructional resources articles by content area, which can be used by faculty to enhance delivery in specific topics.

### 3.1. Accounting information systems (AIS)

Peng and Abdullah (2018) analyzed the effectiveness of different platform simulations to stimulate collaborative learning using a sample of AIS students ($n = 70$) in the US. The simulation occurred on three platforms: (1) face-to-face ($n = 19$, 95% response rate), (2) Learning Management System online discussions ($n = 39$, 100% response rate), and (3) Second Life 3-D virtual

**Table 11**
Overview of articles about instruction by content area (Section 3).

| | Reference | Type* | Topic |
|---|---|---|---|
| 3.1. | *Accounting information systems (AIS)* | | |
| | De Loo and Bots (2018) | E | AIS graduate research course |
| | Peng and Abdullah (2018) | E | Collaborative learning with platform simulations |
| 3.2. | *Auditing* | | |
| | Bautista-Mesa et al. (2018) | E | Workplace simulations and core competences |
| 3.3. | *Ethics* | | |
| | Andersen and Klamm (2018) | E | Social intuition in ethics discussions |
| | Taplin et al. (2018) | E | Role playing to teach ethics |
| 3.4. | *Managerial accounting* | | |
| | Samuel (2018) | D | Teaching based on organizational economics |

* Empirical (E) or descriptive (D) article.

reality simulation ($n$ = 12, 86% response rate). Students participated in a full sales and purchase accounting cycle using each of the three platforms and completed a survey following the task. Results from ANOVA and regression analyses revealed that different simulation platforms were associated with different learning reflections, which were positively and significantly correlated with students' perceptions of how closely the simulation resembled real life. Computer efficacy also was positively associated with the effectiveness of student learning in a market exercise. The authors indicated the results suggested that simulation technology provided educators and students with beneficial interactive and realistic learning opportunities.

De Loo and Bots (2018) described the creation, development, and evaluation of a 10-step process implemented for an AIS research course to support a Master's of Science thesis requirement for part-time accounting students in the Netherlands. Students' scores from standardized end of term SET ($n$ = 8, 100% response rate) were analyzed with nonparametric tests. Results showed that the students' evaluation (grade) of the course tutor's performance was positively associated with the student's evaluation of the course. From supplemental statistical analysis of students' evaluations ($n$ = 97–126) of their thesis experience, the authors concluded that the results indicated students enjoyed a rich learning experience, achieved better thesis quality, acquired a greater appreciation for research, and had a better ability to discuss research-related issues with other students and faculty.

### 3.2. Auditing

Bautista-Mesa, Molina-Sánchez, and Ramírez-Sobrino (2018) examined students' perceptions in an audit workplace simulation at a Spanish university. Two research questions (RQ) were explored: (1) the perceptions and awareness of first-year undergraduates of key competencies before the simulation, and (2) whether undergraduate students (first, second, and third-year) perceived improvement in their own competencies after the simulation. Partial least squares was used to validate measurement of competency-based constructs for survey development (e.g., communications skills, teamwork). Results of RQ1, based on comparison of mean survey scores (t-tests), showed that first-year undergraduates ($n$ = 129, 93% response rate) were less aware of the importance of communication skills but considered leadership, teamwork, and technical accounting knowledge as important. Results of RQ2 showed improvement in technical accounting knowledge and a significant increase in the awareness of communications skills among the first-year undergraduate students ($n$ = 82, 59% response rate). No significant improvements were noted for second- and third-year students ($n$ = 27, 87% response rate).

### 3.3. Ethics

Andersen and Klamm (2018) investigated the effects of group membership on individual ethical decision-making among a sample of accounting students attending a US university ($n$ = 113) enrolled in a range of courses from introductory to master's level accounting. Participants were given an ethical scenario in which a fictitious CPA responsible for conducting an internal audit discovered a suspicious adjusting entry. Students were immediately asked to rate their (dis)agreement (seven-point scale, where 1 = strongly disagree and 7 = strongly agree) with the response "I would accept my supervisor's explanation and do nothing" (scenario A). Students then received additional information that the CPA received further information from a supervisor and additional colleagues, who questioned the legitimacy of the entry. Again, the participants were asked to rate their (dis)agreement with the same phrase, with no time for reasoning or discussion (scenario B). Based on an ANOVA analysis, the authors concluded that that social influence, as measured by the responses to scenario A and scenario B, played a significant role in determining the response and had a meaningful role in intuitive ethical judgments made in social settings. The authors also noted that the results provided support for including aspects of social intuition in ethics discussions.

Taplin, Singh, Kerr, and Lee (2018) examined the usefulness of role-playing for ethics education in auditing classes at a large Australian university. The authors employed a mixed-method research design that consisted of focus groups and three surveys that were administered at different times (initial, completion of role-playing in class, final survey after all role plays). Based upon regression analysis and paired t-tests of survey responses ($n$ = 134, 83% response rate), the authors indicated that role-playing was helpful to students across various demographics (e.g., undergraduate, postgraduate, previously employed) and that role-playing was particularly helpful to students with English as a second language.

### 3.4. Managerial accounting

Samuel (2018) provided a framework to teach managerial accounting based on theories rooted in organizational economics. The proposed conceptual framework was motivated by a perceived need to (1) emphasize the important role of management accountants on an organization's strategy, and (2) redefine management accounting curricula with organizational rather than market-based perspectives. Three criteria (prices, indivisible capacities, and private property) were described and used to categorize traditional management accounting topics under the conceptual framework.

## 4. Educational technology

Table 12 provides an overview of six (9%) empirical educational technology articles. Five empirical articles (8%) were published in 2017. The topics studied include student information and communication technology adoption style, faculty

**Table 12**
Overview of articles about educational technology (Section 4).

| | Reference | Type* | Topic |
|---|---|---|---|
| *4.1.* | *Technology and curricular issues systems* | | |
| | Beukes et al. (2018) | E | Technology enhanced learning |
| | Blankley et al. (2018) | E | Technologies used by accounting faculty |
| *4.2.* | *Technology-based learning and assessment* | | |
| | Coetzee et al. (2018) | E | Student perceptions of web-based tutorials |
| | Lento (2018) | E | Learning management and homework manager systems |
| | Mauldin et al. (2018) | E | Employer preference for traditional v. online degrees |
| | Solsma et al. (2018) | E | Effectiveness of online homework systems |

* Empirical (E) or descriptive (D) article.

choices of instructional technology, marketability of online accounting degrees, web-based tutorials, and learning management systems.

### 4.1. Technology and curricular issues

Beukes, Kirstein, Kunz, and Nagel (2018) investigated if the information and communication technology (ICT) adoption style of students affected their perceptions of the usefulness of technology enhanced learning (TEL) at a South African university. Students ($n$ = 385) completed a questionnaire regarding their previous experience and attitudes toward technology and then were asked to choose the description that best described their attitude towards technology from a list of five descriptions comprising ICT adoption style: (1) innovator, (2) early adopter, (3) early majority, (4) late majority, or (5) laggard. Students participated in an online simulated learning exercise and were asked to answer the following question using a four-point scale (where 1 = strongly disagree and 4 = strongly agree): "I think I learned more about conducting an audit because of the simulation than I would have by more traditional learning methods (e.g. seminars/tutorials)." Results of tabulations and differences-in-means suggested that males tended to be earlier technology adopters, but no differences across cultural groups were found. The authors concluded that the majority of students, across all ICT adoption styles, reported that the learning value of an online simulation was more beneficial than traditional teaching methods.

Blankley, Kerr, and Wiggins (2018) surveyed US accounting faculty ($n$ = 300, 12% response rate) regarding the use of technology in their courses. The survey data were analyzed using chi-square tests of independence and contingency analysis. Results indicated that the current use of technology is diverse between hardware and software tools. Top technology hardware was identified as computers and laptops; top software was reported as spreadsheet and word-processing. Online databases, learning management systems, and online teaching and learning resources also were recognized as technology resources, although most faculty in the sample did not use online homework and grading resources. Contingency analysis revealed that hardware and software tools were used more prevalently in graduate than in undergraduate courses, spreadsheet software was used more than any other software, and no significant differences were found in the use of technology based on class size or years of teaching experience.

### 4.2. Technology-based learning and assessment

Mauldin, Braun, Viosca, and Boldt (2018) studied CPA perceptions regarding the preparation of entry-level accountants based on the instructional context connected to the degree earned by a prospective job candidate. In a between-subjects experimental design, CPAs ($n$ = 936, 3% response rate) in the US were asked to serve as a recruiter for an entry-level accounting position and to evaluate a hypothetical candidate. The variable of interest was instructional context of the hypothetical candidate, and it was manipulated in three different ways: (1) face-to-face courses at a traditional campus, (2) online courses at a university with a traditional campus, and (3) online courses at an online university with no traditional campus. A series of hypothesis tests were conducted to test the associations between instructional context and the following: (1) the CPA's recruiting evaluation, (2) the age of the CPA rater, (3) education-program characteristics of the job candidate, and (4) the CPA's evaluation of various skills of the job candidate. ANOVA results indicated a strong preference among CPAs to pursue candidates with a degree from a traditional campus, with courses taken face-to-face. With respect to online courses, CPAs preferred candidates with online degrees associated with a traditional campus over online degrees earned from a fully online university.

Coetzee, Schmulian, and Coetzee (2018) analyzed South African undergraduate accounting students' ($n$ = 449) perceptions of web-based tutorial learning and the effect of those tutorials on academic performance. Academic performance was regressed on attendance of non-mandatory complementary web-conference-based tutorials offered to students weekly throughout the semester, with controls for additional variables that might impact performance such as previous academic performance and public school rating. Results indicated that webinar attendance was positively associated with academic achievement. Additionally, students completed a survey that assessed their perceptions of the benefits of web conference attendance. Survey responses indicated that the majority of students agreed or strongly agreed that regularly attending

**Table 13**
Overview of articles about students (Section 5).

| | Reference | Type* | Topic |
|---|---|---|---|
| *5.1.* | *Academic major and career issues* | | |
| | Hammour (2018) | E | Perceptions of Emirati students on accounting major |
| | Hutchins and Roberts (2018) | E | Factors determining choice of accounting as a major |
| | Nagle et al. (2018) | E | Characteristics of programs with CPA exam success |
| | Rodrigues et al. (2018) | E | Brazil's pass rate for entry to accounting profession |
| | Xiang and Hinchliffe (2018) | E | Traits of students who repeat first accounting course |
| *5.2.* | *Student skills and characteristics* | | |
| | Birkey and Hausserman (2018) | E | Student creativity enhanced with analogies |
| | Coady et al. (2018) | E | Emotional intelligence skill importance |
| *5.3.* | *Approaches to learning and assessment* | | |
| | Caplan et al. (2018) | E | Incentives as a predictor of future exam performance |
| | Fogarty and Jonas (2018) | E | Time to complete an exam and performance on exam |
| | Healy et al. (2018) | D | Student perceptions about cooperative learning |
| | Papageorgiou and Callaghan (2018) | E | Gender differences and student performance |
| | Seow and Shankar (2018) | E | Team skills for students with lone wolf tendencies |
| | Xiang and Yu (2018) | E | Family background and course performance |

* Empirical (E) or descriptive (D) article.

online tutorials improved academic performance. The authors concluded that the results added validity to increasing the use of web conferences as a complement to face-to-face seminars.

Solsma, Njoroge, and Bartlett (2018) studied the effectiveness of online homework systems (OHS) in introductory financial and managerial courses at a US university. Over a two-year period, students ($n$ = 421 with 231 in financial and 190 in managerial, 100% response rate) in various sections used either OHS or paper and pencil method for homework. Student performance data were analyzed to explore three research questions: (1) whether student performance was higher with OHS versus paper and pencil method of completing homework, (2) whether student performance using OHS versus paper and pencil differed between managerial and financial accounting courses, and (3) whether final exam scores were greater with OHS versus paper and pencil method. ANCOVA and MANCOVA showed that completing homework with paper and pencil was significantly positively associated with quiz and final exam scores compared to completing homework with OHS, but was negatively associated with homework scores. Results also revealed that for only the final exam, the paper and pencil method was associated with higher grade performance in managerial accounting courses than financial accounting courses. Lastly, the paper and pencil method of completing homework was positively associated with higher final exam scores overall.

Lento (2018) examined student usage of online platforms in an introductory accounting course that employed a learning management system (LMS) and an online homework manager (OHM). Based on a sample of students ($n$ = 116, 95% response rate) at one Canadian university, four hypotheses were posited: (1) whether students exhibit more cramming behavior in LMS versus OHM, (2) whether the use of OHM has stronger association with final exam grade performance than LMS, (3) whether dynamic online resources (e.g., videos that support auditory and visual channels) had stronger association with final exam grade performance than static online resources (e.g., lecture notes that support only visual), and (4) whether in-class attendance was positively associated with usage of online learning platforms. Results showed that cramming behavior was associated with resources offered for self-study, while consistent usage behavior was associated to resources offered for course assessment. Regression results showed that OHM and dynamic learning resources were positively associated with final exam performance. Lastly, students ($n$ = 61) with attendance greater than 50% of the class used learning resources significantly more than students who attended less than 50% of the class.

## 5. Students

Table 13 identifies 13 articles (12 empirical and one descriptive) about students, classified by academic major and career, student skills and characteristics, and approaches to learning and assessment. This section includes 19% of the articles reviewed for 2018. The comparable production for 2017 was 16 articles (26%). Topics include CPA exam pass rates, attitudes about the accounting major, creativity, lone wolf tendencies, and gender differences associated with learning.

### 5.1. Academic major and career

Rodrigues, Pinho, Bugarim, Craig, and Machado (2018) investigated factors influencing the pass rate of Brazil's entry exam for accounting professionals (CFC exam)[16] using a sample of 2012 CFC exam candidates ($n$ = 18,948 of 31,999 candidates who

[16] "Law 12249/2010 has amended Decree-Law 9295/1946 (which creates the Federal Council of Accounting (CFC) and defines the accounting professionals' competencies). The new legal provisions specifically state that "The CFC's responsibilities include setting accounting standards and regulating the professional examination, establishing the requirements for technical qualifications, and developing continuing professional development programs" (https://www.ifac.org/about-ifac/membership/country/brazil).

took the exam). Bivariate analysis and logistic regression, with CFC exam performance as the dependent variable, were performed to examine seven factors: (1) general rating of the higher education institution (HEI), (2) rating of the bachelor's degree in accounting, (3) percentage of faculty holding a master's degree in accounting at the HEI, (4) rating of accounting students' HEI exam, (5) gender, (6) age, and (7) country region. Results showed that all seven variables were significantly positively associated with CFC exam pass rate (e.g., higher rated HEI had higher scores, males performed better than females, younger candidates performed better than older). Further, when introducing the region of the country into the model, region was significantly associated with CFC exam pass rate. The authors concluded that the abundance of poorly rated HEIs providing accounting degrees apparently has reduced the quality of student readiness for career qualification, which has been reflected in low pass rates on the CFC exam.

Nagle, Menk, and Rau (2018) investigated CPA exam pass rates related to US candidates with and without a graduate degree, whether the score was for a first-time test-taker, number of first time attempts on all sections of the CPA exam, degree program selectivity,[17] and faculty/accounting program characteristics.[18] NASBA data for the years 2014–2016[19] were obtained for test takers with graduate degrees ($n = 830$) and undergraduate degrees ($n = 2065$). In the primary regression results, significant variables included graduate degree, both accounting and business AACSB accreditation, program selectivity, percentage of faculty with CPA, and number of first-time attempts on all sections of the exam. Supplemental analysis controlled for year of test and state. The authors concluded that students should be informed about the difference in pass rates from those holding a graduate degree and about important institutional factors.

Hutchins and Roberts (2018) surveyed accounting graduates ($n = 114$, 16% response rate) about 17 factors related to pre-existing attitudes toward being an accounting major (two items), education experience (six items), and professional attributes (nine items). The study occurred in one accounting department at one US institution. Differences-in-means tests were conducted for each item by comparing students who decided on being an accounting major before taking the accounting principles course and those who decided on being an accounting major during or after the accounting principles course. Significant differences were found for five of the six educational experience items (success in accounting principles, internship opportunities, challenging coursework, advice of accounting faculty, and student recognition).

Hammour (2018) analyzed the significance of attitudes, social norms, and perceived behavioral controls of Emirati students regarding their perception of accounting and intention to choose accounting as a major. An online questionnaire was administered to undergraduate students ($n = 442$). The survey consisted of demographic-based inquiries and an assessment of student perceptions of behavior and subjective norms. Regression results indicated that both subjective norms and student attitudes regarding accounting were associated with their intention to pursue the field.

Xiang and Hinchliffe (2018) used undergraduate student performance ($n = 638$) at a US university to examine the determinants of repeating the first accounting course in the business curriculum. The primary analysis was conducted with logistic regression, where the dependent variable was coded as '1' if the student repeated the course ($n = 28$) and '0' otherwise ($n = 610$). Results showed that the number of absences in the class and not having taken an accounting class in high school were positively associated with retaking the class. Higher GPA, accounting majors, and non-business majors were negatively associated with retaking the class. Performance on each of the four exams in the course was higher for students that were male, took an accounting course in high school, had a higher GPA, and intended to major in accounting. The authors inferred that retaking the course may reflect attempts to improve performance to ensure the student may remain in the business degree program.

### 5.2. Student skills and characteristics

Coady, Byrne, and Casey (2018) surveyed recent accounting graduates and employers ($n = 199$ graduates; $n = 67$ employers, 49% response rate) in eastern Canada on their attitudes regarding skills required of entry-level accountants. Graduates and employers were assessed on 19 emotional intelligence (EI) and 12 non-EI skills with respect to the following: (1) the importance of each skill, (2) the extent of development of these skills in university accounting programs, and (3) the expectation that university accounting programs develop these skills. Overall, differences-in-means analysis showed no difference between graduates and employers in each of the three areas. Specifically, all skills ranked relatively high in importance, but non-EI skills ranked higher than EI skills. The authors noted that the findings suggested a gap between education and employer expectations of entry-level accountants in the workplace for certain EI and non-EI skills. The authors provided subsequent analysis using priority indices and strategic mapping to pinpoint the EI and non-EI skills that should be of greater focus to accounting educators for curriculum development.

Birkey and Hausserman (2018) investigated whether accounting students were less creative than nonaccounting students. Based on a two-stage, 2x2, quasi-experiment with repeated measures, the authors tested whether: (1) creativity was lower in the accounting task versus the general education task; (2) real-time process-oriented feedback improved the creativity of students; and (3) accounting students responded differently to context and interventions than nonaccounting students. In Phase I, students ($n = 76$, 84% response rate) from a US university were randomly assigned to serve as a

[17] As measured by standardized test score (SAT for undergraduate students and GMAT for graduate students).

[18] Business AACSB accreditation, accounting AACSB accreditation, percentage of faculty with CPA, percentage of faculty with PhD or DBA, private versus public institution, school's research ranking.

[19] Data source was National Association of State Boards of Accountancy (NASBA) *Uniform CPA examination candidate performance.* Nashville, TN: NASBA.

creator or an assessor. Each creator was asked to generate analogies across three separate periods, while an anonymous assessor provided real-time feedback and rated the creativity of each analogy. In Phase II, the authors developed greater reliability of creativity rankings by conducting outlier analysis with data from multiple assessments of 264 randomly-assigned analogies that were evaluated by participants ($n$ = 77, 100% response rate) who were recruited from MTurk.[20] ANOVA and ANCOVA using average creativity results revealed that average creativity was associated with whether the task was accounting or general education; no significant difference in average creativity of accounting students and other students was found; and average creativity was not significantly associated with whether the student was an accounting major or nonaccounting major. Average creativity across tasks and student groups increased over the three creativity assessments. The authors suggested that practice and feedback may positively influence the creativity of accounting students performing an accounting task.

### 5.3. Approaches to learning and assessment

Seow and Shankar (2018) investigated the effect of team-skills guidance on lone wolf tendencies of first-year accounting students ($n$ = 99, 100% response rate) at a Singapore university. At the beginning of the semester, before teams were assigned by the instructor, lone wolf tendency was assessed through a previously validated survey instrument.[21] A median split was used to classify students as having high or low lone wolf tendencies. After being assigned to groups and distribution of the group assignment, students completed a survey to capture their initial perceptions of teamwork. Additional team-skills training was provided to randomly selected students (treatment group: $n$ = 48) in two sessions during the period that group-work was underway. The remaining students served as a control group ($n$ = 51). A second team-work survey was administered after the group project was completed to capture the post-treatment perceptions. Results of ANCOVA showed that students exhibiting greater lone wolf tendencies found the project to be less beneficial and resulted in a poorer learning experience than students with less lone wolf tendencies. However, greater lone wolf tendency students who also participated in the treatment group perceived the project to be easier than those lone wolf tendency students in the control group. Students in the treatment group reported that their teams worked less well together than did those in the control group. The authors indicated that the findings suggested that alerting students to a higher awareness of expectations and demands may invoke a more critical view of their own contribution and team members' contributions. This result was especially so among students with greater lone wolf tendencies. Finally, students exhibiting this heightened awareness and criticism performed poorly, and reported a negative perception of the peer evaluation process and a belief that friendships and collusion negatively impacted the accuracy of peer review.

Caplan, Mortenson, and Lester (2018) analyzed the effects of awarding incentives to accounting students ($n$ = 205, 56% response rate) for accurately forecasting future exam performance. An adapted IBM sales bonus scheme (Gonik, 1978) was applied to motivate students to accurately predict scoring on 10 computational questions for two upcoming exams. Results from ANOVA and differences-in-means analyses revealed that extra credit incentives were significantly associated with alleviating under-confidence exhibited by top-performing students. The incentive scheme was associated with moderately mitigating overconfidence among 'B' and 'D' students, but encouraging some 'C' students to forecast more aggressively. The authors noted that incentive schemes may be used to help students assess their future performance and allocate resources more effectively in preparation for exams.

Papageorgiou and Callaghan (2018) investigated potential gender differences in the association of parental style and student performance among a sample of accounting students ($n$ = 953, 84% response rate) at a major South African university. Results of differences-in-means and regression analysis showed the following results: (1) authoritarian parental style was negatively associated with student performance, with significantly lower performance among male students; (2) performance for male students in the presence of an authoritative parental style was higher, but lower for female students; and (3) characteristics associated with socioeconomic disadvantage were associated with authoritarian parental style.

Fogarty and Jonas (2018) investigated the association between performance and time to complete an exam using student ($n$ = 773) performance in 20 different sections, four instructors, and nine business course offerings at a private US university. Student performance was measured as the test score scaled to a percentage, and the completion time was operationalized as the order in which the test was submitted by the student during the exam window scaled to a percentage. Other factors in the model were course level, test format, and the number of tests in the course. Regression results revealed that test scores were higher for both longer completion time and graduate courses, and lower for essay tests and the number of tests in a course. In extended analyses, completion time was divided into thirds (binary) and included in the base model. Those students submitting their tests in the middle-third of the exam window scored significantly higher than those submitting in either the first- or last-third, revealing a nonlinear association between performance and completion time.

Xiang and Yu (2018) surveyed US undergraduate students ($n$ = 281, 86% response rate) enrolled in the introductory financial accounting course at one institution over three semesters about family background (family income, first generation college student, parent with business career, parent being accountant). Additional personal information (GPA, gender, race, year in school, being an accounting major, having taken high school accounting) was collected. The course was required for all business majors, and students usually took the course as sophomores. Xiang and Yu were particularly interested in the

[20] Amazon Mechanical Turk (MTurk) is a crowdsourcing resource to obtain human insights about a wide range of subject matter (https://www.mturk.com/).

[21] Examples of the survey questions include the following: 'Given the choice, I would rather work alone than with others'; 'I prefer solitude over social interactions with acquaintances'; 'working with others is a hassle'; 'I have little tolerance when others make mistakes' (Barr, Dixon, & Gassenheimer, 2005).

**Table 14**
Overview of articles about faculty (Section 6).

| | Reference | Type* | Topic |
|---|---|---|---|
| *6.1.* | *Research* | | |
| | Apostolou et al. (2018) | D | Accounting education literature review (2017) |
| | Collins et al. (2018b) | D | Advice about being a good coauthor |
| | Dowdell et al. (2018) | E | Research productivity of faculty who move |
| *6.2.* | *Teaching* | | |
| | Abayadeera et al. (2018) | E | SET scores of non-native English speaking faculty |
| | Cheng and Crumbly (2018) | E | Availability of publisher test banks on exam performance |
| | Collins et al. (2018a) | D | Doctoral-level research reading groups |
| | Lento et al. (2018) | E | Faculty perceptions of academic dishonesty |
| | Smith and Urquhart (2018) | E | PhD oral dissertation defense |
| | Wells (2018) | D | Relevancy of introductory text books to practice |
| *6.3.* | *Faculty reflections* | | |
| | Callahan (2018) | D | Diversity in an academic accounting career |
| | Hermanson (2018) | D | Accounting research career |
| | Pincus (2018) | D | Retirement from academic accounting career |
| | Ravenscroft (2018) | D | Changes in academic accounting during a career |
| | Shevlin (2018) | D | Choices made about career and life |
| | Showalter (2018) | D | Views about shifting from a practice to academic career |
| | Stone (2018) | D | Teaching and learning throughout academic career |
| | Stout (2018) | D | Publication of research articles |
| | Van der Stede (2018) | D | Multitasking research, teaching, and service |
| | Zeff (2018) | D | Accounting history |
| *6.4.* | *Other faculty issues* | | |
| | Palatnik and Abbott (2018) | E | Faculty credentials |

* Empirical (E) or descriptive (D) article.

family background variables and their relationship to course performance (total exam score across four exams). Regression analysis results indicated that GPA, gender, being an accounting major, and year in school were significantly associated with total exam score.

Healy, Doran, and McCutcheon (2018) described the perceptions of accounting and finance students in their final academic year at an Irish university about cooperative learning throughout the curriculum. The authors noted that students' responses indicated that group activities enhanced peer learning, communication, interpersonal, and leadership skills. Most of the students agreed that group work facilitated interactions with other students and enabled them to learn from other students.

## 6. Faculty

Table 14 identifies 20 articles (six empirical and 14 descriptive) related to faculty classified as research, teaching, and faculty reflections. This section contains 29% of the articles reviewed for 2018, compared to 12 articles (20%) in 2017. The increase in articles over the prior year is attributable to the special issue of *Issues in Accounting Education*[22] with nine articles dedicated to faculty reflections. An overview of the topics is included in Table 14. Research topics include advice on being a valuable coauthor, research productivity, and accounting education literature review. Teaching topics range from the faculty perceptions of academic dishonesty, doctoral student reading groups and oral defenses, relevancy of accounting textbooks to practice. The faculty reflections section includes 10 articles include sage advice on a variety of academic career topics. Finally, one article examines faculty credentials.

### 6.1. Research

Dowdell, Herda, Pizzini, and Trude (2018) examined the counts ($n$ = 1258) of scholarly publications of US faculty ($n$ = 635) who switched universities between 2008 and 2014. Faculty were identified from Hasselback Accounting Faculty Directory (2018), and publications were obtained from the BYU accounting research database.[23] The transition period included the year prior to move to the new university, the year of the move, and the year after the move. The authors controlled for tenure during the six-year period, whether the faculty member held an administrative position, whether the faculty member switched to a school with an active doctoral program, whether the school switched from had an active doctoral program, whether the faculty member switched to a top 40 research program, and whether the faculty member's PhD school was a top 40 research program.

[22] *Issues in Accounting Education* (Vol. 33, No. 3).
[23] Faculty publications in the top 11 US accounting research journals and two accounting education journals (*Issues in Accounting Education* and *Journal of Accounting Education*) are ranked by the BYU accounting research database (http://www.byuaccounting.net/rankings/univrank/rankings.php).

The authors provided results for the full sample period, switches greater than six years after PhD degree, and switches greater than 14 years after PhD degree. Logit (whether the faculty member published in the transitional period) and regression models (the number of publications) were used. Faculty published significantly more in transitional periods (26.9% published with a mean of 0.33 articles) versus non-transitional periods (22.6% published with a mean of 0.26 publications). In several analyses and sub analyses (e.g., switches to top 40 schools, switches to PhD schools), faculty who switched published more, and tenured faculty published more. The authors reported sensitivity analysis results for using a five-year transition period and for multiple switchers. The authors cautioned administrators to the "contract year syndrome" when making hiring decisions.

Collins, Oler, and Skousen (2018b) provided advice intended for doctoral students and junior faculty on how to be a good coauthor and function effectively in a coauthor team. The advice was based primarily upon on the authors' own experiences. However, the authors also used results of an informal survey sent to the top 30 coauthor pairs who had published in the top six accounting journals[24] during 1960–2015 (e.g., Arya and Mittendorf had 12 publications; Barth and Landsman had nine publications), for which eight (27%) responses were received. The authors indicated that to be a good coauthor, the individuals need to establish clear roles and expectations for the project. Keeping commitments is crucial. Having similar goals, sharing a work ethic, and being committed to meeting deadlines are important. Communication throughout the process is essential. Understanding and setting out roles is important (e.g., who controls the manuscript, who writes the initial draft, who analyzes the data). The authors also noted some situations that coauthors might confront, and provided recommendations to the situations.

Apostolou, Dorminey, Hassell, and Rebele (2018) reviewed articles published in six accounting education journals during 2017: (1) *Journal of Accounting Education*, (2) *Accounting Education*, (3) *Advances in Accounting Education: Teaching and Curriculum Innovations*, (4) *Global Perspectives on Accounting Education*, (5) *Issues in Accounting Education*, and (6) *The Accounting Educators' Journal*. Articles were summarized as empirical, descriptive, instructional resource, or case. The authors presented an analysis of research rigor and made suggestions for future research.

### 6.2. Teaching

Lento, Sayed, and Bujaki (2018) surveyed US accounting faculty ($n$ = 327, 6% response rate) regarding perceptions of academic dishonesty. The authors were interested in differences between males (54%) and females (46%) based upon differences in socialization experiences. Demographic information was collected, and survey questions related to four issues: (1) scenarios of academic dishonesty, (2) reasons for and reactions to academic dishonesty, (3) controls for mitigating academic dishonesty, and (4) overall perceptions (open-ended questions). Logistic regression was used to assess the following two questions (five-point scale where 1 = strongly disagree and 5 = strongly agree): (1) overall, has academic dishonesty compromised the integrity of your classroom? and (2) overall, have incidences of academic dishonesty increased over the past 5–10 years? The control variables were male/female, years of experience, PhD/DBA, and CPA. Female faculty had significantly higher assessments regarding academic dishonesty compromising classroom integrity and higher assessments that the incidence of dishonesty had increased the past five years. Years of experience, PhD/DBA, and CPA were not significant. Regarding 12 different instances of academic dishonesty activities, respondents assessed the frequency of the activity and significance of the activity. Females assessed three questions as having higher frequency, and eight questions as more significant. The moderating effects of professional socialization and perceptions of academic dishonesty were investigated, assessed for professional certification (those with professional certification and males had higher scores), educational level (no differences), and teaching experience (higher scores for less than or equal to15 years' experience, no difference in sex). Respondents were asked to answer 10 questions regarding frequency of controls for academically dishonest behavior. Females had higher scores for the frequency of the control for seven questions, and higher scores for the effectiveness of the controls for four questions. In the logistic regression analysis, only sex was significant, with experience, PhD/DBA, and CPA not significant. Respondents selected one of five responses to known cases of academic dishonesty. Females and males had significantly different courses of action for students caught plagiarizing, but not for students caught cheating.

Abayadeera, Mihret, and Dulige (2018) investigated the teaching effectiveness of non-native English speaking teachers (NNEST) in an Australian University within a School of Accounting, Economics, and Finance, with 92 faculty members: (1) 60 (65%) identified as NNEST, and (2) 32 (35%) identified as NEST (native English speaking teachers). Intercultural communication apprehension and student ethnocentrism were used as the framework for examining NNEST. The authors gathered data from student evaluations of teachers' performance (SETP), with data for two years separated into three faculty subgroups (accounting, economics, and finance), and interviews conducted in semi-structured student focus groups. Four key themes were identified: (1) strengths and weaknesses of NNEST, (2) strengths and weaknesses of NEST, (3) student strategies to cope with language issues, and (4) student suggestions for improvement. Regarding SETP, mean ratings were higher for NEST faculty for both years (for all three faulty groups combined) and for the accounting faculty subgroup. For the qualitative focus group data, the authors presented overall comments with excerpts from the focus groups. In summary, the authors indicated that NNEST faculty could improve teaching effectiveness by improving linguistic competence, cultural competence, creative delivery, and better engagement with students. The authors provided a discussion of multiculturalism and diversity in Australian higher education, which would be of interest to those who do not have a good understanding of the Australian system. The article can be characterized as a rich narrative that is difficult to summarize succinctly.

[24] *Accounting, Organizations and Society*, *Contemporary Accounting Research*, *The Accounting Review*, *Journal of Accounting and Economics*, *Journal of Accounting Research*, and *Review of Accounting Studies*.

Cheng and Crumbly (2018) were interested in how the widespread availability of student access to publisher test banks (PTBs) affects course examinations. Students who had access to PTBs may have memorized question answers and, therefore, performed better on exams than students without access to PTBs. The authors prepared a multiple choice exam (17% of course grade) and used it in two sections of an undergraduate accounting course at one US university. The exam had 50 questions: 25 from PTBs and unmodified, five questions taken from PTBs but modified so that an incorrect answer in the PTB became the correct answer, and 20 alternate source (AS) questions from a source other than the PTB. Of students taking the exam ($n = 114$), 55 were categorized as suspect (performance difference greater than 6% from mean/median), 52 as non-suspect (performance difference less than 3% difference), and seven neither (performance difference 3–6%). The suspect group had higher scores on PTB questions than AS questions, while the non-suspect group had higher scores on the AS questions than PTB questions. Across groups, the non-suspect group had higher scores than the suspect group on AS questions, and the non-suspect group had lower scores than the suspect group on PTB questions. Using two different assumptions to assess the likelihood a student will answer a question correctly, the suspect group and non-suspect group were compared on performance on the five altered PTB questions. The suspect group was significantly more likely than the non-suspect group to provide the answer to the original unmodified PTB question than to the modified PTB question. The authors encourage faculty to either modify PTB questions because a grade advantage may exist for opportunistic students.

Smith and Urquhart (2018) investigated the viva[25] process used in UK accounting and finance PhD programs. Academics ($n = 299$, 21% response rate, 49 follow-up interviews) and recent PhD graduates ($n = 73$, 29% response rate, 18 follow-up interviews) responded regarding the role of the viva and the selection of the external examiners in UK institutions. The authors used the lens of social capital in the analysis. Of the 662 vivas identified, a PhD degree was not awarded in only 22 (3.3%) instances. Ensuring that the student had actually done the work was the most frequently cited reason for the viva. The viva was also cited as having early career development advice. Regarding external examiners, 58% of the academic survey respondents believed the external examiner selection should be joint with the student, and 42% solely the supervisor's role. Of recent graduates, 40% indicated the external examiner decision was a joint decision, 3% the student's alone, and 57% the supervisor's decision. Academics responded to several questions regarding the selection of external examiners (five-point scale where 1 = strongly disagree and 5 = strongly agree). Responses indicated disagreement with the idea that supervisors selected high-profile examiners and examiners in the early stages of their careers because they were more easily influenced: significantly different from neutral for both questions. Results of a differences-in-means test revealed that examiners reported feeling pressure regarding disappointing students by requiring resubmission and by supervisors who exerted pressure on reviewers to pass the PhD student. Interviews reflected the widely held perception that it is the supervisor's responsibility to "avoid external examiners of questionable behavior" and that supervisors select those that they know personally. Those asked to be external reviewers also indicated that they declined requests if they did not trust the supervisor. The authors noted that the latter two general responses reinforced the view that informal exchange between supervisors and external reviewers is central. Other descriptive data were reported in the paper, which would be interesting both to academics who use the viva process and those for whom the viva process in unfamiliar (e.g., US academics).

Collins, Cook, and Hart (2018a) described how to use groups of accounting readings (accounting research readings groups) in accounting doctoral programs to promote engagement in research interaction throughout the degree. Accounting research readings groups complement the traditional seminar model and are a form of team-based learning. A faculty member organizes the group, chooses the readings, and recruits students and faculty to join the group. Faculty interested in the topic of accounting research readings groups will find a wealth of information about the process and insights from faculty who currently use groups.

Wells (2018) examined the choice of five textbooks used by faculty in eight New Zealand universities for a preparer-focused introductory accounting course. Each textbook was briefly reviewed. Two recommendations were offered for those planning to author or update textbooks: (1) clearly articulate how the accounting system integrates with the business information system, and (2) better reflect how technology is used in accounting practice.

### 6.3. Faculty reflections

A special issue of *Issues in Accounting Education* included nine retrospective reflections by senior faculty members on aspects of their careers. The faculty included Carolyn Callahan, Karen Pincus, Sue P. Ravenscroft, Terry Shevlin, D. Scott Showalter, Mary Stone, David Stout, Wim A. Van der Stede, and Stephen Zeff. The special issue was motivated by Stout (2016) personal reflections of his career upon his retirement. The goal of the special issue was to document the varied perspectives of accounting professors with distinguished careers. In the introduction of the special issue, Stout provided a summary of each article to put the group of retrospectives into context.

Stout (2018) followed upon his 2016 reflections paper by providing additional reflections to his original essay. He provided extensive comments on the research and publication process. He discussed how, and why, to publish instructional

[25] Viva (from the Latin *viva voce*, by live voice) is the oral dissertation defense. While each institution has its own regulations, in the UK the oral exam is usually conducted behind closed doors by two examiners, generally one is an expert from another institution. Refer to https://www.vitae.ac.uk/doing-research/doing-a-doctorate/completing-your-doctorate/your-viva; https://www.theguardian.com/higher-education-network/2015/jan/08/how-to-survive-a-phd-viva-17-top-tips and https://www.findaphd.com/advice/doing/the-phd-journey.aspx for descriptions and tips.

resources, and he provided wide-ranging comments on publishing research articles in accounting education. His final comments concerned finding synergies to make publication more efficient and effective.

Van der Stede (2018) reflected on the multitasking job required of accounting faculty in the three areas of faculty life: (1) research/scholarship, (2) teaching/education, and (3) service/citizenship. He used multitasking theory to address the multitasking problem of an accounting faculty member. Multitasking seemingly creates tensions in how to allocate resources to the three areas. Professor Van der Stede noted how poor measurement of an activity affects the incentives for that activity, and that strong incentives based upon poor measures are costly. He concluded "effectively multitasking professors may have a broader impact and, I believe, derive a sense of job satisfaction exceeding any job-related tensions that multitasking also may induce" (Van der Stede, 2018, 93).

Stone (2018) emphasized that teaching is a continuous learning experience, and her retrospective drew on experiential learning theory: learning is a process, all learning is relearning, learning is a holistic process, and learning is the process of creating knowledge. Professor Stone started her career in public accounting before starting her PhD program. Much of her retrospective dealt with learning from others and various aspects of teaching, particularly helping students develop reading, thinking, and listening skills.

Callahan (2018) provided a retrospective essay from the perspective of an African-American woman who engaged in accounting scholarship, teaching, service, and administration over a 30-year period. She noted the change in the academic career model over time from collegial to corporate. Professor Callahan discussed how diversity changed during her career: diversity of academic scholarship, thought, service, and in the accounting professoriate. Her experiences serve as an exemplar for junior accounting faculty.

Showalter (2018) retrospective was different from most of the other retrospectives because he had a career of over 30 years in public accounting before joining academe. He discussed his professional career and how he prepared for and decided upon the move to academe. He described how he made the transition into academe, providing many observations and suggestions. He described how his career developed, providing observations on what he learned. Professor Showalter's discussion of the similarities of academe to practice were interesting. In conclusion, Professor Showalter noted what he had learned: time goes by quickly, be prepared, ask for help, anticipate constant change, and become part of the academic environment.

Shevlin (2018) commented on choices made, lessons learned, and opportunities missed during his career. He provided an historical reflection on his career and how when presented with opportunities he made a decision whether to pursue it. He concluded that life and career paths are unpredictable; think carefully about service opportunities and say yes or no; teach in the area of research expertise; publishing is difficult; and celebrate successes with colleagues and family. One particular observation about teaching resonates (Shevlin, 2018, p. 40):

> Focus on what you really want students to learn. Identify key learning objectives and keep to those without cluttering the message with unnecessary detours. . . . I do not mean "dumbing down the content"—rather the opposite: less clutter and memorization, and more thinking.

The Pincus (2018) commentary was prospective rather than retrospective as she discussed aspects related to her upcoming retirement. She discussed how she has planned for the financial and emotional aspects of retirement: what will I do, how do I deal with lack of structure, what will I do without the work I love? Any faculty member contemplating or planning on retirement will enjoy reading Professor Pincus's thoughts.

Ravenscroft (2018) reflected on the changes in academic accounting during her career. She came to accounting after first pursuing liberal arts and philosophy; therefore, she noted the lack of diversity in accounting research (e.g., not grounded in philosophy, sociology). She tracked the changes in *The Accounting Review* during her career. She described the move to positivist research, and discussed two important issues, misuse/misinterpretation of p-values in hypothesis testing and the misunderstanding of what the null hypothesis should be. She noted the lack of connection between a large amount of accounting research to the engagement with accounting practice and engagement with the public interest. Professor Ravenscroft also noted the change in cost of education to our students, and how the cost of tenure track faculty has increased significantly with reference to other benchmarks (e.g., median family income, average compensation for family care physician). Ravenscroft (2018, p. 30) final challenge to faculty was as follows:

> . . . what are you going to do to make academic accounting more accountable, relevant, and sustainable? What will you do to help accounting become a profession that does strive to promote a prosperous society for all?

Zeff (2018) reflected upon how he was drawn to the subject of accounting history. He noted how students' knowledge of historical background helps them better understand current developments. Professor Zeff provided several interesting examples of the historical development of accounting policies that he used in teaching an introductory financial accounting course to help understand how historical actions affect today's GAAP.

Hermanson (2018)[26] reflected on his years of accounting research by offering 25 reflections to comment on three aspects or accounting research. Hermanson addressed three areas: (1) the research process (e.g., choosing coauthors, learning new areas and methods, a litmus test), (2) specific types of accounting research (e.g., experimental papers never working out right,

[26] Hermanson (2018) was not part of the special issue, but we include the article here because it fits with the faculty reflections theme and also was published in *Issues in Accounting Education*.

normative work, author rankings), and (3) the journal review process (e.g., promoting triangulation, overemphasizing and forcing theory contribution, late round rejections). Hermanson's goal was to stimulate discussion about the accounting research process; his personal observations are interesting and candid.

### 6.4. Other faculty issues

Palatnik and Abbott (2018) documented the professional qualifications for accounting faculty in all 17 New Jersey public and private colleges by inspecting university websites. New Jersey accounting faculty were surveyed ($n$ = 43, 24% response rate) about their credentials, their assessments of the importance of various professional credentials, and their opinions regarding students' perceptions about the various credentials. Responses indicated that 81.4% of faculty reported it was important for an accounting professor to be a CPA, 51.2% reported it was important to have a PhD, and 46.5% reported it was important to hold a non-CPA professional credential. Faculty reported their perception that 95.3% of students would believe it is important for the faculty to have a CPA, 31.7% would believe it is important to have a PhD, and 24.3% would believe it is important to have a non-CPA professional credential. The findings were consistent with the Pathways Commission's (AAA, 2018) emphasis on increasing the number of CPAs in the accounting faculty ranks.

## 7. Summary and suggestions for future scholarship

### 7.1. Summary

Authors from institutions around the world contributed to the 101 accounting education articles published in the five accounting education journals in 2018 across the traditional lines of inquiry, including instructional resources and cases. The accounting education knowledge base is expanding to understand how accounting students in emerging economies learn, and how faculty or students teaching and learning in other cultures impacts the curriculum and classroom. Curriculum and instruction articles addressed changes occurring in the profession and how accounting departments and faculty are reacting. For the first time we note that no empirical or descriptive articles were published on teaching financial accounting, although we identified five articles as instructional resources to facilitate teaching of technical topics (Appendix A). Research in educational technology continues to investigate the usefulness of online and traditional deliveries in achieving learning outcomes. Students remain a popular topic, with continued efforts to identify characteristics and gain understanding of how to attract and retain the most suitable students to the accounting profession. Faculty topics in 2018 emphasized the reflections of seasoned academicians sharing important knowledge about the profession to pass to future generations.

A total of 68 empirical and descriptive articles were published in 2018 (67% of 101 total articles) as compared to 61 (59% of 103 total articles) in 2017.[27] Appendix A summarizes the eight articles (8% of total 101 articles) classified as instructional resources. We tabulated these articles to best fit the specific content area. Financial accounting topics are the focus of five of the eight articles, including revenue recognition, lease accounting, and hedging transactions. Appendix B includes the 25 articles identified as cases (25% of total 101 articles), which use actual or hypothetical information to teach a content area. Financial accounting is the most common topic (44%), followed by auditing and assurance (20%), and data analytics (16%).

The remainder of Section 7 is organized as follows. Section 7.2 discusses research rigor of the empirical articles summarized. Section 7.3 provides some suggestions for avenues of inquiry for future scholarship to continue to build upon the extant accounting education knowledge base and address emerging issues facing the accounting profession.

### 7.2. Research rigor

Table 7 reports the data acquisition methods for the empirical articles published in 2018. Survey remained the most popular method of data acquisition (61%), followed by course performance (19%), published sources (7%), and experiment (7%). Interviews represented 4%, and quasi-experimental approaches constituted 2%. Table 8 presents the analytical approaches used in the empirical articles. Regression was the most popular analysis approach (42%), followed by differences-in-means (24%), analysis of variance (17%), and tabulation (17%). None of the reviewed 2018 articles employed path analysis.

We observe that 68% of the 68 empirical and descriptive summarized articles were empirical in the current review, compared to 61 articles (66%) in 2017. In the current review, 59% of the empirical articles rely on regression and analysis of variance methods compared to 53% in the previous review. We also note the use of rigorous data acquisition methods (i.e., experiment, quasi-experiment, and student course performance) remained relatively constant to the previous 2017 literature review period, 28% and 25%, respectively.

As the accounting education knowledge base expands and the accounting education literature matures, we would anticipate an overall migration toward refined measurement and isolation of constructs and greater rigor and an increased focus on explanatory, rather than descriptive, inquiry. Isolation of the phenomenon of interest is best effected through controlled and randomized experimental approaches. Only when the data under analysis has effectively isolated the construct in question are the sophisticated analytical techniques able to add to our knowledge base regarding cause and effect. Empirically

[27] Data for 2017 appear in Apostolou et al. (2017).

speaking, no analytical approach is able to compensate for a data collection method that does not definitively isolate and capture the phenomenon under examination.

Only nine percent of the empirical work in the current review (10% in 2017) captures data through experimental and quasi-experimental methods. As a result, the vast majority of the empirical work (91%) provides information about the association, rather than the cause-effect link, among the constructs under examination. When the identified association is one that is newly discovered or refined, these studies are valuable and extend the knowledge base. However, only through the experimental and quasi-experimental methods can cause-effect linkage be assessed. In the absence of an established cause-effect association, efforts implemented in pursuit of the desired outcome are *ad hoc*. We renew our call for the use of those methods that may give rise to research results that may be directly actionable in achieving the outcomes desired.

### 7.3. Suggestions for future scholarship

Well-known challenges associated with accounting education persist; attracting and retaining accounting students, institutional constraints, and preparing students for the changing needs of the accounting profession. We continue to advocate for well-conducted research on those topics to better inform the academy. We offer the following suggestions for future research based on ongoing programmatic efforts to adapt accounting education to the changing needs of the accounting profession and the complexities of the current and future business environment. We encourage journal editors to consider special issues dedicated to these topics and other topics of interest.

#### 7.3.1. Core competencies

Accounting students must be prepared to perform critical core competencies expected of accounting professionals. Bridging accounting curricula and modernizing the education environment are needed to address the critical core competencies identified by the AICPA, 2018.[28] Spiceland, Spiceland, and Schaeffer (2015) is an example of how the introductory financial accounting course was redesigned at one US institution to emphasize core competencies, continuous improvement, and contemporary learning technologies. Documentation of similar course redesign for other courses and other institutions would be helpful, and more extensive research is needed regarding these topics. The needs of the profession focus on possessing knowledge in traditional-subject areas as well as possessing skills that enable one to perform a variety of accounting, business, and professional functions. The importance of integrating technology across the accounting curriculum cannot be understated. AACSB accounting standards now center on the need for accounting curricula to be technologically agile. The accounting profession increasingly expects entry-level accountants to have good data analysis skills. Faculty must find cost-effective and innovative ways to be responsive in implementing, documenting, and/or updating the technologies incorporated in all accounting classes.[29] Recent professional efforts to improve accounting curricula have focused on the knowledge and skills needed for entry-level accountants in the areas of Accounting Information Systems, Big Data, Business Data Analytics, and Blockchain Technology for business decision-making. Research across institutions regarding successful strategies with integrating technologies into the accounting curriculum is needed to inform others.

Accordingly, we advocate research that examines technology related to business and societal issues that extend beyond the accounting classroom. Many of the studies in the prior literature focus on operationalization of technological tools and platforms (i.e., use of particular tools or information systems to deliver and assess accounting education) and their impact on student learning. A broader understanding of how widespread adoption of emerging technology (e.g., automation, artificial intelligence, biometrics, cybersecurity surveillance) is revolutionizing business operations and, therefore, forcing the accounting profession to evolve is needed. In sum, more research is needed to help educators determine the specific core competences that require greater attention given these rapid changes in business practice. We highlight the study by Ballou, Heitge, and Stoel (2018) as a good example of identifying certain core competencies required by the accounting profession. Importantly, we also advocate for research that examines what technology cannot replace as core competencies required of accountants, such as one's ability to make smart judgments, assess risk, and build positive client relationships.

#### 7.3.2. Institutional and faculty issues

Research is needed on how accounting faculty navigate institutional constraints when revising accounting curriculum. Accounting faculty who may want to revise the accounting curriculum to better prepare students are confronted with several constraints: (1) AACSB accreditation standards regarding faculty qualification; (2) state CPA exam requirements, including specific courses required to sit for the CPA exam, and the courses offered at specific schools must map into the state CPA course requirements; (3) college curriculum requirements that are very difficult to change, and would require university and perhaps jurisdictional agreement;[30] (4) university curriculum requirements that are even more difficult to change, but also can

[28] The American Institute of CPAs (AICPA) in the US and the Chartered Institute of Management Accountants (CIMA) formed the Association of International Certified Professional Accountants (AICPA) in 2017.

[29] Duquesne University is one example of an institution that updated its curriculum by integrating technology into each course, while maintaining the traditional course sequencing required for CPA exam readiness (https://www.aicpa.org/interestareas/accountingeducation/newsandpublications/duquesne-accounting-program-cpa-exam.html).

[30] For example, if the undergraduate degree requirements are 120 h for all majors, it would be virtually impossible for an accounting department to recommend changing to a 123-hour accounting degree.

be changed by legislation. Fogarty (2018) noted that major changes need to occur in accounting curriculum and cautioned against a strategy that only addresses the edges of the curriculum. Ultimately, research is required to make suggestions about the value of accreditation in encouraging innovation, whether CPA exam requirements stifle that objective, and the best path forward.

Given rapid changes and disruptions from technology, accounting researchers must be engaged in ongoing efforts to develop a model of educational sustainability that anticipates the growing complexities of the profession. The gulf is growing between the technological competencies of faculty and students entering accounting degree programs. Research regarding how to bridge the gap may be helpful. Similarly, it would be useful to understand how accounting departments can ensure that the faculty has the appropriate portfolio of skills as the curriculum evolves in response to external pressures (e.g., accreditation, CPA exam). Supporting and providing a better understanding on how to achieve goals in accounting education can come from data-driven research, sharing of innovative assessment methodologies, best practices, and modified pedagogical approaches.

The force of change is upon the accounting profession, just as it is on all other professions. However, the accounting education literature has focused largely on the accounting profession as it relates to earning the CPA designation. The accounting profession is in fact much broader than the CPA credential; faculty would benefit from research that examines factors associated with other professional credentials. Rodrigues et al. (2018) researched the CFC in Brazil, for example. We encourage more studies that broaden our knowledge base of a variety of credentials to address appropriate curricular and learning strategies.

Research regarding the continued viability of the traditional tenure model and the stratification of faculty into different ranks (e.g., tenure-track, clinical track, and instructor/lecturer) is needed. Further, the demands of scholarly active faculty to publish in a narrowing niche of journals for success may be cannibalizing the time needed for doctoral faculty to engage in curricular innovation and educational research. Section 6.3 summarizes reflections written by experienced faculty. The use of traditional, hard-bound, printed textbooks has been replaced by electronic textbook purchase or rental. The availability of high-quality textbooks has essentially leveled the playing field for accounting programs across the country because, regardless of the type of institution or mission, accounting students have had access to high quality textbooks. Given the change in economics that is driving down the payment to textbook authors, research is needed regarding the best way to deliver supportive course materials that pass the quality-control hurdles that existed in the print-textbook market.

Little is known regarding unique challenges and opportunities for accounting educators at small teaching-based institutions, which have different incentive structures in place for faculty and students. The accounting education literature has yet to capture the nuances associated with education in these arenas. As an example, managing faculty turnover and maintaining quality at small institutions requires different approaches and strategies for faculty recruiting and retention, as compared to larger, conventional institutions. While the value of accreditation has been validated in the literature, the costs and benefits associated with accreditation at small institutions have not been studied.

The accounting education literature has not captured the implications for accounting programs and educators that undergo initial accreditation (which can take up to seven years to earn), or shared experiences of programs that have undergone a subsequent continuous improvement reviews to maintain accreditation. Best practices on assurance of learning and other metrics associated with the shifting demands of accrediting bodies should be documented in the accounting education literature. Research regarding accounting education at unique institutions with strong, mission-oriented programs is needed. For example, federal service academies in the US (e.g., the U.S. Air Force Academy and U.S. Coast Guard Academy) have achieved AACSB accreditation, but have a unique set of incentives and constraints that make it difficult to employ and support research faculty when the institutional mission is primarily teaching and service.

Tangential to exploring unique educational institutions, the accounting education literature also has yet to capture programmatic support for accounting education in the global economy, given the presence of other important strategic efforts at the larger institutions, such as with promoting STEM programs.[31] Accounting programs in the US generally are not regarded as STEM programs, but may qualify to have certain degree programs on the list of STEM majors, which permits foreign nationals a longer period of time to work in the US following graduation than non-STEM programs. The inclusion of quantitative methods and mathematics is a key factor in the STEM designation, which is appropriate for the emphasis on the need for future professionals to have expertise in data analytics. STEM-designated accounting programs[32] offer a curriculum that combines analytics with accounting courses. As a new frontier in accounting education, descriptive research is needed to share curricular best practices, followed by empirical studies of the associated educational outcomes as compared to non-STEM designated programs.

Empirical accounting research continues to be conducted predominantly at single institutions. Institutional impediments related to institutional review boards (IRBs) work against the ability of authors at different institutions to collaborate, and the idiosyncrasies of IRBs may differ significantly across institutions and have very different approval horizons. Perhaps universities in a specific jurisdiction might be able to more easily meet IRB requirements when a system-wide IRB process exists, which could lead toward researching classroom interventions in schools within the system that have divergent

[31] Science, Technology, Engineering, and Mathematics (STEM) represents academic disciplines combined by institutions when considering curriculum, workforce development, immigration policy, and other policy matters.

[32] As examples, the University of Illinois Gies College of Business received STEM status on its graduate programs in 2018 (https://business.illinois.edu/news/defaultnews/2018/04/accountancy-programs-stem-designation/). The Ohio State University Fisher College of Business has achieved STEM status on its MACC program (https://fisher.osu.edu/graduate/macc/stem-designation).

missions. Perhaps the TLC section of the AAA or the accounting education journals, could coordinate a multi-institutional, multi-state study by calling for RFPs. The TLC could select the best projects and coordinate with faculty at different institutions about the research. We do not discount the difficulties of this proposal, but in the absence of some type of coordination, we do not foresee how accounting education research can progress to a more generalizable platform from the single-institution, single-class study on which most of the accounting education literature is based.[33]

We suggest research on faculty issues that employs a holistic lens on how the greater institution impacts future opportunities for accounting educators. In reality, many institutions struggle with sustaining the traditional business model and its dependence on tuition revenue, which is directly driven by demand. How these larger factors affect accounting education remains underexplored. As an example, a deeper understanding of faculty workload is needed, as traditional methods and measures of evaluating faculty teaching workload have little connection with the strategic challenges that institutions face. Facing the need to sustain the student base or expand the student base, many institutions have begun offering online courses. In many cases, accounting faculty are asked to teach online courses but are provided minimal IT and instructional design support. A faculty member who is expected to teach both online and in the traditional classroom, perhaps with multiple preparations, has a much different teaching experience than a faculty member who is only teaching traditional classroom or online-only. Also, teaching online and in traditional classroom settings in the same semester undoubtedly reduces the faculty member's efficiency.

*7.3.3. Students*

Attracting students to the accounting profession remains a paramount concern. As the professional environment shifts to a core technology focus, the type of student who will succeed may differ from one who excelled in the past. With the current emphasis on technology skills, we encourage research to address the best student characteristics and learning styles that fit the future accounting professional. The emphasis on global business encourages students to study abroad and faculty to take positions outside of their home country. Research continues to be important regarding the impact of the cross-cultural classroom on the delivery of accounting education. As a community of scholars, we need to identify and address our obligation in assisting accounting education research in emerging cultures.

The Pathways Commission (AAA, 2018) recommended that efforts to attract future accounting professionals should begin with high school students. This initiative is underway in some jurisdictions. Research regarding best practices for a high school accounting course and its association with attracting and retaining talented students to the accounting major is needed. The central vision of the Pathways Commission rests on educating and preparing future accounting professionals to be capable of serving greater society in public, private, nonprofit, and governmental domains. The accounting education literature has yet to delve deeply into the motivations and needs of students who are interested in practicing accounting in nonprofit, government, and/or particular industries, and the impact on educational practices. We also emphasize that prior literature reviews have called for greater contribution to knowledge in managerial and governmental accounting education. The number of studies in these areas is limited.

A dominant focus in accounting education is assurance of learning, which is understudied in the accounting education literature. Courses are offered in online, hybrid, and traditional ways, and learning outcomes may be measured differently in those contexts. For example, a rubric may be useful in a face-to-face classroom, but not in an online setting in which the faculty member never meets the student. Techniques to measure learning and address concerns about academic integrity across environments should be identified, tested, and shared. All accreditation bodies require documentation of assurance of learning. Yet, we have little knowledge about commonalities and differences in assurance of learning practices across accounting programs. Falkoff (2018) reported that it may be time to find new ways to evaluate teaching performance because electronic SETs correspond to (1) lower response rates, and (2) abusive and inappropriate comments. Digital footprints permit institutions to identify and prosecute students who violate campus codes of contact or harassment laws when they make bullying comments. If the SETs have lost their anonymity, or indeed the original purpose, it may be time to try a new approach. Research is needed to address best practices in the electronic age for the both the summative and formative evaluation of teaching effectiveness.

Research on pedagogical and programmatic approaches associated with building an inclusive learning environment is needed. While the accounting education literature encompasses diversity related to student populations, we encourage adding research addressing diversity and inclusion as it relates to faculty and relationships with student learning. Faculty hiring practices express value about diversity and inclusion, but empirical research has not demonstrated precisely how these efforts positively contribute to educational objectives. Education studies have explored gender and racial differences. However, we encourage the sharing of best practices for how to construct an inclusive environment that satisfies legal constraints and promotes learning and professional growth.

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James E. (Jim) Rebele, now retired, was a constant presence in the previous 13 accounting education literature reviews, and he and Mike Tiller were responsible for the first accounting education literature review. As an accounting education

[33] While conducted at a single institution, Solsma et al. (2018) is an example of using multiple instructors, multiple courses, and multiple sections.

editor and author, Jim had an enormous influence on the accounting education literature over the past four decades. The accounting education literature will miss his insights and contributions.

## Appendix A. Instructional resources organized by primary content area

During 2018, the five journals covered by this literature review published eight instructional resources, constituting 8% of the 101 articles published. These resources included creative ways to teach concepts. We identified the instructional resource articles in four primary content areas: (1) AIS, (2) financial accounting, (3) managerial accounting, and (4) taxation.

| Instructional resources by primary content area |
|---|
| *AIS* |
| 1. Borthick, A. F., & Schneider, G. P. (2018). Minimizing cognitive load in representing processes in a business process diagram: Capturing the process and making inferences about it. *Issues in Accounting Education*, *33*(1), 75–88. |
| *Financial accounting* |
| 2. Briggs, J. W., & Beams, J. D. (2018). Bringing SEC comment letters into the classroom. *The Accounting Educators' Journal*, *28*, 169–189. |
| 3. Hepp, J. (2018). ASC 606: Challenges in understanding and applying revenue recognition. *Journal of Accounting Education*, *42*, 49–51. |
| 4. Munter, P. (2018). Lessor accounting under ASC 842 — not necessarily business as usual. *Journal of Accounting Education*, *43*, 57–60. |
| 5. Rambo, R. G., Main, D., & Main, J. (2018). Hedging recognized foreign currency denominated receivables or payables. *The Accounting Educators' Journal*, *28*, 215–234. |
| 6. Stice, J. D., Stice, E. K., Cottrell, D. M., & Stice, D. (2018). Teaching operating cash flow: One matrix for analysis—two methods for presentation. *Advances in Accounting Education: Teaching and Curriculum Innovations*, *22*, 199–215. |
| *Managerial accounting* |
| 7. Holmes, A. F., & Rasmussen, S. J. (2018). Using Pinterest to stimulate student engagement, interest, and learning in managerial accounting courses. *Journal of Accounting Education*, *43*, 43–56. |
| *Taxation* |
| 8. Franklin, M., & Morrow, M. (2018). Is a current year IRA deduction the best long-term tax strategy? *Advances in Accounting Education: Teaching and Curriculum Innovations*, *22*, 177–197. |

## Appendix B. Cases organized by primary content area

During 2018, the five journals covered by this literature review published 25 cases (25% of the 101 articles published). We identified the cases in alphabetical order within five primary content areas: (1) auditing and assurance, (2) data analytics, (3) ethics, (4) financial accounting, and (5) managerial accounting.[34]

| Cases by primary content area |
|---|
| *Auditing and assurance* |
| 1. Andiola, L. M., Lambert, T. A., & Lynch, E. J. (2018). Sprandel, Inc.: Electronic workpapers, audit documentation, and closing review notes in the audit of accounts receivable. *Issues in Accounting Education*, *33*(2), 43–55. |
| 2. Cheng, C., & Flasher, R. (2018). Two short case studies in staff auditor and student ethical decision making. *Issues in Accounting Education*, *33*(1), 45–52. |
| 3. Dickins, D., Johnson-Snyder, A. J., & Reisch, J. T. (2018). Selecting an auditor for Bradco using indicators of audit quality. *Journal of Accounting Education*, *45*, 32–44. |
| 4. Guo, K. H., & Eschenbrenner, B. L. (2018). CVS Pharmacy: An instructional case of internal controls for regulatory compliance and IT risks. *Journal of Accounting Education*, *42*, 17–26. |
| 5. Hess, M. F., & Andiola, L. M. (2018). Fraud risk brainstorming at Tesla Motors. *Issues in Accounting Education*, *33*(2), 19–34. |

[34] The University of Notre Dame provides a searchable database that includes cases published in *Issues in Accounting Education*, the *IMA Educational Case Journal*, the *Journal of Accounting Education,* and *Accounting Perspectives* (http://www.cases.ndacct.com/).

**Appendix B** (*continued*)

| Cases by primary content area |
|---|

*Data analytics*

6. Amadio, W. J., & Haywood, M. E. (2018). Data analytics and the cash collections process: An adaptable case employing Excel and Tableau. *Advances in Accounting Education: Teaching and Curriculum Innovations*, *22*, 45–70.
7. Angelo, B., Ayres, D., & Stanfield, J. (2018). Power from the ground up: Using data analytics in capital budgeting. *Journal of Accounting Education*, *42*, 27–39.
8. Cunningham, L. M., & Stein, S. E. (2018). Using visualization software in the audit of revenue transactions to identify anomalies. *Issues in Accounting Education*, *33*(4), 33–46.
9. Hoelscher, J., & Mortimer, A. (2018). Using Tableau to visualize data and drive decision-making. *Journal of Accounting Education, 44*, 49–59.

*Ethics*

10. Dow, K. E., Watson, M. W., Shea, V. J., & Kern, S. (2018). An accounting ethics case from multiple perspectives. *Journal of Accounting Education*, *43*, 63–75.
11. Jelinek, K. (2018). Will and Caroline: Accounting, professional integrity and lobbying. *Journal of Accounting Education*, *43*, 76–88.
12. Long, J. H., Mertins, L., Searcy, D. L., & Vansant, B. (2018). Toomer's Energy Drinks: Fueling earnings management? *Issues in Accounting Education*, *33*(1), 29–43.

*Financial accounting*

13. Aselta, J., & Engel, R. (2018). Tesla, non-GAAP financial measures, and the Securities & Exchange Commission's challenge: A case study illustration. *The Accounting Educators' Journal*, *28*, 235–255.
14. Bailey, W. J., & Samuels, J. A. (2018). Analyzing two investments—An instructional case to introduce basic financial accounting concepts. *Issues in Accounting Education*, *33*(4), 47–56.
15. Chandra, U., Dutta, S. K., & Marcinko, D. J. (2018). Revenue recognition at TSA, Inc.—A roller coaster ride. *Issues in Accounting Education*, *33*(3), 101–116.
16. Churyk, N. T., de Lange, P., Mason, S., Gross, G. M., & Stoettner, R. (2018). A bargain $60 million company for $240: A case examining the impact of convertible debt, warrants, and anti-dilution provisions. *Issues in Accounting Education*, *33*(1), 65–73.
17. Churyk, N. T., Reinstein, A., & Smith, L. (2018). Jones Enterprises Real Estate Investment Trust: Comparing U.S. and Canadian acquisition reporting, and initial public offering location. *Issues in Accounting Education*, *33*(2), 35–42.
18. Dugar, A., & Gujarathi, M. R. (2018). Toshiba's creative accounting for construction contracts. *Issues in Accounting Education*, *33*(3), 117–134.
19. Franz, D. R. (2018). "Back to the future" (or how a product last sold almost 60 years ago resulted in a current financial statement restatement). *Issues in Accounting Education*, *33*(2), 9–17.
20. Johnson-Snyder, A. J., & Kohlbeck, M. (2018). Valuing the business of JH Outfitters. *Issues in Accounting Education*, *33*(4), 57–75.
21. McNellis, C. J. (2018). Dynamic divestitures: A codification exercise on the reporting of discontinued operations. *Issues in Accounting Education*, *33*(1), 53–63.
22. McNellis, C. J. (2018). Middle Road Media: A codification research case on the accounting for software development activities. *Issues in Accounting Education*, *33*(3), 135–144.
23. Spiceland, C., Spiceland, D., & Njoroge, P. K. (2018). Tourist Trap: The new lease accounting standard and debt covenants. *Journal of Accounting Education*, *45*, 45–59.

*Managerial accounting*

24. Calderon, T., Hesford, J. W., Mangin, N., & Pizzini, M. (2018). Sunrise Hotels: An integrated managerial accounting teaching case. *Journal of Accounting Education, 44*, 60–72.
25. Krumwiede, K. R., Paik, G. H., & Walden, W. D. (2018). Can management accounting help aid associations make tough choices in Haiti? *Issues in Accounting Education*, *33*(1), 17–28.

## Appendix C. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jaccedu.2019.02.001.

## References

Abayadeera, N., Mihret, D. G., & Dulige, J. H. (2018). Teaching effectiveness of non-native English-speaking teachers in business disciplines: Intercultural communication apprehension and ethnocentrism. *Accounting Education, 27*(2), 183–207.
Abbott, J. I., & Palatnik, B. R. (2018). Students' perceptions of their first accounting class: Implications for instructors. *Accounting Education, 27*(1), 72–93.

Al-Htaybat, K., vonAlberti-Alhtaybat & Alhatabat, Z. (2018). Educating digital natives for the future: Accounting educators' evaluation of the accounting curriculum. *Accounting Education, 27*(4), 333–357.
American Accounting Association (AAA) (2018). The Commission on Accounting Higher Education: Pathways to a Profession Available at: http://commons.aaahq.org/groups/2d690969a3/summary.
Andersen, M. L., & Klamm, B. K. (2018). Haidt's social intuitionist model: What are the implications for accounting ethics education? *Journal of Accounting Education, 44*, 35–46.
Apostolou, B., Hassell, J. M., & Hickey, A. (2019). Accounting education literature review (2018). *Journal of Accounting Education, 47*, 1–27.
Apostolou, B., Dorminey, J. W., Hassell, J. M., & Rebele, J. E. (2015). Accounting education literature review (2013–2014). *Journal of Accounting Education, 33*(2), 69–127.
Apostolou, B., Dorminey, J. W., Hassell, J. M., & Rebele, J. E. (2016). Accounting education literature review (2015). *Journal of Accounting Education, 35*, 20–55.
Apostolou, B., Dorminey, J. W., Hassell, J. M., & Rebele, J. E. (2017). Accounting education literature review (2016). *Journal of Accounting Education, 39*, 1–31.
Apostolou, B., Dorminey, J. W., Hassell, J. M., & Rebele, J. E. (2018). Accounting education literature review (2017). *Journal of Accounting Education, 43*, 1–23.
Apostolou, B., Dorminey, J. W., Hassell, J. M., & Watson, S. F. (2013). Accounting education literature review (2010–2012). *Journal of Accounting Education, 31*(2), 107–161.
Apostolou, B., Hassell, J. M., Rebele, J. E., & Watson, S. F. (2010). Accounting education literature review (2006–2009). *Journal of Accounting Education, 28*(3–4), 145–197.
Apostolou, B., Watson, S. F., Hassell, J. M., & Webber, S. A. (2001). Accounting education literature review (1997–1999). *Journal of Accounting Education, 19*(1), 1–61.
Association of International Certified Professional Accountants (AICPA) (2018). The AICPA pre-certification core competency framework Available at: https://www.aicpa.org/interestareas/accountingeducation/resources/corecompetency.html.
Ballou, B., Heitger, D. L., & Stoel, D. (2018). Data-driven decision-making and its impact on accounting undergraduate curriculum. *Journal of Accounting Education, 44*, 14–24.
Barr, T. F., Dixon, A. L., & Gassenheimer, J. B. (2005). Exploring the 'lone wolf' phenomenon in student teams. *Journal of Marketing Education, 27*(1), 81–90.
Bautista-Mesa, R., Molina-Sánchez, H., & Ramírez-Sobrino, J. N. (2018). Audit workplace simulations as a methodology to increase undergraduates' awareness of competences. *Accounting Education, 27*(3), 234–258.
Bernardi, R. A., Zamojcin, K. A., & Delande, T. L. (2016). Ranking accounting authors and departments in accounting education: Different methodologies-significantly different results. *Accounting Education, 25*(6), 568–597.
Beukes, B., Kirstein, M., Kunz, R., & Nagel, L. (2018). Innovators to laggards—how South African students adopted and perceived technologically enhanced learning. *Accounting Education, 27*(5), 513–530.
Birkey, R., & Hausserman, C. (2018). Inducing creativity in accountants' task performance: The effects of background, environment, and feedback. *Advances in Accounting Education: Teaching and Curriculum Innovations, 22*, 109–133.
Blankley, A. I., Kerr, D. S., & Wiggins, C. E. (2018). An examination and analysis of technologies employed by accounting educators. *The Accounting Educators' Journal, 28*, 75–98.
Brink, W. D., & Stoel, M. D. (2018). Analytics knowledge, skills, and abilities for accounting graduates. *Advances in Accounting Education: Teaching and Curriculum Innovations, 22*, 23–43.
Callahan, C. M. (2018). Self-reflective insights on what I have learned in an evolving academic career model: Accounting scholarship, administration, and diversity. *Issues in Accounting Education, 33*(3), 5–16.
Caplan, D., Mortenson, K. G., & Lester, M. (2018). Can incentives mitigate student overconfidence at grade forecasts? *Accounting Education, 27*(1), 27–47.
Cheng, C., & Crumbley, D. L. (2018). Student and professor use of publisher test banks and implications for fair play. *Journal of Accounting Education, 42*, 1–16.
Cloete, M. (2018). The impact of an integrated assessment on the critical thinking skills of first-year university students. *Accounting Education, 27*(5), 479–494.
Coady, P., Byrne, S., & Casey, J. (2018). Positioning of emotional intelligence skills within the overall skillset of practice-based accountants: Employer and graduate requirements. *Accounting Education, 27*(1), 94–120.
Coetzee, S. A., Schmulian, A., & Coetzee, R. (2018). Web conferencing-based tutorials: Student perceptions thereof and the effect on academic performance in accounting education. *Accounting Education, 27*(5), 531–546.
Collins, D. L., Cook, K. A., & Hart, M. T. (2018a). Accounting research readings groups. *Advances in Accounting Education: Teaching and Curriculum Innovations, 22*, 1–22.
Collins, D., Oler, D. K., & Skousen, C. J. (2018b). How to be a good coauthor: Advice for Ph.D. students and junior faculty. *Issues in Accounting Education, 33*(4), 1–12.
De Loo, I., & Bots, J. (2018). The life of an accounting information systems research course. *Accounting Education, 27*(4), 358–382.
Dowdell, T. D., Jr., Herda, D. N., Pizzini, M. J., & Trude, L. (2018). Research productivity of accounting professors around a change in institutional affiliation. *Advances in Accounting Education: Teaching and Curriculum Innovations, 22*, 135–159.
Dzuranin, A. C., Jones, J. R., & Olvera, R. M. (2018). Infusing data analytics into the accounting curriculum: A framework and insights from faculty. *Journal of Accounting Education, 43*, 24–39.
Eames, M., Luttman, S., & Parker, S. (2018). Accelerated vs. traditional accounting education and CPA exam performance. *Journal of Accounting Education, 44*, 1–13.
Erasmus, L. J., & Fourie, H. (2018). Inclusive accountancy programmes in South African higher education: A revised teaching approach. *Accounting Education, 27*(5), 495–512.
Falkoff, M. (2018). Why we must stop relying on student ratings of teaching. ChronicleVitae, April 26. Available at: https://chroniclevitae.com/news/2043-why-we-must-stop-relying-on-student-ratings-of-teaching.
Fletcher, L. B., Mullen, L. G., & Stuart, G. J. (2018). Assessment of oral presentations in an accounting program: Videotapes and role plays. *The Accounting Educators' Journal, 28*, 191–214.
Fogarty, T. J. (2018). Forces of change — another perspective: A reply to Pincus et al. (2017). *Journal of Accounting Education, 43*, 40–42.
Fogarty, T. J., & Jonas, G. A. (2018). The goldilocks relationship between exam completion sequencing and performance in accounting classes. *Advances in Accounting Education: Teaching and Curriculum Innovations, 22*, 89–107.
Freeman, M. S. (2018). The CPA exam is changing: Are professors ready? *The Accounting Educators' Journal, 28*, 1–32.
Gonik, J. (1978). Tie salesmen's bonuses to their forecasts. *Harvard Business Review, 56*(3), 116–123.
Hammour, H. (2018). Influence of the attitudes of Emirati students on their choice of accounting as a profession. *Accounting Education, 27*(4), 433–451.
Hasselback, J. R. (2018). Accounting faculty directory. Supported by the American Accounting Association and available at http://www.hasselback.org/index.
Healy, M., Doran, J., & McCutcheon, M. (2018). Cooperative learning outcomes from cumulative experiences of group work: Differences in student perceptions. *Accounting Education, 27*(3), 286–308.
Hermanson, D. R. (2018). 25 reflections on accounting research. *Issues in Accounting Education, 33*(1), 3–15.
Hess, M. F., & Andiola, L. M. (2018). Fraud risk brainstorming at Tesla Motors. *Issues in Accounting Education, 33*(2), 19–34.
Hutchins, R., & Roberts, D. (2018). Factors that determine the decision to major in accounting: A survey of accounting graduates. *The Accounting Educators' Journal, 28*, 159–167.
Kulesza, M., & Weaver, P. Q. (2018). 2017 uniform CPA exam revisions: How are educators responding? *Advances in Accounting Education: Teaching and Curriculum Innovations, 22*, 161–175.

Lento, C. (2018). Student usage of assessment-based and self-study online learning resources in introductory accounting. *Issues in Accounting Education, 33*(4), 13–31.
Lento, C., Sayed, N., & Bujaki, M. (2018). Sex role socialization and perceptions of student academic dishonesty by male and female accounting faculty. *Accounting Education, 27*(1), 1–26.
Mauldin, S., Braun, R. L., Viosca, C., & Boldt, M. N. (2018). CPAs' evaluations of accounting graduates: An empirical investigation of face-to-face and online degrees. *The Accounting Educators' Journal, 28*, 99–115.
Miihkinen, A., & Virtanen, T. (2018). Development and application of assessment standards to advanced written assignments. *Accounting Education, 27*(2), 121–159.
Nagle, B. M., Menk, K. B., & Rau, S. E. (2018). Which accounting program characteristics contribute to CPA exam success? A study of institutional factors and graduate education. *Journal of Accounting Education, 45*, 20–31.
Opdecam, E., & Everaert, P. (2018). Seven disagreements about cooperative learning. *Accounting Education, 27*(3), 223–233.
Osgerby, J., Marriott, P., & Gee, M. (2018). Accounting students perceptions of using visual metaphor as part of personal development planning: An exploratory case study. *Accounting Education, 27*(6), 570–589.
Palatnik, B. R., & Abbott, J. I. (2018). Credentials for accounting professors: Faculty's opinions. *The Accounting Educators' Journal, 28*, 53–73.
Papageorgiou, E., & Callaghan, C. W. (2018). Parental style and gendered student performance in the South African context of accounting studies. *Accounting Education, 27*(5), 456–478.
Pelzer, J. R. E., & DeLaurell, R. M. (2018). Implementation of AACSB Standard A7: A strategy for limited resources. *The Accounting Educators' Journal, 28*, 117–138.
Peng, J., & Abdullah, I. (2018). Building a market simulation to teach business process analysis: Effects of realism on engaged learning. *Accounting Education, 27*(2), 208–222.
Pincus, K. V. (2018). Reflections on retirement. *Issues in Accounting Education, 33*(3), 17–21.
Pincus, K. V., Stout, D. E., Sorensen, J. E., Stocks, K. D., & Lawson, R. A. (2017). Forces for change in higher education and implications for the accounting academy. *Journal of Accounting Education, 40*, 1–18.
Ravenscroft, S. (2018). Looking back and looking forward. *Issues in Accounting Education, 33*(3), 23–33.
Rebele, J. E., Apostolou, B. A., Buckless, F. A., Hassell, J. M., Paquette, L. R., & Stout, D. E. (1998a). Accounting education literature review (1991–1997), part I: Curriculum and instructional approaches. *Journal of Accounting Education, 16*(1), 1–51.
Rebele, J. E., Apostolou, B. A., Buckless, F. A., Hassell, J. M., Paquette, L. R., & Stout, D. E. (1998b). Accounting education literature review (1991–1997), part II: Students, educational technology, assessment, and faculty issues. *Journal of Accounting Education, 16*(2), 179–245.
Rebele, J. E., Stout, D. E., & Hassell, J. M. (1991). A review of empirical research in accounting education: 1985–1991. *Journal of Accounting Education, 9*(2), 167–231.
Rebele, J. E., & Tiller, M. G. (1986). Empirical research in accounting education: A review and evaluation. In A. C. Bishop, E. K. St Pierre, R. L. Benke (eds.), Research in accounting education (pp. 1–54). Harrisonburg, VA: Center for Research in Accounting Education, James Madison University.
Rodrigues, L. L., Pinho, C., Bugarim, M. C., Craig, R., & Machado, D. (2018). Factors affecting success in the professional entry exam for accountants in Brazil. *Accounting Education, 27*(1), 48–71.
Samuel, S. (2018). A conceptual framework for teaching management accounting. *Journal of Accounting Education, 44*, 25–34.
Seow, J. L., & Shankar, P. G. (2018). Effects of team-skills guidance on accounting students with lone wolf tendencies. *Accounting Education, 27*(3), 309–332.
Shevlin, T. (2018). Reflections on my career: Lessons learned and opportunities missed. *Issues in Accounting Education, 33*(3), 35–42.
Showalter, D. S. (2018). Reflections on the transition from practice to academia the nuts and bolts. *Issues in Accounting Education, 33*(3), 43–60.
Sithole, S. T. M. (2018). Instructional strategies and students' performance in accounting: An evaluation of those strategies and the role of gender. *Accounting Education, 27*(6), 613–631.
Sledgianowski, D., Gomaa, M., & Tan, C. (2017). Toward integration of big data, technology and information systems competencies into the accounting curriculum. *Journal of Accounting Education, 38*, 81–93.
Smith, S. J., & Urquhart, V. (2018). UK PhD assessment in accounting and finance: Social capital in action. *Accounting Education, 27*(2), 160–182.
Solsma, L. L., Njoroge, J., & Bartlett, G. D. (2018). The efficacy of online homework systems in introductory financial and managerial accounting courses. *The Accounting Educators' Journal, 28*, 33–51.
Spiceland, C. P., Spiceland, J. D., & Schaeffer, S. J. III, (2015). Using a course redesign to address retention and performance issues in introductory accounting. *Journal of Accounting Education, 33*(1), 50–68.
Sridharan, B., Muttakin, M. B., & Mihret, D. G. (2018). Students' perceptions of peer assessment effectiveness: An explorative study. *Accounting Education, 27*(3), 259–285.
Stice, J. D., Stice, E. K., Cottrell, D. M., & Stice, D. (2018). Teaching operating cash flow: One matrix for analysis—two methods for presentation. *Advances in Accounting Education: Teaching and Curriculum Innovations, 22*, 199–215.
Stone, M. S. (2018). Learning from expected and unexpected sources. *Issues in Accounting Education, 33*(3), 61–66.
Stout, D. E. (2016). Things I have learned (thus far) reflections of an accounting academic. *Journal of Accounting Education, 35*, 1–19.
Stout, D. E. (2018). Further things I have learned selected reflections about publishing in accounting education. *Issues in Accounting Education, 33*(3), 67–84.
Tan, L. M., & Laswad, F. (2018). Professional skills required of accountants: What do job advertisements tell us? *Accounting Education, 27*(4), 403–432.
Taplin, R., Singh, A., Kerr, R., & Lee, A. (2018). The use of short role-plays for an ethics intervention in university auditing courses. *Accounting Education, 27*(4), 383–402.
Taylor, M., Marrone, M., Tayar, M., & Mueller, B. (2018). Digital storytelling and visual metaphor in lectures: A study of student engagement. *Accounting Education, 27*(6), 552–569.
Van der Stede, W. A. (2018). Multitasking academics. *Issues in Accounting Education, 33*(3), 85–94.
Vendrzyk, V. P., & Bagranoff, N. A. (2018). Summaries of the teaching domain statements of the 2017 Cook Prize winners. *Issues in Accounting Education, 33*(2), 1–8.
Watson, G., & Glaser, E. (2002). *Watson-Glaser critical thinking appraisal-UK edition: Manual*. London: The Psychological Corporation.
Watson, S. F., Apostolou, B., Hassell, J. M., & Webber, S. A. (2003). Accounting education literature review (2000–2002). *Journal of Accounting Education, 21*(4), 267–325.
Watson, S. F., Apostolou, B., Hassell, J. M., & Webber, S. A. (2007). Accounting education literature review (2003–2005). *Journal of Accounting Education, 25*(1–2), 1–58.
Wells, P. K. (2018). How well do our introductory text books reflect current accounting practice? *Journal of Accounting Education, 42*, 40–48.
Wynder, M. (2018). Visualising accounting concepts: Insights from cognitive load theory for English as a second language students. *Accounting Education, 27*(6), 590–612.
Wyness, L., & Dalton, F. (2018). The value of problem-based learning in learning for sustainability: Undergraduate accounting student perspectives. *Journal of Accounting Education, 45*, 1–19.
Xiang, M., & Hinchliffe, S. (2018). Determinants of students' repeating the first college-level accounting course. *Advances in Accounting Education: Teaching and Curriculum Innovations, 22*, 71–88.
Xiang, M., & Yu, T. (2018). Relation between family-related factors and students' learning performance in the first post-secondary accounting course. *The Accounting Educators' Journal, 28*, 139–158.
Zeff, S. A. (2018). Instilling historical perspective and a critical faculty in the first undergraduate course in financial accounting. *Issues in Accounting Education, 33*(3), 95–100.