Book Reviews

Accounting Horizons publishes reviews of textbooks and other books of interest to accounting scholars and practitioners. All book reviews are solicited by the Senior Editors. However, if you know of a book that you would like reviewed or if you are interested in reviewing a book, please contact the Associate Editor.

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VERNON J. RICHARDSON, RYAN A. TEETER, and KATIE L. TERRELL, *Data Analytics for Accounting* (3rd edition) (New York, NY: McGraw Hill LLC, 2023).

I. CONTRIBUTION TO PRACTICE

Two decades into the 21st century, we have seen staggering developments in technologies related to handling and processing Big Data. These advances inevitably resulted in a demand for data-savvy business people. Data analytical skills have been increasingly important for accounting and auditing professionals. Accounting firms embraced this development by adding data analytics resources to their training programs. For example, Ernst & Young's Academic Resource Center includes a curriculum module for "Analytics Mindset," where various data analytics cases are presented for internal employees and faculty (Ernst & Young (EY) 2022). The adoption of data analytics in the accounting curriculum was raised by the Pathways Commission (2012), sponsored by the American Accounting Association and the American Institute of Certified Public Accountants. As a result, the Association to Advance Collegiate Schools of Business International (AACSB) issued a revised standard for the accreditation of accounting programs, which included the Standard A5[1] related to data analytics with the following guidance:

> Consistent with mission, expected outcomes, and supporting strategies, accounting degree programs include learning experiences that develop skills and knowledge related to the integration of information technology in accounting and business. This includes the ability of both faculty and students to adapt to emerging technologies as well as the mastery of current technology (Association to Advance Collegiate Schools of Business International (AACSB) 2018, 27)

Since 2018, including data analytics in curricula has been one of the priorities of accounting programs worldwide, especially the ones with AACSB accreditation. Naturally, resources need to be improved to help faculty develop and

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[1] This guidance was titled "Standard A7" in earlier versions of the AACSB Standards.

teach data analytics courses. The textbook titled *Data Analytics for Accounting* by Richardson, Teeter, and Terrell (2023) is a timely innovation in the market for teaching data analytics to accountants. Its first edition was introduced in 2018. In an environment where accounting educators were scrambling to put together teaching materials from practitioner resources, textbook chapters, and personal effort, the various editions of Richardson et al. (2023) filled a significant void with a textbook designed for a standalone accounting data analytics course.

II. TEXTBOOK ORGANIZATION AND CONTENT

In its 3rd edition, the Richardson et al. (2023) textbook introduces the skills and mindset of data analytics with an accounting focus. The authors articulate the seven data analytics skills they deem necessary for accountants:

1. Developed analytics mindset
2. Data scrubbing and data preparation
3. Data quality
4. Descriptive data analysis
5. Data analysis through data manipulation
6. Statistical data analysis competency
7. Data visualization and data reporting (Richardson et al. 2023, iv)

This book uses the IMPACT cycle, adapted from Isson and Harriott (2013), to give students a structured data-analytics approach for addressing business questions. The IMPACT cycle is represented by the following steps:

Identify the questions
Master the data
Perform test plan
Address and refine results
Communicate insights
Track outcomes

The authors use the first four chapters of the book to introduce the IMPACT cycle.

Chapter 1: Data Analytics in Accounting and Identifying the Questions

This chapter establishes the importance of data analytics, introduces students to the IMPACT cycle, and describes how to develop a data-analytics mindset.

Chapter 2: Mastering the Data

The second step in the IMPACT cycle involves understanding the available data, identifying its structure, and then extracting, transforming, and loading (ETL) the data into the applicable software for analysis. This extensive chapter introduces students to the importance of data structures and teaches the related topics of relational databases, normalization, and SQL coding.

Chapter 3: Performing the Test Plan and Analyzing the Results

This chapter uses accounting examples to explain various types of analyses, such as descriptive analytics, diagnostic analytics, predictive analytics, and prescriptive analytics. It introduces various statistical concepts, and instructors can use Appendix A of the textbook to include additional statistics topics.

Chapter 4: Communicating Results and Visualizations

Communicating results in the data analytics environment requires much more than tables of numbers. Instead, contemporary applications facilitate the use of visualizations and even dashboards. This chapter helps students learn the types of visualizations available in various software platforms and describes how to apply the appropriate visualizations in different contexts. It also discusses how to communicate results in a written report.

Chapters 5 through 9 apply the IMPACT model to the accounting areas of auditing, managerial accounting, financial accounting, and taxes.

Chapter 5: The Modern Accounting Environment

This chapter extends the discussion of data analytics in accounting by describing ways data automation has affected all areas of accounting. Also provided is an overview of various data models, continuous auditing, and accounting automation.

Chapter 6: Audit Data Analytics

The auditing profession was an early adopter of data analytics techniques and remains a robust user of data analytics to enhance the effectiveness and efficiency of the audit. This chapter provides an overview of possible audit techniques in each analysis area (descriptive, diagnostic, predictive, and prescriptive).

Chapter 7: Managerial Analytics

The primary focus of this chapter is how managers can use data analytics to assist in measuring performance. Such analyses include variance analysis and analysis with Key Performance Indicators (KPIs). This chapter also presents a useful review of the Balanced Scorecard system and various approaches to using KPIs within that system.

Chapter 8: Financial Statement Analytics

Two themes dominate this chapter: XBRL and financial statement analysis. This chapter reviews basic financial statement analysis and how data analytics can support this function. The labs also provide hands-on experience with XBRL that helps students comprehend the concept.

Chapter 9: Tax Analytics

Data analytics in tax can be considered from various perspectives, such as preparers, planners, taxing jurisdictions, or tax regulatory bodies. This chapter considers these areas and presents various data analytics scenarios within each.

Much of the learning in this textbook is accomplished through the labs at the end of each chapter. Students use real-world data and analyze that data using a variety of software. While the labs in each chapter help reinforce the chapter material, they also introduce students to new software, such as Tableau and Power BI, or more sophisticated and complex uses of software, such as Excel.

A notable feature of this textbook is the availability of both data and software. Specifically, when using this textbook, students are given free access to the University of Arkansas system, allowing them full access to various software platforms such as Excel, Tableau, and Power BI. Also included is complimentary access to real-world data from Dillard's, the State of Oklahoma, College Scorecard, LendingClub, and Avalra.

III. COMPARISON WITH PREVIOUS EDITIONS

We noticed the following significant changes in the 3rd edition:

1. The authors updated and improved the content for each chapter and appendix. In the chapter content, they also added a "Progress Check" with relevant questions, "Lab Connection" to connect the chapter contents with lab assignments, and "Data Analytics at Work" to expose students to real-world applications.
2. Most labs have two tracks for instructors: Microsoft (using Excel, Power Query, and Power BI) and Tableau (using Tableau Prep Builder and Tableau Desktop). Students can also learn to perform financial statement analysis using XBRL tags with Google Sheets in Chapter 8. Each track is supported with additional resources, including data files.
3. The textbook provides images of lab outputs at the beginning of each lab as a clear guide for student deliverables.
4. The authors changed the labs to be less step-by-step in the textbook but provided more details in lab videos. This change allows authors to update the videos easily if the underlying software tool changes. To prevent student plagiarism, the authors who made the lab videos walked through the labs, but did not wholly follow the lab instructions.
5. The authors improved many of the labs, enhancing the richness and complexity of the lab contents that will benefit students. Also, some labs provide algorithmic questions on Connect, McGraw Hill's online textbook platform.
6. The authors added thought-provoking discussion and analysis questions to McGraw Hill Connect as manually graded assignments.

7. The authors increased the number and variety of problems auto-graded by McGraw Hill Connect.
8. The lab instructions with embedded videos are provided in lab assignments on McGraw Hill Connect.

IV. STRENGTHS AND WEAKNESSES

This Richardson et al. (2023) textbook is an excellent capstone for accounting students preparing for a career in accounting. With the fast-growing demand for data analytics skills from accounting students, this textbook and its curricular materials serve as a prominent foundation of the first net-new course in accounting in 30 years. The authors have substantially benefited accounting education that hungers for curricular materials in data analytics for accounting. As we have used this book in recent semesters, our students and we have noted the following strengths:

1. The chapter content itself is easy to follow and understand. Our students find the SmartBook activities and different review opportunities very helpful. They like that the textbook is interactive, and they can easily highlight and take notes as they read. The lecture videos help further students' understanding of the material.
2. The authors provided the IMPACT conceptual cycle framework and incorporated it in the labs. Hence, with this textbook, students can be trained to understand the process of data analytics and develop a data analytics mindset to solve real business problems.
3. This textbook includes many labs. In completing the labs, students gain extensive hands-on experience to develop their data analytics skills using advanced Excel, Power Query, Power BI, Tableau Prep Builder, Tableau Desktop, and Google Sheets. With so much experience using Microsoft and Tableau tools, students can compare them to determine what suits them best. This textbook also gives students an introduction to SQL and incorporates it in many of the labs.
4. Our students found the step-by-step instructions for the labs in the textbook easy to follow and incredibly helpful. Also, each lab has corresponding detailed tutorial videos.
5. The curricular materials grant students access to real-world datasets like Avalara, College Scorecard, Dillard's, LendingClub, the State of Oklahoma, and financial statement data (via XBRL) from S&P 100 companies.
6. The authors provide many resources for instructors, including prebuilt courses for different tracks on McGraw Hill Connect, a sample syllabus, and Ryan Teeter's DAA3e Study Guides.[2]
7. The discussion and analysis questions and problems provided by this textbook help students develop critical thinking skills.
8. Based on this textbook, our courses have spurred our students' interest in developing expertise in data analytics. This textbook and its curricular materials have significantly improved our teaching effectiveness. Also, students reported receiving internships or jobs because they took a hands-on data analytics course. Other students have developed a deeper appreciation for data analytics and have gone on to receive graduate degrees in the field.
9. Grading lab assignments on McGraw Hill Connect has been streamlined and has become more efficient. While "Objective Questions" are automatically graded, "Analysis Questions" and screenshot uploads must be manually graded by the instructor. The manual grading dashboard is intuitive and allows the instructor to provide catered feedback for the student. A feature that could be added to the instructor grading dashboard is the ability to preview uploaded screenshot documents.

For the above reasons, we were not surprised to learn that this textbook, along with the authors' textbook, *Introduction to Data Analytics for Accounting*, won the 2022 Innovation in Accounting Education Award from the American Accounting Association.[3]

We have three primary challenges with the textbook. First, some lab steps need to be written correctly or updated (mainly for Power BI). As data analytics is new to many of our students, they rely heavily on step-by-step instructions for the labs. Instructors sometimes need to provide additional instructions for our students. Second, a tiny proportion of the solutions provided in Connect and Instructors' solution manuals need to be corrected. Although we understand that the authors have put tremendous effort into providing this textbook and its curricular materials, users of this textbook can significantly benefit from timely updates or corrections from the authors or the publisher. Third, most lab activities rely on the large Dillard's dataset hosted on a server owned by the University of Arkansas. The remote connection can sometimes present challenges due to connectivity or latency issues. Meanwhile, we appreciate that the technical experts who maintain this server are always willing to help our students and us.

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[2] Ryan Teeter's DAA3e Study Guides are available at: http://pittaccounting.com/teeterstudyguidesdaa3e
[3] More information about this award is available at: https://aaahq.org/About/Directories/AAA-Innovation-in-Accounting-Education-Award-Winners

V. RELEVANCE AND APPLICATION

Introducing their first edition in 2018, Professors Richardson, Teeter, and Terrell were early innovators in the accounting data analytics arena. Their textbook took a unique approach different from other accounting textbooks, primarily focusing on hands-on labs. Each successive edition has elevated the content and enhanced the book's accounting focus. The third edition is a significant rewrite of the book, providing even more germane accounting examples and updated, more sophisticated software applications.

As employers were demanding even more data analytics knowledge from accounting graduates, this textbook helped fill a void in the accounting curriculum. Each successive edition of the book has enhanced its relevance and application. Students are taught how to develop a data-analytics mindset and given ample opportunity to reinforce this mindset through practical, hands-on applications. In summary, this is an excellent textbook that is well developed, has extensive resources, and is easy to use in the classroom.

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